

S.Y. LURIA

DEMOCRITUS

TEXTS

TRANSLATION

INVESTIGATIONS

English translation by C.C.W. TAYLOR

NAUKA PUBLISHERS

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## Copyright Note

I have tried unsuccessfully to identify the present holder or holders of the copyright in Luria's book, in order to seek permission for the publication of this translation. Enquiries made of the publisher in Moscow and St Petersburg and of the Society of Russian Authors in St Petersburg have failed to elicit the information sought.

CCWT

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## TRANSLATOR'S PREFACE

In this volume I present a translation into English of S.Y. Luria's edition of the fragments of Democritus and of the testimonia relating to him. The work has the sole aim of making Luria's work available to students in the English-speaking world and in other countries worldwide who are familiar with English but not with Russian. A valuable Italian translation of Luria's work (Democrito, Raccolta dei frammenti, interpretazione e commentario di Salomon Luria, ed. G. Girgenti et al., Edizione Bompiani, Milan) appeared in 2007, but my impression of the current level of comprehension of Italian, even among students of ancient philosophy, convinces me that, regrettably, only an English translation can expect to reach a truly worldwide audience.

Our author's full name, spelled in the Cyrillic alphabet, is Соломон Яковлевич Лурье, to which the closest approximation in the Roman alphabet is 'Solomon Yakovlevich Lurye'. However, in publications in languages using the Roman alphabet. Including the appropriate portions of the present volume, he uniformly spells his surname 'Luria'. That spelling, which is standard in publications using the Roman alphabet, is used throughout this volume.

I have translated into English i) the preface by the original editorial board (pp. 5-10 of the original publication), ii) Luria's collection of texts (pp. 13-167), iii) his notes on the texts (pp. 385-615), iv) the list of his publications relating to Democritus (pp. 616-617). In translating the texts I have not re-translated Luria's Russian, but have translated the texts directly, comparing my version as required with Luria's Russian and with the Italian version. Any significant discrepancies between my version and Luria's are noted in the translator's footnotes to the texts, enclosed in square brackets. I have reproduced Luria's apparatus criticus (pp. 168-186) without translation, on the ground that it is likely to be useful only to those who have sufficient grasp of the ancient languages to appreciate the significance of the textual variants. Nor have I translated the remaining editorial matter (pp. 618 ff.), consisting of i) concordance between the collections of Luria and Diels-Kranz (pp. 623-628), ii) index locorum (pp. 629-652), iii) list of sources (pp. 653-662), iv) table of contents (pp. 653-654), v) addenda and corrigenda (pp. 618-619), vi) further errata (pp. 655-656). Of the above, I have included i-ii in the original, as readily usable by the reader who knows no Russian, and have omitted iii-vi altogether: iii is replaced by my own list of abbreviations, all the headings under iv appear in translation at the appropriate points of the text and notes, and under v and vi, the only two items of significance for the interpretation of the text



(referring to Luria's notes on nos. 71 and 376), are discussed in the translator's notes on those passages.

All contributions by the translator, whether in the form of footnotes to the texts or to Luria's notes, or of insertions in the text, are enclosed in square brackets. These contributions include correction of some errors in Taylor 1999. Footnotes are numbered consecutively through the volume. Those in square brackets are the translator's, those without square brackets are Luria's.

In his notes Luria quotes extensively from ancient sources, in the original languages, and from modern discussions, sometimes in the original language and sometimes in Russian translation. I have translated all these quotations into English. When comprehension of the note requires reproduction of the original of the quoted text I have accompanied it with the English translation in square brackets. Titles of works in Russian, including articles, monographs and periodicals, are translated into English; titles of works in other languages are cited in the original language. All quoted Greek and most quoted Russian is transliterated.

I am especially indebted to David Sedley for his generosity in lending me his copy of Luria 'sine die'. Without that assistance I should not have been able to undertake this work. For setting up the online version I am grateful to Solomon Young, of the IT department of Corpus Christi College. I am most grateful to Terry Irwin, Peter Momtchiloff and Andy Davies for their support and advice.

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C.C.W. Taylor

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Friends, do not mourn at my tomb,  
For I do not truly lie here as bones and dust;  
Rather my thoughts remain for ever  
With all who have well understood the wisdom of the Greeks.

Epitaph of S.Y Luria, Lvov.

From the Editorial Board

This volume consists of a collection, with commentary, of passages from the writings of the ancient Greek philosopher Democritus and testimonia relating to him. None of the works of the greatest materialist of antiquity has come down to us. The fragments of his works have been preserved only in the form of quotations and comments by ancient and later authors. The task of reconstructing the scientific legacy and the world-view of Democritus is especially difficult, both because of the fragmentary state of the surviving texts and because the great mass of testimonia about him has been preserved by authors far from his philosophical views or indifferent to the deep problems of Democritean philosophy.

This collection of passages of Democritus and testimonia about him was compiled by the famous specialist on the history of ancient culture and philosophy, Prof. S.Y. Luria.<sup>1</sup> His work on Democritus began in 1920 and continued till the last days of his life. The manuscript of the collection of passages, which was virtually complete, is here published posthumously.

Unfortunately Luria was unable to complete the extensive introduction to the collection, in which he had planned to set out the principles of his selection of texts and of their attribution to Democritus. Several preliminary drafts of that introduction survive. In the most complete of them Luria writes:

‘This work presents a major new collection of passages from Democritus and testimonia on him, with Russian translation. Until now the largest collection of the fragments of Democritus has been Diels’ Die Fragments der Vorsokratiker, published in 1903. Diels, who had minutely studied the whole of ancient philosophy and related literature and had in virtuoso fashion revolutionised the method of study of doxographical reports of ancient philosophers (see his earlier Doxographi Graeci, 1879), wrote the classic work, after the publication of which in all serious work on ancient Greek philosophy the citations of the philosophers were made only from Diels. Diels’ book, despite its specialised character and high price, went through eight editions in Germany and was translated into several languages.

Nevertheless, despite all its value, Diels’ collection is largely out of date and now possesses merely historical significance. Research, especially on Democritus, has made enormous progress since 1903. Moreover, Diels proceeded from a specific ideological standpoint. The title ‘Presocratics’ alone represents an entire programme; the highest achievement of Greek thought is recognised as that of Socrates, Plato, Aristotle and their followers, and the entire role of Greek science of the classical period is reduced to preparation for Socrates and his disciples. Though Diels never says so explicitly in Die Vorsokratiker<sup>2</sup>, anyone who reads his book carefully sees that for him genuine philosophy is idealistic philosophy, and materialism is confined to the role of one of its fruitful sources. Not only in the area of logic (which is undisputed), and in that of systematic philosophy based on that formal logic (which is possible), but in the area of the exact sciences, from the point of view of Diels and those who share his opinion Aristotle is the highest point of antiquity. This despite the fact that Aristotle himself did not regard himself as engaged in the area of those sciences: in his opinion ‘excessively persistent study of the liberal sciences in full detail is demeaning for a person’; one should study the sciences ‘only within certain

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<sup>1</sup> [Throughout this introduction the editors refer to the author by initials plus surname. In accordance with the convention current in Western academic publications, the translator has used this style for the first reference only, subsequent references being by surname only.]

<sup>2</sup> This is said in another book of his, Elementum, Leipzig, 1899, pp. 1 ff., which contains a series of ironical attacks on materialism (Darwinism).

limits', obviously to the extent necessary for constructing one's philosophical world-view.<sup>3</sup> Galileo showed that in the area of natural science Aristotle's science was a regression by comparison with that of Democritus. Only in the areas of mathematics and astronomy was Aristotle's science superior to that of Democritus; and that was not due to any contributions by Aristotle himself, but to the fact that in the time between Democritus and Aristotle these sciences had made some progress at the hands of Theaetetus, Eudoxus and others, while indeed giving up some major achievements which had been made in the fifth century and especially in the doctrine of Democritus. In other areas of science, above all in physics and mechanics, Aristotle's theories cut off any possibility of further development, so that the most eminent of Aristotle's followers, Strato, who wanted to go further in the areas of those sciences, was in all essentials obliged to go over to the viewpoint of Democritus. We see, then, that if our aim in producing a collection of the fragments of Democritus is to throw light, not on the birth of idealistic philosophy but on the history of the sciences in antiquity, then the selection and even the arrangement of the passages turns out as different from that of Diels.

In fact, Diels employed historico-literary criteria as the basis of his arrangement of the passages. He made no attempt to arrange the passages in any systematic order, so as to exhibit the direction of Democritus' thought. Some passages he grouped together on the basis of the works they could have been extracted from; the rest were set out without any system at all. However, Diels himself felt that given his arrangement of the passages it was difficult to form a conception of the views of Democritus, and dreamed of the chance, if opportunity offered, of completing a new edition of the Presocratics, and of arranging those passages differently (preface to 4<sup>th</sup> edn. 'The chapter on Democritus would have had a more perspicuous form'), but he was not able to do so; a revised edition appeared only ten years after his death.<sup>4</sup>

Diels used the same historico-literary and philosophical criteria as the basis of his selection of testimonia and fragments. He set himself the task of making a complete collection only of excerpts surviving in a precise Democritean context. In all other cases the selection was made for the purposes of teaching or research, and Diels often sent to the press those or other fragments with, in his own words, a heavy heart. (Preface to the 2<sup>nd</sup> edn. 'The selection I made has cost me more time and trouble than if I had sent all my assembled material to the press.') He thought it perfectly possible that in this selection even very important testimonia might turn out to have been rejected by chance.<sup>5</sup> Is it not clear that despite the author's best intentions his ideological and scientific sympathies and

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<sup>3</sup> See Luria, 'Plato and Aristotle on the exact sciences', Archive of the History of Science and Technology 9, Moscow and Leningrad 1935, pp. 303-13.

<sup>4</sup> [That was the fifth edition, rev. W. Kranz, Berlin, 1934-7. Subsequent editions of DK differ from it only in the correction of errors and the addition of brief appendices to each of the 3 volumes, taking account of work published since the fifth edition.]

<sup>5</sup> Pref. to 2<sup>nd</sup> edn.: 'It was my intention to bring only the ears into the barn and leave the straw outside, even at the risk of leaving a good corn-stalk in it here or there.'

antipathies cannot but play some role in a selection of this kind, and that the colours he has to use must be laid on somewhat thickly?

Unfortunately, Diels did not set out any formal criteria as the basis of his work. Not infrequently he includes among the testimonia on this or that philosopher excerpts in which the name of that philosopher is either not mentioned at all, or is mentioned in connection with some minor detail, and he does so solely on the basis of his own general preconceptions. At the same time he often omits from his collection testimonia in which the philosopher is mentioned by name. In his edition of Diels' book compiled after his death (5<sup>th</sup> edn. 1934-7) Kranz undertook the task of introducing only those corrections and additions which the author himself would have done. This principle was not, however, adhered to; thus e.g. the significant excerpt no. 48b (no. 105 in our collection), supplied by Kranz, cannot have been unknown to Diels, since it comes from Aristotle's De Generatione et Corruptione. This treatise is a principal source for Aristotle's philosophy, and Diels of course studied it in the most exhaustive manner. If he did not include that testimonium he did so, as it seems, quite deliberately. In general, several of Kranz's additions are of an arbitrary character.

It follows from this that a contemporary researcher who wishes to produce a collection of the fragments and testimonia of Democritus can no longer start from Diels, but must compile a new collection on completely new principles.'

The collection of passages from Democritus prepared by Luria was already to a large extent complete by the outbreak of war. In 1946 Luria gave a report to the commission for the history of the physico-mathematical sciences, in which he described the edition which he had prepared. He wrote:

'Usually, having found in this or that collection of the writings of Democritus some passages known not to belong to him, or spurious passages, we have declared the whole collection hopeless and have given up using it. But at the same time the great majority of passages in each of these collections is authentic; they turn up in every or virtually every collection. So in the preparation of the edition it was decided to use all these collections, excluding only passages which it was impossible to accept as genuine in view of their content. As far back as 1929 the author suggested<sup>6</sup> counting as spurious all texts mentioning immortality or a benevolent or almighty god, since these expressions conflict with well-attested doctrines of Democritus. This proposal aroused some objections. It was pointed out that there could have been internal contradictions in Democritus' works, and that in order to judge passages spurious it was necessary to show in whose interests such falsification took place. At the present time the author is able to establish that the origin of these falsifications has been shown, as we know from Irenaeus, to be the Christian gnostic

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<sup>6</sup> Luria refers to his article 'Entstellungen des Klassikertextes bei Stobaios', Rheinisches Museum [RhM.] 78, 1929, pp. 81-104, 225-48.

sect of the Valentinians, (3<sup>rd</sup> cent. CE), who made the doctrines of Democritus and Epicurus the foundation of their theological theory. This sect ascribed Christian morality to Democritus, and identified the atom with Christ (like Christ, the atom too is eternal, immortal, immune from suffering, indivisible, endless etc.). Subsequently, orthodox Christian authors (Raban Maur, Joannes Malalas, Joannes<sup>7</sup> Cedrenus et al.) copied uncritically from the Valentinians their falsified reports of Democritus.<sup>8</sup>

In 1947 there appeared Luria's monograph Essays on the history of ancient science. In the preface to it he writes: 'This work came into being in the course of work on a major new collection of passages of Democritus, with extensive commentary' (p. 5). Remarking once again on the inadequacy of 'the celebrated work of Diels', Luria pointed out that he had succeeded in more than doubling the number of fragments in comparison with Diels. (Some of the passages published by Luria had by that time been included by Kranz in his new edition of Diels' collection.) Much new material had been discovered by Luria in Aristotle and the commentators on him. In the same preface Luria writes:

'Plato and Aristotle appropriated from ancient science various theses which they considered useful for the construction of their idealistic philosophical systems. With regard to that, ancient literary ethics did not at all require that in appropriating someone else's thought one should indicate its author. As far as Democritus in particular is concerned (whose works Plato is said to have bought up, as far as he could, and burned), he was intentionally not named at all, so that no memory of that dangerous materialist should survive for posterity. Even the ancients drew attention to the fact that doctrines of Democritus are found in Plato, but his name is not mentioned once. Therefore it is completely natural that Aristotle often sets out views of Democritus in places where he does not name the author at all, or where he speaks of 'some investigators of nature ... who think that the world has no beginning' etc. Often a passage which has been examined by Aristotle without the author's name turns up in another author as a passage of Democritus. Sometimes an Aristotelian commentator points out that a doctrine which Aristotle has examined without naming the author is a doctrine of Democritus.

Democritus was the greatest of Aristotle's predecessors, from whom the latter appropriated everything which was not in his view already obsolete. That explains why Aristotle appropriated more from Democritus than from other thinkers. Revealing doctrines of Democritus in Aristotle is one of the most important parts of my work. Of course, the appropriations which I have discovered are only an insignificant part of all there are.'

The principles which Luria followed in the construction of his collection of passages of Democritus were set out by him in 1948 in his review of A.O. Makovelski's The Ancient

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<sup>7</sup>[ Apparently Luria's slip for 'George'. ]

<sup>8</sup> Luria, 'New material on Democritus (in preparation for a collection of the fragments of Democritus)', Bulletin of the Academy of Sciences of the USSR 7, 1946, p. 71

Greek Atomists.<sup>9</sup> The first edition of texts of Democritus prepared by Makovelski (The Presocratics, Azerbaijan State University, 1925-6) consisted of a translation of the corresponding section of Diels' book. For the second edition (1946) the material on Democritus was expanded in comparison with Diels. The author had introduced eighty-nine new passages. However, as Luria pointed out in his review, only three testimonia of the total introduced by Makovelski had the right to inclusion in a collection of passages of Democritus. For the remaining testimonia, even if close to the views of Democritus, there were insufficient grounds to ascribe them to him, since they were taken from works of Epicurus and Lucretius, which, though continuing from Democritus, did not repeat him at all, or from a polemic of Plato against unnamed materialist opponents. In objecting to such a method of increasing the number of our testimonia on Democritus Luria writes: 'It seems to me that the only principle for the compilation of such a collection must be the introduction only of testimonia in which 1) Democritus is named either explicitly or by description, 2) his authentic expressions are reported precisely and word for word, 3) it is beyond dispute that a polemic with him is being conducted.'<sup>10</sup>

At the conclusion of the previously cited version of his introduction Luria points out that it is unavoidable that any selection of excerpts should reflect to a significant extent the particular scholar's evaluation of Democritus. He writes:

'The only thing that the reader can and must demand of the author of a collection of this kind is that he does not pass off his own assumptions and constructions as the truth handed down by the historical tradition. It is my intention to satisfy this demand. Above all it is necessary to warn the reader that the order in which I have arranged the testimonia is to a high degree subjective; with rare exceptions, as the reader can see from his familiarity with the excerpts, we do not know the relations between any of the pronouncements of Democritus which have come down to us. On the basis of the complete totality of the testimonia which have come down to us I have constructed, by means of the logical interpolation of connecting links which have not come down to us, a general picture of Democritus' doctrine and then fitted the excerpts into that picture as appropriate. The assignment of this or that excerpt to this or that part [of the picture] is determined by the reconstruction of Democritus' doctrine which I have achieved.

The same applies to a significant extent to the selection of material. I set myself the task of collecting as far as possible all testimonies (with the exception of obvious later forgeries) in which the names of Leucippus and Democritus occur, as well as those which can be ascribed on the basis of their content to early atomism. Of course, in the inclusion of testimonia of the second kind, the introduction of subjective conceptions is unavoidable, but I suggest that it is better to include too many testimonia than to lose anything which could have been valuable for the reconstruction of the teaching of Democritus. When

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<sup>9</sup> Bulletin of Ancient History 3, 1948, pp. 85-99.

<sup>10</sup> *Ibid.*, p. 97.

introducing such testimonia in disputed cases I set out in detail in the commentary the reasons which have prompted me to include this or that excerpt, whether confidently or conjecturally, in the total of testimonia on Democritus.<sup>11</sup> The reader is thereby given the opportunity, without taking anything on trust, to familiarise himself with my argumentation and either agree with it or decide that the inclusion of the given excerpt is unjustified. In that case the rest of the excerpts collected here do not lose any of their significance. On the other hand I have also included in the volume such ancient testimonia as contain, in my considered judgement, clear lies about Democritus or misunderstandings of him. I have included these excerpts in the commentary (pp. 571-5), there stating the reasons which give ground for doubting their authenticity, and the reader who is thus warned can familiarise himself with these passages and make use of them, if he does not find my objections to their value convincing.'

In preparing the manuscript for the press the editorial board held its duty to be that of presenting Luria's work in accordance with his final wishes. The only corrections were those of chance mistakes found in the manuscript and similar technical defects. The only substantial departure from this general principle was in the presentation of the critical apparatus, not all parts of which had been prepared by the author with uniform completeness. The editors preferred to abbreviate the critical apparatus; however, all variant readings and textual emendations which are significant for the interpretation of the text of Democritus and which are mentioned in the commentary are preserved.

The editors paid careful attention to Luria's Russian translation of the passages, considering it a substantial part of the commentary, expressing the author's understanding of Democritus' entire scientific system. That understanding of the task of translation was in Luria's case bound up with his systematic use of contemporary scientific terminology in his rendering of ancient texts. The editors have preserved variants in the translation of some texts, e.g. nos. 466 and 510.

In the work of preparation of the collection of Democritus Luria was assisted by his students, the late K.P. Lampsakov and B.B. Margules. Luria's work was read in manuscript by Prof. I.M. Tronski, who gave the editorial board a number of very valuable comments. In the process of preparing the manuscript for the press much assistance was provided by T.V. Prushkevich, M.M. Shteliga, Y.N. Lyubarski, G.M. Borovski, A.K. Gavrilov, N.V. Shevalin, N.M. Botvinnik and M.M. Elizarova. The preparation of the commentary for the press was also assisted by valuable consultations with O.D. Berlev (Egyptology) and A.Ch. Gorfunkel (Renaissance science). To all of these the editorial board expresses its deep gratitude.

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<sup>11</sup> Cf. E.g. comm. on nos XIV, 1, 13, 282, 331, 516 (edd.).



## ABBREVIATIONS

### A. Ancient authors and works

Achill.	Achilles Tatius
<u>AED</u>	<u>Anecdota Epicharmi, Democriti et al.</u>
Ael.	Aelian
<u>NA</u>	<u>Nature of Animals</u>
<u>VH</u>	<u>Miscellaneous History</u>
Aesch.	Aeschylus
Aet.	Aetius
Alex.	Alexander of Aphrodisias
<u>De an.</u>	<u>On the soul</u>
<u>De mixt.</u>	<u>On mixture</u>
<u>In De sensu</u>	<u>On Aristotle, De sensu</u>
<u>In Meta.</u>	<u>On Aristotle, Metaphysics</u>
<u>In Meteor.</u>	<u>On Aristotle, Meteorologica</u>
<u>In Top.</u>	<u>On Aristotle, Topics</u>

Peri daimon. On daimones

Problem. Problems

Quaest. Questions and Answers

Ambrose

Hexa. Hexaemeron

Anecd. Bekk. Anecdota Graeca, ed. J. Bekker

Ant. Mel. Antonius Melissa

Apul. Apuleius

Apol. Apologia

De dogm. Plat. On the doctrine of Plato

Florida

Archim. Archimedes

De sphaera et cyl. On the sphere and the cylinder

De spiral. On spirals

Meth. Method addressed to Eratosthenes

Quadr. parab. Squaring of the parabola

Aristoph. Aristophanes

Ar. Aristotle

An post. Posterior Analytics

An.pr. Prior Analytics

Ath. Pol. Constitution of the Athenians

Cat. Categories

De an. De anima

De animal. inessu On the progression of animals

De caelo

De divinat. in somn. On divination in sleep

<u>De int.</u>	<u>De interpretatione</u>
<u>De resp.</u>	<u>On breathing</u>
	<u>De sensu</u>
<u>EE</u>	<u>Eudemian Ethics</u>
<u>GA</u>	<u>On the generation of animals</u>
<u>GC</u>	<u>De generatione et corruptione</u>
<u>HA</u>	<u>Historia animalium</u>
<u>MA</u>	<u>De motu animalium</u>
<u>Meta.</u>	<u>Metaphysics</u>
<u>Meteor.</u>	<u>Meteorologica</u>
<u>MM</u>	<u>Magna Moralia</u>
<u>NE</u>	<u>Nicomachean Ethics</u>
<u>PA</u>	<u>On the parts of animals</u>
<u>Phys.</u>	<u>Physics</u>
<u>Poet.</u>	<u>Poetics</u>
<u>Pol.</u>	<u>Politics</u>
<u>Rhet.</u>	<u>Rhetoric</u>
<u>Top.</u>	<u>Topics</u>
ps-Ar.	ps-Aristotle
<u>De lin. insec.</u>	<u>On indivisible lines</u>
<u>De plant.</u>	<u>On plants</u>
<u>Mechan.</u>	<u>Mechanics</u>
<u>MXG</u>	<u>On Melissus, Xenophanes and Gorgias</u>
<u>Probl.</u>	<u>Problems</u>
Athen.	Athenaeus
<u>Deipn.</u>	<u>Deipnosophistae</u>

Aug.	Augustine
<u>Contra acad.</u>	<u>Against the Academics</u>
<u>Contra Iul.</u>	<u>Against Julian</u>
<u>De civit. Dei</u>	<u>The city of God</u>
<u>De Genesi ad lit.</u>	<u>Literal commentary on Genesis</u>
<u>Enarrat. Psalm.</u>	<u>Exposition of the Psalms</u>
<u>Epist.</u>	<u>Letters</u>
Aul. Gell.	Aulus Gellius
<u>Noct. Att.</u>	<u>Noctes Atticae</u>
Cens.	Censorinus
Cic.	Cicero
<u>Acad. post.</u>	<u>Academica posteriora</u>
<u>Acad. prior.</u>	<u>Academica priora</u>
<u>Ad Att.</u>	<u>Letters to Atticus</u>
<u>Ad fam.</u>	<u>Letters to his friends</u>
<u>De divinat.</u>	<u>On divination</u>
<u>De fin.</u>	<u>De finibus</u>
<u>De orat.</u>	<u>De oratore</u>
<u>ND</u>	<u>De natura deorum</u>
<u>Tusc.</u>	<u>Tusculan Disputations</u>
Clem.	Clement of Alexandria
<u>Paed.</u>	<u>Paedagogus</u>
<u>Protr.</u>	<u>Protrepticus</u>
<u>Quis div. salv.</u>	<u>Which rich man will be saved?</u>
<u>Strom.</u>	<u>Stromateis (Miscellanies)</u>

Col.	Columella, <u>De re rustica</u>
<u>CPG</u>	<u>Corpus Paremiographicorum Graecorum (Corpus of Greek writers of proverbs)</u>
<u>CPP</u>	<u>Corpus Parisinum Profanum</u> (Paris Greek ms. 1168), ed. Elter
Cyril. Alex.	Cyril of Alexandria
<u>Contra Iul.</u>	<u>Against Julian</u>
<u>DEI</u>	<u>Excerpts from Democritus, Epictetus and Isocrates</u> , ed. Wachsmuth
Dio	Dio Chrysostom, <u>Orations</u>
Dio Cass.	Dio Cassius
Diod.	Diodorus Siculus
Diog. Oenoand.	Diogenes of Oenoanda
DL	Diogenes Laertius
	Elias
<u>In Cat.</u>	<u>On Aristotle, Categories</u>
<u>In Porph. Isag.</u>	<u>On Porphyry, Introduction</u>
Epicur.	Epicurus
<u>De rerum nat.</u>	<u>De rerum natura</u> , ed. T. Gomperz, <u>Wiener Studien</u> 1, 1979, pp. 27 ff.
<u>De nat.</u>	<u>De natura</u> , ed. Gomperz, <u>Zeitschrift f. österreichische Gymnasien</u> , 1867, pp. 208 ff.
<u>Epist.</u>	<u>Letters</u>
<u>KD</u>	<u>Principal Doctrines (Kuriai Doxai)</u>
Epiphan.	Epiphanius
<u>Adv. haer.</u>	<u>Against heresies</u>
<u>Etym. Gen.</u>	<u>Etymologicum Genuinum</u>
<u>Etym. Gud.</u>	<u>Etymologicum Gudianum</u>

Etym. Magn.            Etymologicum Magnum

Etym. Orion.           Etymologicum Orionis

Eur.                        Euripides

Aeol.                    Aeolus

Androm.                Andromache

Ant.                    Antiope

Hel.                    Helena

Heracl.                Heraclidae

Hippol.                Hippolytus

Inc. fab.               Title unknown

Med.                    Medea

Orest.                Orestes

Phaeth.               Phaethon

Suppl.                Supplices

Eus.                        Eusebius

Chron. Armen. Chronicle (Armenian version)

PE                      Praeparatio Evangelii

Galen

De arte med. The art of medicine

De differ. puls. On differences of pulses

De elem. sec. Hipp. On the elements according to Hippocrates

De facult. nat. On the natural faculties

De Hipp. et Plat. dogm. On the doctrines of Hippocrates and Plato

De medica exper. On medical experience

De usu part. On the use of parts

In Hippocr. Epidem. Comm. on Hippocrates, Epidemics

ps-Galen

An animal     Is the foetus an animal?

De defin. med. On medical definitions

Hist. phil.     History of philosophy

Gnom. Barocc.     Gnomologium Baroccianum, ed. Bywater, 1878

Gnom. Vat. 743     Gnomologium Vaticanum

Greg. Naz. Or.     Gregory of Nazianzus, Orations

Greg. Nyss. De an.     Gregory of Nyssa, On the soul

Hdt.     Herodotus

Herm.     Hermias

Irris.     Mockery of the pagan philosophers

Hesych.     Hesychius, Lexicon

Hieronym.     Hieronymus (Jerome)

Chron.     Eusebius' Chronicles

Epist.     Letters

In Isaiam proph. Comm. on Isaiah

Hippocr.     Hippocrates

Aph.     Aphorisms

De aer., aq., loc. Airs, waters, places

De arte     On the art of medicine

De carn.     De carnibus

De flat.     De flatibus

De morb. sacr. On the sacred disease

De nat. hom. On the nature of man

<u>De nat. inf.</u>	<u>On the nature of the infant</u>
<u>De prisca med.</u>	<u>On ancient medicine</u>
	<u>De victu</u>
<u>Epidem.</u>	<u>Epidemics</u>
<u>Nomos</u>	<u>The law</u>
<u>Peri technēs</u>	<u>On the art</u>
ps-Hippocr.	ps-Hippocrates
<u>De superfet.</u>	<u>On superfetations</u>
<u>Epist.</u>	<u>Letters</u>
Hippol.	Hippolytus
<u>Ref.</u>	<u>Refutation of all heresies</u>
Hom.	Homer
<u>Hymn.</u>	<u>Homeric Hymns</u>
<u>Il.</u>	<u>Iliad</u>
<u>Od.</u>	<u>Odyssey</u>
<u>Homoeomata</u>	<u>Gnomica Homoeomata</u> , ed. Elter
Honor.	Honorius
<u>De haer.</u>	<u>On heresies</u>
	<u>De imag. mundi</u> <u>On the image of the world</u>
Iren.	Irenaeus
<u>Contra. haer.</u>	<u>Against heresies</u>
Isidor. Hisp.	Isidore of Seville
<u>Chron.</u>	<u>Chronicles</u>
<u>Etym.</u>	<u>Etymologies</u> , or <u>Origins</u>
Iulian.	Julian



Epist.            Letters

Lact.                    Lactantius

De ira dei        On the wrath of God

Ep. div. inst.    Epitome of Divine institutions

Inst.            Divine institutions

                          Lucian

De hist. conscr. How to write history

Philops.        The lover of lies

Vit. Auctio     The sale of lives

                          ps-Lucian

Macrob.        Long-lived people

Lucr.                    Lucretius

Macr.                    Macrobius

In Somn. Scip. Comm. on Cic., Somnium Scipionis

Saturn.        Saturnalia

Mich. Ephes.         Michael of Ephesus

In De divinat. in somn.    Comm. on Ar., On divination in sleep

In De part. An. Comm. on Ar., PA

Nemes. De nat. hom. Nemesius, On the nature of man

Olympiod.            Olympiodorus

In Meteor.      Comm. on Ar., Meteorologica

In Phileb.      Comm. on Pl., Phil.

Origen

Contra Cels.      Against Celsus

pHerc.              Herculaneum papyri

pOxy.              Oxyrhynchus papyri

Philo of Alexandria

De aetern.      On the eternity of the world

De mutat. nomin.      On change of names

De opific. mundi      On the creation of the world

De prov.      On providence

De somn.      On dreams

De vita cont.      On the contemplative life

De vita Mos.      On the life of Moses

Philod.              Philodemus

De adulat.      On flattery

De ira              On anger

De lib. dic.      On freedom of speech

De morte          On death

De musica        On music

De piet.          De pietate

De sign.          On signs

Rhet.              Rhetorical works

Philop.              Philoponus

De opific. mundi      On the creation of the world

In De an.          Comm. on Ar., De an.

	<u>In GC</u>	<u>Comm. on Ar., GC</u>
	<u>In Meteor.</u>	<u>Comm. on Ar., Meteor.</u>
	<u>In Phys.</u>	<u>Comm. on Ar., Phys.</u>
Philostr.		Philostratus
	<u>De vita Apoll.</u>	<u>Life of Apollonius of Tyana</u>
	<u>Vitae sophist.</u>	<u>Lives of the sophists</u>
Phot.		Photius
	<u>Bibl.</u>	<u>Bibliotheca</u>
	<u>Lex.</u>	<u>Lexicon</u>
Pind.		Pindar
	<u>Nem.</u>	<u>Nemean Odes</u>
	<u>Ol.</u>	<u>Olympian Odes</u>
	<u>Pyth.</u>	<u>Pythian Odes</u>
Pl.		Plato
	<u>Alc.</u>	<u>Alcibiades</u>
	<u>Apol.</u>	<u>Apology</u>
	<u>Crat.</u>	<u>Cratylus</u>
	<u>Crit.</u>	<u>Critias</u>
	<u>Epin.</u>	<u>Epinomis</u>
	<u>Gorg.</u>	<u>Gorgias</u>
	<u>Hipp. min.</u>	<u>Lesser Hippias</u>
	<u>Phaedr.</u>	<u>Phaedrus</u>
	<u>Phil.</u>	<u>Philebus</u>
	<u>Pol.</u>	<u>Statesman</u>
	<u>Prot.</u>	<u>Protagoras</u>
	<u>Rep.</u>	<u>Republic</u>

<u>Symp.</u>	<u>Symposium</u>
<u>Tht.</u>	<u>Theaetetus</u>
<u>Tim.</u>	<u>Timaeus</u>
ps-Pl.	ps-Plato
<u>Ax.</u>	<u>Axiochus</u>
	Pliny (the Elder)
<u>NH</u>	<u>Natural History</u>
Plot. <u>Enn.</u>	Plotinus, <u>Enneads</u>
Plut.	Plutarch
<u>Ages.</u>	<u>Agesilaus</u>
<u>Alc.</u>	<u>Alcibiades</u>
<u>Amat.</u>	<u>Amatorius</u>
<u>An seni</u>	<u>Can an old man rule the state?</u>
<u>Animine an corp.</u>	<u>Are the affections of the soul worse than those of the body?</u>
<u>Col.</u>	<u>Against Colotes</u>
<u>Contr. Epic. beat.</u>	<u>Against Epicurean blessedness</u>
<u>De amore prol.</u>	<u>On the love of offspring</u>
<u>De audi.</u>	<u>On hearing</u>
<u>De comm.not.</u>	<u>On common notions</u>
<u>De curios.</u>	<u>On curiosity</u>
<u>De def. orac.</u>	<u>On the cessation of oracles</u>
<u>De esu carn.</u>	<u>On eating meat</u>
<u>De fac.</u>	<u>On the face in the moon</u>
<u>De fortuna Rom.</u>	<u>On the fortune of the Romans</u>
<u>De Is. et Osir.</u>	<u>On Isis and Osiris</u>
<u>De lat viv.</u>	<u>On living out of the public eye</u>

De musica    On music

De primo frig. On the primary cold

De prof.in virt. On those who have advanced in virtue

De puer. ed.    On the education of children

De Pyth. orac. On the Pythian oracle

De sanit.        Precepts for health

De sollert. anim. On the wisdom of animals

De Stoic. repugn. On Stoic contradictions

De superstit.    On superstition

De tranqu. an. On tranquillity of mind

De virt. mor.    On moral virtue

Fr. de libid. et aegr. Fr. on desire and sadness

Fragm.            Fragments

Galba

Lyc.                Lycurgus

Lys.                Lysander

Macrob.           Long-lived people

Nic.                Nicias

Non posse        Epicurus makes a pleasant life impossible

Numa

P. Aem.            Aemilius Paulus

Per.                Pericles

Praec. coni.      Precepts for marriage

Praec. rei p.      Political precepts

Quaest. conviv. Convivial questions

Quaest. nat.     Natural questions

	<u>Quaest. Plat.</u>	<u>Platonic questions</u>
	<u>Rom.</u>	<u>Romulus</u>
		<u>Solon</u>
	<u>Thes.</u>	<u>Theseus</u>
ps-Plut.		ps-Plutarch
	<u>De vita et poes. Hom.</u>	<u>On the life and poetry of Homer</u>
	<u>Epit.</u>	<u>Epitome (see Aetius)</u>
	<u>Strom.</u>	<u>Miscellanies</u>
Porph.		Porphyry
	<u>Ad Marc.</u>	<u>To Marcellus</u>
	<u>De abst.</u>	<u>On abstention from animal food</u>
	<u>In Ptol. Harm.</u>	<u>Comm. on Ptolemy, Harmonics</u>
	<u>Isag.</u>	<u>Introduction</u>
	<u>Quaest. Hom.</u>	<u>Homeric questions</u>
	<u>Vita Pyth.</u>	<u>Life of Pythagoras</u>
Procl.		Proclus
	<u>In Eucl.</u>	<u>Comm. on Euclid, Bk. I</u>
	<u>In Crat.</u>	<u>Comm. on Pl., Crat.</u>
	<u>In Rem p.</u>	<u>Comm. on Pl., Rep.</u>
	<u>In Tim.</u>	<u>Comm. on Pl., Tim.</u>
Ptol.		Ptolemy
	<u>Appar. epileg.</u>	<u>Apparitionum epilegomena</u>
	<u>Geog.</u>	<u>Geography</u>
	<u>Math.</u>	<u>Mathematical treatise (Almagest)</u>
Sen.		Seneca

	<u>De ira</u>	<u>On anger</u>
	<u>De tranqu. an.</u>	<u>On tranquillity of mind</u>
	<u>Epist. Ad Lucil.</u>	<u>Letters to Lucilius</u>
	<u>NQ</u>	<u>Natural questions</u>
Sext.		Sextus Empiricus
	<u>M</u>	<u>Against the mathematicians</u>
	<u>PH</u>	<u>Outlines of Pyrrhonism</u>
Simpl.		Simplicius
	<u>In De an.</u>	<u>Comm. on Ar., De an.</u>
	<u>In De caelo</u>	<u>Comm. on Ar., De caelo</u>
	<u>In Phys.</u>	<u>Comm. on Ar., Phys.</u>
Soph.		Sophocles
Sophon.		Sophonius
	<u>In De an.</u>	<u>Comm. on Ar., De an.</u>
Sozom.		Sozomenus
Stob.		Stobaeus
Syrian.		Syrianus
	<u>In Meta.</u>	<u>Comm. on Ar., Meta.</u>
Tatian.		Tatianus
Tert.		Tertullian
	<u>Ad nat.</u>	<u>Ad nationes</u>
	<u>Apol.</u>	<u>Apologeticus</u>
	<u>De an.</u>	<u>On the soul</u>
Themist.		Themistius
	<u>In De an.</u>	<u>Comm. on Ar., De an.</u>

In De caelo      Comm. on Ar., De caelo

In De divinat.      Comm. on Ar., De divinat. in somno

In Meta.      Comm. on Ar., Meta.

In Phys.      Comm. on Ar., Phys.

Theophr.      Theophrastus

De caus, plant.      On the causes of plants

De igne      On fire

De odor.      On smells

De sensu

Hist. plant.      Historia plantarum

Meta.      Metaphysics

Phys. opin.      Opinions of the natural philosophers

Quaest. phys.      Questions about nature

ps-Theophr.      ps-Theophrastus

De sign.      On signs

Tzetzes

Chil.      Chiliades

Vitruv.      Vitruvius

Xen.      Xenophon

Anab.      Anabasis

Cyrop.      Cyropaedia

De rep. Lac.      On the constitution of the Spartans

Hell.      Hellenica

Mem.      Memorabilia



Oec.            Oeconomicus

Symp.          Symposium

B.      Modern authors and works

DK            H. Diels and W. Kranz, Die Fragmente der Vorsokratiker, Berlin. 5<sup>th</sup> edn. 1934-7, 6<sup>th</sup> edn. 1951-2. (Subsequent editions reprinted from 6<sup>th</sup>.)

Dox.          H. Diels, Doxographi Graeci, Berlin, 1889.

L              Luria

PG            Patrologia Graeca

PL            Patrologia Latina

Taylor 1999    C.C.W. Taylor, The Atomists: Leucippus and Democritus. Fragments: A text and translation with a commentary, Toronto, 1999.

VS            H. Diels, Die Fragmente der Vorsokratiker, Berlin, 4<sup>th</sup>. edn., 1922.

## DE VITA DEMOCRITI

### a. DE TEMPORE ET PROVENIENTIA DEMOCRITI

#### 1. Quo tempore Democritus vixerit

I. (D.D.A 1). Diog. IX, 41: γεγονός δὲ τοῖς χρόνοις<sup>1</sup> ὡς αὐτός φησιν ἐν τῷ Μικρῷ διακόσμῳ νέος κατὰ πρεσβύτην Ἀναξαγόραν, ἔτεσιν αὐτοῦ νεώτερος τετταράκοντα, συντετάχθαι δὲ φησὶ τὸν Μικρὸν διάκοσμον ἔτεσιν ὕστερον τῆς Ἰλίου ἀλώσεως τριάκοντα καὶ ἑπτακοσίους, γεγονός δ' ἂν, ὡς μὲν Ἀπολλόδορος ἐν Χρονικοῖς (F. Gr. Hist. 244 F. 36 II 1030), κατὰ τὴν ὀγδοηκοστὴν Ὀλυμπιάδα (460—457), ὡς δὲ Θρασύλος ἐν τῷ ἐπιγραφόμενῳ Τὰ πρὸ τῆς ἀναγνώσεως τῶν Δημοκρίτου βιβλίων, κατὰ τὸ τρίτον τῆς ἑβδόμης καὶ ἑβδομηκοστῆς Ὀλυμπιάδος (470/69), ἐνιαυτῷ, φησὶ, πρεσβύτερος ὢν Σωκράτους, εἴη ἂν οὖν κατ' Ἀρχέλαον τὸν Ἀναξαγόρου μαθητὴν καὶ τοὺς περὶ Οἰνοπίδην· καὶ γὰρ τοῦτου μέμνηται. (42) μέμνηται δὲ καὶ περὶ τῆς τοῦ ἐνός δόξης τῶν περὶ Παρμενίδην καὶ Ζήωνα ὡς κατ' αὐτὸν μάλιστα διαβεβημένων,<sup>a</sup> καὶ Πρωταγόρου τοῦ Ἀβδηρίτου, ὃς ὁμολογεῖται κατὰ Σωκράτην γεγονέναι.

II. (D.D.A. 36; v. № 99). Aristot. De part. animal. I, p. 642a 27: ἤψατο μὲν (τοῦ ὀρίζεσθαι τὴν οὐσίαν) Δ. πρῶτος... ἐπὶ Σωκράτους δὲ τοῦτο... ἠέξηθη. Aristot. Metaph. XIII, 4, p. 1078b 17: Σωκράτους δὲ περὶ τὰς ἠθικὰς ἀρετὰς πραγματευομένου καὶ περὶ τούτων ὀρίζεσθαι καθόλου ζητοῦντος πρώτου· τῶν μὲν γὰρ φυσικῶν ἐπὶ μικρὸν Δ. ἤψατο μόνον καὶ ὠρίσατό πως τὸ θερμὸν καὶ τὸ ψυχρὸν... (D. 59 A 95, № 58). Cic. Acad. post. I, 12, 44: (Res), quae ad confessionem ignorantiae adduxerant Socratem, et iam ante<sup>a</sup> Socratem Democritum. (D.O). Cic. De fin. V, 29, 88: D. ... pauca enim, neque ea ipsa enucleate ab hoc de virtute quidem dicta. Post enim haec in hac urbe primum a Socrate quaeri coepta ... sunt.

III. (D.O). Gell. Noct. Att. XVII, 21, 16—18: Bellum deinde in terra Graecia maximum Peloponnesiacum ... coeptum est circa annum fere post conditam Romam CCCXXIII (430). In hoc tempore nobiles celebresque erant Sophocles ac deinde Euripides tragici poetae et Hippocrates medicus et philosophus D., quibus Socrates Atheniensis natus quidem posterior fuit, sed quibusdam temporibus isdem vixerunt.

IV. (D.O). Vita Hippocr. κατὰ Σωρανόν (vol. II, p. 951 Linden): γεννηθεὶς (ὁ Ἴπποκράτης?), ὡς φησιν Ἰστόμαχος ἐν τῷ πρώτῳ περὶ τῆς Ἴπποκράτους αἰρέσεως, κατὰ τὸ πρῶτον ἔτος τῆς ὀγδοηκοστῆς Ὀλυμπιάδος (460)... (tum de morte) ὅτε καὶ Δ. φέρεται τελευτήσας· καὶ οἱ μὲν ἐνεγκόντα ἔτων, οἱ δὲ πέντε καὶ ὀγδοήκοντά φασιν· ἄλλοι ρδ, τινὲς ρθ.

V. (D.D.A 2). Suda, s.v. Δημόκριτος: γεγονός ὅτε καὶ Σωκράτης ὁ φιλόσοφος κατὰ τὴν αὐτῆς Ὀλυμπιάδα (472—469), οἱ δὲ κατὰ τὴν π (460—457) φασίν. *Sed legitur in Suda etiam* (D. 29 A 2): Ζήνων Τελευταγόρου Ἐλεάτης φιλόσοφος τῶν ἐγγιζόντων Πυθαγόρου καὶ Δ. κατὰ τοὺς χρόνους: ἦν γὰρ<sup>1</sup> ἐπὶ σθ<sup>α</sup> Ὀλυμπιάδος (468—465).

VI. (D.D.A 5). Diod. XIV, 11, 5: περὶ δὲ τὸν αὐτὸν χρόνον (Olymp. 94, 1=404)<sup>1</sup> καὶ Δ. ὁ φιλόσοφος ἐτελεύτησε βιώσας ἔτη ἐνεήκοντα.

*Scriptorum christianorum varia testimonia v. in comm.*

## 2. Democritus in philosophiae historia quem locum tenuerit

VII. (D.O).<sup>1</sup> Diog. Prooem. 10, 13—15: φιλοσοφίας δὲ δύο γέγονασι διαδοχαί, ἡ τε ἀπὸ Ἀναξίμανδρου, καὶ ἡ ἀπὸ Πυθαγόρου, τοῦ μὲν Θαλοῦ διακηκότος, Πυθαγόρου δὲ Φερεκίδης καθηγῆσατο, καὶ ἐκαλεῖτο ἡ μὲν Ἰωνική... ἡ δὲ Ἰταλική... Θαλοῦ μὲν γὰρ διήκουσεν Ἀναξίμανδρος, οὗ Ἀναξίμενης, οὗ Ἀναξαγόρας, οὗ Ἀρχέλαος, οὗ Σωκράτης... οὗ οἱ τε ἄλλοι Σωκρατικοὶ καὶ Πλάτων κτλ. εἰς δὲ Χρῆσιππον... καταλήγει... ἡ δὲ Ἰταλικὴ οὕτω Φερεκίδου Πυθαγόρου, οὗ Τηλαγῆς ὁ υἱός, οὗ Ξενοφάνης, οὗ Παρμενίδης, οὗ Ζήνων ὁ Ἐλεάτης, οὗ Λεύκιππος, οὗ Δ., οὗ πολλοὶ μὲν, ἐπ' ὀνόματος δὲ Ναυσιφάνης [καὶ Ναυκίδης], οὗ Ἐπίκουρος.

VIII. (D.O). Euseb. Praep. Evang. XIV, 17, 10, p. 758 A: Ξενοφάνους δὲ ἀκουστής γέγονε Παρμενίδης· τούτου Μέλισσος, οὗ Ζήνων, οὗ Λεύκιππος, οὗ Δ., οὗ Πρωταγόρας... (X, 14, 15—16, p. 504 CD) τὸν δὲ Ξενοφάνην λέγεται ὁ Παρμενίδης διαδέξασθαι, Παρμενίδην δὲ Μέλισσος, Μέλισσον δὲ Ζήνων ὁ Ἐλεάτης... τούτου δὲ Λεύκιππος ἀκουστής γέγονε, Λεύκιππον δὲ Δ., οὗ Πρωταγόρας (*de diadocha Thales—Socrates ib.* X, 14, 11—13, p. 504 AC). Clem. Strom. I, 14, 64, 3—4: Παρμενίδης τῶν Ξενοφάνους ἀκουστής γίνεται· τούτου δὲ Ζήνων, εἶτα Λεύκιππος, εἶτα Δ. Δημόκριτος δὲ ἀκουστὰς Πρωταγόρας... Eriphan. Adv. haer. III, p. 562, 12 Dind. (=Dox. 589—590, 1—6): Θαλῆς... Ἀναξίμανδρος... Ἀναξίμενης... Ἀναξαγόρας... Ἀρχέλαος... Σωκράτης. (7—16) Φερεκίδης... Πυθαγόρας... Ξενοφάνης... Παρμενίδης... Ζήνων ὁ Ἐλεάτης... Μέλισσος... Λεύκιππος ὁ Μιλήσιος... κατὰ δὲ τινὰς Ἐλεάτης<sup>1</sup>... Δημόκριτος... Μητροδώρος... Πρωταγόρας... Diog. IX, 30: Λεύκιππος Ἐλεάτης, ὡς δὲ τινες Ἀβδηρίτης,<sup>2</sup> κατ' ἐπίσης δὲ Μήλιος (*sic codd., Diels corrigebat: Μιλήσιος*). οὗτος ἤκουσε Ζήνωνος. Simpl. in Phys. 28, 4 (=Theophr. Phys. opin., fr. 8; Dox. 483): Λεύκιππος δὲ ὁ Ἐλεάτης ἢ Μιλήσιος<sup>3</sup> (ἀμφοτέρως γὰρ λέγεται περὶ αὐτοῦ) κοινωνήσας Παρμενίδῃ τῆς φιλοσοφίας<sup>4</sup>. V. №№ 150—154.

## 3. Ubi natus sit

IX. (D.D.A 3). Aët. I, 3, 16 (Dox. 285)=Theodoret. IV, 2 (ib.): Δ. Δαμασίππου Ἀβδηρίτης. Diog. IX, 34: Δ. Ἀβδηρίτης ἢ, ὡς ἔνιοι, Μιλήσιος.<sup>1</sup> Sozom. II, 24, 76 (P.G. 67, p. 997): Δ. ὁ Κῶσιος.<sup>2</sup>

X. (D.D.B 300, 17). [Synes.] Ad Dioscor. comm. in Democr. (I, 56, 7 Berth.): Δ. ἐλθὼν ἀπὸ Ἀβδηρῶν φυσικὸς ὢν καὶ πάντα τὰ φυσικὰ ἐρευνήσας καὶ συγγραψάμενος τὰ ὄντα κατὰ φύσιν. Ἀβδηρα δὲ ἐστὶ πόλις Θρακίης· ἐγένετο δὲ ἀνὴρ λογιώτατος.

## b. VITA

### 1. Pueritia et iuventus

XI. (D.D.A 1). Diog. IX, 34 sqq.: Δημόκριτος Ἡγησιστράτου, οἱ δὲ Ἀθηναϊκοῦ, τινὲς Δαμασίππου, Ἀβδηρίτης ἢ, ὡς ἔνιοι, Μιλήσιος (*cf. № VIII*). οὗτος μάγων τινῶν διήκουσε καὶ Χαλδαίων, Εἰρέφου τοῦ βασιλέως τῷ πατρὶ αὐτοῦ ἐπιστάτας

καταλιπόντος, ἠνίκα ἐξενίσθη παρ' αὐτῶν, καθά φησι καὶ Ἡρόδοτος<sup>1</sup> παρ' ὧν τὰ τε περὶ θεολογίας καὶ ἀστρολογίας ἔμαθεν ἔτι παῖς ὢν... (35)... τρίτον τε ὄντα ἀδελφὸν νεύμασθαι τὴν οὐσίαν· καὶ οἱ μὲν πλείους φασὶ τὴν ἐλάττω μοῖραν ἐλέσθαι τὴν ἐν ἀργυρίῳ, χρεῖαν ἔχοντα ἀποδημῆσαι,<sup>2</sup> τοῦτο κάκεινων δολίως ὑποπτευσάντων (36) ὁ δὲ Δημήτριος<sup>3</sup> ὑπὲρ ἑκατὸν τάλαντά φησιν εἶναι αὐτῶν τὸ μέρος, ἃ πάντα καταναλώσει.

XII. (D.O). Val. Max. VIII, 7, extr. 4; Ioann. Saresb. Polycrat. 7, 669 (P.L. 199):<sup>1</sup> D., cum divitiis censeri posset, quae tantae fuerunt, ut pater eius exercitui Xerxis epulum dare ex facili potuerit, quo magis vacuo animo studiis litterarum esset paratus, parva admodum summa retenta, patrimonium suum patriae donavit (*sequitur № XXIV*).

XIII. (D.D.A 1). Diog. IX, 36: λέγει δὲ (ὁ Δημήτριος) ὅτι τοσοῦτον ἦν φιλόπονος, ὥστε τοῦ περικλήτου δωμάτιόν τι ἀποτεμόμενος κατὰκλειστος ἦν· καὶ ποτε τοῦ πατρὸς αὐτοῦ πρὸς θυσίαν βούν ἀγαγόντος καὶ αὐτόθι προσθήσαντος, ἰκανὸν χρόνον μὴ γνῶναι, ἕως αὐτὸν ἐκείνος διαναστήσας προφάσει τῆς θυσίας καὶ τὰ περὶ τὸν βούν διηγῆσατο... (38) ἤσκει δὲ, φησὶν ὁ Ἀντισθένης,<sup>1</sup> καὶ ποικίλως δοκιμάζειν τὰς φαντασίας,<sup>2</sup> ἐρημάζων ἐνίστα καὶ τοῖς τάφοις ἐνδιατρίβων.

XIIIa. (D.O). [Hippoer.] Epist. 12 (p. 330 Littre): (Δημόκριτος) ἡμέρην δὲ καὶ εὐφρόνην πρὸς ἐωυτῶν καθεστῆσθαι καὶ ἰδιάζοντος, τὰ μὲν πολλὰ ἐν ἀντροισὶ καὶ ἐρημίῃσιν... συμβαίνει μὲν οὖν τὰ πολλὰ τοῖσι μελαγχολῶσι τὰ τοιαῦτα... οὐκ ἀπεικός δὲ καὶ τοῖσι περὶ παιδείην ἐσπουδακόσι τὰς ἄλλας φροντίδας ὑπὸ μῆτις τῆς ἐν σοφίῃ διαθέσεως<sup>1</sup> σεσοβῆσθαι... ποθέουσι δ' ἄντρα, καὶ ἡσυχίην... ἀταραξίης ἐπιθυμίη... δοξάζεται δὲ μανίης νοῦσον διὰ τὸ φιλέρμημον... (D.O). Anon. in Soph. el. V, p. 167b 23 sqq., p. 15, 15 Hayd.: ὁ Δημόκριτος φεύγει πρὸς ἔρημον, ὁ φεύγων εἰς ἔρημον μαινεται, ὁ Δημόκριτος ἄρα μαινεται. ἔπειτα μὲν γὰρ παντὶ μαινομένῳ φεύγειν πρὸς ἔρημον, οὐ μὴν που καὶ εἰ τις φεύγει πρὸς ἔρημον, μαινεται. οὐ γὰρ καὶ εἰ τις προσφιλοσοφῶν τῇ θεωρίᾳ καὶ διὰ τοῦτο ἡσυχίας ἐρῶν τὰ ἀθρομβώτερα τῶν χωρίων ἐπιζητεῖ, μαινεται, εἰ μὴ καὶ μᾶλλον ὅτι περ κεφάλαιον σωφροσύνης ὁ αὐτὸς ἂν καὶ φρονήσεως εἴη...<sup>2</sup> Lucian. Philops. 32 (III 59 R.) (=№ 579a): (τὸν Ἀβδηρίτην ἐκεῖνον Δημόκριτον)... καθειρῆσας ἑαυτὸν ἐς μνήμα ἔξω πωλῶν ἐνταῦθα διπέλει γράφων καὶ συντάττων καὶ νύκτωρ καὶ μεθ' ἡμέραν.

## 2. Iter in terras orientales

XIV. (D.D.B 299).<sup>1</sup> Clem. Strom. I, 15, 69 (II, 43, 13 *usque ad 44, 4 St.*). Euseb. Praep. Evang. X, 4, 23—24, p. 472 AB; *cf.* Sozom. (№ XV): Δ. γὰρ τοὺς Βαβυλωνίους λόγους ἠθικὸς κίβητος<sup>2</sup> πεποιήται· λέγεται γὰρ τὴν Ἀχικάρου στήλην ἐρμηνευθεῖσαν τοῖς ἰδίῳι συντάξει συγγράμμασι· κάστιν ἐπιστηρῆσθαι παρ' αὐτοῦ· «τάδε λέγει Δημόκριτος» γράφοντος. καὶ μὴν καὶ περὶ αὐτοῦ δὴ<sup>3</sup> σεμνυόμενος φησὶ που ἐπὶ πολυμαθίᾳ· «ἐγὼ δὲ τῶν κατ' ἑμαυτὸν ἀνθρώπων γῆν πλείστην ἐπεπληνησάμην ἱστορέων τὰ μάλιστα καὶ ἀνέρας<sup>4</sup> τε καὶ γέας πλείστας εἶδον καὶ λογίων ἀνθρώπων<sup>5</sup> πλείστων ἐπήκουσα,<sup>2</sup> καὶ γραμμῶν συνθέσις μετὰ ἀποδείξιος οὐδεὶς κώ με παρήλλαξεν<sup>3</sup> οὐδ' οἱ Αἰγυπτίων καλεόμενοι Ἀρπεδονάπται·<sup>4</sup> σὺν τοῖς δ' ἐπὶ πᾶσιν ἐπ' ἔτεα ὀκτώ κοτε<sup>5</sup>,<sup>1</sup> ἐπὶ ξείνης<sup>6</sup> ἐγενήθη». ἐπῆλθε γὰρ Βαβυλωνίᾳ τε καὶ Περσίᾳ καὶ Αἰγυπτῶν τοῖς τε Αἰγυπτίοις καὶ τοῖς μάγοις<sup>5</sup> καὶ τοῖς ἱερεῦσι μαθητεύων.

XV. (D.O). Sozom. II, 24, 4: οὐ μὴν ἀλλὰ καὶ Δ. ὁ Κῶσιος<sup>1</sup> πλείστας ἱστορήσας πόλεις, ἀέρα τε,<sup>2</sup> καὶ χώρας, καὶ ἔθνη, καὶ ἐπὶ ἔτεσιν ὀγδοήκοντα διαγαγεῖν ἐπὶ ξείνης αὐτὸς που περὶ ἑαυτοῦ φησιν...

XVI. (D.O). Diod. I, 98, 3 (*etiam apud Euseb. Praep. Evang. X, 8, 14, p. 482 AB*): ὑπολαμβάνουσι δὲ (οἱ ἱερεῖς τῶν Αἰγυπτίων) καὶ Δημόκριτον παρ' αὐτοῖς ἔτη διατρίψαι πέντε, καὶ πολλὰ διδασθῆναι τῶν κατὰ τὴν<sup>3</sup> ἀστρολογίαν... Diod. I, 96, 2 (*etiam apud Euseb. Praep. Evang. X, 8, 2, 480 B—C*): οἱ γὰρ ἱερεῖς τῶν Αἰγυπτίων ἱστοροῦσιν ἐκ τῶν ἀναγραφῶν τῶν ἐν ταῖς ἱεραῖς βίβλοις... ἐλθεῖν... ἔτι δὲ καὶ Δημόκριτον τὸν Ἀβδηρίτην...

XVII. (D.D.A 1). Diog. IX, 35: φησί δὲ Δημήτριος<sup>1</sup> ἐν Ὀμωνόμοις καὶ Ἀντισθένης<sup>2</sup> ἐν Διαδοχαῖς ἀποδημῆσαι αὐτὸν καὶ εἰς Αἴγυπτον πρὸς τοὺς ἱερέας γεωμετρίαν μαθησόμενον καὶ πρὸς Χαλδαίους εἰς τὴν Περσίδα καὶ εἰς τὴν Ἐρυθρὰν θάλασσαν γενέσθαι. τοῖς δὲ Γυμνοσοφισταῖς φασὶ τινες συμμίξει αὐτὸν ἐν Ἰνδία καὶ εἰς Αἰθιοπίαν ἐλθεῖν... (38) δῆλον δὲ καὶ τῶν συγγραμμάτων, οἷος ἦν.

XVIII. (D.D.A 40). Hippol. Refut. I, 13, 1 (Dox. 565): Δ. δὲ Λευκίππου γίνεται γνῶριμος. Δ. Δαμασίου πρὸς πολλοὺς συμβαλὼν γυμνοσοφισταῖς ἐν Ἰνδοῖς καὶ ἱερεῦσιν ἐν Αἰγύπτῳ καὶ ἀστρολόγοις καὶ ἐν Βαβυλῶνι μάγους.<sup>1</sup>

XIX. (D.D.A 2). Suda: Δ. ... μαθητὴς ... ὡς δὲ τινες ... Μάγων καὶ Χαλδαίων. Περσῶν<sup>1</sup> ἦλθε γὰρ καὶ εἰς Πέρσας καὶ Ἰνδοὺς καὶ Αἰγυπτίους καὶ τὰ παρ' ἐκάστοις ἐπαιδεύθη σοφά.

XX. (D.D.A 16). Ael. V. h. IV, 20: Δημόκριτον τὸν Ἀβδηρίτην λόγος ἔχει τὰ τε ἄλλα γενέσθαι σοφὸν καὶ δὴ καὶ ἐπιθυμῆσαι λαθεῖν,<sup>1</sup> καὶ ἐν ἔργῳ θεοῦται σφόδρα πάνυ τοῦτο. διὰ ταῦτά τοι καὶ πολλὴν ἐπήκει γῆν. ἦκεν οὖν πρὸς τοὺς Χαλδαίους καὶ εἰς Βαβυλῶνα καὶ πρὸς τοὺς μάγους καὶ τοὺς σοφιστάς<sup>2</sup> τῶν Ἰνδῶν. τὴν παρὰ τοῦ Δαμασίου τοῦ πατρὸς οὐσίαν ἐς τρία μέρη νεμηθεῖσαν τοῖς ἀδελφοῖς τοῖς τρισίν, τὰργύριον μόνον λαβὼν ἐφόδιον τῆς ὁδοῦ τὰ λοιπὰ τοῖς ἀδελφοῖς εἶασεν· διὰ ταῦτά τοι καὶ Θεόφραστος<sup>3</sup> αὐτὸν ἐπήκει, ὅτι περιήκει κρείττονα ἀγερόν ἀγείρων Μεγέλεω καὶ Ὀδυσεῶς,<sup>4</sup> ἐκεῖνοι μὲν γὰρ ἠλῶντο, αὐτόχρημα Φοινίκων ἐμπορῶν μὴδὲν διαφέροντες· χρήματα γὰρ ἤθροισον καὶ τῆς περιόδου καὶ τοῦ περίπλου ταύτην εἶχον τὴν πρόφασιν.

XXI. (D.D.A 13). Cic. De fin. V, 19, 50: Quid de Pythagora? Quid de Platone aut de Democrito loquar? A quibus propter discendi cupiditatem videmus ultimas terras esse peragratas.

XXII. (D.D.A 12). Megasthen. apud Strab. XV, p. 703:<sup>1</sup> ἐν δὲ τῇ ὀρεινῇ (sc. τῆς Ἰνδικῆς) Σίλαν ποταμὸν εἶναι, ὅν μὴδὲν ἐπιπλεῖ. Δημόκριτον μὲν οὖν ἀπιστεῖν ἅπε πολλὴν τῆς Ἀσίας πεπλανημένον (= № 374a).

XXIII. (D.D.A 20). Iulian. Epist. 201 B.—C.: φασὶ γὰρ Δημόκριτον τὸν Ἀβδηρίτην, ἐπειδὴ Δαρείῳ γυναικὸς καλῆς ἀλγοῦντι θάνατον οὐκ εἶχεν, ὅτι ἂν εἰπὼν εἰς παραμυθίαν ἀρκέσειεν, ὑπόσχεται οἱ τὴν ἀπελθοῦσαν εἰς φῶς ἀνάξειν, ἣν ἐδελέσθη τῶν εἰς τὴν χρεῖαν ἠκόωντων ὑποστῆναι τὴν χορηγίαν. κελεύσαντος δ' ἐκείνου μὴ φείσασθαι μηδενός, ὅτι ἂν ἐξῆτι λαβόντα τὴν ὑπόσχεσιν ἐμπεδῶσαι, μικρὸν ἐπισχόντα χρόνον εἶπεῖν, ὅτι τὰ μὲν ἄλλα αὐτῷ πρὸς τὴν τοῦ ἔργου πράξιν συμπορισθεῖη, μόνου δὲ ἐνός προσδέοιτο, ὃ δὴ αὐτὸν μὲν οὐκ ἔχειν ὅπως ἂν λάβοι, Δαρεῖον δὲ ὡς βασιλέα τῆς ὅλης Ἀσίας οὐ χαλεπὸν ἂν ἴσως εὔρειν, ἐρομένου δ' ἐκείνου, τί ἂν εἴη τοσοῦτον ὃ μόνου βασιλεῖ γνωσθῆναι συγχωρεῖται, ὑπολαβόντα φῆσαι τὸν Δημόκριτον, εἰ τριῶν ἀπενδήτων ὀνόματα τῷ τάφῳ τῆς γυναικὸς ἐπιγράψειεν, εὐθὺς αὐτὴν ἀναβιώσασθαι τῷ τῆς τελευτῆς νόμῳ δωσωπούμενην. ἀπορήσαντος δὲ ἐπὶ πολὺ τοῦ Δαρείου καὶ μὴδὲν ἀνδρα δυνηθέντος εὔρειν, ὅτω μὴ καὶ παθεῖν λυπερόν τι συνήχθη, γελάσαντα συνήθως τὸν Δημόκριτον εἶπεῖν· «τί οὖν, ὦ πάντων ἀτοπώτατε, θρηνηεῖς ἀνέδηγ ὡς μόνος ἀλγεῖναι τοσοῦται συμπλακεῖς ὃ μὴδὲ ἓνα τῶν πώποτε γεγονότων ἄμοιρον οἰκείου πάθους ἔχων εὔρειν».<sup>1</sup>

XXIIIa. Fragmenta spuria magico-chemica v. in comm.<sup>1</sup>

### 3. Iter ad Athenas

XXIV. (D.D.B 116). Diog. IX, 36: δοκεῖ δὲ, φησί (sc. Δημήτριος ὁ Μάγνης), καὶ Ἀθήνας ἐλθεῖν καὶ μὴ σπουδάζειν γνωσθῆναι δόξης καταφρονῶν καὶ εἰδέναι μὲν Σωκράτη, ἀγνωστὸν δὲ ὅτι αὐτοῦ. «ἦλθον γὰρ, φησὶν, εἰς Ἀθήνας καὶ οὐτις με ἔγνωκεν». Cic. Tusc. disp. V, 36, 104: Intellegendum est igitur nec gloriam popularem ipsam per sese expetendam nec ignobilitatem extimescendam: «Veni Athenas, — inquit D., — neque me quisquam ibi adgnovit». Constantem hominem et gravem, qui gloriatur a gloria se afuisse. (D.D.A 11). Val. Max. VIII, 7, extr. 4 (post № XII): Athenis autem compluribus annis

moratus omnia temporum momenta ad percipiendam et exercendam doctrinam conferens ignotus illi urbi vixit, quod ipse quodam volumine<sup>1</sup> testatur.

XXV. (D.D.A 1). Diog. IX, 37: Δημήτριος δὲ ὁ Φαληρεὺς ἐν τῇ Σωκράτους ἀπολογία (F. Gr. Hist. 228 F 41 II 970) μὴδὲ ἐλθεῖν φησὶν αὐτὸν εἰς Ἀθήνας. τοῦτο δὲ καὶ μεῖζον, εἴγε τσαούτης πόλεως ὑπερεφρόνησεν, οὐκ ἐκ τόπου δόξαν λαβεῖν βουλόμενος, ἀλλὰ τόπω δόξαν περιθεῖναι προελόμενος.

### 4. Democritus in patriam redit, in ius vocatur, gloria potitur

XXVI. (partim D.D.A 1). Diog. IX, 39: ἐλθόντα δὲ φησὶν (ὁ Ἀντισθένης)<sup>1</sup> αὐτὸν ἐκ τῆς ἀποδημίας ταπεινότητα διάγειν, ἅτε πᾶσαν τὴν οὐσίαν καταναλωκότα, τρέφεσθαι τε διὰ τὴν ἀπορίαν ἀπὸ τὰδελοφῶ Δαμάσου, Cic. Tusc. disp. V, 39, 115:<sup>2</sup> Ni ita se res haberent<sup>3</sup> (i. e. ni delectatio animi inesset), Anaxagoras aut hic ipse D. agros et patrimonia sua reliquissent? Huic discendi quaerendique divinae delectationi toto se animo dedissent? (D.D.A 169). Cic. De fin. V, 29, 87: D. ... ut quam minime animus a cogitationibus abduceretur patrimonium neglexit, agros deseruit incultos, quid quaerens aliud nisi vitam beatam?

XXVII. (D.D.A 15). Philo. De vita contempl. 2, 14 (VI, 49 C.—W.): Ἀναξαγόραν καὶ Δ. Ἕλληνας αἰδοῦσιν ὅτι φιλοσοφίας ἡμέρωι πληθύνοντες μηλοβότους εἶασαν γενέσθαι τὰς οὐσίας. Dio 54, 2, p. 113, 21 Arn.; Horat. Epist. I, 12, 12:

Miramur, si Democriti pecus odit agellos  
Cultaque, dum peregre est animus sine corpore velox.

Orig. Contra Gels. II, 84, 418, p. 164 K: καὶ οἱ πολλοὶ Ἑλλήνων ἴσασι ἐκ τῶν ἀναγραφέντων περὶ ... Δημοκρίτου, μηλοβότον ἐάσαντος τὴν οὐσίαν (sc. πένητα αὐτὸν εἶναι). Clem. Quis div. salv. 11 (III, 167, 9 St.); Lact. Inst. III, 23, 4.

XXVIII. (D.D.A 1).<sup>1</sup> Diog. IX, 39: νόμου δὲ ὄντος τὸν ἀναλώσαντα τὴν πατρίαν οὐσίαν μὴ ἀξιοῦσθαι ταφῆς ἐν τῇ πατρίδι, φησὶν ὁ Ἀντισθένης,<sup>2</sup> συνέντα, μὴ ὑπεύθυνος γενεθείη πρὸς τινῶν φθονούτων καὶ συκοφαντούτων, ἀναγνῶναι αὐτοῖς τὸν Μέγαν διάκοσμον, ὃς ἀπάντων αὐτοῦ τῶν συγγραμμάτων προέχει· καὶ πεντακοσίοις τάλάντοις τιμηθῆναι· μὴ μόνον δέ, ἀλλὰ καὶ χαλκαῖς εἰκόσι...<sup>3</sup> (40): ὁ δὲ Δημήτριος<sup>4</sup> τοὺς συγγενεῖς αὐτοῦ φησὶν ἀναγνῶναι τὸν Μέγαν διάκοσμον, ὃν μόνον ἑκατὸν τάλάντων τιμηθῆναι. ταῦτά δὲ καὶ Ἰππόβοτος<sup>5</sup> φησὶν.

XXIX. (D. D. A 14). Philo. De prov. II, 13, p. 52 Aucher.: D. autem alter (post Anaxagoram; cf. № XXVII) opulentus et possessor multorum, eo quod ortus esset ex illustri familia, desiderio sapientiae familiarissimae deditus caecam invisamque opulentiam quae pravis et vilibus tribui consuevit inhiabit; eam vero quae haud caeca est ac constans eo quod cum bonis solis assuescat acquisivit. Propterea universas patriae leges dimovere visus est et quasi malus genius reputatus, ita ut periclitatus fuerit ne sepulcro ipso privaretur ob legem apud Abderitas vigentem quae insepultum prociendum statuebat qui patrias leges non observasset. Id sane subeundum erat Democrito, nisi misericordiam sortitus esset benignitate, quam erga eum habuit Hippocrates Cous; aemulatores enim sapientiae inter se erant. Porro ex suis operibus celebratis quod appellatur Magnus diacosmus centum, ut nonnulli dicunt adhuc amplius Atticis talentis CCC, aestimatum fuit.<sup>1</sup>

XXIXa. (D.O). Athenag. Leg. pro christ. 31: οὕτω καὶ Πυθαγόρας μὲν ἅμα τριακοσίοις ἐταίροις<sup>2</sup> κατεφλέχθη πυρὶ, Ἡράκλειτος δὲ καὶ Δ., ὃ μὲν τῆς Ἐφεσίων πόλεως ἠλάυνετο,<sup>3</sup> ὃ δὲ τῆς Ἀβδηριτῶν, ἐπικατηγορούμενος μεμηνέναι· καὶ Σωκράτους Ἀθηναῖοι θάνατον κατέγνωσαν.

XXX. (D.D.A 2). Suda: Δημόκριτος Ἡγησιστράτου (οἱ δὲ Ἀθηνοκρίτου ἢ Δαμασίου)... Ἀβδηρίτης ἐκ Θράκης. φιλόσοφος, μαθητὴς κατὰ τινὰς Ἀναξαγόρου

καὶ Λευκιππου, ὡς δὲ τινες, καὶ μάγων καὶ Χαλδαίων Περσῶν. ἦλθε γὰρ καὶ εἰς Πέρσας καὶ Ἰνδοὺς καὶ Αἰγυπτίους καὶ τὰ παρ' ἐκάστοις ἐπαιδεύθη σοφά. εἶτα ἐπανῆλθε καὶ τοῖς ἀδελφοῖς συνῆν Ἡροδότῳ καὶ Δαμάστῃ.<sup>1</sup> ἦρθε δὲ ἐν Ἀβδήροις διὰ τὴν ἑαυτοῦ σοφίαν τιμηθεὶς.

XXXI. (D. O).<sup>1</sup> Nummus argenteus Abderorum cum insigni civitatis huius et inscriptione (nomen magistratus annui, qui pro antistite Apollinis censebatur et fortasse archon nominabatur. C. Seltman. Greek Coins. London, 1933, p. 143): ἐπὶ Δημοκρίτο.

### 5. De sapientia Democriti narrationes fabulosae. Apophthegmata ipsius

XXXII. (D.D.A 1). Diog. IX, 39: ὡς δὲ προειπὼν τινα τῶν μελλόντων<sup>1</sup> ἐδοκίμησε, λοιπὸν ἐνδοξὸν δόξης παρὰ τοῖς πλείστοις ἤξιώθη. Suda, s.v. Δημοκρίτος: ἐπεκλήθη δὲ Σοφία.<sup>2</sup>

XXXIII. (D.D.A 19). Philostrat. De vita Apoll. VIII, 7, p. 313, 17 Kayser: τίς δ' ἂν σοφός ἐκλιπεῖν σοὶ δοκεῖ τὸν ὑπὲρ πόλεως τοιαύτης ἀγῶνα, ἐνδυμνηθεὶς μὲν Δημοκρίτον ἐλευθερώσαντα λοιμοῦ<sup>1</sup> ποτε Ἀβδηρίτας, ἐνοήσας δὲ Σοφοκλέα τὸν Ἀθηναῖον, ὃς λέγεται καὶ ἀνέμουσ θέλειαι τῆς ὥρας πέρα πνεύσαντας κτλ.

XXXIV. (D. D. A 17).<sup>1</sup> Plin. N. h. XVIII, 273: Ferunt Democritum, qui primus intellexit ostenditque caeli cum terris societatem, spernentibus hanc curam eius opulentissimis civium praevisa olei caritate futura ex<sup>a</sup> Vergiliarum ortu<sup>2</sup> (qua diximus ratione ostendemusque iam planius) magna tum vilitate propter spem olivae coëmissee in toto tractu omne oleum, mirantibus qui paupertatem quietemque doctrinarum ei sciebant in primis cordi esse. Atque ut adparuit causa et ingens divitiarum cursus, b restituisse mercedem anxiae et avidae dominorum poenitentiae, contentum ita probavisse opes sibi in facili, cum vellet, fore.

XXXV. (D.D.A 18). Clem. Strom. VI, 32 (II, 446, 28 St.): Δ. δὲ ἐκ τῆς τῶν μεταρσίων παρατηρήσεως πολλὰ προλέγων Σοφία ἐπωνομάσθη. ὑποδεξαμένου γοῦν αὐτὸν φιλοφρόνως Δαμάσου τοῦ ἀδελφοῦ τεκμηράμενος ἔκ τιναν ἀστέρων πολὺν ἐσόμενον προσέειπεν ὄμβρον. οἱ μὲν οὖν πεισθέντες αὐτῷ συνέειλον τοὺς καρπούς (καὶ γὰρ ὦραι θερούς ἐν ταῖς ἄλωσιν ἐτι ἦσαν), οἱ δὲ ἄλλοι πάντα ἀπόλεσαν ἀδοκίτου καὶ πολλοῦ καταρρήξαντος ὄμβρου. Plin. N.h. XVIII, 341: Tradunt eundem Democritum metente fratre eius Damaso ardentissimo aestu orasse, ut reliquae segeti parceret raperetque desecta sub tectum, paucis mox horis saevo imbre vaticinatione adprobata.

XXXVI. (D.D.A 1). Diog. IX, 42: φησὶ δ' Ἀθηνώδωρος ἐν τῇ Περιπάτων, ἐλθόντος Ἰπποκράτους πρὸς αὐτὸν (sc. Δημοκρίτον) κελευσάσαι κομισθῆναι γάλα καὶ θεασάμενον τὸ γάλα εἶπειν εἶναι αἰγὸς πρωτοτόκου καὶ μελαίνης· ὅθεν τὴν ἀκρίβειαν αὐτοῦ θαυμάσαι τὸν Ἰπποκράτην. ἀλλὰ καὶ κόρης ἀκολουθοῦσας τῷ Ἰπποκράτῃ τῇ μὲν πρώτῃ ἡμέρῃ ἀσπάσασθαι οὕτω «χαῖρε κόρη», τῇ δ' ἐχομένῃ «χαῖρε γόναί»· καὶ ἦν ἡ κόρη τῆς νυκτὸς διεφθαρμένη.

XXXVII. (D.D.A 17a). Plut. Quaest. conv. I, 10, 2, p. 628 C: ταῦτό πεισόμεθα Δημοκρίτῳ τῷ σοφῷ διὰ φιλολογίαν. καὶ γὰρ ἐκεῖνος ὡς εἶκε τρώγων σίκυον, ὡς ἐφάνη μελιτώδης ὁ χυμός, ἠρώτησε τὴν διακονοῦσαν, ὅπόθεν πρίατο τῆς δὲ κηπὸν τινα φραζούσης, ἐκέλευσεν ἐξαναστὰς ἠγεῖσθαι καὶ δεικνύοναι τὸν τόπον· θαυμάζοντος δὲ τοῦ γυναιῶ καὶ πυνθανομένου τί βούλεται «τὴν αἰτίαν»,<sup>1</sup> ἔφη, «δεῖ με τῆς γλυκύτητος εὑρεῖν, εὐρήσω δὲ τοῦ χωρίου γενόμενος θεατής». «κατάκεισο δὴ» τὸ γόναιον εἶπε μειδιῶν, «ἐγὼ γὰρ ἀγνοήσασα τὸ σίκυον εἰς ἀγγεῖον ἐθέμην μεμελιτωμένον». ὁ δ' ὡσπερ ἀγνοοῦσας «ἀπέκλαισας» εἶπε «καὶ οὐδὲν ἦρτον ἐπιθήσομαι τῷ λόγῳ καὶ ζητήσω τὴν αἰτίαν», ὡς ἂν οἰκείου καὶ συγγενοῦς οὐσης τῷ σικύῳ τῆς γλυκύτητος.

XXXVIII.<sup>1</sup> (D.O, Mull. 178). Maxim. L.c. 20, p. 597 (P.G. 91, p. 847 D): Δημοκρίτ.<sup>a</sup> θεασάμενός τινα, πολλὰ μὲν, ἀπαίδευτα δὲ διαλεγόμενον, «οὗτος, ἔφη, οὐ λέγειν μοι δοκεῖ δυνατός, ἀλλὰ σιωπᾶν ἀδύνατος».<sup>2</sup>

XXXIX. (D.O). Maxim. L.c. 16, p. 586 (P.G. 91, p. 825 D). Δημοκρίτ. Νεανίσκου ἐν θεάτρῳ ἐναβρυνομένου καὶ λέγοντος σοφός εἶναι, πολλοὺς ἐμιλήσας σοφοῖς, εἶπέ τις· κἀγὼ πολλοὺς πλουσίους, ἀλλὰ πλούσιος οὐκ εἰμι.<sup>1</sup>

XL. Fragmentum dubium de quo v. in comm.<sup>1</sup>

XLI. (D.O). Maxim. L.c. 32, p. 621 (P.G. 91, p. 891 A); Ant. Melissa II, 45, p. 195 (P.G. 136, p. 1124 C): ὁ αὐτός (sc. Δημοκρίτος) ἰδὼν νεανίσκου φιλοπονοῦντα ἔφη· «κἀλλίστον ὄφον τῷ γήρατι ἀρτέεις».

XLII. (D. D. A 22). Cic. Tusc. disp. V, 39, 114 :<sup>1</sup> D. luminibus amissis alba scilicet discernere et atra non poterat: at vero bona mala, aequa iniqua, honesta turpia, utilia inutilia, magna parva poterat, et sine varietate colorum licebat vivere beate, sine notione<sup>2</sup> rerum non licebat. Atque hic vir impediri etiam animi aciem aspectu oculorum arbitrabatur, et cum alii saepe, quod ante pedes esset, non viderent, ille infinitatem omnem peregrinabatur,<sup>2</sup> ut nulla in extremitate consisteret.

XLIII. (D. D. A 169, 4 N.).<sup>1</sup> Cic. De fin. V, 29, 87: Democritus, qui (vere falsone quaerere <nolu>mus)<sup>a</sup> dicitur se oculis privasse; certe ut quam minime animus a cogitationibus abduceretur, patrimonium neglexit, agros deseruit incultos. . .

XLIV. (D. D. A 23). Gell. Noct. Att. X, 17: Democritum philosophum in monumentis historiae Graecae scriptum est, virum praeter alios venerandum auctoritateque antiqua praeditum, luminibus oculorum sua sponte se privasse, quia existimaret cogitationes commentationesque animi sui in contemplandis naturae rationibus vegetiores et exactiores fore, si eas videndi inlecebris et oculorum impedimentis liberasset. Id factum eius modumque ipsum, quo caecitatem facile sollertia subtilissima conscivit, Laberius poeta in mimo quem scripsit Restionem versibus quidem satis munde atque graphice factis descripsit, sed causam voluntariae caecitatis finxit aliam vertitque in eam rem, quam tum agebat, non inconcinniter. Est enim persona, quae hoc apud Laberium dicit, divitis avari et parci, sumptum plurimum asotiamque adolescentis filii<sup>a</sup> deplorantis. Versus Laberiani sunt (GRF, ed. 3, 72 sqq., p. 353 Ribb.):

Democritus Abderites physicus philosophus  
Clipeum<sup>1</sup> constituit contra exortum Hyperionis,  
Oculos effodere ut posset splendore aereo.  
Ita radiis solis aciem effodit luminis,  
Malis bene esse ne videret civibus.  
Sic ego fulgentis splendorem pecuniae  
Volo elucidificare exitum aetati meae,  
Ne in re bona esse videam nequam filium.

XLV. (D.D.A 27). Plut. De curios. 12, p. 521 D: ἐκεῖνο μὲν ψευδὸς ἐστὶ τὸ Δημοκρίτον ἐκουσίως σβέσαι τὰς ὄψεις ἀπερειαμένον εἰς ἔσοπτρα πυρωθέντα<sup>1,2</sup> καὶ τὴν ἀπ' αὐτῶν ἀνάκλασιν δεξάμενον, ὅπως μὴ παρέχῃσι θόρυβον τὴν διάνοιαν ἔξω καλοῦσαι πολλάκις, ἀλλ' ἐῷσιν ἐνδον οἰκουρεῖν καὶ διατρίβειν πρὸς τοῖς νοητοῖς ὡσπερ παρόδιοι θυρίδες ἐμφραγεῖσθαι.

XLVI. (D.D.A 25). Himer. Ecl. 3, 18: ἐκὼν δὲ ἐνόσει σῶμα Δημοκρίτος, ἵνα ὑγαινη τὰ κρεῖττονα.

XLVII. (D. D. A 26). Tert. Apolog. 46: D. excaecando semetipsum, quod mulieres sine concupiscentia aspicere non posset et doleret, si non esset potius, incontinentiam emendatione profiteretur.

### 6. Senectus et mors

XLVIII. (D.D.A 6). [Lucian.] Macrob. 18: Δ. μὲν ὁ Ἀβδηρίτης ἐτῶν γεγωνός τεσσαρῶν καὶ ἑκατὸν<sup>1</sup> ἀποσχόμενος τροφῆς ἐτελεύτα. Censor. 15, 3: Democritum quoque Abderiten et Isocraten rhetorem ferunt prope ad id aetatis





ἀφανίζουσιν. καταγεῶ ἐφ' οἷσι κακοπραγμονέουσιν, ἐπιτείνω τὸν γέλωτα ἐφ' οἷς  
 δυστυχέουσι, θεομούς γὰρ ἀληθείης παραβεβήκασι κτλ. . . (368 L.) ἄλλοι δὲ τὰ τῶν  
 παλαιῶν μὴ ιστοροῦντες ὑπὸ τῆς ἰδίης κακοπραγμίας ἀπόλωτο, τὰ δὲ ἄλλα καθάπερ ἄλλα μὴ  
 προθεωρεῦντες, ὑπόδειγμα τὸν μακρὸν βίον ἔχοντες γενομένων καὶ μὴ γενομένων, ἐξ ὧν καὶ  
 τὸ ἐσόμενον ἐχρῆν κατανοῆσαι. ταῦθ' ὁ ἐμὸς γέλωτος, ἀφρονες ἄνθρωποι . . . ὁ δὲ αὐτέων  
 ἀνθρώπου τὴν ἀπροαιρεσίην, μήτε ὀρθῆσι μήτε ἀκοῆς μετέχοντας· μόνη δ' αἰσθησις  
 ἀνθρώπου ἀτρεκέη διανοίης τηλαυγής, τὸ τε εὖν καὶ τὸ ἐσόμενον προροεμένη. Δισα-  
 ρεστεῦνται πᾶσι καὶ πάλιν τοῖσι αὐτέουσιν ἐμπελάζονται. . . (370 L.) ἐν δὲ τοῖσι  
 θυμοῖσι τί περισσὸν ζώουσιν ἀλόγοισι παραλελοίπασιν; κλῆν ὅτι ἐν αὐταρκείῃ μένου-  
 σιν οἱ θῆρες, τίς γὰρ λέων ἐς γῆν κατέκρυψε (372 L.) χρυσόν; τίς ταῦρος πλεονεξίην  
 ἐκορύσατο; τίς παρδαλὶς ἀπληροῖν κενώρηκε; διψῆν μὲν ἄγριος σῶς, ὅσον ὕδατος  
 ὠρέχθη· λύκος δὲ δαρδάφας τὸ προσπεσὸν τῆς ἀναγκαίης τροφῆς ἀναπέπαιται· ἡμέ-  
 ρησι δὲ καὶ νυξὶ ξυναπτομένησιν οὐκ ἔχει θοίνης κόρον ὠνθρωπος, καὶ χρόνον μὲν  
 ἐνιαυσίων τάξις ὕγείης ἀλόγων τέρμα ἐστίν, ὁ δὲ τὸ διηκεῖς οἰστρομανίην ἔχει τῆς  
 ἀσελγείης. Ἰππόκρατες, μὴ γελάσω τὸν κλαίοντα δι' ἔρωτα, ὅτι ξυμπερόντως ἀποκέκ-  
 λεισται. . .<sup>1</sup>

*Epistulae Pseudohippocrateae fons praecipua sequentium testimoniorum fuerunt.*

LXIV. (D.D.A 21). Iuvenal. X, 33:<sup>1</sup>

Perpetuo risu pulmonem agitare solebat  
 Democritus . . .  
 (47) Tum<sup>2</sup> quoque materiam risus invenit ad omnes  
 Occursus hominum, cuius prudentia monstrat,  
 Summos posse viros et magna exempla daturos  
 Vervecum in patria<sup>3</sup> crassoque sub aëre<sup>4</sup> nasci.  
 Ridebat curas,<sup>5</sup> nec non et gaudia vulgi,  
 Interdum et lacrimas, cum fortunae ipse minaci<sup>6</sup>  
 Mandaret laqueum<sup>7</sup> mediumque ostenderet unguem.<sup>8</sup>  
 Ergo supervacua aut vel perniciose petuntur  
 Propter quae fas est genua incerare<sup>9</sup> deorum.<sup>9</sup>

LXV. (D.O). Ael. V. h. IV, 20, 69:<sup>1</sup> οἱ Ἀβδηρίται ἐκάλουν τὸν Δημόκριτον  
 Φιλοσοφίαν, τὸν δὲ Πρωταγόραν Λόγον, καταγεῶ δὲ πάντων ὁ Δ. καὶ ἔλεγεν αὐτοὺς  
 μαίνεσθαι, ὅθεν καὶ Γελασίον αὐτὸν ἐκάλουν οἱ πολῖται. λέγουσι δὲ οἱ αὐτοὶ τὸν  
 Ἰπποκράτην παρὰ τὴν πρώτην ἐντευξίν ὑπὲρ τοῦ Δημοκρίτου δόξαν λαβεῖν, ὡς μαινο-  
 μένου· προϊούσης δὲ αὐτοῖς τῆς συνοουσίας ἐς ὑπερβολὴν θαυμάσαι τὸν ἄνδρα, λέγουσι  
 δὲ Δωριέα ὄντα τὸν Ἰπποκράτην, ἀλλ' οὖν τὴν Δημοκρίτου χάριν τῆ Ἰάδι φωνῆ  
 συγγράψαι τὰ συγγράμματα.<sup>2</sup> (IV, 29, 72) οὐ γὰρ δὴ δύναται πείθειν ἑαυτὸν μὴ  
 γεῶν ἐπ' Ἀλεξάνδρῳ τῷ Φιλίππου, εἰ γε ἀπίστους ἀκούων εἶναι τινὰς κόσμους  
 λέγοντος Δημοκρίτου ἐν τοῖς συγγράμμασιν ὁ δὲ ἠνίατο μὴδὲ τοῦ ἐνός καὶ κοινῶς κρη-  
 τῶν (cf. D. 72 A 11, № LXXXIII) πόσον δ' ἂν<sup>3</sup> ἐπ' αὐτῷ Δ. ἐγέλασεν αὐτὸς,  
 τί δεῖ καὶ λέγειν, ὡς ἔργον τοῦτο ἦν.

LXVI. (D.O). Philostrat. De vita Apoll. VIII, 7, p. 162 (p. 321 Kay-  
 ser): εἰ δ' ὡς φιλοσόφου πυνθάνη, τοῦ Δημοκρίτου ἐπήνουν γέλωτα, ὡς εἰς πάντα  
 τὰ τῶν ἀνθρώπων γεῶν. Lucian. Vit. auctio 13: τί γελαῖς; ΔΗΜΟΚΡΙΤΟΣ.  
 ἐρωτᾷς; ὅτι μοι γελοῖα πάντα δοκεῖ τὰ πρήγματα ὄμεν καὶ αὐτοὶ ὄμεες . . . σπου-  
 δατον γὰρ ἐν αὐτέουσιν οὐδέν, κενεὰ δὲ τὰ πάντα καὶ ἀτῶμον φορῆ καὶ ἀπειρή.

LXVII. (D.D.A 2). Suda, s. v. Δημόκριτος: ἐπεκλήθη δὲ Σοφία ὁ Δ. καὶ  
 Γελασίος δὲ διὰ τὸ γεῶν πρὸς τὸ κενόσπουδον τῶν ἀνθρώπων.

LXVIII. (D.D.A 40). Hippol. Refut. I, 13 (Dox. 565): οὗτος ἐγέλα πάντα,  
 ὡς γέλωτος ἀξίων πάντων τῶν ἐν ἀνθρώποις. In litteris christianis ὁ Δημοκρίτου  
 γέλωτος saepissime proverbialiter usurpatur, e. g. Theodor. Prodrom. In eos  
 qui Provid. convic. 11; Herm. Irris. 6 (= 13), 35; Nicephor. Gregor.  
 Byz. hist. VIII, 14, p. 375 Schopen; XX, 1, p. 957 Schopen; XXXI, 10,  
 p. 354 Bekker; Sidon. Apollinar. Epist. IX, 265; Carm. 294; Tzetz. Chil. II,  
 720—722; Greg. Naz. or. XXVI, 9, t. I, p. 478, ed. Maurin. Paris, 1778,  
 c. schol. Eliae Cretensis (P.G. 34, p. 887, n. 6) et alibi.

### 3. Amici et consortes studiorum

(v. №№ 76—79)

LXIX. (D.D.A 1). Diog. IX, 42: μέμνηται δὲ (ὁ Δ.) . . . καὶ Πρωταγόρου  
 τοῦ Ἀβδηρίτου. (D. 80 A 1) (50) διήκουσε δ' ὁ Πρωταγόρας Δημοκρίτου. (53) καὶ  
 πρῶτος τὴν καλουμένην πόλιν, ἐφ' ἧς τὰ φορτία βαστάζουσιν, εἶδεν, ὡς φησὶν Ἀρι-  
 στοτέλης ἐν τῷ Περὶ παιδείας (fr. 63 Rose)· φορμοφόρος γὰρ ἦν, ὡς καὶ Ἐπίκου-  
 ρὸς ποῦ φησι καὶ τοῦτον τὸν τρόπον ἦρθη πρὸς Δημοκρίτου<sup>4</sup>· ἐύλα δεδεκῶς ὀφθεῖς  
 (D.O). Diog. X, 8: (οἱ διαβεβληκότες τὸν Ἐπίκουρον φασὶν ἐπικαλεῖν αὐτὸν) φορ-  
 μοφόρον Πρωταγόραν καὶ γραφέα Δημοκρίτου<sup>1</sup> (v. № CIII).

LXX. (D.D.A 9). Athen. VIII, p. 354 C: ἐν δὲ τῇ αὐτῇ ἐπιστολῇ (v. № CIII)  
 ὁ Ἐπίκουρος καὶ Πρωταγόραν φησὶ τὸν σοφιστὴν ἐκ φορμοφόρου καὶ ξυλοφόρου πρῶτον  
 μὲν γενέσθαι γραφέα Δημοκρίτου· θαυμασθέντα δ' ὑπ' ἐκείνου ἐπὶ ἐύλων τινὶ ἰδίαι  
 συνθέσει ἀπὸ ταύτης τῆς ἀρχῆς ἀναληφθῆναι ὑπ' αὐτοῦ καὶ διδάσκειν ἐν κώμῃ τινὶ  
 γράμματα, ἀφ' ὧν ἐπὶ τὸ σοφιστεῦσιν ὀρυῆσαι. (D. 80 A 3). Hesych. Onomatol.  
 in schol. ad Plat. De rep. 600 C: Πρωταγόρας Ἀρτέμωνος<sup>1</sup> Ἀβδηρίτης· οὗτος  
 φορτοβαστάκτης ἦν, ἐντυχὸν δὲ Δημοκρίτῳ ἐφιλοσόφησε καὶ ἐπὶ ῥητορείαν εἶχε.  
 (D.O). Gell. Noct. Att. V, 3:<sup>2</sup> Protagoram, virum in studiis doctrinarum  
 egregium, cuius nomen Plato libro suo illi incluto κινσκριψίτ, <sup>3</sup> adulescentem  
 aiunt victus quaerendi gratia in mercedem<sup>4</sup> missum vecturasque  
 onerum corpore suo factitavisse, quod genus Graeci «ἀχθοφόρους» vocant,  
 Latine «baiulos» appellamus. Is de proximo rure Abdera in oppidum, cuius  
 popularis fuit, caudices ligni plurimos funiculo brevi circumdatos portabat.  
 Tum forte D. civitatis eiusdem civis homo ante alios virtutis et philosophiae  
 gratia venerandus, cum egrederetur extra urbem, videt eum, cum illo genere  
 oneris tam impedito ac tam incohibili facile atque expedite incedentem et  
 prope accedit et iuncturam posituramque ligni scite periteque factam consi-  
 derat petitque, ut paululum acquiescat. Quod ubi Protagoras, ut erat peti-  
 tum, fecit atque itidem acervum illum et quasi orbem caudicum, brevi  
 vinculo comprehensum, ratione quadam quasi geometrica librari contineri-  
 que animadvertit, interrogavit, quis id lignum ita composuisset, et cum ille  
 a se compositum dixisset, desideravit uti solveret ac denuo in modum eundem  
 collocaret. At postquam ille solvit ac similiter composuit, tum D., animi  
 aciem sollertiamque hominis non docti demiratus: «Mi adulescens, inquit,  
 cum ingenium bene faciendi habeas, sunt maiora melioraque, quae facere  
 mecum possis», adduxitque eum statim secumque habuit et sumptum mini-  
 stravit et philosophias docuit et esse eum fecit, quantus postea fuit.

LXXI. (D.D.A 9). Philostr. Vitae sophist. I, 10, p. 13 Kayser: Πρωταγόρας  
 δὲ ὁ Ἀβδηρίτης σοφιστῆς [καὶ]<sup>2</sup> Δημοκρίτου μὲν ἀκροατῆς οἰκοῖ ἐγένετο, ὠμίλησε δὲ καὶ  
 τοῖς ἐκ Περσῶν μάγοις κατὰ τὴν Εἰρέξου ἐπὶ τὴν Ἑλλάδα ἔλασιν. πατήρ γὰρ ἦν αὐτῷ  
 Μαιάνδριος πλούσιος κατεσκευασμένος παρὰ πολλοῦ τῶν ἐν τῇ Θράκῃ.

LXXII. (D. 80 B 4). Euseb. Praep. Evang. XIV, 3, 7: ὁ μὲν γὰρ Δημο-  
 κρίτου γεγονὼς ἐταῖρος<sup>1</sup> ὁ Πρωταγόρας ἄδειον ἐκτέτατο δόξαν. (D. 80 A 4). Apul.  
 Florida 18 (p. 36, 3 Helm): Protagoras, qui sophista fuit longe multiscius  
 et cum primis rhetoricae repertoribus perfacundus, Democriti physici civis  
 aequaevus,<sup>2</sup> inde ei suppeditata doctrina est. . .

LXXIII. (D.D.B 156 = № 78). Plut. Adv. Colot. 4, 2, p. 1108 F: τοσοῦ-  
 τόν γε Δ. ἀποδοεῖ τοῦ νομίζειν μὴ μᾶλλον εἶναι τοῖον τῶν πραγμάτων ἕκαστον, ὥστε  
 Πρωταγόραι τῷ σοφιστῇ τοῦτο εἰπόντι μεμαχῆσθαι καὶ γεγραφεῖναι πολλὰ καὶ πιδανὰ  
 πρὸς αὐτόν. (D.D.A 114). Sext. Adv. math. VII, 389, p. 275 B: πᾶσαν μὲν  
 οὖν φαντασίαν οὐκ ἂν εἴποι τις ἀληθῆ . . . καθὼς ὁ τε Δ. καὶ ὁ Πλάτων ἀντιλέγον-  
 τες τῷ Πρωταγόρῳ ἐδίδασκον<sup>1</sup> (v. № 76).

LXXIV. (D.O). Ael. V. h. I, 23, p. 10 H: ἐν τοῖς Ἑλλήσι τοῖς πάλαι  
 μακρᾷ τῇ δόξῃ διέπρεπε<sup>1</sup> Γοργίας ὁ Λεοντίνος Φιλολάου καὶ Πρωταγόρας Δημο-  
 κρίτου, τῇ δὲ σοφίᾳ τοσοῦτον ἐλείποντο, ὅσον ἀνδρῶν παῖδες.

LXXV. (D.L. A 3). Simpl. in Phys. 25, 1 (Dox. 477): καὶ Διογένης δὲ ὁ Ἀπολλωνιάτης, σχεδὸν νεώτατος γεγονὼς τῶν περὶ ταῦτα σχολασάντων, τὰ μὲν πλεῖστα συμπεφορημένως<sup>1</sup> γέγραφε, τὰ μὲν κατὰ Ἀναξαγόραν, τὰ δὲ κατὰ Λεύκιπτον<sup>2</sup> λέγων.

LXXVI. (D.D.A 10a).<sup>1</sup> Suda, s. v. Διαγόρας: ... ὃν εὐφυῶ θεασάμενος Δ. ὁ Ἀβδηρίτης ὠνήσατο αὐτὸν δοῦλον ὄντα μυρίων δραχμῶν καὶ μαθητὴν ἐποίησατο. ὁ δὲ καὶ τῆι λυρικῆι ἐπέθετο τοῖς χρόνοις ὧν μετὰ Πίνδαρον καὶ Βαχχολίδην, Μελαντιπίδου<sup>2</sup> δὲ προσβύτερος ἤμαζε τοῖνον σὴ Ὀλυμπιάδι.

LXXVII. (D.D.A 10). Suda, s. v. Ἴπποκράτης: ... οὗτος μαθητὴς γέγονε τὸ μὲν πρῶτον τοῦ πατρὸς, μετὰ δὲ ταῦτα Ἡροδίκου τοῦ Σηλυβριανοῦ καὶ Γοργίου τοῦ Λεοντίνου ῥήτορος καὶ φιλοσόφου, ὡς δὲ τινες, Δημοκρίτου τοῦ Ἀβδηρίτου ἐπιβαλεῖν γὰρ αὐτὸν νέωι προσβύτην<sup>1</sup> ὡς δὲ τινες καὶ Προδίκου.

LXXVIII. (D. 30 A 1). Diog. IX, 24: (Μέλισσος) συνέστησεν (Ἡράκλειτον) τοῖς Ἐφεσίοις ... καθάπερ Ἴπποκράτης Δημοκρίτον Ἀβδηρίταις.

LXXIX. (D.D.A 2). Suda, s. v. Δημοκρίτος: μαθητὴς δὲ αὐτοῦ (τοῦ Δημοκρίτου) διαφανῆς ἐγένετο ... Ἴπποκράτης ὁ ἰατρός.

*Alia testimonia de Hippocrate v. supra (N<sup>o</sup> XXIX, XXXVI, LXIII, LXV).*

#### 4. Plato et Democritus

LXXX. (D.O).<sup>1</sup> Diog. III, 25: πρῶτός τε ἀντειρηκῶς (sc. ὁ Πλάτων) σχεδὸν ἅπασι τοῖς πρὸ αὐτοῦ ζῆταιται διὰ τί μὴ ἐμνημόνευσε Δημοκρίτου. (D.D.A 1). Diog. IX, 40: Ἀριστότενος<sup>2</sup> δ' ἐν τοῖς ἱστορικοῖς ὑπομνήμασι φησι Πλάτωνα θεκῆσαι συμφλέξαι τὰ Δημοκρίτου συγγράμματα ὅποσα ἐδυνήθη συναγαγεῖν. Ἀρμόκλιαν δὲ καὶ Κλεινίαν<sup>3</sup> τοὺς Πυθαγορικοὺς κωλύσαι αὐτόν, ὡς οὐδὲν ὄφελος· παρὰ πολλοῖς γὰρ εἶναι ἤδη τὰ βιβλία. καὶ δῆλον δὲ πάντων γὰρ σχεδὸν τῶν ἀρχαίων μεμνημένος ὁ Πλάτων οὐδαμῶς Δημοκρίτου διαμνημονεῖ, ἀλλ' οὐδ' ἔνθα ἀντειπεῖν τι αὐτῷ δεῖ, δῆλον <ὅτι><sup>4</sup> εἰδῶς ὡς πρὸς τὸν ἀριστον αὐτῶι τῶν φιλοσόφων <ὁ ἀγῶν><sup>5</sup> ἔσοιτο· ὃν γε καὶ Τίμων<sup>6</sup> τοῦτον ἐπαινέσας τὸν τρόπον ἔχει·

ὅσον Δημοκρίτον τε περίφρονα ποιμένα μῶδων, ἀμφίνοον λιοσχῆνα μετὰ πρώτοισιν ἀνέγνω.

#### 5. Discipuli et consecutores Democriti

##### Democritei

LXXXI. (D. 69 A; v. N<sup>o</sup> VIII). Euseb. Praep. Evang. XIV, 17, 10: Δ., οὗ Πρωταγόρας καὶ Νεσσῆς<sup>1</sup> τοῦ δὲ Νεσσῆ Μητροδώρος, οὗ Διογένης, οὗ Ἀναξάρχος Ἀναξάρχου δὲ γνώριμος γέγονε Πύρρων. (D. 72 A 1). Diog. IX, 58: Ἀναξάρχος Ἀβδηρίτης. οὗτος ἤκουσε Διογένοιο τοῦ Σμυρναίου, ὁ δὲ Μητροδώρου<sup>2</sup> τοῦ Χίου ... Μητροδώρον δὲ Νεσσῆ τοῦ Χίου, οἱ δὲ Δημοκρίτου φασὶν ἀκοῦσαι.

LXXXII. (D. 70 A 1): Clem. Strom. I, 64 (II, 41, 1 St.; Dox. 244, 601): Δημοκρίτου δὲ ἀκουσται Πρωταγόρας ὁ Ἀβδηρίτης καὶ Μητροδώρος ὁ Χίος, οὗ Διογένης ὁ Σμυρναῖος, οὗ Ἀναξάρχος, τούτου δὲ Πύρρων, οὗ Ναυσιφάνης. τούτου φασὶν ἐνιοὶ μαθητὴν Ἐπίκουρον γενέσθαι. Suda, s. v. Πύρρων: (Πύρρων) ... διήκουσε Βρόσσωνος ... εἶτα Ἀναξάρχου τοῦ Μητροδώρου μαθητοῦ τοῦ Χίου, οὗ διδάσκαλος ἦν <Δημοκρίτος><sup>3</sup> ὁ Ἀβδηρίτης.

LXXXIII. (D. 72 A 11). Val. Max. VIII, 14, extr. 2: (Alexander) Anaxarcho comiti suo ex auctoritate Democriti praeceptoris innumerabiles mundos esse referenti ... inquit... Cf. Plut. De tranqu. animi 4, p. 466 D (D. 72 A 11) et N<sup>o</sup> LXV. (D.O). Euseb. Praep. Evang. XIV, 18, 27: Ἀναξάρχου τινός ... ὅς τὸ μὲν πρῶτον ἦν ζωγράφος, οὐδ' οὕτως εὐτυχῆς, ἔπειτα τοῖς

Δημοκρίτου βιβλίοις ἐντυχὸν χρηστὸν μὲν οὐδὲν οὔτε εὖρεν οὔτε συνεγράφατο, κακῶς δὲ πάντας εἶπε καὶ θεοὺς καὶ ἀνθρώπους...

LXXXIV. (D.D.A 2). Suda, s. v. Δημοκρίτος: μαθητὴς δὲ αὐτοῦ (sc. Δημοκρίτου) διαφανῆς ἐγένετο Μητροδώρος ὁ Χίος, οὗ πάλιν ἀκροαταὶ Ἀναξάρχος καὶ Ἴπποκράτης ὁ ἰατρός.

LXXXV. (D.D.B 4). Clem. Strom. II, 130 (II, 184, 14 St.): ἀλλὰ καὶ οἱ Ἀβδηρίται<sup>1</sup> τέλος ὑπάρχειν διδάσκουσιν ... Ἐκατατος δὲ ἀνάρκειαν.

LXXXVI. (D. 74, 3). Plin. N. h. XXIV, 167: Apollodorus adsector eius (sc. Democriti)...

LXXXVII. (D. 75 A 1). Diog. Prooem. I, 15: Δ. οὗ πολλοὶ μὲν, ἐπ' ὀνόματος δὲ Ναυσιφάνης [καὶ Ναυκίδης]<sup>2</sup> <οὗ> Ἐπίκουρος (v. N<sup>o</sup> VII).

LXXXVIII. (D. 75 A 7).<sup>1</sup> Pap. Herc. 1005, fr. 24 (Grönert. Kolotes und Menedemos, S. 174): ὁ<sup>2</sup> (sc. Ναυσιφάνης) τοὺς Ἐρμοκοπίδας<sup>3</sup> ἐν Τέωι συστήσας<sup>4</sup> κατὰ Δημοκρίτον καὶ <Λεύκιπτον> πραγματευσομένου ἀκουσόμενος.

LXXXIX. (D. 76, 1). Aët. II, 17, 3 (Dox. 346): Διότιμος Τύριος ὁ Δημοκρίτειος τὴν αὐτὴν τοῖτοις (sc. Metrodoro et Straton) εισηγήσατο γνώμην.

XC. (D. 77, 4). Diog. IV, 58: γεγονάσι δὲ Βίωνες δέκα ... τέταρτος (post Borysthenitam) Δημοκρίτειος καὶ μαθηματικὸς Ἀβδηρίτης.

XCI. (D. 78).<sup>1</sup> Apollon. Mirabil. 31 e Theophr. H. pl. IX, 17, 4; Steph. Byz., s. v. Ἀψυνδος: ἔστι καὶ εἶδος φυτοῦ περὶ οὗ Βῶλος ὁ Δημοκρίτειος...<sup>2</sup>

(D.D.B 300, 4). Schol. Nicandr. Ther. 764: Βῶλος ... ὁ Δημοκρίτειος ἐν τῷ Περὶ συμπαθῶν καὶ ἀντιπαθῶν... (D.D.B 300, 1). Suda: Βῶλος Δημοκρίτειος φιλόσοφος· ἱστορίαν καὶ Τέχνην ἱατρικὴν. (D.D.B 300, 3). Colum. VII, 5, 17: Aegyptiae gentis auctor memorabilis Bolus Mendesius, cuius commenta, quae appellantur graece Χειρόκιμητα, sub nomine Democriti falso produntur.

##### Sceptici

XCII. (D.O).<sup>1</sup> Diog. IX, 67: ἀλλὰ καὶ Φίλων ὁ Ἀθηναῖος, γνώριμος αὐτοῦ γεγονώς, ἔλεγε ὡς ἐμμένητο (sc. ὁ Πύρρων) μάλιστα μὲν Δημοκρίτου, εἶτα δὲ καὶ Ὀμήρου.

XCIII. (D.O). Euseb. Praep. Evang. XIV, 6, 4: ὁ δὲ Πύρρων ἐκ Δημοκρίτου ὤρμητο ὅποθεν γέ ποθεν...

XCIV. (D.O). Euseb. Praep. Evang. XIV, 18, 27: ὁ μὲν οὖν Πύρρων Ἀναξάρχου τινός ἐγένετο μαθητὴς... (17, 10) Ἀναξάρχου δὲ γνώριμος ἐγένετο Πύρρων...

##### Epicurei

XCv. (D.D.A 52).<sup>1</sup> Diog. X, 2: φησὶ δ' Ἐρμιππος γραμματοδιδάσκαλον αὐτὸν (sc. Ἐπίκουρον) γεγενῆσθαι, ἔπειτα μέντοι περιτυχόντα τοῖς Δημοκρίτου βιβλίοις ἐπὶ φιλοσοφίαν αἶξαι.

XCVI. (D.O). Aët. I, 3, 18, (Dox. 285): Ἐπίκουρος ... κατὰ Δημοκρίτον φιλοσοφήσας... (D.O). Cic. De fin. II, 31, 102: D. ... quem ille (sc. Epicurus) unum secutus est.

XCvII. (D.D.A 74). Cic. De nat. deor. I, 43, 120: D., vir magnus in primis, cuius fontibus Epicurus hortulos suos irrigavit...

XCvIII. (D.D.A 53). Plut. Adv. Colot. 3. p. 1108 EF: ἀρχεται γὰρ (sc. ὁ Ἐπίκουρος) ἀπὸ Δημοκρίτου καλὰ καὶ πρέποντα διδασκάλια<sup>1</sup> κομιζόμενου παρ' αὐτοῦ. καίτοι πολὺν χρόνον αὐτὸς ἑαυτὸν ἀνηγόρευε Δημοκρίτειον ὁ Ἐπίκουρος, ὡς ἄλλοι τε λέγουσι καὶ Λεοντεύς, εἰς τῶν ἐπ' ἄκρον Ἐπικούρου μαθητῶν, πρὸς Λυκόφρονα γράφων, τιμᾶσθαι τέ φησι τὸν Δημοκρίτον ὅπ' Ἐπικούρου διὰ τὸ πρότερον ἄψασθαι τῆς ὀρθῆς γνώσεως, καὶ τὸ σύνολον τὴν πραγματείαν Δημοκρίτειον προσαγορεύεσθαι διὰ τὸ περιπεσεῖν αὐτὸν πρότερον ταῖς ἀρχαῖς περὶ φύσεως. ὁ δὲ Μητροδώρος ἀντικρυς <ἐν τῷ><sup>2</sup> Περὶ φιλοσοφίας εἴρηκεν, ὡς εἰ μὴ καθηγῆσατο Δ., οὐκ ἂν προῆλθεν Ἐπίκουρος ἐπὶ τὴν σοφίαν.



XCIX. (D. D. A 51, 233 Us.).<sup>1</sup> Cic. De nat. deor. I, 26, 73: Quid est in physicis Epicuri non a Democrito? Nam etsi quaedam commutavit, ut quod paulo ante de inclinatione atomorum dixi, tamen pleraque dicit eadem, atomos, inane, imagines, infinitatem locorum innumerabilitatemque mundorum, eorum ortus interitus, omnia fere quibus naturae ratio continetur.

C. (D. O, 234 Us.). Cic. De fin. I, 6, 17—21: Democritea dicit<sup>2</sup> (Epicurus) perpauca mutans, sed ita ut ea, quae corrigere vult, mihi quidem depravare videatur. . . (18) Epicurus autem in quibus sequitur Democritum, non fere labitur. . . (21) Quae mutat, ea corrumpit, quae sequitur, sunt tota Democriti.

CI. (D.O; 16, 97, 10 Us.). Philod. schol. Zenon. De libertate dicendi VII, coll. 1, v. 2, fr. 20: ἐτι δὲ τῆ[ν] με[ρι]ζομένην συν[γν]ώ[μ]ην<sup>1</sup> ἐν οἷς διέπεσον ὧ[ς] ἐν τῆ[ι] τοῖς Πρὸς Δημόκριτον Ἰστατ[α] διὰ τέλους ὁ Ἐπίκουρος. Diog. X, 24: βιβλία δὲ ἐστὶ τοῦ Μητροδώρου τάδε: Πρὸς Δημόκριτον. . .

CII. (D.O).<sup>1</sup> Epicur. apud Philod. pap. 1005 (Grönert. Kolotes und Menedemos, S. 174): [γράφω] ἐπιστολὴν προσα[ν]άπτους καὶ τῶν Δημοκρίτου τινά.

CIII. (D.O). Diog. X, 3—4:<sup>1</sup> Διότιμος δ' ὁ Στωϊκὸς δυσμενῶς ἔχων πρὸς αὐτὸν πικρότατα αὐτὸν διαβέβληκεν, ἐπιστολὰς φέρων πενήντα ἀσελγείς ὡς Ἐπικούρου καὶ ὁ τὰ εἰς Χρόσιππον ἀναφερόμενα ἐπιστόλια ὡς Ἐπικούρου συντάξας, ἀλλὰ καὶ οἱ περὶ Ποσειδώνιον τὸν Στωϊκὸν καὶ Νικόλαος καὶ Σωτίων ἐν τοῖς δώδεκα τῶν ἐπιγραφομένων Διοκλείων ἐλέγχων . . . καὶ Διονύσιος ὁ Ἀλικαρνασσεύς . . . τὰ . . . Δημοκρίτου περὶ τῶν ἀτόμων καὶ Ἀριστίππου περὶ τῆς ἡδονῆς ὡς ἴδια λέγειν. . . (8) καὶ (sc. διαβάλλουσι) αὐτὸν Ἐπίκουρον ἐν ταῖς ἐπιστολαῖς . . . λέγειν . . . Δημοκρίτον Δημόκριτον. . . (9) μεμῆγασιν δ' οὗτοι. Cf. Athen. XIII, 92, 611b:<sup>2</sup> Διότιμος δ' ὁ γράψας τὰ κατ' Ἐπικούρου βιβλία ὑπὸ Ζήνωνος τοῦ Ἐπικουρείου ἐξαιτηθεὶς ἀνηρέθη. . .

CIV. (D.O).<sup>1</sup> Cic. De nat. deor. I, 33, 93: Epicurus . . . in Democritum ipsum, quem secutus est, fuerit ingratus.

CV. (D.D.B 156). Plut. Adv. Colot. 4, p. 1108 F: ἐγκαλεῖ δ' αὐτῷ (sc. τοῦ Δημοκρίτου ὁ Κολώτης) πρῶτον, ὅτι . . . συγκέχυκε τὸν βίον (v. №№ 7, 78).

CVI. (D.O, 16, 97 Us.). Plut. Contra Epic. beatit. 18, p. 1100 A: Ἐπίκουρος . . . οὕτω σπαργῶν περιμανῶς καὶ σφαδάζων πρὸς δόξαν, ὥστε . . . Δημοκρίτῳ τὰ δόγματα ῥήμασιν αὐτοῖς ὑφαιρούμενος<sup>2</sup> ζυγομαχεῖν περὶ συλλαβῶν καὶ κεραίων. . .

## 6. Democritus contra dialecticos (Eleatas vel Socratem vel sophistas quosdam)

CVII. (D.D.B 150, 109 N.).<sup>1</sup> Plut. Quaest. conv. I, 1, 5, p. 614 D—E: οὕτω τὰς φυγὰς αἱ μὲν ἐλαφραὶ ζητήσεις ἐμμελῶς καὶ ὠφελίμως κινουσί, ἐριδαντέων δὲ κατὰ Δημόκριτον καὶ ἱμαντελικτέων<sup>2</sup> λόγους ἀφετέον. Strabo I, 7, p. 65 C: οὐχ ὅραν φησι (ὁ Ἐρατοσθένης) πῶς ἂν εἰς πράγματα καταστρέφοι ἡ ζήτησις αὕτη ἀλλὰ μόνων ἐριδαντέων<sup>3</sup> κατὰ Δ. εἶναι. Cf. Clem. Strom. I, 3, 22 (II, 14, 25 St.): οἱ δὲ τινες σφᾶς αὐτοῖς ἐπαίροντες διαβολὰς τοῖς λόγοις ἐξευρίσκουσιν βιάζονται, ζητήσεις ἐριστικὰς ἐκπορίζοντες, λεξειδίων θρηνητήρες, ζηλωταὶ τεχνυδρίων, ἐριδαντέες καὶ ἱμαντελικτέες.<sup>4</sup>

CVIII. (D.D.B 85, 108 N.). Democrat. 51; Stob. II, 31, 73: Δ. ὁ ἀντιλογεόμενος καὶ πολλὰ λεσχηνυόμενος ἀφυῆς ἐς μάθησιν ὧν χρῆ.

CIX. (D.D.B 52, 113 N.). Democrat. 18; Stob. III, 10, 42: τὸν οἰόμενον νοῦν ἔχειν ὁ νουθητέων ματαιοπονεῖ.

CX. (D.D.B 86, 110 N.).<sup>1</sup> Democrat. 52; Stob. III, 36, 24; CPP, № 69; Maxim. L. c. 48, p. 647 (P.G. 91, p. 941 A): πλεονεξίη τὰ πάντα λέγειν μηδὲν δὲ ἐθέλειν ἀκούειν. Cf. № XXXVIII.

CXI. (D.D.B 64—65, 190—191 N.).<sup>1</sup> Democrat. 29, 30; Stob. III, 4, 81: πολλοὶ πολυμαθεῖς νοῦν οὐκ ἔχουσιν. πολυνοῖην, οὐ πολυμαθίην ἀσκέειν χρῆ. Cf. № XXXIX.

CXII. (D.D.B 169, 192 N.). Stob. II, 1, 12 Wachsm.: Δημοκρίτου. μὴ πάντα ἐπίστασθαι προδυμῆο, μὴ πάντων ἀμαθῆς γένη.

CXIII. (D.D.B 195, 172 N.). Stob. III, 4, 69:<sup>1</sup> Δημοκρίτου . . . εἰδῶλα ἐσθῆτι καὶ κόσμοι διαπρεπέα πρὸς θεωρίην, ἀλλὰ καρδίας κενεά.<sup>2</sup> Cf. Aristides XLVI, vol. II, p. 307 Jebb: περιέρχονται (οἱ κυνικοί). . . ἄλλως βροτῶν εἰδῶλα καμόντων . . . τῶν ἱματίων τῶν ἠπημένων οὐδὲν διαφέροντες, τὰ μὲν ἔξω σεμνοί, τὰ δ' ἔνδον ἄλλος ἂν εἶδείη τις.

CXIV. (D.D.B 114, 117 N.).<sup>1</sup> Democrat. 82: βέλτερον ὕφ' ἑτέρου ἢ ὕφ' ἑαυτοῦ ἐπαινέσθαι.

## 7. Scripta Democriti

CXV. (D.D.A 33).<sup>1</sup> Diog. IX, 45—49: τὰ δὲ βιβλία αὐτοῦ καὶ Θρασύλος ἀναγέγραφε κατὰ τάξιν οὕτως ὡς περὶ καὶ τὰ Πλάτωνος κατὰ τετραλογία.

(46) Ἔστι δὲ Ἡθικά μὲν τάδε:

I. 1. Πυθαγόρης.<sup>2</sup> 2. Περὶ τῆς τοῦ σοφοῦ διαθέσεως.<sup>3</sup> 3. Περὶ τῶν ἐν Ἄιδου.<sup>4</sup> 4. Τριτογένεια.<sup>5</sup> (τοῦτο δὲ ἐστίν, ὅτι τρία γίνεται ἐξ αὐτῆς ἅ πάντα ἀνθρώπινα συνέχει).

II. 1. Περὶ ἀνδραγαθίας, ἢ Περὶ ἀρετῆς. 2. Ἀμαλθειῆς κέρας.<sup>6</sup> 3. Περὶ εὐθυμίας.<sup>7</sup> 4. Ἰσομνημάτων ἡθικῶν<sup>8</sup> (numerus librorum deest) ἢ γὰρ Ἐδεστώ οὐκ εὑρίσκειται.<sup>9</sup>

καὶ ταῦτα μὲν τὰ Ἡθικά.

Φυσικά δὲ τάδε:

III. 1. Μέγας διάκοσμος (ὃν οἱ περὶ Θεόφραστον Λευκίππου φασὶν εἶναι).<sup>10</sup> 2. Μικρὸς διάκοσμος. 3. Κοσμογραφίη.<sup>11</sup> 4. Περὶ τῶν πλανητῶν.<sup>12</sup>

IV. 1. Περὶ φύσεως πρῶτον.<sup>13</sup> 2. Περὶ ἀνθρώπου φύσεως<sup>14</sup> (ἢ Περὶ σαρκός) δεύτερον. 3. Περὶ νοῦ.<sup>15</sup> Περὶ αἰσθησίων (ταῦτά τινες ὁμοῦ<sup>16</sup> γράφοντες Περὶ ψυχῆς<sup>17</sup> ἐπιγράφουσι).

V. Περὶ χυμῶν.<sup>18</sup> 2. Περὶ χροῶν<sup>19</sup> (47). 3. Περὶ τῶν διαφερόντων ῥυθμῶν.<sup>20</sup> 4. Περὶ ἀμείψιρυσμιῶν.<sup>21</sup>

VI. 1. Κρατυνήρια<sup>22</sup> (ὅπερ ἐστὶν ἐπικριτικά τῶν προειρημένων). 2. Περὶ εἰδῶλων,<sup>23</sup> ἢ Περὶ προνοίας. 3. Περὶ λογικῶν, ἢ Κανῶν<sup>24</sup> α β γ. 4. Ἀπορημάτων (numerus librorum deest).

ταῦτα καὶ Περὶ φύσεως.<sup>25</sup>

Τὰ δὲ Ἀσόντακτα<sup>26</sup> ἐστὶ τάδε:

1. Αἰτίαι οὐράναι. 2. Αἰτίαι ἀέριοι. 3. Αἰτίαι ἐπίπεδοι. 4. Αἰτίαι περὶ πυρός καὶ τῶν ἐν πυρὶ. 5. Αἰτίαι περὶ φωνῶν. 6. Αἰτίαι περὶ σπερμάτων καὶ φυτῶν καὶ καρπῶν. 7. Αἰτίαι περὶ ζώων<sup>27</sup> α β γ. 8. Αἰτίαι σύμμικτοι. 9. Περὶ τῆς λίθου.<sup>28</sup>

ταῦτα καὶ τὰ Ἀσόντακτα.

Μαθηματικά<sup>29</sup> δὲ τάδε:

VII. 1. Περὶ διαφορῆς γνώμης,<sup>30</sup> ἢ Περὶ ψαύσιος κύκλου καὶ σφαίρης. 2. Περὶ γεωμετρίας. 3. Γεωμετρικῶν.<sup>31</sup> 4. Ἀριθμοί.

VIII. 1. Περὶ ἀλόγων γραμμῶν καὶ ναστῶν α β. 2. Ἐκπετάσματα.<sup>32</sup> (48) 3. Μέγας ἐνιαυτός, ἢ Ἀστρονομίη,<sup>33</sup> παράπηγμα. 4. Ἄμιλλα κλεψύδραι (P).<sup>34</sup>

IX. 1. Οὐρανογραφίη. 2. Γεωγραφίη.<sup>35</sup> 3. Πολογραφίη.<sup>36</sup> 4. Ἀκτινογραφίη.<sup>37</sup> τσαῦτα καὶ τὰ Μαθηματικά.

Μουσικά<sup>38</sup> δὲ τάδε:

X. 1. Περὶ ῥυθμῶν καὶ ἀρμονίας. 2. Περὶ ποιήσιος. 3. Περὶ καλλοσύνης ἐπέων. 4. Περὶ εὐφώνων καὶ δυσφώνων γραμμάτων.

XI. 1. Περὶ Ὀμήρου,<sup>39</sup> ἢ Ὀρθοπειῆς καὶ γλωσσέων. 2. Περὶ αἰοδῆς. 3. Περὶ ῥημάτων. 4. Ὀνομαστικῶν<sup>40</sup> (numerus librorum?).

τσαῦτα καὶ τὰ Μουσικά.

Τεχνικά δὲ τάδε:<sup>41</sup>

XII. 1. Πρόγνωσις. 2. Περὶ διαίτης, ἢ Διαιτητικόν. 3. [ἦ] Ἱητρικὴ γνώμη. 4. Αἰτίαι περὶ ἀκαιριῶν καὶ ἐπικαιριῶν.

XIII. 1. Περὶ γεωργίας, ἢ Γεωμετρικόν.<sup>42</sup> 2. Περὶ ζωγραφίας. 3. Τακτικόν καὶ

4. Ὀπλομαχικόν.<sup>43</sup>

τοσαῦτα καὶ τάδε.

τάττουσι δὲ τινες κατ' ἰδίαν ἐκ τῶν Ὑπομνημάτων<sup>44</sup> καὶ ταῦτα (49) 1. Περὶ τῶν ἐν Βαβυλῶνι ἱερῶν γραμμάτων. 2. Περὶ τῶν ἐν Μερόη.<sup>45</sup> 3. Ὁκεανοῦ περίπλους. 4. Περὶ ἱστορίας.<sup>46</sup> 5. Χαλδαϊκὸς λόγος. 6. Φρόγιος λόγος.<sup>47</sup> 7. Περὶ πυρετοῦ καὶ τῶν ἀπὸ νόσου βησόντων. 8. Νομικὰ αἰτία. 9. Χεῖρ νικᾷ<sup>48</sup> (?),<sup>b</sup> ἢ Προβλήματα. τὰ δ' ἄλλα, ὅσα τινὲς ἀναφέρουσιν εἰς αὐτόν, τὰ μὲν ἐκ τῶν αὐτοῦ διασκευάσται,<sup>49</sup> τὰ δ' ὁμολογουμένως ἐστὶν ἀλλότρια.<sup>50</sup> ταῦτα καὶ περὶ τῶν βιβλίων αὐτοῦ καὶ τοσαῦτα.

CXVI. (D.D.A 31, 163 N.). Suda, s. v. Δημόκριτος: γνήσια δὲ αὐτοῦ βιβλία εἰσι δύο, ὃ τε Μέγας Διάκοσμος καὶ τὸ Περὶ φύσεως κόσμου.<sup>1</sup> ἔγραψε δὲ καὶ Ἐπιστολάς. (D.L.B 2). Aët. I, 25, 4: Λεύκιππος... λέγει... ἐν τῷ Περὶ νοῦ. (D.D.B 6). Sext. Adv. math. VII, 137: Δ. ... ἐν... τῷ Περὶ ἰδεῶν... (D.D.B 13). Apollon. De pronom., p. 65, 15 Schneid.: Δ. ἐν τοῖς Περὶ ἀστρονομίας... (v. № 422) (D.D.B 14, 5). Schol. Apoll. Rhod. II, 1098: Δ. ἐν τῷ Περὶ ἀστρονομίας... (v. № 424, 5).

8. Scripta de Democrito

CXVII. (D.D.A ante 35). Simpl. in De caelo 294, 33: ὀλίγα δὲ ἐκ τῶν Ἀριστοτέλους Περὶ Δημοκρίτου (№№ 172, 197, 204, 227, 293, 320, 339). Diog. V, 26 (scriptorum Aristotelis catalogus): Προβλήματα ἐκ τῶν Δημοκρίτου β.

CXVIII. (D.D.A ante 35).<sup>1</sup> Diog. V, 49 (scriptorum Theophrasti catalogus): Περὶ Δημοκρίτου α; ib., 43: Περὶ τῆς Δημοκρίτου ἀστρολογίας α (v. № 422).

CXIX. (D.D.A ante 35).<sup>1</sup> Diog. V, 87 (scriptorum Heraclidis Pontici catalogus). Περὶ ψυχῆς καὶ περὶ φύσεως, καὶ περὶ εἰδώλων πρὸς Δημοκρίτον; ib., 88: Πρὸς τὸν Δημοκρίτον ἐξηγήσεις α.

CXX. (D.D.A ante 35).<sup>1</sup> Philod. schol. Zenon. De libertate dicendi, VH, coll. 1, vol. 2, fr. 20 (p. 97, 10 Us.): ὡς ἐν τε τοῖς Πρὸς Δημοκρίτον ἴσαται διὰ τέλους ὁ Ἐπίκουρος.

CXXI. (D.D.A ante 35). Diog. X, 24 (scriptorum Metrodori Epicurei catalogus): Πρὸς Δημοκρίτον.

CXXII. (D.D.B 156). Plut. Adv. Colot. 4, p. 1108 F: ἐγκαλεῖ δ' αὐτῷ (sc. Δημοκρίτῳ)... ὁ Κολώτης...

CXXIII. (D.D.A ante 35). Diog. VII, 174 (scriptorum Cleanthis catalogus): Πρὸς Δημοκρίτον.

CXXIV. (D.D.A 32). Suda, s. v. Καλλιμαχος (scriptorum catalogus): Πίναξ τῶν Δημοκρίτου γλωσσῶν καὶ συνταγμάτων.<sup>1</sup>

CXXV. (D.D.A 32). Steph. Byz., p. 640, 5 Mein.: Ἡγησιάνης<sup>1</sup> γραμματικὸς γράφας Περὶ τῆς Δημοκρίτου λέξεως βιβλίον ἐν καὶ Περὶ ποιητικῶν λέξεων ἦν δὲ Τρωιαδεὺς.

CXXVI. (D.D.A ante 35).<sup>1</sup> Diog. VII, 178 (scriptorum Sphaeri catalogus): Περὶ ἐλαχίστων, Πρὸς τὰς ἀτόμους καὶ τὰ εἴδωλα.

CXXVII. (D.D.A 1; v. № I). Diog. IX, 41: γεγονότι δ' ἂν (Δ.), ὡς μὲν Ἀπολλόδορος ἐν Χρονικοῖς... ὡς δὲ Θρασύλος<sup>1</sup> ἐν τῷ ἐπιγραφομένῳ Τὰ πρὸ τῆς ἀναγνώσεως τῶν Δημοκρίτου βιβλίων... φησί...



DEMOCRITI DOCTRINA

A. PRINCIPIA GENERALIA

a. PRINCIPIA RERUM

I. Principium «isonomiae» (aequabilitatis sive aequabilis tributionis) «cur potius hic et nunc, quam illic et tunc»

1. (partim D. 12 A 15). Aristot. Phys. III, 4, p. 203b 22:<sup>1</sup> (τοῦ δ' εἶναι τι ἄπειρον ἢ πίσις ἐκ πέντε μάλιστα ἂν συμβαίνει σκοποῦσιν)... μάλιστα δὲ καὶ κυριώτατον, ὃ τὴν κοινὴν ποιεῖ ἀπορίαν πᾶσιν· διὰ γὰρ τὸ ἐν τῇ νοήσει «μὴ ὑπολείπειν» καὶ ὁ ἀριθμὸς δοκεῖ ἄπειρος εἶναι καὶ τὰ μαθηματικὰ μεγέθη καὶ τὸ ἔξω τοῦ οὐρανοῦ.<sup>2</sup> ἄπειρου δ' ὄντος τοῦ ἔξω, καὶ σῶμα ἄπειρον εἶναι δοκεῖ καὶ κόσμοι.<sup>3</sup> τί γὰρ μᾶλλον τοῦ κενοῦ ἐνταῦθα ἢ ἐνταῦθα; ὥστ' εἴπερ μοναχοῦ, καὶ πανταχοῦ εἶναι τὸν ὄγκον, ἅμα δ' εἰ καὶ ἔστι κενὸν καὶ τόπος ἄπειρος, καὶ σῶμα ἄπειρον εἶναι ἀναγκαῖον· ἐνδέχεσθαι γὰρ ἢ εἶναι οὐδὲν διαφέρει ἐν τοῖς αἰθίοις.<sup>4</sup> Simpl. ad loc. 467, 16: εἰ μὲν κενόν (sc. ἄπειρόν ἐστι), ὡς ἐδόκει λέγειν Δ., ἄπειροι ἂν εἶεν οἱ κόσμοι. Philopon. ad loc. 405, 23: ἐνθεν γὰρ καὶ ὁ Δ. ἄπειρους εἶναι κόσμους ὑπετίθετο, ὑποτιθέμενος κενὸν εἶναι ἄπειρον· τίς γὰρ ἢ ἀποκλήρωσις τότε μὲν τὸ τοῦ κενοῦ μέρος ὑπὸ κόσμου πληρωθῆναι, ἄλλα δὲ μὴ; ὥστε εἰ ἐν τινι μέρει τοῦ κενοῦ κόσμος ἐστί, καὶ ἐν παντὶ ἄρα τῷ κενῷ, ἄπειρου οὖν ὄντος τοῦ κενοῦ, ἄπειροι εἶσονται καὶ οἱ κόσμοι. Lact. De ira dei 10, 10 (p. 86, 11 Brandt): Quoniam nec omne, inquit (Leucippus), infinitum nec potest quidquam vacare, esse est ergo innumerabiles esse mundos.<sup>5</sup>

2. (D.L.A 8 et D.D.A 38). Simpl. in Phys. I, 2, p. 184b 15, p. 28, 4 sqq. (=Theophr. Phys. opin., fr. 8; Dox. 483): Δ. ... ὑπέθετο... τῶν ἐν αὐτοῖς [sc. ἐν τοῖς στοιχείοις] σχημάτων ἄπειρον τὸ πλήθος διὰ τὸ μηδὲν μᾶλλον τοιοῦτον ἢ τοιοῦτον εἶναι... [Δ. καὶ Δ.] τῶν ἐν ταῖς ἀτόμοις σχημάτων ἄπειρον τὸ πλήθος φασὶ διὰ τὸ μηδὲν μᾶλλον τοιοῦτον ἢ τοιοῦτον εἶναι. ταύτην γὰρ αὐτοὶ τῆς ἀπειρίας αἰτίαν ἀποδίδουσι.

3. (D.O; № 85). Sext. Pyrrh. hypot. I, 213: ἀπὸ γὰρ τοῦ τοῖς μὲν γλυκὺ φαίνεσθαι τὸ μέλι τοῖς δὲ πικρὸν τὸν Δ. ἐπιλογίζεσθαι φασὶ τὸ μήτε γλυκὺ αὐτὸ εἶναι μήτε πικρὸν καὶ διὰ τοῦτο ἐπιφθέγγεσθαι<sup>1</sup> τὴν «οὐ μᾶλλον» φωνήν (partim D.D.A 112; cf. №№ 73, 77, 80). Aristot. Metaph. III, 5, p. 1009b 1: ἢ περὶ τὰ φαινόμενα ἀλήθεια ἐπίσης ἐκ τῶν αἰσθητῶν ἐλήλυθεν, τὸ μὲν γὰρ ἀληθὲς οὐ πλήθει κρίνεσθαι οἶονται προσήκειν οὐδὲ ὀλιγότῃ, τὸ δ' αὐτὸ τοῖς μὲν γλυκὺ γευομένοις δοκεῖν εἶναι, τοῖς δὲ πικρὸν... καὶ αὐτῷ δὲ ἐκάστωι πρὸς αὐτόν οὐ ταῦτά κατὰ τὴν αἰσθησιν αἰεὶ δοκεῖν. ποῖα οὖν τοῦτων ἀληθῆ ἢ ψευδῆ, ἀδηλον· οὐδὲν γὰρ μᾶλλον τάδε ἢ τάδε ἀληθῆ, ἀλλ' ὁμοίως. διὸ Δ. γέ φησιν ἦτοι οὐδὲν εἶναι ἀληθὲς ἢ ἡμῖν γ' ἀδηλον. (D.D.A 135). Theophr. De sensu 69 sqq. (Dox. 519; cf. № 441): ὅλως δὲ μέγιστον ἐναντίωμα<sup>2</sup> καὶ κοινὸν ἐπὶ πάντων, ἅμα μὲν πάθη ποιεῖν τῆς αἰσθήσεως, ἅμα δὲ τοῖς σχήμασι διορίζειν<sup>3</sup> καὶ τὸ αὐτὸ φαίνεσθαι τοῖς μὲν πικρὸν, τοῖς δὲ γλυκὺ, τοῖς δ' ἄλλως· οὔτε γὰρ οἶόν<sup>4</sup> <τε> τὸ σχῆμα πάθος εἶναι

οὔτε ταῦτόν τοις μὲν σφαιροειδέσιν, τοῖς δ' ἄλλωσιν (ἀνάγκη δ' εἶπερ) ἴσως, εἴπερ τοῖς μὲν γλυκί, τοῖς δὲ πικρὸν) οὐδὲ κατὰ τὰς ἡμετέρας ἕξεις μεταβάλλειν τὰς μορφάς. ἀπλῶσ δὲ τὸ μὲν σχῆμα καθ' αὐτὸ ἐστίν, τὸ δὲ γλυκί καὶ ὄλως τὸ αἰσθητὸν πρὸς ἄλλο καὶ ἐν ἄλλοις, ὡς φησὶν. ἀποπὸν δὲ καὶ τὸ πᾶσιν ἀξιοῦν ταῦτο φαίνεσθαι τῶν αὐτῶν αἰσθανομένων καὶ τούτων τὴν ἀλήθειαν ἐλέγχειν, καὶ ταῦτα εἰρηκότα πρότερον τὸ τοῖς ἀνομοίως διακειμένους ἀνόμοια φαίνεσθαι καὶ πάλιν τὸ μῆδὲν μᾶλλον ἕτερον ἐτέρου πυχάνειν τῆς ἀληθείας. . . (71) ἐστὶ δὲ ποιεῖ σαφέστερον ἐν οἷς φησὶ γίνεσθαι μὲν ἕκαστον καὶ εἶναι κατ' ἀλήθειαν (cf. № 369).

4. (D. 28 A 44). Aët. III, 15, 7 (Dox. 380): Παρμενίδης, Δ. διὰ τὸ πανταχόθεν ἴσον ἀφαστῶσαν (sc. τὴν γῆν) μένειν ἐπὶ τῆς ἰσορροπίας οὐκ ἔχουσαν αἰτίαν δι' ἣν δεῦρο μᾶλλον ἢ ἐκεῖσε βέψειεν ἄν. διὰ τοῦτο μόνον μὲν κραδαίνεσθαι, μῆ κινεῖσθαι δέ. Aristot. De caelo II, 13, p. 295b 10: εἰσὶ δὲ τινες, οἱ διὰ τὴν ὁμοιότητά φασιν αὐτὴν μένειν, ὡσπερ τῶν ἀρχαίων Ἀναξίμανδρος μᾶλλον μὲν γὰρ οὐδὲν ἄνω ἢ κάτω ἢ εἰς τὰ πλάγια φέρεσθαι προσήκει τὸ ἐπὶ τοῦ μέσου ἰδρυμένον καὶ ὁμοίως πρὸς τὰ ἔσχατα ἔχον. ἅμα δ' ἀδύνατον εἰς τὰναντία ποιεῖσθαι τὴν κίνησιν. ὡσπ' ἐξ ἀνάγκης μένειν.

5. (D.O). Aristot. Phys. IV, 8, p. 214b 28: συμβαίνει δὲ τοῖς λέγουσιν εἶναι κενὸν ὡς ἀναγκαῖον, εἴπερ ἔσται κίνησις . . . μῆ ἐνδέχεσθαι μῆδὲ ἐν κινεῖσθαι, ἐὰν ἦ κενόν. ὡσπερ γὰρ οἱ διὰ τὸ ὅμοιον φάμενοι τὴν γῆν ἠρεμεῖν, οὕτως καὶ ἐν τῷ κενῷ ἀνάγκη ἠρεμεῖν. οὐ γὰρ ἔστιν οὐ μᾶλλον ἢ ἥττον κινηθῆσεται. ἦ γὰρ κενόν, οὐκ ἔχει διαφορὰν. (p. 215a 19) . . . ἐστὶ οὐδεὶς ἄν ἔχοι εἰπεῖν, διὰ τί κινηθὲν στήσεται πού. τί γὰρ μᾶλλον ἐνταῦθα ἢ ἐνταῦθα; ὡσπ' ἢ ἠρεμήσει ἢ εἰς ἄπειρον ἀνάγκη φέρεσθαι, ἐὰν μὴ τι ἐμποδίσῃ κρεῖττον.

6. (partim D. D. A 84). Cic. Acad. priora II, 17, 55 sq.: Dein confugis ad physicos, eos qui maxime in Academia inridentur, a quibus ne tu quidem iam te abstinere, et ais Democritum dicere innumerabiles esse mundos et quidem sic quosdam inter sese non solum similes, sed undique perfecte et absolute ita pares, ut inter eos nihil prorsus intersit [et eo quidem innumerabiles], itemque homines. Deinde postulas, ut, si mundus ita sit par alteri mundo, ut inter eos ne minimum alicui sic par sit, ut nihil differat, nihil hoc quoque nostro mundo aliquid alicui sic par sit, ut nihil differat, nihil intersit. Cur enim, inquires, cum ex illis individuis, unde omnia D. gigni affirmat, in reliquis mundis, et in iis quidem innumerabilibus, innumerabiles Q. Lutatii Catuli non modo possint esse, sed etiam sint, in hoc tanto mundo Catulus alter non possit effici? Primum quidem me ad D. vocas, cui non assentior: potiusque refello propter id, quod dilucide docetur a politioribus physiciis singularum rerum singulas proprietates esse. (D. O) Cic. Acad. priora II, 40, 125: Quem (deligam)? Democritum? . . . Tunc . . . putes . . . cum in uno mundo ornatus hic tam sit mirabilis, innumerabiles supra infra, dextra sinistra, ante post, alios dissimiles, alios eiusdem modi mundos esse? Et, ut nos nunc sumus ad Baulos Puteolosque videamus, sic innumerabiles paribus in locis, esse eisdem nominibus, honoribus, rebus gestis, ingeniis, formis, aetatibus, eisdem de rebus disputantes? (D. O). Cf. [Hippocr.] Epist. 10 (IX, p. 322, 5 Littré): καὶ ἀποδημεῖν ἐνίοτε λέγει ἐς τὴν ἀπειρίην (sc. ὁ Δημόκριτος) καὶ Δημοκρίτους εἶναι ὁμοίους ἐωυτῷ ἀναριθμήτους.

7. (D.D.B 156). Plut. Adv. Colot. 4, p. 1108 F sq.: ἐγκαλεῖ δ' αὐτῶν (Colotes Democrito) πρῶτον, ὅτι τῶν πραγμάτων ἕκαστον εἰπὼν οὐ μᾶλλον τοῖον ἢ τοῖον<sup>1</sup> εἶναι συγκέχυκε τὸν βίον. . . ὁ Κολώτης ἐσφάλη περὶ λέξιν τοῦ ἀνδρός, ἐν ἣν διορίζεται μῆ μᾶλλον τὸ δὲν<sup>2</sup> ἢ τὸ μῆδὲν εἶναι, δὲν μὲν ὀνομάζον τὸ σῶμα, μῆδὲν δὲ τὸ κενόν, ὡς καὶ τοῦτου φύσιν τινὰ καὶ ὑπόστασιν ἰδίαν ἔχοντος. (D.L.A 6). Aristot. Metaph. I, 4, p. 985b 8: (Δ. δὲ καὶ ὁ ἐταῖρος αὐτοῦ Δ.) οὐδὲν μᾶλλον τὸ ὄν τοῦ μῆ ὄντος εἶναι φασιν. Asclep. ad loc. 33, 9: (Λεόκιππος καὶ Δ.) ἔλεγον, ὅτι οὐκ ἔστιν ἐπὶ πλέον τὸ ὄν τοῦ μῆ ὄντος, ἐπειδὴ οὔτε τὸ σῶμα, τουτέστιν αἱ ἀτομοὶ οὐκ ἔστιν ἐπὶ πλέον τὸ ὄν τοῦ μῆ ὄντος, ἐπειδὴ οὔτε τὸ σῶμα, τουτέστιν αἱ ἀτομοὶ, πλείονες ὑπάρχουσι τοῦ κενοῦ. πανταχοῦ γὰρ καὶ κενόν καὶ ἀτομοὶ ὑπάρχουσιν. (D.L.A 8). Simpl. in Phys. I, 2, p. 184b 15, p. 28, 4 (=Theophr. Phys.

opin., fr. 8, Dox. 483): Δ. . . ὑπέθετο . . . οὐδὲν μᾶλλον τὸ ὄν ἢ τὸ μῆ ὄν ὑπάρχειν.

8. (D.O). Aristot. Metaph. III, 5, p. 1009a 22: ἠλήλυθε δὲ τοῖς διαφοροῦσιν αὐτῆ ἢ δόξα ἐκ τῶν αἰσθητῶν, ἣ μὲν τοῦ ἅμα τὰς ἀντιφάσεις καὶ τὰναντία ὑπάρχειν, ὁραῖσιν ἐκ ταυτοῦ γινόμενα τὰναντία, εἰ οὐκ μῆ ἐνδέχεται γενέσθαι τὸ μῆ ὄν, προὔπηρχεν ὁμοίως τὸ πρᾶγμα ἅμω ὄν, ὡσπερ καὶ Ἀναξαγόρας μεμιχθῆναι πᾶν ἐν παντί φησὶ καὶ Δημόκριτος. καὶ γὰρ οὗτος τὸ κενόν καὶ τὸ πλήρες ὁμοίως καθ' ὅτιον ὑπάρχειν μέρος, καίτοι τὸ μὲν ὄν τούτων εἶναι, τὸ δὲ μῆ ὄν. Alex. ad loc. 304, 2 sqq.: λέγοι δ' ἂν καὶ πῶς αὐτῶι ὄν μὲν λέγοντι τὸ πλήρες, μῆ ὄν δὲ τὸ κενόν, ταῦτα δὲ ἐν πᾶσιν ὁμοίως εἶναι ἐξ ὧν γένεσις, εἶπετο ἐφ' ἑκάστου λέγειν ἀληθῆ τὴν ἀντίφασιν τὸ εἶναι τε καὶ μῆ εἶναι. (D.D.A 57). Cf. Aristot. Metaph. XI, 2, p. 1069b 22: καὶ ὡς Δ. φησὶν, «τὴν ὁμοῦ πάντα» δυνάμει, ἐνεργεῖται δ' οὐ (v. № 221).

## II. Principium analogiae inter microcosmum et macrocosmum

9. (D.D.B 165).<sup>1</sup> Sext. Adv. math. VII, 265; Cic. Acad. priora II, 23, 73; v. № 65: λέγω τάδε περὶ τῶν ξυμπάντων. ἀνθρωπός ἐστιν, ὃ πάντες ἴδμεν. . .<sup>2</sup>

10. (D.D.B 34). Aristot. Phys. VIII, 2, p. 252b 24; εἰ δ' ἐν ζῳίωι τοῦτο δυνατὸν γενέσθαι, τί καλοῖται τὸ ἀπὸ συμβῆται καὶ κατὰ τὸ πᾶν; εἰ γὰρ ἐν μικρῷ κόσμω γίνεται, καὶ ἐν μεγάλωι. V. № 40 c. comm. David. Proleg. 38, 14 Busse: ἐν τῷ ἀνθρώπωι μικρῷ κόσμω ὄντι κατὰ τὸν Δημόκριτον. Galen. De usu part. III, 10 (III, 244 K.; I, 177, 10 Helmr.): ἀλλὰ καὶ τὸ ζῳιον οἶον μικρὸν τινα κόσμον εἶναι φασὶν ἄνδρες παλαιοὶ περὶ φύσιν ἱκανοί.

11. (D.D.B 164). Sext. Adv. math. VII, 116—117: παλαιὰ . . . δόξα περὶ τοῦ τὰ ὅμοια τῶν ὁμοίων εἶναι γνωριστικά . . . ἀλλ' ὁ μὲν Δ. ἐπὶ τε τῶν ἐμφύχων καὶ ἀψύχων ἴσθησι τὸν λόγον «καὶ γὰρ ζῳια», φησὶν, «ὁμογενέσι ζῳίοις συναγελάζεται ὡς περισσότεραι περισσότεραι καὶ γέρανοι γέρανοι». . . (D.D.A 128; Dox. 408). Aët. IV, 19, 13: Δ. καὶ τὸν ἀέρα φησὶν εἰς ὁμοιοσχῆμονα θρύπτεσθαι σώματα καὶ συγκαλινδεῖσθαι τοῖς ἐκ τῆς φωνῆς θραύσμασι. «κολοῖός» γὰρ «παρὰ κολοῖον ἰζάνει» καὶ «ὡς αἰεὶ τὸν ὁμοῖον ἄγει θεός ὡς τὸν ὁμοῖον». V. №№ 316, 491.

12. (D.D.A 93a). Seneca. Nat. quaest. V, 2: D. ait: «. . . quemadmodum in foro aut vico, quamdiu paucitas est, sine tumultu ambulatur (cf. Themist. in Phys. IV, 9, p. 216b 22, p. 135, 15: τὰ . . . σώματα . . . παρέχει χώραν . . . ὡσπερ τοῖς διὰ πλήθους βαδίζουσι [=Simpl. ad loc. 683, 12]), ubi turba in angustum concurrit, aliorum in alios incidentium rixa fit: sic in hoc quo circumdati sumus spatio, cum exiguum locum multa corpora impleverint, necesse est alia aliis incident ac impellant ac repellantur impelluntque et comprimantur. . .» V. № 371. Aët. II, 4, 9: Δ. φθείρεσθαι τὸν κόσμον τοῦ μείζονος τὸν μικρότερον νικῶντος.<sup>1</sup> (D.D.A 143). Aristot. De gen. animal. IV, 1, p. 764a 6: Δ. δὲ ὁ Ἀβδηρίτης . . . τὴν διαφορὰν τοῦ θήλεος καὶ τοῦ ἄρρενος . . . (sc. διὰ τοῦτο εἶναι), ὑποτέρω ἂν κρατήσῃ τὸ σπέρμα τὸ ἀπὸ τοῦ μορίου ἐλθόν. . . (p. 764b 19) τῷ κρατήσῃ τι μέρος ἄλλου μέρους γίνεσθαι τὸ μὲν θῆλυ τὸ δ' ἄρρεν . . . τὴν τοῦ μέρους ὑπεροχὴν κρατήσασαν ποιεῖν θῆλυ. . . [Philopon.] in De gen. animal. IV, 1, p. 763b 20, p. 167, 13: Δ. δὲ . . . ἔλεγε γίνεσθαι ἄρρενα καὶ θήλεα . . . κατ' ἐπικράτειαν τῶν μερῶν . . . γίνεσθαι δὲ πρῶτως τὴν μάχην ἐν τοῖς μορίοις, καθ' ἃ διαφέρει τὸ ἄρρεν καὶ θῆλυ . . . καὶ εἰ μὲν κρατήσῃ ἢ ὑστέρα τοῦ περιπέου, μεταβάλλει αὐτὸν εἰς τὴν ἐαυτῆς φύσιν (cf. № 530). V. etiam №№ 531, 532.

12a. (D.D.B 288). Stob. IV, 40, 21: νόσος οἴκου καὶ βίου γίνεται, ὅκωσπερ καὶ σκήνεος.<sup>1</sup>

## III. Quod aeternum est, neque initium neque causam habet

13. (D.O). Aristot. De gen. animal. II, 6, p. 742b 17: οὐ καλῶσ δὲ λέγουσιν οὐδὲ τοῦ διὰ τί τὴν ἀνάγκην, ὅσοι λέγουσιν, ὅτι οὕτως αἰεὶ γίνεται, καὶ ταύτην εἶναι νομίζουσιν ἀρχὴν ἐν αὐτοῖς, ὡσπερ Δ. ὁ Ἀβδηρίτης, ὅτι τοῦ μὲν αἰεὶ καὶ ἀπείρου

οὐκ ἔστιν ἀρχή, τὸ δὲ διὰ τί ἀρχή, τὸ δ' αἰεὶ ἀπειρον, ὥστε τὸ ἐρωτᾶν τὸ διὰ τί περὶ τῶν τοιούτων τινὸς τὸ ζητεῖν εἶναι φησὶ τοῦ ἀπειροῦ ἀρχήν (cf. № 304).

14. (D.D.A 65). Aristot. Phys. VIII, 1, p. 251b 15: καὶ διὰ τούτου ἄ. γε δεικνυσιν, ὡς ἀδύνατον ἅπαντα γεγονέναι· τὸν γὰρ χρόνον ἀγέννητον εἶναι. (p. 252a 32) ὅπως δὲ τὸ νομίζειν ἀρχὴν εἶναι ταύτην ἰκανήν, ὅτι αἰεὶ ἔστιν οὕτως ἢ γίγνεται, οὐκ ὀρθῶς ἔχει ὑπολαβεῖν, ἐφ' ὃ ἄ. ἀνάγει τὰς περὶ φύσεως αἰτίας, ὡς οὕτω καὶ τὰ πρότερον ἐγένετο· τοῦ δὲ αἰεὶ οὐκ ἀξιῶ ἀρχὴν ζητεῖν.

15. (D.D.A 56). Cic. De fin. I, 6, 17: Ille (D.) ... censet ... motum atomorum nullo a principio, sed ex aeterno tempore intellegi convenire. (D.O). Cic. Acad. priora II, 40, 125: Tunc (i.e. D.) ... putes ... sine aliqua mente rem ullam effici posse praeclaram.

15a. (D.O) Varro. De lingua lat. VI, 39: D., Epicurus\* item alii, qui infinita principia dixerunt, quae unde sint, non dicunt, sed quousi modi sint; tamen faciunt magnum, quod<sup>b</sup> quae ex iis constant in mundo, ostendunt.

16. (D.L.A 16). Aristot. De caelo III, 2, p. 300b 8: διὸ καὶ Λεουκίππει καὶ Δημοκρίτῳ τοῖς λέγουσιν αἰεὶ κινεῖσθαι τὰ πρῶτα σώματα ἐν τῷ κενῷ καὶ τῷ ἀπειρῷ, λεκτέον τίνα κίνησιν καὶ τίς ἢ κατὰ φύσιν αὐτῶν κίνησις. Simpl. ad loc. 583, 20: ἔλεγον αἰεὶ κινεῖσθαι τὰ πρῶτα κατ' αὐτοῦ σώματα, τοῦτέστι τὰς ἀτόμους, ἐν τῷ ἀπειρῷ κενῷ βίαι.<sup>1</sup> (D.L.A 6). Aristot. Metaph. I, 4, p. 985b 19: (Ἄ. καὶ ὁ ἑταῖρος αὐτοῦ Ἄ.) περὶ δὲ κινήσεως, ὅθεν ἢ πῶς ὑπάρχει τοῖς οὐσί, καὶ οὗτοι παραπλησίως τοῖς ἄλλοις βραδύτως ἀφείσαν. Alex. ad loc. 36, 21: λέγει μὲν περὶ Λεουκίππου τε καὶ Δημοκρίτου· οὗτοι γὰρ λέγουσιν ἀλληλοτυπούσας καὶ κρουόμενας πρὸς ἀλλήλας κινεῖσθαι τὰς ἀτόμους, πόθεν μέντοι ἢ ἀρχὴ τῆς κινήσεως τῆς κατὰ φύσιν, οὐ λέγουσιν. ἢ γὰρ κατὰ τὴν ἀλληλοτυπίαν βίαιός ἐστι κίνησις καὶ οὐ κατὰ φύσιν, ὅστερα δὲ ἢ βίαιος τῆς κατὰ φύσιν. (D.L.A 10). Hippol. Refut. I, 12 (Dox. 564): Ἄ. ... τίς δ' ἂν εἴη ἢ ἀνάγκη, οὐ διώρισεν.

17. (cf. D.L.A 18). Aristot. Metaph. XII, 6, p. 1071b 26: καίτοι εἰ ὡς λέγουσιν οἱ θεολόγοι οἱ ἐκ νοκτὸς γεννῶντες, ἢ ὡς οἱ φυσικοὶ «τὴν ὁμοῦ πάντα χρεῖματα»<sup>1</sup> φασί, τὸ αὐτὸ ἀδύνατον. πῶς γὰρ κινήθησεται, εἰ μὴθὲν ἔσται ἐνεργεῖα αἰτιον; οὐ γὰρ ἢ γε ὅλη κινήσει αὐτὴ ἑαυτήν, ἀλλὰ τεκτονική, οὐδὲ τὰ ἐπιμήνια, οὐδ' ἢ γῆ, ἀλλὰ τὰ σπέρματα καὶ ἢ γονή. διὸ ἐνιοὶ ποιοῦσιν αἰεὶ ἐνεργεῖαν, οἷον Λεουκίππος καὶ Πλάτων· αἰεὶ γὰρ εἶναι φασὶ κίνησιν. ἀλλὰ διὰ τί καὶ τίνα, οὐ λέγουσιν οὐδ', εἰ ὠδὶ ἢ ὠδί,<sup>2</sup> τὴν αἰτίαν. (p. 1072a 4) οὐ δ' ἐνεργεῖα πρότερον, μαρτυρεῖ Ἀναξαγόρας ... καὶ οἱ αἰεὶ λέγοντες κίνησιν εἶναι, ὡς περ Ἄ. (D.O). Alex. ad loc. 690, 28: διὸ φεύγοντες τινες ταῦτα τὰ ἄτοπα ποιοῦσι προτέραν τὴν ἐνεργεῖαν τῆς δυνάμεως, οἷον Λεουκίππος καὶ Πλάτων, τὴν δὲ ἐνεργεῖαν ταύτην εἶναι τὴν κίνησιν· αἰεὶ γὰρ εἶναι κίνησιν καὶ Λεουκίππος καὶ Πλάτων ἔλεγον ... καὶ Λεουκίππος δὲ ἐν τῷ κενῷ τὰς ἀτόμους κινεῖσθαι τὸν ἀπειρον χρόνον ἐφρασκεν, καὶ ὅτι ἢ μὲν κίνησις ἐνεργεῖα ἐστὶν ἀπεφαίνοντο, ἀλλὰ διὰ τί ἐστὶν ἐνεργεῖα ἢ κίνησις, καὶ τίς ἐστὶν αὕτη ἢ κίνησις, πότερον ἢ κύκλωι ἢ ἄλλῃ τις, καὶ διὰ τί ὠδὶ μὲν τάδε κινεῖσθαι ὠδὶ δὲ τάδε, τούτων τὴν αἰτίαν οὐ λέγουσιν. ἐπεὶ γὰρ δεῖ εἶναι τι αἰεὶ, ὡς δέδεικται, δεῖ τὴν αἰτίαν λέγειν δι' ἣν ἢ μὲν ἀπλανῆς ἀπὸ ἀνατολῆς ἐπὶ δυσμᾶς κινεῖται, αἰ δὲ πλανώμενα ἀνάπαλιν. οὐ γὰρ ὡς ἔτυχεν πᾶν, ὃ κινεῖται, τὴν κίνησιν ποιεῖται.

18. (D.D.A 69). Aristot. Phys. II, 4, p. 196a 24: εἰσὶ δὲ τινες οἱ καὶ τοῦρανοῦ<sup>1</sup> τοῦδε καὶ τῶν κόσμων πάντων αἰτιῶνται τὸ αὐτόματον.<sup>2</sup> ἀπὸ ταυτομάτου γὰρ γίνεσθαι τὴν δίνην καὶ τὴν κίνησιν τὴν διακρίνασαν καὶ καταστήσασαν εἰς ταύτην τὴν τάξιν τὸ πᾶν ... λέγοντες γὰρ τὰ μὲν ζῶια καὶ τὰ φυτὰ ἀπὸ τύχης μῆτε εἶναι μῆτε γίνεσθαι, ἀλλ' ἢ τοὶ φύσιν ἢ νοῦν ἢ τι τοιοῦτον ἕτερον εἶναι τὸ αἰτιον (οὐ γὰρ ὃ τι ἔτυχεν ἐκ τοῦ σπέρματος<sup>3</sup> ἐκάστου γίγνεται, ἀλλ' ἐκ μὲν τοῦ τοιοῦδι ἐλαία, ἐκ δὲ τοιοῦδι ἄνθρωπος), τὸν δ' οὐρανόθεν καὶ τὰ θειότατα τῶν φανερωῶν ἀπὸ τοῦ αὐτομάτου γενέσθαι, τοιαύτην δ' αἰτίαν μὴδὲμίαν εἶναι οἷαν τῶν ζῴων καὶ τῶν φυτῶν.<sup>4</sup> (D.O). Simpl. ad loc. 331, 16: οἱ δὲ περὶ Δημοκρίτον διχῶς ἀποπὸν τι πεπονθέναι δοκοῦσι, πρῶτον μὲν ὅτι καὶ οὐρανοῦ τοῦδε, τί λέγω τοῦδε τοῦ οὐρανοῦ, ὅτι καὶ τῶν κόσμων ἀπάντων πολλῶν ἢ καὶ ἀπειρῶν ὄντων κατ' αὐτοῦ αἰτιώμενοι τὸ

αὐτόματον, ὅμως οὐ λέγουσι τί ποτέ ἐστι τὸ αὐτόματον... Themist. ad loc. 49, 12: Δημοκρίτῳ δὲ καὶ τοῖς ἄλλοις πῶς οὐκ ἀξίον ἐγκαλεῖν, οἱ τὰ μέγιστα αὐτῇ (sc. τῇ τύχῃ) προστιθέντες οὐδὲ ἐλαχίστου λόγου μεταδεδώκασι ἀνθρώποις,<sup>5</sup> τοὺς ἀπειροῦς οὐρανοῦ καὶ τὴν δίνην καὶ τὴν κατέχουσαν τάξιν εἰς ἄλλο μὲν οὐδὲν ἀναφέροντες, τύχης δὲ ἀνάφαντες μόνης καὶ τοῦ αὐτομάτου.<sup>6</sup> Philopon. ad loc. 261, 31: εἰσὶ δὲ τινες, φησὶ, λέγει δὲ τοὺς περὶ Δημοκρίτον, οἱ «τοῦ οὐρανοῦ τοῦδε» καὶ τῶν θειοτάτων ἐν τοῖς φανεροῖς αἰτίαν αὐτὴν (sc. τὴν τύχην) ἠγησάμενοι, οὐδὲ ἐπὶ σμικρὸν τι περὶ αὐτῆς διελέχθησαν (ulteriora v. № 346). (262, 15) ὅθεν καὶ μέμφεται τῷ Δημοκρίτῳ, ὅτι τῶν μὲν μερικῶν οὐδὲν ἀπὸ τύχης γίνεσθαι φησὶ (οὐ γὰρ ἐκ τοῦ τυχόντος τὸ τυχόν γίνεσθαι), καὶ ἐν τῇ τῶν κατὰ μέρος ἀποδόσει (οἷον διὰ τί τὰ θερμὰ διακρίνει καὶ τὰ λευκὰ; ἢ διὰ τί τὸ μέλι γλυκόν;) τὴν θέσιν καὶ τὴν τάξιν καὶ τὸ σχῆμα<sup>b</sup> τῶν ἀτόμων αἰτιῶνται, αὐτῆς δὲ τῆς τῶν ὅλων γενέσεως τὸ αὐτόματον αἰτιον εἶναι φησὶ. (262, 5) ὁ Ἄ. ... αὐτῆς τῆς τῶν ὄντων διακοσμήσεως τὴν τύχην αἰτίαν φησὶν εἶναι... (265, 5) τὴν τοιαύτην οὖν αὐτῶν (sc. τῶν στοιχείων) κίνησιν, ἐξ ἧς διακρίνονται ἀλλήλων, κατὰ τύχην αὐτοῖς γίνεσθαι φασὶ καὶ τὴν δίνην<sup>b</sup> δὲ τὴν εἰς τοιαύτην τάξιν τὸ πᾶν καταστήσασαν ὅπως ἔχει νῦν, ὥστε συμπεριλάσθαι τῷ οὐρανοῦ τὸν ἀέρα, διὰ τὴν ὀξείαν δὲ περιδίνησιν τὴν γῆν ἐν τῷ μέσῳ φυλάττεσθαι.<sup>7</sup> (v. № 370), ὁμοίως ἐκ ταυτομάτου φασὶ γενέσθαι καὶ ἀπὸ τύχης. (265, 15) πολλῆς οὖν ἐμβροντησίας ἂν εἴη τῶν μὲν αἰεὶ ὡσαύτως ἐχόντων τὸ αὐτόματον αἰτιῶσθαι...

19. (D.D.A 67). Simpl. in Phys. II, 4, p. 196a 24, p. 327, 24: ἀλλὰ καὶ Ἄ. ἐν οἷς φησὶ «δίνον ἀπὸ τοῦ παντός ἀποκριθῆναι παντοίων ἰδεῶν»<sup>a</sup> (πῶς δὲ καὶ ὑπὸ τίνος αἰτίας μὴ λέγει), εἰκεν ἀπὸ ταυτομάτου καὶ τύχης γενῶν αὐτῶν.<sup>1</sup>

20. (D.D.A 39). [Plut.] Strom. 7 (Dox. 581): Ἄ. ὁ Ἀβδηρίτης ὑπεστήσατο τὸ πᾶν ἀπειρον διὰ τὸ μὴδὲμῶς ὑπὸ τίνος αὐτὸ δεδημιουργῆσθαι. εἶτι δὲ καὶ ἀμετάβλητον αὐτὸ λέγει καὶ καθόλου οἷον πᾶν ἐστὶν ῥητῶς ἐκτίθεται· μὴδὲμίαν ἀρχὴν ἔχειν τὰς αἰτίας τῶν νῦν γιγνομένων, ἀνωθεν δ' ὅπως ἐξ ἀπειροῦ χρόνου προκατέχεσθαι τῇ ἀνάγκῃ πάνθ' ἀπλῶς τὰ γεγονότα καὶ ἔόντα καὶ ἐσόμενα.<sup>1</sup>

21. (D.D.A 71). Aristot. Phys. VIII, 1, p. 251b 16: ἀγέννητον γὰρ εἶναι λέγουσιν, καὶ διὰ τούτου Ἄ. γε δεικνυσιν, ὡς ἀδύνατον ἅπαντα γεγονέναι· τὸν γὰρ χρόνον ἀγέννητον εἶναι. Simpl. ad loc. 1153, 22: ὁ μέντοι Ἄ. οὕτως αἰδιον ἐπέπειστο εἶναι τὸν χρόνον, ὅτι βουλόμενος δεῖξαι μὴ πάντα γενητὰ ὡς ἐναργεῖ τῷ τὸν χρόνον μὴ γεγονέναι προσεχρήσατο.

#### IV. Necessitas naturalis

22. (D.L.B 2). Aët. I, 25, 4 (Dox. 321): Λεουκίππος πάντα κατ' ἀνάγκην, τὴν δ' αὐτὴν ὑπάρχειν εἰμαρμένην. λέγει γὰρ ἐν τῷ Περὶ νοῦ<sup>1</sup> οὐδὲν χρεῖμα μάτην γίνεσθαι, ἀλλὰ πάντα ἐκ λόγου τε καὶ ὑπ' ἀνάγκης (= Theodoret. VI, 13, ubi tamen pro Λεουκίππος, οἱ ἀμφὶ τὸν Ἄ. legitur).

23. (D.D.A 1). Diog. IX, 45: πάντα ... κατ' ἀνάγκην γίνεσθαι, τῆς δίνης αἰτίας οὐσης τῆς γενέσεως πάντων, ἣν (Ἄ.) ἀνάγκην λέγει. (D.D.A 83). Sext. Adv. math. IX, 113: ὥστε κατ' ἀνάγκην μὲν καὶ ὑπὸ δίνης, ὡς ἔλεγον οἱ περὶ τὸν Δημοκρίτον, οὐκ ἂν κινεῖτο ὁ κόσμος. (D. 28 A 32). Aët. I, 25, 3 (Dox. 321): Παρμενίδης καὶ Ἄ. πάντα κατ' ἀνάγκην· τὴν αὐτὴν δὲ εἶναι εἰμαρμένην καὶ δίκην<sup>a</sup> καὶ πρόνοιαν καὶ κοσμοποιόν. (D.D.A 66). Aristot. De gen. animal. V, 8, p. 789b 2: Ἄ. δὲ τὸ οὐ ἔνεκα ἀφείς λέγειν, πάντα ἀνάγει εἰς ἀνάγκην οἷς χρῆται ἢ φύσις. (D.D.A 39). [Plut.] Strom. 7 (Dox. 581; v. № 20): τὰς αἰτίας τῶν νῦν γιγνομένων ἀνωθεν ... ὅπως ἐξ ἀπειροῦ χρόνου προκατέχεσθαι τῇ ἀνάγκῃ πάνθ' ἀπλῶς τὰ γεγονότα καὶ ἔόντα καὶ ἐσόμενα. (D.L.A 10). Hippol. Refut. I, 12, 2 (Dox. 564—565): πολλὰ σώματα ... προσκρούοντα ἀλλήλοις συμπλέκεσθαι τὰ ὁμοιοσχήμονα ... καὶ ... ἄστρα γίνεσθαι, αὔξειν δὲ καὶ φθίνειν διὰ τὴν<sup>b</sup> ἀνάγκην. (partim D.L.A 22). Aët. II, 3, 2 (Dox. 329—330): οἱ μὲν ἄλλοι πάντες ἐμφύχον τὸν κόσμον <καὶ> προνοίαι διοικούμενον, Ἄ. δὲ καὶ Ἄ., καὶ Ἐπίκουρος, καὶ ὅσοι



τὰ άτομα εισηγοῦνται καὶ τὸ κενὸν οὐτ' ἐμψυχον οὔτε προνοία δικοικεῖσθαι, φύσει δὲ τι ἀλόγῳ ἐκ τῶν ατόμων συνεστῶτα.<sup>1</sup> (V. №№ 291, 318).

24. (partim D.D.A 68). Aristot. Phys. II, 4, p. 195b 36:<sup>1</sup> ἐνιοὶ γὰρ καὶ εἰ ἔστιν ἢ μὴ (sc. ἡ τύχη) ἀποροῦσιν· οὐδὲν γὰρ δὴ γίνεσθαι ἀπὸ τύχης φασίν, ἀλλὰ πάντων εἶναι τὴν αἰτίαν ὀρισμένον, ὅσα λέγομεν ἀπὸ αὐτομάτου γίνεσθαι καὶ τύχης, οἷον τοῦ ἐλθεῖν ἀπὸ τύχης εἰς τὴν ἀγοράν, καὶ καταλαβεῖν ὃν ἐβούλετο μὲν οὐκ ὤιστο δέ, αἰτίον τὸ βούλεσθαι ἀγοράσαι ἐλθόντα· ὁμοίως δὲ καὶ ἐπὶ τῶν ἄλλων τῶν ἀπὸ τύχης λεγομένων αἰεὶ τι εἶναι λαβεῖν τὸ αἰτίον, ἀλλ' οὐ τύχην. ἐπεὶ εἰ γέ τι ἦν ἢ τύχη, ἀποπον ἂν φανεῖται ὡς ἀληθῶς, καὶ ἀπορήσειεν ἂν τις διὰ τί ποτ' οὐδεὶς τῶν ἀρχαίων σοφῶν τὰ αἰτία περὶ γενέσεως καὶ φθορᾶς λέγων περὶ τύχης οὐδὲν διώρισεν, ἀλλ' ὡς ἔοικεν, οὐδὲν ὤιστο οὐδ' ἐκείνοι εἶναι ἀπὸ τύχης. (*Hucusque Aristoteles Democriti argumenta tradit; deinde refutans eum ipse addit*) ἀλλὰ καὶ τοῦτο θαυμάσιον· πολλὰ γὰρ καὶ γίνονται καὶ ἔστιν ἀπὸ τύχης καὶ ἀπὸ αὐτομάτου, ἃ οὐκ ἀγνοοῦντες, ὅτι ἔστιν ἐπανενεγκεῖν ἕκαστον ἐπὶ τὴν αἰτίαν τῶν γινόμενων, καθάπερ ὁ παλαιὸς λόγος εἶπεν ὁ ἀναίρων τὴν τύχην, ὅμως τούτων τὰ μὲν εἶναι φασὶ πάντες ἀπὸ τύχης, τὰ δ' οὐκ ἀπὸ τύχης. Simpl. ad loc. 330, 14: τὸ δὲ «καθάπερ ὁ παλαιὸς λόγος ὁ ἀναίρων τὴν τύχην» πρὸς Δημόκριτον ἔοικεν εἰρησθαι· ἐκεῖνος γὰρ κἂν ἐν τῇ κοσμοποιίᾳ ἐδόκει τῇ τύχῃ κεχρησθαι, ἀλλ' ἐν τοῖς μερικωτέροις οὐδενὸς φησὶν εἶναι τὴν τύχην αἰτίαν ἀναφῶν εἰς ἄλλας αἰτίας, οἷον τοῦ θησαυρὸν εὐρεῖν τὸ σκάπτειν ἢ τὴν φυτεῖαν τῆς ἐλαίας,<sup>2</sup> τοῦ δὲ καταγῆναι τοῦ φαλακροῦ τὸ κρανίον τὸν ἀετὸν ρίψαντα τὴν χελώνην,<sup>3</sup> ὅπως τὸ χελώνιον ῥαγῆ. οὕτως γὰρ ὁ Εὐδήμος ἱστορεῖ. (Cf. 328, 3: διψήσας γὰρ καὶ πῶν τις ψυχρὸν ὕδωρ γέγονεν ὑγιής. ἀλλ' ἴσως οὐ φησὶ Δ. τὴν τύχην αἰτίαν εἶναι, ἀλλὰ τὸ διψῆσαι). (D.D.A 66). Cic. De fato 17, 39: Omnia ita fato fieri, ut id fatum vim necessitatis adferret: in qua sententia D., Heraclitus, Empedocles, Anaxagoras<sup>4</sup> fuit.

25. (D.D.A 66). Aët. I, 26, 2 (Dox. 321; περὶ οὐσίας ἀνάγκης): Δ. τὴν ἀντιτυπίαν καὶ φορὰν καὶ πληγὴν<sup>1</sup> τῆς ὕλης. Aristot. De caelo III, 2, 300b 11 (post № 16): εἰ γὰρ ἄλλο ὑπ' ἄλλου κινεῖται βίαι τῶν στοιχείων.

26. (D. D. A 80). Cic. Acad. priora II, 38, 124: Ecce tibi e transverso Lampsacenus Strato, qui det isti deo immunitatem (magni quidem muneris; sed cum sacerdotas deorum vacationem habeant, quanto est aequius habere ipsos deos): negat opera deorum se uti ad fabricandum mundum, quaecumque sint docet omnia esse effecta natura, nec ut ille qui asperis et levibus et hamatis uncinatisque corporibus concreta haec esse dicat interiecto inani: somnia censet haec esse Democriti non docentis sed optantis. Ipse autem singulas mundi partes persequens, quidquid aut sit aut fiat, naturalibus fieri aut factum esse docet ponderibus et motibus.

27. (D. D. A 70). Lact. Inst. I, 2: Ab illa quaestione principium sumere, quae videtur prima esse natura, sitne providentia, quae rebus omnibus consulat, an fortuitu vel facta sint omnia vel gerantur. Cuius sententiae auctor est D., confirmator Epicurus.

28. (D. 59 A 66; Dox. 326b 7). Aët. I, 29, 7 (=Theodoret. VI, 15; Suda, s.v. Εἰμαρμένη); Ἀναξαγόρας καὶ Δ.,<sup>2</sup> καὶ οἱ Στωϊκοὶ<sup>1</sup> ἀδελφον αἰτίαν ἀνθρωπίνω λογισμῷ: ἃ μὲν γὰρ εἶναι κατ' ἀνάγκην, ἃ δὲ κατ' εἰμαρμένην, ἃ δὲ κατὰ προαίρεσιν, ἃ δὲ κατὰ τύχην, ἃ δὲ κατὰ τὸ αὐτόματον. τύχη ἀτάκτου ἐνεργείας<sup>2</sup> ἐστὶ προσηγορία. (D.D.A 70). Aristot. Phys. II, 4, p. 196b 5: εἰσὶ δὲ τινες οἷς δοκεῖ εἶναι μὲν αἰτία ἡ τύχη, ἀδελφός δὲ ἀνθρωπίνῃ διανοίᾳ ὡς θεῖόν τι οὐσα καὶ δαιμονιώτερον.<sup>3</sup>

29. (D.D.B 118). Dion. apud Euseb. Praep. Evang. XIV, 27, 4: Δ. γούν αὐτός, ὡς φασίν, ἔλεγε βούλεσθαι μᾶλλον μίαν εὐρεῖν αἰτιολογίαν ἢ τὴν Περσῶν οἱ βασιλείαν γενέσθαι (= № LVIII) καὶ ταῦτα μάτην καὶ ἀναίτιως αἰτιολογῶν, ὡς ἀπὸ κενῆς ἀρχῆς καὶ ὑποθέσεως πλανωμένης ὀρμώμενος, καὶ τὴν ῥίζαν καὶ τὴν κοινὴν ἀνάγκην τῆς τῶν ὄντων φύσεως οὐχ ὄρων, σοφίαν δὲ μεγίστην ἠγούμενος τὴν τῶν ἀσφύως καὶ ἠλιθίως συμβαινόντων κατανοήσιν, καὶ τὴν τύχην τῶν μὲν καθόλου καὶ τῶν θεῶν δέσποιναν ἐφιστάς<sup>1</sup> καὶ βασιλίδαν, καὶ πάντα γενέσθαι κατ' αὐτὴν ἀποφαι-

νόμενος, τοῦ δὲ τῶν ἀνθρώπων αὐτὴν ἀποκηρύττων βίου, καὶ τοὺς πρεσβεύοντας αὐτὴν ἐλέγχων ἀγνώμονας.

30. (D. O; v. № LXIV). Iuvenal. X, 52 sq:

... cum fortunae ipse minaci Mandaret laqueum mediumque ostenderet unguem (sc. Democritus).

31. (D.O). Aristot. Phys. II, 8, p. 198b 10:<sup>1</sup> λεκτέον δὴ... περὶ τοῦ ἀναγκαίου, πῶς ἔχει ἐν τοῖς φυσικοῖς.<sup>2</sup> εἰς γὰρ ταύτην τὴν αἰτίαν ἀνάγουσι πάντες, ὅτι ἐπειδὴ τὸ θερμὸν τοιοῦδι πέφυκε καὶ τὸ ψυχρὸν, καὶ ἕκαστον δὴ τῶν τοιούτων, ταῦδ' ἐξ ἀνάγκης ἐστὶ καὶ γίγνεται (Philopon ad loc. 312, 4: ἐπειδὴ γὰρ, φησί, τὸ θερμὸν τοιοῦδι καὶ τὸ ψυχρὸν τοιοῦδε, διὰ τοῦτο τὸδε ἐγένετο, ἢ ὅτι ἐκ τῶνδε τῶν ατόμων συνέστηκε...). ἔχει δ' ἀπορίαν· τί κωλύει τὴν φύσιν μὴ ἕνεκά του ποιεῖν μηδ', ὅτι βέλτιον, ἀλλ' ὡς περ ὕει ὁ Ζεὺς οὐχ ὅπως τὸν σίτον αὐξήσῃ, ἀλλ' ἐξ ἀνάγκης· τὸ γὰρ ἀναχθῆναι ψυχθῆναι δεῖ, καὶ τὸ ψυχθῆναι ὕδωρ γενόμενον καταλθεῖν τὸ δ' αὐξάνεσθαι τούτου γενομένου τὸν σίτον συμβαίνει. ὁμοίως δὲ καὶ εἰ τῶν ἀπόλλυται ὁ σίτος ἐν τῇ ἄλλω, οὐ τούτου ἕνεκα ὕει ὅπως ἀπόλλυται, ἀλλὰ τοῦτο συμβέβηκεν. ὥστε τί κωλύει οὕτω καὶ τὰ μέρη ἔχειν ἐν τῇ φύσει, οἷον τοὺς ὀδόντας ἐξ ἀνάγκης ἀνατελεῖν τοὺς μὲν ἐμπροσθίους ὀφείει, ἐπιτηδείοις πρὸς τὸ διαίρειν, τοὺς δὲ γομφίους πλατεῖς καὶ χρησίμους πρὸς τὸ λαινεῖν τὴν τροφήν, ἐπεὶ οὐ τούτου ἕνεκα γενέσθαι, ἀλλὰ συμπέσειν, ὁμοίως δὲ καὶ περὶ τῶν ἄλλων μερῶν, ἐν ὅσοις δοκεῖ ὑπάρχειν τὸ ἕνεκά του. ὅπου μὲν οὖν ἅπαντα συνέβη ὡς περ κἂν εἰ ἕνεκά του ἐγένετο, ταῦτα μὲν ἐσώθη ἀπὸ τοῦ αὐτομάτου συστάνα ἐπιτηδείως· ὅσα δὲ μὴ οὕτως, ἀπόλλετο καὶ ἀπόλλυται, καθάπερ Ἐμπεδοκλῆς λέγει τὰ «βουγενῆ ἀνδρόπρωρα». ὁ μὲν οὖν λόγος, ὡς ἂν τις ἀπορήσειεν, οὗτος, καὶ εἰ τις ἄλλος τοιοῦτός ἐστιν... (p. 199a 5): ἀλλὰ μὴν φύσει ἐστὶ τὰ τοιαῦτά γε πάντα, ὡς κἂν αὐτοὶ φαίεν οἱ ταῦτα λέγοντες. (D.O). Simpl. ad loc. 369, 20: πάντες οἱ φυσιολόγοι εἰς τὸ ἀναγκαῖον ἀνάγουσι τὰς αἰτίας, ἐξ ἀνάγκης τὸδε τοιοῦδε λέγοντες γίνεσθαι. ἀνάγουσι δὲ εἰς τὴν ὕλην ὡς ταύτην οὕσαν τὴν ἀνάγκην, ἐκ τῆς τοιαύτης τῶν ὑποκειμένων ποιότητος τοιοῦδε γίνεσθαι ἐξ ἀνάγκης λέγοντες... (370, 7) ἐστὶ δὲ τῶν παλαιῶν φυσιολόγων οἱ μὲν τύχην καὶ τὸ αὐτόματον ἠτιώοντο τῶν γινόμενων ὡς ποιητικὰ αἰτία, μᾶλλον δὲ ὡς ἀναίτιων ὄντων τῶν γινόμενων, οἱ δὲ τῇ ὕλικῃ ἀνάγκῃ ἠρχοῦντο... (371, 6) ἀλλ' ὡς περ ὁ Ζεὺς ὕσειεν ἂν καὶ ἐν θέρει, οὐχ ἵνα δὲ τὸν σίτον τὸν ἐν τῇ ἄλλω ἀπολέσῃ, ἀλλὰ ὕσαντος συνέβη τὸν σίτον ἀπολέσθαι, οὕτω τί κωλύει λέγειν μὴ ὕειν μὲν ἵνα ὁ σίτος αὐξήθῃ, ἄλλως δὲ ὕετοῦ γενομένου καὶ τὸν σίτον αὐξάνεσθαι συμβαίνει, γίνεσθαι δὲ τὸν ὕετον φύσει καὶ ὕλικῃ ἀνάγκῃ... (371, 12) καὶ ἄλλως δὲ φαίεν ἂν μηδέποτε τὸ βέλτιον τοῦ χειρόνος ἕνεκα γίνεσθαι μῆτε ὑπὸ νοῦ μῆτε ὑπὸ φύσεως, ὥστε οὐδὲ ἢ τοῦ ἡλίου κίνησις, ἢ τῆς φύσεως καὶ ἀλέας καὶ ὄμβρων καὶ τῶν τοιούτων αἰτία ἐστὶ, τῶν καρπῶν ἕνεκα γίνεσθαι, ἀλλ' ἐπισυμβαίνει καὶ ἡ τούτων τροφή ὡς περ καὶ ἄλλα πολλά, ὡς εἰ τούτων ἕνεκα ποιήσῃ ὁ ἀκριβέστατος νοῦς... *Ulteriora v. № 516.*

## V. Libera voluntas

32. (D.D.B 119). Dion. apud Euseb. Praep. Evang. XIV, 27, 5: τῶν γούν Ἰποθηκῶν ἀρχόμενος λέγει· «ἄνθρωποι τύχης εἰδῶλον ἐπλάσαντο πρόφασιν ἰδίης ἀνοίης. φύσει γὰρ γνώμη τύχη μάχεται· καὶ τὴν ἐχθίστην τῇ φρονήσει ταύτην αὐτὴν ἔφασαν κρατεῖν· μᾶλλον δὲ καὶ ταύτην ἀρδην ἀνατροῦντες καὶ ἀφανίζοντες ἐκείνην ἀντικαθιστᾶσιν αὐτῆς· οὐ γὰρ εὐτυχῆ τὴν φρόνησιν, ἀλλ' ἐμφοροσάτην ὕμνοισι τὴν τύχην». Stob. II, 8, 16: Δημοκρίτου. ἀνθρωποὶ τύχης εἰδῶλον ἐπλάσαντο πρόφασιν ἰδίης ἀβουλίης.<sup>2</sup> βαίᾳ<sup>1</sup> γὰρ φρονήσει τύχη μάχεται, τὰ δὲ πλεῖστα ἐν βίῳ εὐξύνετος ἀξυδερκεῖ<sup>3</sup> κατιδύει. (V. № 28: τύχη ἀτάκτου ἐνεργείας ἐστὶ προσηγορία).

33. (D.D.B 172, 26 N.). Stob. II, 9, 1: Δημοκρίτου. ἀφ' ὧν ἡμῖν τάγαθὰ γίγνεται, ἀπὸ τῶν αὐτῶν τοῦτων καὶ τὰ κακὰ ἐπαυρισκοίμεθ' ἂν, τῶν<sup>2</sup> τε<sup>1</sup> κακῶν ἐκτός εἴημεν.<sup>3</sup> αὐτίκα ὕδωρ βαθὺ εἰς πολλὰ χρήσιμον καὶ δαῦτε κακὸν κίνδυνος γὰρ ἀποπνιγῆναι. μηχανὴ οὖν εὐρέθη, νήχεσθαι διδάσκειν.

33a. (D.D.B 176, 64 N.). Stob. II, 9, 5: τύχη μεγαλόδοτος, ἀλλ' ἀβέβαιος, φύσις δὲ ἀυτάρκης· διόπερ νικᾷ τῷ ἥσσονι καὶ βεβαίωι τὸ μείζον τῆς ἐλπίδος.<sup>1</sup> Cf. *comm. ad N° 37*.

33b. (D.D.B 269, 126 N.). Stob. IV, 10, 28: Δημοκρίτου. τόλμα πρήξις ἀρχή, τύχη δὲ τέλος κυρίη. (D.D.B 108, 27 N.). Stob. IV, 34, 58; Democrat. 75: διζημένοισι τὰγαθὰ μόλις παραγίνεται, τὰ δὲ κακὰ καὶ μὴ διζημένοισιν.<sup>1</sup>

33c. (D.D.B 89, 39 N.). Democrat. 55: ἐχθρὸς οὐχ ὁ ἀδικέων, ἀλλὰ ὁ βουλόμενος. (D.D.B 68, 40 N.). Democrat. 33: δόκιμος ἀνὴρ καὶ ἀδόκιμος οὐκ ἐξ ὧν πράσσει μόνον, ἀλλὰ καὶ ἐξ ὧν βούλεται.

33d. (D.O). Ant. Melissa I, 70 (P.G. 136, 981 D): καὶ κυβερνήτης ἀγαθὸς ἐνίοτε ναυαγεῖ, καὶ ἀνὴρ σπουδαῖος ἀτυχεῖ. Δημοκρίτου.<sup>1</sup>

34. (D.D.B 173).<sup>1</sup> Stob. II, 9, 2 (cf. III, 4, 51): τοῦ αὐτοῦ (sc. Δημοκρίτου). ἀνθρώποισι κακὰ ἐξ ἀγαθῶν φύεται, ἐπὴν τις τὰγαθὰ μὴ πιστῆται ποδηγετεῖν μηδὲ ὀχεῖν εὐπόρως.<sup>2</sup> οὐ δίκαιον ἐν κακοῖσι τὰ τοιαῦτα κρίνειν, ἀλλ' ἐν ἀγαθοῖσιν ὧν τοῖς τε ἀγαθοῖσιν οἷόν τε χρῆσθαι καὶ πρὸς τὰ κακὰ, εἴ τιμι βουλομένοι, ἀλκῆ.<sup>4</sup>

35. (D.D.B 182). Stob. II, 31, 66: τοῦ αὐτοῦ. τὰ μὲν καλὰ χρήματα<sup>1</sup> τοῖς πόνοις ἢ μάθησις ἐξεργάζεται, τὰ δ' αἰσχροῦ ἀνευ πόνων αὐτόματα καρποῦται. καὶ γὰρ οὐκ ἐθέλοντα πολλάκις ἐξείργει<sup>2</sup> τοιοῦτον εἶναι· οὕτω μεγάλα τὰ τῆς φυσικῆς κάκῃς ἐστί.<sup>3</sup>

36. (N° 72 Makovelsky).<sup>1</sup> Aristot. De interpr. 9, 18b 26: τὰ ... συμβαίοντα ἄτοπα ... εἴπερ ... ἀνάγκη τῶν ἀντικειμένων (sc. καταφάσεως καὶ ἀποφάσεως) εἶναι τὴν μὲν ἀληθῆ, τὴν δὲ ψευδῆ, μηδὲν δὲ ὁπότ' ἔτυχεν εἶναι ἐν τοῖς γιγνομένοις, ἀλλὰ πάντα εἶναι καὶ γίνεσθαι ἐξ ἀνάγκης. ὥστε οὐτε βουλεύεσθαι δεοῖ ἀν οὐτε πραγματεύεσθαι, ὡς ἐάν μὲν τοῦ ποιήσωμεν, ἔσται τοῦ, ἐάν δὲ μὴ τοῦ, οὐκ ἔσται τοῦ. Cf. N° 36a (26, 8—16), N° 39 (27, 16—21; 36—38), N° 103.

36a. (partim D.D.A 69).<sup>1</sup> Epicur. De rerum nat. = pap. 1056, col. 25 Gomp. (Wien. Stud. I, 1879, p. 27 sqq.): <οἱ> δ' αἰτιολογήσαντες ἐξ ἀρχῆς ἰκανῶς καὶ οὐδ' μόνον τῶν προκτέρων> πολὺ διενέγκαντες, ἀλλὰ καὶ τῶν ὕστερον, πολλαπλασιαστικῶς ἔλαθον ἐαυτούς, καίπερ ἐν πολλοῖς μεγάλοι, κχομφίσαντες ἐκ τῶν τῆν ἀνάγκη καὶ ταύτοματον πάντα κδύνασθαι. ὁ δὲ λόγος αὐτός ὁ τοῦτο διδάσκων κατεάγγυτο καὶ ἐλάμβανε τὸν ἀνδρα τοῖς ἔργοις πρὸς τὴν δόξαν συγχρούοντα, καὶ εἰ κμ> ἡ λήθη τις ἐπὶ τῶν ἔργων τῆς δόξης ἐνεργεῖτο, συνεχῶς ἀν ἐκαυτὸν ταρακτοντα, ἢ δ' ἐκράτει τὸ τῆς δόξης, κὰν τοῖς ἐσχάτοις <πε>ριπίπτοντα, ἢ δὲ μὴ ἐκράτει,<sup>2</sup> στάσεως<sup>3</sup> ἐμπιπλάμενον διὰ τὴν ὑπεναντιότητά τῶν ἔργων καὶ τῆς δόξης. Cf. [Epicur.] Gnom. Vatic. 57: ὁ βίος αὐτοῦ πᾶς δι' ἀπιστίαν συγχυθήσεται καὶ ἀνακεχαιτισμένος ἔσται.<sup>4</sup> Philod. Περὶ παρρησ. 20, 8 (p. 10, 5): ἔτι δὲ τῆν μεριζομένην συνγν[ω]μ[η]ν ἐν οἷς διέπεσον, ὡς ἐν τε τοῖς πρὸς Δημοκρίτον ἴσταται διὰ τέλους ὁ Ἐπίκουρος κ[αὶ] πρὸς Ἡράκλειδην...

37. (D.O).<sup>1</sup> Epicur. Epist. III, 133: τὴν δὲ ὑπὸ τινων δεσπότην εἰσαγομένην πάντων ἀκνάγκη<sup>2</sup> ἐγγελαῶντος ... ἐπεὶ κρεῖττον ἦν τῷ περὶ θεῶν μύθω κατακολυθεῖν ἢ τῆν τῶν φυσικῶν εἰμαρμένῃ δουλεύειν· ὁ μὲν γὰρ ἐλπίδα παραιτήσεως ὑπογράφει θεῶν διὰ τιμῆς, ἢ δὲ ἀπαραίτητον ἔχει τὴν ἀνάγκη — τὴν δὲ τύχη οὐτε θεόν, ὡς οἱ πολλοὶ νομίζουσιν, ὑπολαμβάνων (οὐδὲν γὰρ ἀτάκτως θεῶν πράττεται) οὐτε ἀβέβαιον<sup>3</sup> αἰτίαν (schol. οἶεται<sup>4</sup> μὲν γὰρ (sc. ὁ Δ.) ἀγαθὸν ἢ κακὸν ἐκ ταύτης πρὸς τὸ μακαρίως ζῆν ἀνθρώποις δίδεσθαι...)<sup>2</sup>

38.<sup>1</sup> (D.O). Cic. De nat. deor. I, 25, 69 (281 Us.): Epicurus ... invenit quomodo necessitatem effugeret (quod videlicet Democritum fugerat!); ait atomum cum pondere et gravitate directo deorsus feratur, declinare paululum. Sola declinatione atomorum liberam voluntatem servari dicit. Cic. De fato 10, 23 (281 Us.): Hanc Epicurus rationem (sc. τὴν παρέγκλισην) induxit ob eam rem, quod veritus est, ne, si semper atomus gravitate ferretur naturali ac necessaria, nihil liberum nobis esset, cum ita moveretur animus ut atomorum motu cogeretur. Id Democritus auctor atomorum accipere maluit necessitate omnia fieri, quam a corporibus individuus naturales motus avellere.

39. (partim D.D.A 50).<sup>1</sup> Diog. Oenoand., fr. 32, col. I (p. 56 Chilton): [εἰ γὰρ τις τὸ μὲν προφλεχθὲν μὴ οὐτως<sup>2</sup> ἔχειν [ὡς ἔχειν εἰ]κ[α]ροι, τὴν δὲ<sup>3</sup> ἀνάγκη

διαφεύγειν<sup>4</sup> [μὴ παρῆναι, τὴν πλάνην [οὐποτε λύσει· εἰ δὲ τοῦτ' ἀπιστοῖη]<sup>4</sup> ἀκριτα μεθῆσει ὡς ἄστυατα καὶ ἀβέβαια κάκεινα]. τίνι γὰρ [ἀλλῆλη χρήσ]εται<sup>5</sup> πιστεῖ [περὶ τῶν λεγ]ομένων, [δῆλον ὅτι οὐ]χ ἔξει. [πῶς ἀνηρημένης<sup>6</sup> οὐν (col. II) μαντικῆς, σημεῖον εἰμαρμένης ἔστιν ἄλλο; ἀν γὰρ] τῷ Δημοκρίτου τις <χρ[η]σῆται λόγῳ, μηδὲ μίαν μὲν ἐλευθέραν [φάσκειν τὰς ἀτόμους] κείνησιν εἶναι <τὴν δὲ κείνησιν εἶναι><sup>7</sup> δι[α] τὴν πρὸς ἀλλήλας σ[ύν]κρουσιν αὐτῶν, ἐκθ[ε]σ[ε]ν δὲ<sup>8</sup> φαίνεσθαι κατ[η]ναντασμένως π[άν]τα κεινέσθαι, φη[σ]όμεν πρὸς αὐτὸν· «[οὐκ οὐκ] οἶδας, ὅσ(ol. III) τις ποτὲ εἶ, καὶ ἐλευθέραν τινὰ ἐν ταῖς ἀτόμοις κείνησιν εἶναι, ἢ[ν] Δημοκρίτος μὲν οὐχ εὔρεν, Ἐπίκουρος δὲ εἰς φῶ[ς] ἤγαγεν, παρεγκλιτικὴν ὑπάρχουσαν, ὡς ἐκ τῶν φαινομένων δεικνύσιν»; τὸ δὲ μέγιστον<sup>9</sup> πιστευθείσης γὰρ εἰμαρμένης αἰρεται πᾶσα νοῦθεσι[α] καὶ ἐπιτελειησις καὶ οὐδὲ τοὺς πονηροὺς [ἔξεσται κολάζειν].<sup>10</sup> (fr. 5, col. II, p. 11) Δ. δὲ ὁ Ἀβδηρήτης εἶπε μὲν ἀτόμους φύσεις καλῶς γε ποιῶν, ἐπεὶ δὲ περὶ αὐτῶν ἐσφάλῃ τινὰ, ἐν ταῖς ἡμετέραις δόξαις ἐπισκε[π]ε[σ]θαι (col. III) φθῆσεται. (fr. 6, col. II, p. 12) ... κατὰ γὰρ τὸν σὸν λόγον, ὦ Δημοκρίτε, οὐχ ὅπως τὸ ἀληθὲς εὔρειν, ἀλλ' οὐδὲ ζῆν δυνήσομεθα, μήτε τὸ πῶρ φυλαττόμενοι, [μήτε τ]ὴν σφαγὴν, (col. III) μή[τε].<sup>11</sup> (= N° 61).

40.<sup>1</sup> (= N° 18). Themist. in Phys. II, 4, p. 196a 24, p. 49, 12: Δημοκρίτωι δὲ καὶ τοῖς ἄλλοις ... οἱ τὰ μέγιστα αὐτῆι (sc. τῆι τύχηι) προστιθέντες οὐδὲ ἐλαχίστου λόγου μεταδεδώκασι ἀνθρώποις.

41. (D.O).<sup>1</sup> Oenomaus Gadarensis apud Euseb. Praep. Evang. VI, 7 (plenius N° 62, ubi v. app. crit.): ἀπόλωλε γὰρ τὸ γ' ἐπὶ τοῖς σοφοῖς, ἐκ τοῦ ἀνθρώπινου βίου, ἀπόλωλεν, εἴτε οἰακὰ τις αὐτό, εἴτε ἔρμα, εἴτε κρηπίδα ὀνομάζων χαίρει, τῆς ἡμετέρας ζωῆς ἢ ἐξουσία, ἢ ἡμεῖς μὲν αὐτοκράτορα τῶν ἀναγκαιότατων τιθέμεθα, Δ. δὲ γε, εἰ μὴ τι ἠπάτημαι ... δοῦλον ... ἐπινοεῖ τὸ κάλλιστον τῶν ἀνθρώπινων ἀποδεῖξαι... (19) ἰδοὺ γὰρ ὡι τρόπῳ ἡμῶν αὐτῶν ἀντειλήμεθα (quod etiam Democrito ultimum criterium veritatis erat), τοῦτωι καὶ τῶν ἐν ἡμῖν ἀδαιρέτων καὶ βιαιῶν. οὐ λέληθε δὲ ἡμᾶς, ὅσον τὸ μεταξὺ τοῦ βαδίζειν καὶ τοῦ ἄγεσθαι, οὐδὲ ὅσον τοῦ αἰρεῖσθαι καὶ τοῦ ἀναγκάζεσθαι... (20) (τούτων) τὰ πεισμάτα ἀνῆπται ἐκ τῆς ἡμετέρας βουλήσεως. Theodoret. VI, 11, p. 153 Raeder: ταῦτα ὁ Κωνικός κατὰ ταῦτον τοῦ Πυθίου καὶ Δημοκρίτου ... κατηγορήσεν, εἰκότως ἀγανακτῶν, ὅτι τοῦ ἡμετέρου νοῦ τὴν ἐλευθερίαν ἐξανδραποδίσαντες φύσιν, τῆι τῆς εἰμαρμένης καὶ πεπρωμένης ἀνάγκη παρέδοσαν.

## VI. Ex nihilo nihil fieri (principium conservationis materiae et energiae)

42. (D.D.A 57). Plut. Adv. Colot. 8, p. 4110 F: τί γὰρ λέγει Δ.; ... εἶναι δὲ πάντα τὰς ἀτόμους ιδέας ὑπ' αὐτοῦ καλουμένας, ἕτερον δὲ μηδὲν. ἐκ μὲν γὰρ τοῦ μὴ ὄντος οὐκ εἶναι γένεσιν,<sup>1</sup> ἐκ δὲ τῶν ὄντων μὴδὲν ἀν γενέσθαι τῷ μήτε πάσχειν μήτε μεταβάλλειν τὰς ἀτόμους ὑπὸ στερρότητος. ὄθεν οὐτε χρόαν ἐξ ἀκρώστων οὐτε φύσιν ἢ ψυχὴν ἐξ ἀποίων καὶ ἀπαθῶν<sup>2</sup> ὑπάρχειν. Diog. IX, 44; Suda, s. v. Δημοκρίτος: μηδὲν τε ἐκ τοῦ μὴ ὄντος γίνεσθαι μηδὲ εἰς τὸ μὴ ὄν φθείρεσθαι. Alex. in Metaph. III, 5, p. 1009a 6, p. 303, 33: Δ. ... φησιν ... τὴν γένεσιν αὐτῶν (sc. τῶν αἰσθητῶν) ἐκκρίσει ἐκ προὑπάρχοντος γίνεσθαι.

43. (D.D.A 39). [Plut.] Strom. 7 (Dox. 581): Δ. ὁ Ἀβδηρήτης ... τὸ πᾶν ... ἀμετάβλητον ... λέγει.

44. (D.D.A 82). Simplic. in De caelo I, 10, p. 280a 23, p. 310, 5: «οὐ γὰρ εἰς ὕλην τοῦ κόσμου, φησὶν (Alexander), ἢ διάλυσις αὐτοῦ καὶ φθορά, ἦτις δύναμιν εἶχεν τοῦ γενέσθαι κόσμος, ἀλλ' εἰς ἄλλον κόσμον, ὧν ἀπείρων ὄντων καὶ ἀλλήλους διαδεχομένων οὐκ ἀνάγκη πάλιν ἐπὶ τὸν αὐτὸν τὴν ἐπάνοδον γίνεσθαι». οὕτως δὲ ἐδόκει τοῖς περὶ Λεόκλιππον καὶ Δημοκρίτον ... οἱ δὲ Δημοκρίτου κόσμοι εἰς ἑτέρους κόσμους μεταβάλλοντες ἐκ τῶν αὐτῶν ἀτόμων ὄντας οἱ αὐτοὶ τῷ εἶδει γίνονται, εἰ καὶ μὴ τῷ ἀριθμῷ.<sup>1</sup>

## VII. Principium impenetrabilitatis

45. (D.O. cf. D.L. A 19).<sup>1</sup> Aristot. Phys. IV, 6, p. 213b 6: (καθάπερ λέγουσι Δ. καὶ Δ. ...) τὸ γὰρ πλήρες ἀδύνατον εἶναι δεξασθαι τι. εἰ δὲ δέξεται καὶ ἔσται δύο ἐν ταυτῷ, ἐνδέχεται ἂν καὶ ὅποσαοῦν εἶναι ἅμα σώματα.<sup>2</sup> τὴν γὰρ διαφορὰν, δι' ἣν οὐκ ἂν εἴη τὸ λεχθέν, οὐκ ἔστιν εἰπεῖν. εἰ δὲ τοῦτο ἐνδέχεται, καὶ τὸ μικρότατον δέξεται τὸ μέγιστον. πολλὰ γὰρ μικρὰ ἐστὶ τὸ μέγα. ὥστ' εἰ πολλὰ ἴσα ἐνδέχεται ἐν ταυτῷ εἶναι, καὶ πολλὰ ἄνισα (v. № 255).

46. (D.L.A 7). Aristot. De gen. et corr. I, 8, p. 325a 34: ἐκ δὲ τοῦ κατ' ἀλήθειαν ἐνός οὐκ ἂν γενέσθαι πλήθος, οὐδ' ἐκ τῶν ἀληθῶς πολλῶν ἐν, ἀλλ' εἶναι τοῦτ' ἀδύνατον. (D.D.A 42). Aristot. Metaph. VI, 13, p. 1039a 9: ἀδύνατον γὰρ εἶναι φησὶν (ὁ Δ.) ἐκ δύο ἐν, ἢ ἐξ ἐνός δύο γενέσθαι.

47. (D.L.A 15). Aristot. De caelo III, 4, p. 303a 4: Δ. τε καὶ Δ. ... οὐτ' ἐξ ἐνός πολλὰ γίνεσθαι οὔτε ἐξ πολλῶν ἐν (v. № 292). (D.O). Simpl. ad loc. 609, 22: «οὔτε ἐξ ἐνός πολλὰ γίνεσθαι ἔλεγον· οὐ γὰρ διαιρεῖσθαι τὴν ἄτομον· οὔτε ἐκ πολλῶν ἐν» κατὰ ἀλήθειαν συνεχές. ἀλλὰ τῆι συμπλοκῆι τῶν ἀτόμων ἕκαστον ἐν δοκεῖν γενέσθαι. (D.D.A 37). Simpl. in De caelo I, 10, p. 279b 12, p. 293, 12: φῶσιν μέντοι μίαν ἐξ ἐκείνων κατ' ἀλήθειαν οὐδ' ἠντιναοῦν γενναί· κομιδῆι γὰρ εὐήθες εἶναι τὸ δύο ἢ τὰ πλείονα γενέσθαι ἂν ποτε ἐν (= № 293).

### b. THEORIA COGNITIONIS (GNOSEOLOGIA)

#### I. Confessio ignorationis propaedeutica (εἰσβολὴ σκεπτικῆ)

(v. comm. ad № 63).

48. (D.D.B 6). Sext. Adv. math. VII, 137 (post № 55): ἐν δὲ τῷ Περὶ ἰδεῶν «γινώσκειν τε χρῆ, φησὶν, ἄνθρωπον τῷδε τῷ κανόνι,<sup>1</sup> ὅτι ἐτεῆς ἀπήλλακται».

49. (D.D.B 7): καὶ πάλιν. «δηλοῖ μὲν δὴ καὶ οὗτος ὁ λόγος, ὅτι ἐτεῆι οὐδὲν ἴδμεν<sup>2</sup> περὶ οὐδενός, ἀλλ' ἐπιρρομῆ<sup>1</sup> ἕκαστοισιν ἢ δόξιν».

50. (D.D.B 8): καὶ ἐτι· «καίτοι δῆλον ἔσται, ὅτι ἐτεῆι οἷον ἕκαστον γινώσκειν ἐν ἀπόρῳ ἐστίν».

51. (D.D.B 117). Diog. IX, 72: οὐ μὴν ἀλλὰ καὶ Ἐνοφάνης καὶ Ζήνων ὁ Ἐλεάτης καὶ Δ. κατ' αὐτοὺς (sc. τοὺς Πυρρωνεῖους) σκεπτικοὶ τυγχάνουσιν ... Δ. δὲ τὰς ποιότητας ἐκβάλλων, ἵνα φησὶ «νόμοι θερμόν, νόμοι ψυχρόν, ἐτεῆι δὲ ἄτομα καὶ κενόν». καὶ πάλιν· «ἐτεῆι δὲ οὐδὲν ἴδμεν ἐν βυθῷ<sup>1</sup> γὰρ ἢ ἀλήθεια». Cic. Acad. priora II, 10, 32: Naturam accusa, quae in profundo veritatem, ut ait D., penitus abstruserit. Lact. Epit. div. inst. 40 (P. L. VI, p. 1047 C): D. in profundo quodam puteo demersam veritatem iacere testatur. Lact. Inst. III, 28, 13 (P. L. VI, p. 439 A): D. quasi in puteo quodam sic alto, ut fundus sit nullus, veritatem iacere demersam. Lact. Inst. III, 30, 6 (P. L. VI, p. 445 A 1): An expectabimus donec Socrates sciat? ... aut D. veritatem de puteo extrahat? Honor. Augustodun. (P. L. 172, p. 235): Democritus ... dixit ita veritatem in occulto latere ut aquam in alto puteo sine fundo. Isidor. Hisp. Etym. VIII, 6, 12 (=Raban. Maur. De universo XV, 1, P. L. 111, p. 414): D. dixit tanquam in puteo alto ita ut fundus nullus sit, ita in occulto iacere veritatem.

52. (D.D.A 112; v. № 3). Aristot. Metaph. III, 5, p. 1009b 9: ποῖα οὖν τούτων ἀληθῆ ἢ ψευδῆ, ἀδηλον ... διὸ Δ. γέ φησιν ἦτοι οὐδὲν εἶναι ἀληθές ἢ ἡμῖν γ' ἀδηλον<sup>1</sup> (sequitur № 73). (D.O). Alex. ad loc. 305, 26: τοῖς μὲν γὰρ γλυκέα τινα δοκεῖ καὶ ἐδώδιμα, τοῖς δὲ πικρὰ καὶ ἄβρωτα, ὧν καὶ ὁ τῆς ἐλαίας ἐστὶ θαλλός, γλυκὸς μὲν τοῖς νεομομένοις ζώοις αὐτόν, ἡμῖν δὲ τοῖς ἀνθρώποις πικρὸς ... οὐδὲν γὰρ μᾶλλον ταῦτα ἢ ταῦτα, ἀλλ' ὁμοίως. δι' ἣν αἰτίαν φησὶ καὶ Δημόκριτον εἰς τὰς διαφορίας βλέποντα ταῦτα λέγειν ἢ μὴδὲν ἀληθές εἶναι, ἢ, εἰ καὶ ἐστὶ τι, ἡμῖν ἀδηλον αὐτὸ εἶναι, τῷ ὁμοίως περὶ τὰ ἀντικείμενα ἔχειν τοὺς φανταζομένους αὐτὰ καὶ δοξάζοντας<sup>2</sup> (sic etiam Syrian. ad loc. 75, 19).

53. (D.L.A 33). Epiphani. Adv. haer. III, 2, 9 (Dox. 590): Δ. ὁ Μιλήσιος, κατὰ δὲ τινὰς Ἐλεάτης, καὶ οὗτος ἐριστικός.<sup>1</sup> ἐν ἀπείρῳ καὶ οὗτος τὸ πᾶν ἔφη εἶναι, κατὰ φαντασίαν δὲ καὶ δόκησιν τὰ πάντα γίνεσθαι καὶ μὴδὲν κατὰ ἀλήθειαν, ἀλλ' οὕτω φαίνεσθαι κατὰ τὴν ἐν τῷ ὕδατι κόπην.<sup>2</sup>

54. (D.D.A 110). Sext. Adv. math. VII, 369: οἱ μὲν πάντα ἀνηγήρασι τὰ φαινόμενα ὡς οἱ περὶ Δημόκριτον. (D. 59 A 96). Aët. IV, 9, 1 (Dox. 396): Ἀναξαγόρας, Δ. ... ψευδεῖς εἶναι τὰς αἰσθήσεις.

55. (D.D.B 9).<sup>1</sup> Sext. Adv. math. VII, 135: Δ. δὲ ὅτε μὲν ἀναιρεῖ τὰ φαινόμενα ταῖς αἰσθήσεσι καὶ τούτων λέγει μὴδὲν φαίνεσθαι κατ' ἀλήθειαν, ἀλλὰ μόνον κατὰ δόξαν, ἀληθές δὲ ἐν τοῖς οὐσίῳ ὑπάρχειν τὸ ἀτόμου εἶναι καὶ κενόν. «νόμοι», γὰρ φησὶ, «γλυκὸ, [καὶ]<sup>a</sup> νόμοι πικρόν, νόμοι θερμόν, νόμοι ψυχρόν, νόμοι χροίη, ἐτεῆι δὲ ἄτομα καὶ κενόν» (ὅπερ «ἐστὶ»<sup>b</sup> νομίζεται μὲν εἶναι καὶ δοξάζεται τὰ αἰσθητά, οὐκ ἐστὶ δὲ κατ' ἀλήθειαν ταῦτα, ἀλλὰ τὰ ἄτομα μόνον καὶ τὸ κενόν). (136) ἐν δὲ τοῖς Κρατυντηρίοις, καίπερ ὑπεσχημένος ταῖς αἰσθήσεσι τὸ κράτος τῆς πίστεως ἀναδειχθῆναι, οὐδὲν ἦντον εὐρίσκειται τούτων καταδικάζων. φησὶ γὰρ «ἡμεῖς δὲ<sup>2</sup> τῷ μὲν ἐόντι οὐδὲν ἀτρεκέες συνίμεν, μεταπίπτον δὲ κατὰ τε σώματος διαθήκην καὶ τῶν ἐπεισιόντων καὶ ἀντιστηρίζοντων». (D.D.B 10) καὶ πάλιν φησὶν «ἐτεῆι μὲν ὄν ὅτι οἷον ἕκαστον ἐστὶν <ἦ><sup>o</sup> οὐκ ἐστὶν οὐ συνίμεν, πολλαχῆι δεδηλωται».

56. (D.D.A 134). Sext. Pyrrh. hypot. II, 63 (v. № 85): ἐκ τοῦ τὸ μέλι τοῖσδε μὲν πικρόν τοῖσδε δὲ γλυκὸ φαίνεσθαι ὁ μὲν Δ. ἔφη μῆτε γλυκὸ αὐτὸ εἶναι μῆτε πικρόν.

57. (D.O).<sup>1</sup> Sext. Adv. math. VIII, 184: ὁ μὲν Δ. μὴδὲν ὑποκεῖσθαι φησὶ τῶν αἰσθητῶν, ἀλλὰ κενωπαθείας τινὰς αἰσθήσεων εἶναι τὰς ἀντιλήψεις αὐτῶν, καὶ οὔτε γλυκὸ τι περὶ τοῖς ἐκτός ὑπάρχειν, οὐ πικρόν ἢ θερμόν ἢ ψυχρόν ἢ λευκόν ἢ μέλαν, οὐκ ἄλλο τι τῶν πᾶσι φαινομένων. παθῶν γὰρ ἡμετέρων ἦν<sup>b</sup> ὀνόματα ταῦτα. ὁ δὲ Ἐπίκουρος πάντα ἔλεγε τὰ αἰσθητὰ τοιαῦτα ὑποκεῖσθαι. (VIII, 6) Δ. ... μὴδὲν ὑποκεῖσθαι φῶσει αἰσθητόν (v. № 92).

58. (D. D. B 165). Cic. Acad. priora II, 23, 73: Quid loquar de Democrito? Quem cum eo conferre possumus non modo ingenii magnitudine, sed etiam animi? Qui ita sit ausus ordiri: «Haec loquor de universis» (cf. № 65). Nihil excipit, de quo non profiteatur, quid enim esse potest extra universa? ... Atque is non hoc dicit, quod nos, qui veri esse aliquid non negamus, percipi posse negamus: ille esse verum plane negat<sup>1</sup> sensusque idem<sup>a</sup> non obscuros dicit, sed<sup>b</sup> tenebricosos: sic enim appellat eos. (D. 59 A 95). Cic. Acad. post. I, 12, 44: (Arcesilas cum Zenone sibi certamen instituit) earum rerum obscuritate, quae ad confessionem ignorationis adduxerant Socratem, [et vel]<sup>o</sup> ut iam ante Socratem D., Anaxagoram, Empedoclem, omnes paene veteres, qui nihil cognosci, nihil percipi, nihil sciri posse dixerunt; angustus sensus (Empedocles), imbecillos animos (Anaxagoras), brevissima curricula vitae (Protagoras) et, ut D., in profundo veritatem esse demersam (v. № 51); opinionibus et institutis omnia teneri, nihil veritati relinqui, deinceps omnia tenebris circumfusa<sup>3</sup> esse dixerunt.

59. (D.O). Simpl. in Phys. III, 7, p. 207b 27, p. 512, 28: Δ. κατασκευάζειν ἐπιχειρῶν, ὅτι τὰ χρώματα οὐ συνπάρχει φῶσει τοῖς σώμασιν, ἀλλὰ νόμοι καὶ θέσει τῆι πρὸς ἡμᾶς ἔχει τὸ εἶναι<sup>1</sup> (idem apud Themist. 98, 13).

60. (D.O). Simpl. in De anima III, 2, p. 426a 11, p. 193, 27: ὑπὸ δὲ τῶν περὶ Δημόκριτον καὶ τὸ δυνάμει αἰσθητόν, οἷον αὐτὸ τὸ χρώμα καὶ ὁ ψόφος, ἤξειοτο ἐν τῷ αἰσθητικῷ ὑφίστασθαι καὶ ἀνευ τῆς ἐνεργούσης αἰσθήσεως μὴ εἶναι.

61. (D.O).<sup>1</sup> Plut. Adv. Colot. 8, p. 110 E: ... ἐν τῷ δευτέρῳ τῶν ἐπιτιμημάτων λέληθε τῷ Δημοκρίτῳ τὸν Ἐπίκουρον «ἐκ τοῦ ζῆν συνεξωθῶν»<sup>2</sup> τὸ γὰρ νόμοι χροίη εἶναι καὶ νόμοι γλυκὸ καὶ νόμοι σῆγχεριν, «ἐτεῆι δὲ τὸ κενόν καὶ»<sup>a</sup> τὰς ἀτόμους εἰρημένον φησὶν ὑπὸ Δημοκρίτου «μάχεσθαι»<sup>b</sup> ταῖς αἰσθήσεσι, καὶ τὸν ἐμμένοντα τῷ λόγῳ τούτῳ καὶ χρώμενον οὐδ' ἂν αὐτόν, ὡς <λέγει, πότερον τεθνηκόως><sup>o</sup> ἐστὶν ἢ ζῆι, διανοηθῆναι. πρὸς τοῦτον ἀντειπεῖν μὲν οὐδὲν ἔχω τὸν λόγον, εἰπεῖν δὲ ὅτι ταῦτα τῶν Ἐπικούρου δογμάτων οὕτως ἀχώριστα ἐστίν, ὡς τὸ σχῆμα καὶ τὸ βάρος αὐτοῖ τῆς ἀτόμου λέγουσι. Diog. Oenoand., fr. 6, col. II, p. 12

Chilton: ... εσφάλη δ' ἀναξίως ἑαυτοῦ καὶ Δ. τὰς ἀτόμους μόνας κατ' ἀλήθειαν εἰπὼν ὑπάρχειν ἐν τοῖς οὐσί, τὰ δὲ λοιπὰ <νομοιστεῖ ἀπαντα. κατὰ γὰρ τὸν σὸν λόγον, ὦ Δημόκριτε, οὐχ ὅπως τὸ ἀληθὲς εὐρεῖν, ἀλλ' οὐδὲ ζῆν δυνασόμεθα, μήτε τὸ πῦρ φυλαττόμενοι, [μήτε τ]ὴν σφαγὴν, (col. III) μή[τε]. . .<sup>d</sup> (cf. № 39).

Plut. Adv. Colot. 4, p. 1108 F: ἐγκαλεῖ δ' αὐτῷ (Colotes Democrito) πρῶτον, ὅτι τῶν πραγμάτων ἕκαστον εἰπὼν οὐ μᾶλλον τοῖον ἢ τοῖον εἶναι συγκέχυκε τὸν βίον. Sext. Adv. math. VIII, 56: οἱ δὲ περὶ τὸν Δημόκριτον καὶ Πλάτωνα ἀθετοῦντες μὲν τὰς αἰσθήσεις ἀναιροῦντες δὲ τὰ αἰσθητά, μόνους δ' ἐπόμηνους τοῖς νοητοῖς, συγχέουσι τὰ πράγματα,<sup>3</sup> καὶ οὐ μόνον τὴν τῶν ὄντων ἀλήθειαν σαλεύουσιν, ἀλλὰ καὶ τὴν ἐπίνοιαν<sup>4</sup> αὐτῶν.

62. (D.O.)<sup>1</sup> Oenomaus Gadarensis (14 Mull.) apud Euseb. Praep. Evang. VI, 7, 2—20 (cf. Theodoret. VI, 8—11, 13, pp. 151—153 Raeder; Georg. Monachus II, 18; Suda, s. v. εἰμαρμένη): ἀπόλωλε γάρ, τὸ γ' ἐπὶ τοῖς σοφοῖς, ἐκ τοῦ ἀνθρωπίνου βίου, ἀπόλωλεν, εἴτε οἰακά τις αὐτὸ εἴτε ἔρμα εἴτε κρηπίδα ὀνομάζων χαίρει, τῆς ἡμετέρας ζωῆς ἢ ἐξουσία, ἣν ἡμεῖς μὲν αὐτοκράτορα τῶν ἀναγκαιοτάτων τιθέμεθα, Δημόκριτος δὲ γε, εἰ μὴ τι ἠπάτημαι . . . δοῦλον . . . ἐπινοεῖ τὸ κάλλιστον τῶν ἀνθρωπίνων ἀποδείξει . . . (10) ἄρα γέ τί ἐσμεν ἐγὼ τε καὶ σύ; φαίης ἄν. τοῦτο δὲ ὁπόθεν ἴσμεν; τῷ ποτ' ἄρα τοῦτο εἰδέναι ἐκρίναμεν; ἢ οὐκ ἄλλο ἱκανὸν οὕτως ὡς ἡ συναίσθησις τε καὶ ἀντίληψις<sup>2</sup> ἡμῶν αὐτῶν; (11) τί δ', ὅτι ζῳιά ἐσμεν πῶς ποτ' ἄρα ἐξεύρομεν; (12) πῶς δ' ὅτι διαλεγόμεθα ἐν τῷ παρόντι ἐγνώκαμεν; τί φῆς; ἄρ' οὐκ ὀρθῶς ἐκρίναμεν τὴν ἡμῶν αὐτῶν ἀντίληψιν τῷ πάντων ἐγγυτάτῳ πράγματι αὐτῷ;<sup>3</sup> δῆλον ὅτι. οὐ γὰρ ἦν ἄλλο αὐτοῦ οὔτε ἀνώτερον οὔτε πρροβύτερον οὔτε πιστότερον. (13) ἐπεὶ εἰ μὴ οὕτως ἔξει . . . (15) οὐδ' εἰ αὐτός τί ἐστὶν οἶδεν. (16) ἀλλ' οὐκ ἀνέξεσθε οὔτε ἡμεῖς οὔτε ὁ Δημόκριτος, εἰ λέγοι τις ταῦτα· οὐ γὰρ εἶναι πιστότερον μέτρον οὐ λέγω . . . (17) οὐκοῦν, φῆσαιεν ἄν τις, ὦ Δημόκριτε, καὶ σύ, ὦ Χρυσίππε, καὶ σύ, ὦ μάντι, ἐπειδὴ ἀγανακτεῖτε εἰ τις ἐδηλώσει παρελθεῖν τὴν ὕμῶν αὐτῶν ἀντίληψιν (οὐ γὰρ ἔτι τὰς πολλὰς ἐκείνας βίβλους εἶναι),<sup>4</sup> φέρε καὶ ἡμεῖς ἀνταγανακτῶμεν. (18) τί δὴ ποτε, ἔνθα μὲν ἄν ὕμῖν δοκῆι, ἔσται τοῦτο καὶ πιστότατον καὶ πρροβύτατον, ἔνθα δ' ἄν μὴ δοκῆι, ἐκεῖ καταδυναστεύσει τι λεληθὸς αὐτοῦ,<sup>5</sup> εἰμαρμένη πεπωμένη,<sup>6</sup> διαφορὰν ἐκαστῶν ὕμῶν ἔχουσα, τῷ μὲν (sc. τῷ Πυθίῳ μάντι) ἐκ θεοῦ, τῷ δὲ (sc. τῷ Χρυσίππῳ) ἐκ τῆς <τύχης, τῷ δὲ (sc. τῷ Δημοκρίτῳ) ἐκ<sup>7</sup> τῶν μικρῶν ἐκείνων σωμάτων τῶν φερομένων κάτω καὶ ἀναπαλλομένων ἄνω καὶ περιπλεκόμενων καὶ διαλυομένων καὶ δισταμένων καὶ παρατιθεμένων ἐξ ἀνάγκης; (19) ἰδοὺ γὰρ ὡς τρώπει ἡμῶν αὐτῶν ἀντελήμμεθα, τούτῳ καὶ τῶν ἐν ἡμῖν ἀδαιρέτων καὶ βιαιῶν.<sup>8</sup> οὐ λέληθε<sup>7</sup> δὲ ἡμᾶς ὅσον τὸ μεταξὺ τοῦ βαδίζειν καὶ τοῦ ἀγεσθαι, οὐδὲ ὅσον τοῦ αἰρεῖσθαι καὶ τοῦ ἀναγκάζεσθαι. (20) (sc. τούτων) τὰ πείσματα ἀνήτται ἐκ τῆς ἡμετέρας βουλήσεως.

63. (D.D.B 304).<sup>1</sup> Graeco-Syr. dicta interpr. Ryssel, № 42: D. hat gesagt: «Ich allein weiss, dass ich nichts weiss». Gnom. Vatic. 743 (Wien. Stud. 10, 1888, p. 232), № 267 = Cod. Vatic. Gr. 1144, f. 217 r: ὁ<sup>2</sup> αὐτός (Δ.) εἶπεν· ἐν μόνον οἶδα, ὅτι οὐκ οἶδα.

64. (D.D.B 143). Philod. De ira 28, 17 G.: κάπαντῶσι δὲ πολλάκις πολλὰ συμφορὰ καὶ φίλοις καὶ προσήκουσιν ἄλλοις, ἔστι δ' ὅτε καὶ πατρίσι καὶ βασιλείαις, οὐ πάλαι μόνον, ὅθ' ἢ μῆνις ἐκείνη «μυρί» Ἀχαιοὺς ἀλγὴ ἔθηκεν, ἀλλ' ὁσημέραι καὶ μικροῦ δεῖν ὅσα τις ἄν νόσαιοτο,<sup>1</sup> κατὰ Δημόκριτον, κακὰ<sup>2</sup> πάντα παρακολουθεῖ διὰ τὰς ὑπερμέτρους ὀργάς.

Quo loco atque testimoniis in commentariis meis allatis nisus, sic Democritum locutum esse puto: ὅσα τις ἄν νόσαιοτο, πάντα ἔστι. Sunt itaque secundum Democritum phaenomena rerum cognitionis unica fons.

65. (D.D.B 165). Sext. Adv. math. VII, 265: Δ. δὲ ὁ τῆι Διὸς φωνῆι παρεικαζόμενος καὶ λέγων τὰδε περὶ τῶν ξυμπάντων ἐπεχείρησε μὲν τὴν ἐπίνοιαν (i. e. notionem ἀνθρώπος)<sup>1</sup> ἐκθέσθαι, πλεον δὲ ἰδιωτικῆς<sup>2</sup> ἀποφάσεως οὐδὲν ἰσχυρεν εἰπὼν· «ἀνθρώπος ἐστὶν ὁ πάντες ἴδμεν». Sext. Pyrrh. hypot. II, 23: ὁ μὲν γὰρ Δημόκριτος φησὶ ὅτι «ἀνθρώπος ἐστὶν ὁ πάντες ἴσμεν». Aristot. De part. animal. I, 1, p. 640b 29: εἰ μὲν οὖν τῷ σχήματι καὶ τῷ χρώματι ἕκαστὸν ἐστὶ τῶν τε ζῴων καὶ τῶν μορίων, ὀρθῶς ἄν Δ. λέγοι· φαίνεται γὰρ οὕτως ὑπολαβεῖν. φησὶ

γῶν παντὶ δῆλον εἶναι οἷον τι τὴν μορφήν ἐστὶν ὁ ἀνθρώπος ὡς ὄντος αὐτοῦ τῷ τε σχήματι καὶ τῷ χρώματι γνωρίμου. Mich. Ephes. ad loc. 5, 35: Δ. τὴν ἅπασαν ζήτησιν περὶ τῆς ὕλικῆς αἰτίας ποιούμενος ἀπεκρίνατο, τὸ δὲ τίος ἐνεκα ἦτοι τὴν εἰδικὴν εἶα λέγων «ἀπαντι δῆλόν ἐστιν ὁποῖόν τι κατὰ τὴν μορφήν καὶ τὸ χρῶμα ὑπάρχει ὁ ἀνθρώπος καὶ ἕκαστον τῶν ζῴων, κατὰ δὲ τὴν ὕλην ἀδῆλον, εἰ δὲ τοῦτο, περὶ τοῦ ἀδῆλου τὴν ζήτησιν ποιήσων, καὶ οὐ περὶ τοῦ φανερωτάτου».

Omnibus his locis nisus Diels sic Democritum dixisse putat:<sup>3</sup> λέγω τὰδε περὶ τῶν ξυμπάντων· ἀνθρώπος ἐστὶν ὁ πάντες ἴδμεν.<sup>4</sup>

66. (D.O). Aristot. De sensu 6, p. 445b 15 (v. № 429): ἐτι τίνι κρινοῦμεν ταῦτα ἢ γνωσόμεθα, ἢ τῷ νῷ; ἀλλ' οὐ νοητά, οὐδὲ νοεῖ ὁ νοῦς τὰ ἐκτός μὴ μετ' αἰσθήσεως.<sup>4</sup> ἅμα δ' εἰ ταῦτ' ἔχει οὕτως, εἴκοι μαρτυρεῖν τοῖς τὰ ἄτομα ποιούσι μεγέθη.<sup>1</sup>

67. (D.D.A 101). Aristot. De anima I, 2, p. 404a 27: οὐ μὴν παντελῶς γ' (ὁ Ἀναξαγόρας λέγει) ὡς περὶ Δημόκριτος· ἐκεῖνος μὲν γὰρ ἀπλῶς ταῦτ' οὖν ψυχὴν καὶ νοῦν (v. № 68). τὸ γὰρ ἀληθὲς εἶναι τὸ φαινόμενον.<sup>1</sup> διὸ καλῶς ποιῆσαι τὸν Ὀμηρον ὡς «Ἐκτωρ κεῖτ' ἄλλοφρονέων».<sup>2</sup> οὐ δὴ χρῆται τῷ νῷ ὡς δυνάμει τινὶ περὶ τὴν ἀλήθειαν, ἀλλὰ ταῦτ' οὖν λέγει ψυχὴν καὶ νοῦν. Aristot. Metaph. IV, 5, p. 1009b 28 (post mentionem Democriti): φασὶ δὲ καὶ τὸν Ὀμηρον ταύτην ἔχοντα φαίνεσθαι τὴν δόξαν (omnia phaenomena vera esse), ὅτι ἐποίησε τὸν Ἐκτορα, ὡς ἐξέστη ὑπὸ τῆς πληγῆς, κείσθαι ἄλλοφρονέοντα, ὡς φρονοῦντας μὲν καὶ τοὺς παραφρονοῦντας, ἀλλ' οὐ ταῦτα. (D.D.A 135). Theophr. De sensu 58 (v. № 460): περὶ δὲ τοῦ φρονεῖν . . . /εἴρηκεν, ὅτι . . . καὶ τοὺς παλαιούς καλῶς τοῦδ' ὑπολαβεῖν, ὅτι ἐστὶν ἄλλοφρονεῖν. ὡς περὶ φανερόν, ὅτι τῆι κράσει τοῦ σώματος ποιεῖ τὸ φρονεῖν, ὅπερ ἴσως αὐτῷ καὶ κατὰ λόγον ἐστὶ σῶμα ποιῶντι τὴν ψυχὴν.

68. (D.D.A 101). Aristot. De anima I, 2, p. 405a 8: Δ. δὲ καὶ γλαφυρότερος εἴρηκεν . . . ψυχὴν μὲν γὰρ εἶναι ταῦτ' οὖν καὶ νοῦν. (D. D. A 106). Aristot. De respir. 4, p. 472a 6: ἐν γὰρ τῷ ἀέρι πολλὸν ἀριθμὸν εἶναι τῶν τοιούτων ἃ καλεῖ ἐκείνος νοῦν καὶ ψυχὴν. Aët. IV, 5, 12 (Dox. 392): Παρμενίδης καὶ Ἐμπεδοκλῆς καὶ Δ. ταῦτ' οὖν καὶ ψυχὴν, καθ' οὗς οὐδὲν ἄν εἴη ζῳιον ἄλογον κυρίως. Aët. IV, 8, 10 (Dox. 395): Δ., Δ., Ἐπίκουρος τὴν αἰσθησιν καὶ τὴν νόησιν γίνεσθαι εἰδώλων ἐξωθεν προσιόντων. Aët. IV, 8, 5 (Dox. 394): Δ. τὰς αἰσθήσεις καὶ τὰς νόησεις ἑτεροιώσεις εἶναι τοῦ σώματος. (D.D.A 1). Diog. IX, 44: ἐκ . . . λείων καὶ περιφερῶν ὄγκων συγκεκρίσθαι . . . τὴν ψυχὴν . . . ἦν καὶ νοῦν ταῦτ' οὖν εἶναι. (D.O). Tertull. De anima 12: Unum erunt utrumque (animus et anima), et D. obtinebit differentiam tollens. V. etiam № 452.

69. (D.D.A 113). Philopon. in De anima I, 2, p. 405a 25, p. 71, 19: εἰ νοῦν ἔλεγον κινῆσαι τὸ πᾶν, πόθεν ὅτι καὶ ψυχῆι τὴν κίνησιν οἰκτεῖν εἶναι ἔλεγον; ναί, φησὶ· ταῦτ' οὖν γὰρ ὑπελάμβανον εἶναι ψυχὴν καὶ νοῦν, ὡς περὶ καὶ Δημόκριτος· ἔχομεν οὖν τοῦτο ἐναργῶς παρ' αὐτῶν εἰρημένον ὅτι ταῦτ' οὖν νοῦς καὶ ψυχὴ οὐδαμῶς, ἀλλ' ἐκ συλλογισμοῦ τοῦτο κατασκευάζει. ὁ μὲν γὰρ Δ., φησὶ, καὶ πρόδηλός ἐστι τοῦτο βουλόμενος· ἀντικρὺς γὰρ εἶπεν, ὅτι τὸ ἀληθὲς καὶ τὸ φαινόμενον ταῦτ' οὖν ἐστὶ, καὶ οὐδὲν διαφέρειν τὴν ἀλήθειαν καὶ τὸ τῆι αἰσθήσει φαινόμενον, ἀλλὰ τὸ φαινόμενον ἐκαστῶι καὶ τὸ δοκοῦν τοῦτο καὶ εἶναι ἀληθές, ὡς περὶ καὶ Πρωταγόρας ἔλεγε,<sup>1</sup> κατὰ γε τὸν ὀρθὸν λόγον διαφερόντων,<sup>2</sup> καὶ τῆς μὲν αἰσθήσεως καὶ τῆς φαντασίας περὶ τὸ φαινόμενον ἐχούσης, τοῦ δὲ νοῦ περὶ τὴν ἀλήθειαν. εἰ τοίνυν νοῦς μὲν περὶ τὴν ἀλήθειαν, ψυχὴ δὲ ἔχει περὶ τὸ φαινόμενον, τὸ ἀληθὲς δὲ ταῦτ' οὖν ἐστὶ τῷ φαινομένῳ, ὡς Δημόκριτος δοκεῖ, καὶ ὁ νοῦς ἄρα ταῦτ' οὖν τῆι ψυχῆι. ὡς γὰρ ἔχει ὁ νοῦς πρὸς τὴν ἀλήθειαν, οὕτως ἢ ψυχὴ πρὸς τὸ φαινόμενον<sup>3</sup> οὐκοῦν καὶ ἐναλλάξ ὡς τὸ φαινόμενον πρὸς τὴν ἀλήθειαν, οὕτως ὁ νοῦς πρὸς τὴν ψυχὴν. εἰ τοίνυν ταῦτ' οὖν φαινόμενον καὶ τὸ ἀληθές, καὶ ὁ νοῦς ἄρα καὶ ἢ ψυχὴ ταῦτ' οὖν.

70. (D.L.A 9). Aristot. De gen. et corr. I, 2, p. 315b 6: (Δ. καὶ Δ.) ὠιοντο τἀληθὲς ἐν τῷ φαίνεσθαι.<sup>1</sup> (D.O). Philopon. ad loc. 23, 2; v. № 96.

71. (D.D.A 135). Theophr. De sensu 60 sqq. (Dox. 16): Δ. δὲ καὶ Πλάτων . . . ὁ μὲν οὐκ ἀποστερών τῶν αἰσθητῶν τὴν φύσιν, Δ. δὲ πάντα πάθη τῆς αἰσθήσεως ποιῶν. ποτέρος μὲν οὖν ἔχει ἀλήθες οὐκ ἄν εἴη λόγος. ἐφ' ὅσον δὲ ἐκάτερος ἦται καὶ πῶς ἀφώρικε πειραθῶμεν ἀποδοῦναι, πρότερον εἰπόντες τὴν ὄλην





δηλοτάτη δὲ γίνεται ἡ διάκρισις, ὅταν ὁ Δ. λέγηι «ἐτεῖμι δὲ ἄτομα καὶ κενόν». Marcus Aurelius VII, 31: ἐκεῖνος (Δ.) μὲν φησιν, ὅτι πάντα νομιστί, ἐτεῖμι δὲ μόνον<sup>a</sup> τὰ στοιχεῖα.

86. (D.D.A 116).<sup>1</sup> Aët. IV, 10, 4 (Dox. 399): Δ. πλείους εἶναι αἰσθήσεις (sc. τῶν πέντε) περὶ τὰ ἄλογα ζῶια καὶ περὶ τοὺς σοφοὺς καὶ περὶ τοὺς θεοὺς.

87. (D.O). Anon. in Eth. Nicom. VII, 5, p. 1146b 26, p. 417, 26: τινὲς γὰρ τῶν δοξάζοντων οὐ διατάσσουσι καὶ ἀμφιβάλλουσιν οἷς δοξάζουσιν, ἀλλ' οἶονται ἀκριβῶς εἰδέναι, ὡς ὁ Δ. ἐδόξαζεν, ὅτι τὰ σώματα ἐκ τῶν ἀτόμων εἰσὶ, καὶ ἀκριβῶς δοξάζουσιν ἔλεγον.

88. (D.O). Plut. De tranqu. animi 13, p. 472 D: ... Δημόκριτος ... περὶ κόσμου γράφων καὶ τῆς τῶν ὄντων ἀληθείας...

89. (D.D.B 69, 6 N.).<sup>1</sup> Democrat. 34: ἀνθρώποις πᾶσι τούτων ἀγαθὸν καὶ ἀληθές· ἡδὺ δὲ ἄλλοι ἄλλο.

90. (D.D.A 49). Galen. De elem. sec. Hipp. I, 2 (I, 447 K.; 3, 20 Helmr.): «νόμοι γὰρ χροῖή, νόμοι γλυκῷ, νόμοι πικρῷ, ἐτεῖμι δ' ἄτομα καὶ κενόν» (N<sup>o</sup> 80) ὁ Δ. φησιν, ἐκ τῆς συνόδου τῶν ἀτόμων γίνεσθαι νομίζων ἀπάσας τὰς αἰσθητὰς ποιότητας ὡς πρὸς ἡμᾶς τοὺς αἰσθανομένους αὐτῶν, φύσει δ' οὐδὲν εἶναι λευκὸν ἢ μέλαν ἢ ξανθὸν ἢ ἐρυθρὸν ἢ πικρὸν ἢ γλυκῷ· τὸ γὰρ δὴ «νόμοι» ταῦτο βούλεται τῷ οἷον «νομιστί» καὶ «πρὸς ἡμᾶς», οὐ κατ' αὐτῶν τῶν πραγμάτων τὴν φύσιν, ὅπερ αὐτὸς πάλιν «ἐτεῖμι» καλεῖ, παρὰ τὸ «ἐτεόν», ὅπερ ἀληθῆς δηλοῖ ποιήσας τούνομα. καὶ εἴη ἂν ὁ σώματις νοῦς αὐτοῦ τοῦ λόγου τοιοῦδε· νομίζεται μὲν τι παρὰ ταῖς ἀνθρώποις λευκὸν τε εἶναι καὶ μέλαν καὶ γλυκῷ καὶ πικρῷ καὶ τὰλλα πάντα τὰ τοιαῦτα, κατὰ δὲ τὴν ἀλήθειαν δὲν καὶ μηδὲν ἐστὶ τὰ πάντα (cf. N<sup>o</sup> 78).

91. (D.D.A 163). Theophr. De caus. pl. VI, 17, 11: ἀλλ' ἐκεῖνο ἄτομον, ὃ καὶ πρότερον εἶπομεν, εἰ τὸ ἡμῖν κακῶδες καὶ ἄσμοον ἐκεῖνοις (bestiis) εὖσμοον γίνεσθαι. τάχα δ' οὐκ ἄτομον. ὁρῶμεν δ' οὖν τούτο καὶ ἐφ' ἑτέροις συμβαῖνον οἷον ἐν αὐταῖς εὐθὺ ταῖς τροφαῖς, ὧν μάλιστα ἂν τις αἰτιάσαιτο τὰς κράσεις ἀνωμαλεῖς γε οὕσας. ἐπεὶ τὰ γε σχήματα Δημοκρίτου, καθάπερ ἐλέχθη, τεταγμένας ἔχοντα τὰς μορφὰς τεταγμένα καὶ τὰ πάθη καίτοι γε οὐκ<sup>1, a</sup> ἐχρῆν ποιεῖν (?).

92. (D.D.A 59). Sext. Adv. math. VIII, 6: οἱ δὲ περὶ τὸν Πλάτωνα καὶ Δημόκριτον μόνον τὰ νοητὰ ὑπενόησαν ἀληθῆ εἶναι, ἀλλ' ὁ μὲν Δ. διὰ τὸ μηδὲν ὑποκείσθαι φύσει αἰσθητῶν, τῶν τὰ πάντα συγκρινουσῶν ἀτόμων πάσης αἰσθητῆς ποιότητος ἔρημον ἔχουσῶν φύσιν, ὃ δὲ Πλάτων διὰ τὸ γίνεσθαι μὲν αἰεὶ τὰ αἰσθητὰ, μηδέποτε δὲ εἶναι κτλ.

93. (D.D.A 1). Diog. IX, 44: ἀρχὰς εἶναι τῶν ὄλων ἀτόμους καὶ κενόν, τὰ δ' ἄλλα πάντα νενομίσθαι...

94. (D.D.A 125). Aët. I, 15, 8 (Dox. 314): Δ. φύσει μὲν μηδὲν εἶναι χρῶμα· τὰ μὲν γὰρ στοιχεῖα ἅποια, τὰ τε ναστὰ καὶ τὸ κενόν ... παρὰ ταῦτα γὰρ αἰ φαντασίαι.

95. (D.L.A 32). Aët. IV, 9, 8 (Dox. 397): οἱ μὲν ἄλλοι φύσει τὰ αἰσθητὰ, Δ. δὲ «καὶ» Δ. καὶ Διογένους νόμοι, τούτο δ' ἐστὶ δόξη καὶ πάθει τοῖς ἡμετέροις. μηδὲν δ' εἶναι ἀληθῆς μηδὲ καταληπτὸν ἐκτὸς τῶν πρώτων στοιχείων, ἀτόμων καὶ κενῶ. ταῦτα γὰρ εἶναι μόνον φύσει, τὰ δ' ἐκ τούτων θέσει καὶ τάξει καὶ σχήματι διαφέροντα ἀλλήλων συμβεβηκότα.

96. (D.O).<sup>1</sup> Philopon. in De gen. et corr. I, 2, p. 315b 9, p. 23, 2: ἐπειδή, φησὶ, πᾶσαν φαντασίαν ἀληθῆ λέγουσι, καὶ ἕκαστον, ὡς φαίνεται, οὕτως καὶ εἶναι, φαίνεσθαι δὲ πολλάκις τάναντία περὶ τοῦ αὐτοῦ τισι, τὸ ταῦθ' οὕτως περὶ τοῦ αὐτοῦ φαινόμενα ἀληθῶς ἔχειν δύνανται ἐκ τῶν οικείων ἀρχῶν σώζειν οἱ περὶ Δ., ὑποθέμενοι ἄπειρα εἶναι τῶν στοιχείων τὰ σχήματα.

Cf. etiam testimonium dubium, quod Diels falsis fragmentis (N<sup>o</sup> 309) adnumerat:

97. (D. D. B 309).<sup>1</sup> Albertus Magnus. Ethica I, 1, 3 (vol. IV, p. 4 Jammy): Hoc est etiam quod dicit D., quod «homo sapiens est mensura omnium quae sunt. Per sensum enim est mensura sensibilem et per intellectum est mensura intelligibilem». Mensuratur enim unumquodque sui generis primo et simplicissimo; primum autem et simplicissimum uniuscuiusque generis virtus

est. Virtus ipsius igitur est principium cognoscendi unamquamque rem; cognitio igitur omnis rei perficitur in cognitione virtutis eius. Cf. etiam caput de sensatione (N<sup>o</sup> 369, 441, §§ 60, 61, 68—70).

## e. EORUM QUAE SUNT FORMAE LOGICAE (REGULAE COGITATIONIS)

### I. Generalia

98. (D.D.A 33, B 10b).<sup>1</sup> Diog. IX, 47: τὰ δὲ βιβλία αὐτοῦ (sc. Democriti)... φυσικὰ δὲ τὰδε· Περὶ λογικῶν, <ἤ><sup>a</sup> Κανὼν α β γ.

99. (partim D.D.A 36). Aristot. Metaph. XIII, 4, p. 1078b 19: τῶν μὲν γὰρ φυσικῶν ἐπὶ μικρὸν Δ. ἤψατο μόνον (τοῦ ὀρίεσθαι) καὶ ὀρίσατό πως τὸ θερμὸν καὶ τὸ ψυχρὸν· οἱ δὲ Πυθαγόρειοι πρότερον περὶ τινῶν ὀλίγων, ὧν τοὺς λόγους εἰς τοὺς ἀριθμοὺς ἀνήπτου, οἷον τί ἐστὶ καιρὸς ἢ τὸ δίκαιον ἢ γάμος, ἐκεῖνος<sup>1</sup> δ' εὐλόγως ἐζήτησε τὸ τί ἐστὶν· συλλογιζέσθαι γὰρ ἐζήτησε, ἀρχὴ δὲ τῶν συλλογισμῶν τὸ τί ἐστὶν· διαλεκτικὴ γὰρ ἰσχύς οὕτω τοτ' ἦν, ὥστε δύνασθαι καὶ χωρὶς τοῦ τί ἐστὶ τάναντία ἐπισκοπεῖν, καὶ τῶν ἐναντιῶν εἰ ἢ αὐτῆ ἐπιστήμη. (D.D.A 36). Aristot. De part. animal. I, 1, p. 642a 24: αἴτιον δὲ τοῦ μὴ ἔλθειν τοὺς προγεγεστώτους ἐπὶ τὸν τρόπον τούτον (i. e. ad methodum Aristotelicam), ὅτι τὸ τί ἦν εἶναι καὶ τὸ ὀρίεσθαι τῶν οὐσίαν οὐκ ἦν, ἀλλ' ἤψατο μὲν Δ. πρώτος, ὡς οὐκ ἀναγκαῖον δὲ τῆς φυσικῆς θεωρίας, ἀλλ' ἐκφερόμενος ὑπ' αὐτοῦ τοῦ πράγματος· ἐπὶ Σωκράτους δὲ τούτο μὲν ἠδέηθη, τὸ δὲ ζητεῖν τὰ περὶ φύσεως ἔληξε, πρὸς δὲ τὴν χρῆσιν ἀρετῆς καὶ τὴν πολιτικὴν ἀπέκλινα οἱ φιλοσοφούντες. (D.O). Aristot. Phys. II, 2, p. 194a 15: καὶ γὰρ δὴ καὶ περὶ τούτου διχῶς ἀπορήσειεν ἂν τις· ἐπεὶ δύο αἰ φύσεις (i. e. forma et materia), περὶ ποτέρας (sc. λέγειν) τοῦ φυσικοῦ (sc. ἐστὶ), ἢ περὶ τοῦ ἐξ ἀμφοῖν, ἀλλ' εἰ περὶ τοῦ ἐξ ἀμφοῖν, καὶ περὶ ἑκατέρας. πότερον οὖν τῆς αὐτῆς ἢ ἄλλης (sc. γνώσεως) ἑκατέραν γνωρίζουσιν; εἰς μὲν γὰρ τοὺς ἀρχαίους ἀποβλέψαντι δόξειεν ἂν εἶναι τῆς ὄλης. ἐπὶ μικρὸν γὰρ τι μέρος Ἐμπεδοκλῆς καὶ Δημοκρίτους τοῦ εἶδους καὶ τοῦ τί ἦν εἶναι ἤψαντο.<sup>2</sup> (D.O). Simpl. ad loc. 300, 13: οὕτως οὖν τὴν ζήτησιν διελὼν δείκνυσιν, ὅτι οἱ ἀρχαῖοι φυσικοὶ περὶ τὴν τοῦ ἐτέρου ζήτησιν διέτριβον τοῦ κατὰ τὴν ὕλην, ἐπὶ μικρὸν τοῦ Ἐμπεδοκλέους καὶ τοῦ Δημοκρίτου τῆς κατὰ τὸ εἶδος φύσεως ἀφαμένων... (17) Δ. δὲ τὸ σχῆμα καὶ τὴν θέσιν καὶ τὴν τάξιν, τὸ εἶδος οἶμαι κατὰ τὸν λόγον<sup>3</sup> ἀφορίζει. (D.O). Themist. ad loc. 42, 11: ἐπὶ μικρὸν γὰρ τι μέρος Ἐμπεδοκλῆς καὶ Δ. τὸ εἶδος ὤνειροπόλησαν, ὃ μὲν τὸ νεῖκος καὶ τὴν φιλίαν ἀρχὰς θέμενος εἰδοποιούς, Δημόκριτος δὲ τὰ σχήματα. Philopon. ad loc. 228, 25: τῆς μὲν γὰρ ὄλης πολὺ ἐφρόντισαν πάντες οἱ παλαιοί, τοῦ δὲ εἶδους οἱ μὲν οὐδένα ἐποίησαντο λόγον, ὅσοι δὲ καὶ ἐμνήσθησαν εἰδικῶ αἰτίου ἐπὶ βραχὺ τούτου ἐφρόντισαν, οὗτοι δὲ εἰσι Δ. τε καὶ Ἐμπεδοκλῆς. ὃ μὲν γὰρ Δ. ὕλην λέγων τὸ ὑποκείμενον ταῖς ἀτόμοις, εἰδοποιούς αἰτίας ἔλεγε τὰ σχήματα τῶν ἀτόμων.

100. (D.D.A 35). Aristot. De gen. et corr. I, 2, p. 315a 34: ὅλος δὲ παρὰ τὰ ἐπιπολῆς περὶ οὐδενὸς οὐδεὶς ἐπέστησεν ἔξω Δημοκρίτου. οὗτος δ' εἶπε μὲν περὶ ἁπάντων φροντίσαι, ἦδη δὲ ἐν τῷ πῶς διαφέρει.

101. (D.O). Aristot. De gen. et corr. I, 2, p. 315b 28: καὶ πάλιν εἰ μεγέθη (sc. ὑπάρχει ἀδιαιρέτα), πότερον ὡς Δ. καὶ Α., σώματα ταῦτ' ἐστὶν ἢ ὡςπερ ἐν τῷ Τιμαίῳ ἐπίπεδα. τούτο μὲν οὖν αὐτό, καθάπερ καὶ ἐν ἄλλοις εἰρήκαμεν, ἄλογον μέχρι ἐπιπέδων διαλῶσαι, διὸ μᾶλλον εὐλογον σώματα εἶναι ἀδιαιρέτα... (p. 316a 5): αἴτιον δὲ τοῦ ἐπ' ἑλαττον δύνασθαι (τοὺς περὶ Πλάτωνα) τὰ ὁμολογούμενα συνορᾶν ἢ ἀπειρία. διὸ ὅσοι ἐνοικῆκασιν μᾶλλον ἐν τοῖς φυσικοῖς, μᾶλλον δύνανται ὑποτίθεσθαι τοιαῦτας ἀρχὰς, αἱ ἐπὶ πολὺ δύνανται συνείρειν· οἱ δ' ἐκ τῶν πολλῶν λόγων ἀθεώρητοι τῶν ὑπαρχόντων ὄντες, πρὸς ὀλίγα βλέψαντες ἀποφαινόνται ῥαῖον. ἴδιοι δ' ἂν τις καὶ ἐκ τούτων, ὅσον διαφέρουσιν οἱ φυσικῶς καὶ λογικῶς σκοποῦντες· περὶ γὰρ τοῦ ἄτομα εἶναι μεγέθη οἱ μὲν φασιν, διότι τὸ αὐτοτρίγωνον πολλὰ ἔσται, Δ. δ' ἂν φανείη οικείοις καὶ φυσικοῖς λόγοις<sup>1</sup> πεπεισθαι. δῆλον δ' ἔσται ὃ λέγομεν προῖοσιν (v. N<sup>o</sup> 105). Philopon. ad loc. 25, 19: ... οἱ μὲν γὰρ (οἱ περὶ Πλάτωνα), φησὶν, ὑπὸ τῆς περὶ τὰ μαθήματα σχολῆς ἀπειροὶ τῶν φυσικῶν ὑπῆρχον, τῆ δὲ ἀπειρία

τὸ ἐνωικηκῆναι τῆι φύσει ἀντέθηκεν, τούτεστι τὸ ἐν πείραι αὐτῆς γεγονέναι· οἱ γὰρ περὶ Δ. ἐγγυμασθέντες τοῖς φυσικοῖς πράγμασιν ἀρχὰς ὑπέθεντο ἐπὶ πολὺ δυναμένας σώζειν ὁμολογίαν πρὸς τὰ φύσει γινόμενα, πρὸς πίστιν δὲ τῶν εἰρημένων γυμνάζει τοὺς ἑκατέρων λόγους, οἷς χρώμενοι πειρῶνται δεῖξαι, ὅτι ἔστι μεγέθη ἀδιαίρετα, καὶ δείκνυσι πολλὴν οὖσαν ὑπεροχὴν τῶν Δημοκρίτου λόγων πρὸς τοὺς Πλάτωνος κατὰ τὸ πιθανόν, καὶ τῶν μὲν προφανῆ τὴν ἀτοπίαν εἶναι, τοὺς δὲ Δημοκρίτου χαλεπὴν ἔχειν τὴν λόσιν. Cf. Plut. De comm. notit. 39, p. 1079 E: Δημοκρίτῳ διαποροῦντι τὴν λόσιν. Cf. Aristot. De gen. animal. IV, 1, p. 764b 20 (N<sup>o</sup> 530): φυσικῶς καὶ ἐπιτυχῶς... Aristot. De gen. animal. IV, 1, p. 764b 20 (N<sup>o</sup> 530): ὅλως δὲ τὸ γε τὴν τοῦ μέρους ὑπεροχὴν κρατήσασαν ποσὴν θῆλυ βέλτιον μὲν ἢ μὴθὲν φροντίσαντα τὸ θερμὸν αἰτιῶσθαι μόνον. 3, p. 769a 26 (N<sup>o</sup> 533): ἀλλὰ μᾶλλον οἱ τὸν λειπόμενον τρόπον λέγοντες περὶ τῆς ὁμοιότητος (τῶν γονέων καὶ τῶν παιδῶν) καὶ τᾶλλα βέλτιον καὶ τοῦτο λέγουσιν.

## II. Cognitionis directa (axiomata). Classificatio pronuntiatorum

102. (v. N<sup>o</sup> 65). Aristot. De part. animal. I, 1, p. 640b 29; Mich. Ephes. ad loc. 5, 35; cf. Aristot. Phys. II, 1, p. 193a 3. *His omnibus locis nisus, Diels sequentem sententiam Democriti restituit*: λέγω τάδε περὶ τῶν ξυμπάντων ἀνθρωπῶς ἔστιν ὁ πάντες ἴδμεν.

*Hoc testimonium de «cognitione directa» Democritea maximi momenti esse puto. E pluribus sub N<sup>o</sup> 65 collectis testimoniis verba Mich. Ephes. sententiam Democriteam optime explicant*: περὶ τοῦ ἀδήλου τὴν ζήτησιν ποιητέον καὶ οὐ περὶ τοῦ φανερωτάτου.

*Fortasse etiam* (D.D.B 10b) *huc pertinet* Sext. Adv. math. VIII, 327: οἱ μὲν δογματικοὶ τῶν φιλοσόφων... τιθέασιν αὐτὴν (τὴν ἀπόδειξιν), οἱ δὲ Ἐμπειρικοί ἀναίρουσιν, τάχα δὲ καὶ Δ. ἰσχυρῶς γὰρ αὐτῆι διὰ τῶν Κανόνων ἀντεῖρηκεν.

103. (D.O). Suda, s. v. ἀναγκαῖον: Δ. ὁ Ἀβδηρίτης φησὶ<sup>1</sup>... Διαιρεῖ δὲ τὰ ὄντα εἰς τὸ εἶναι ἢ ἐξ ἀνάγκης εἶναι, ὡς «τὸν ἀνθρώπον ζῶιον εἶναι». ὁ γὰρ παντὶ τε καὶ ἀεὶ ὑπάρχει, τοῦτο ἐξ ἀνάγκης ἔστιν [ὁμοίως ἀναγκαῖον καὶ τὸν θεὸν ἀφ-τε καὶ ἀεὶ ὑπάρχει, τοῦτο ἐξ ἀνάγκης ἔστιν ὁμοίως ἀναγκαῖον καὶ τὸν θεὸν ἀφ-ταρτον εἶναι].<sup>2</sup> τὰ δὲ ἐνδεχομένως, καὶ τούτων τῶν ἐνδεχομένων τὰ μὲν ὡς ἐπὶ τὸ πλείστον, ὡς τὸ τὸν ἀνθρώπον πεντάδακτυλον<sup>3</sup> εἶναι καὶ γηράσκοντα πολιτοῦσθαι, τὰ δὲ ἐλάττω, ὡς τὰ τούτοις ἀντικείμενα, τὸ τὸν ἀνθρώπον τετραδάκτυλον ἢ ἐξαδάκτυλον εἶναι (ἔστι γὰρ ἐν τούτοις οὕτως καὶ ταῦτα) ἢ τὸ μὴ πολιτοῦσθαι<sup>4</sup> γηρῶντα τὸν ἀνθρώπον, «τὰ δὲ ἐπ' ἰσῆς<sup>5</sup> ὡς τὸ πολιτοῦσθαι<sup>6</sup> τὸν ἀνθρώπον»<sup>7</sup> ἢ μὴ, ἀποδημεῖν <ἢ μὴ><sup>8</sup> λούεσθαι ἢ μὴ.

## III. Tertium non datur

104. (D.O).<sup>1</sup> Plut. De comm. notit. 39, p. 1080 C: εἶτα πῶς τολμῶσιν (sc. οἱ Στωϊκοί) ἐπιτιμᾶν «τοῖς τὰς κενότητος<sup>2</sup> εἰσάγουσι καὶ ἀμερῆ τινα καὶ μαχόμενον μῆτε κινεῖσθαι, μῆτε μέγιστον ὑποτιθεμένοις», αὐτοὶ τὰ τοιαῦτα ἀξιώματα ψευδῆ λέγοντες εἶναι· «εἰ τινα μὴ ἔστιν ἴσα ἀλλήλοις; ἐκεῖνα ἀνίστα ἔστιν ἀλλήλοις... οὐκ ἔστι μὲν ἴσα ταῦτα (ut videtur, τμήματα, v. N<sup>o</sup> 105) ἀλλήλοις, οὐκ ἀνίστα δὲ ἔστι ταῦτα ἀλλήλοις».

*Agitur de aporia Democriti* — Δημοκρίτῳ διαποροῦντι (v. N<sup>o</sup> 101, Plut. De comm. notit. 39, p. 1079 D) — *quam Stoici per admissionem* τὰς μὲν ἐπιφανείας μὴτ' ἴσας εἶναι μὴτ' ἀνίσους *solverant*.

## B. MATHEMATICA

*De mathematicis atomistarum fusius egi in dissertatione «Die Infinitesimaltheorie der antiken Atomisten» in commentariis, qui «Quellen und Studien zur Geschichte der Mathematik, Astronomie und Physik» vocantur (t. 2, 1932, pp. 106—185), quae plenior rossice sub titulo «Теория бесконечного малых у древних атомистов» anno 1935 apparuit.*

## a. DEMONSTRATUR NECESSITAS ADMITTENDI TA AMEPH

105. (D.D.A 48b). Aristot. De gen. et corr. I, 2, p. 316a 13: Δ. δ' ἂν φανείη οικείους<sup>1</sup> καὶ φυσικοὺς λόγοις πεπεισθαι. δῆλον δ' ἔσται ὁ λέγομεν προῖοσιν. ἔχει γὰρ ἀπορίαν, εἰ τις θεῖη σῶμά τι εἶναι καὶ μέγεθος<sup>2</sup> πάντῃ διαιρετόν καὶ τοῦτο δυνατόν.<sup>3</sup> τί γὰρ ἔσται, ὅπερ τὴν διαιρέσιν διαφεύγει;<sup>3</sup> εἰ γὰρ πάντῃ διαιρετόν καὶ τοῦτο δυνατόν, κἂν ἅμα εἴη τοῦτο πάντῃ διηρημένον, καὶ εἰ μὴ ἅμα διηρηται.<sup>4</sup> κἂν εἰ τοῦτο γένοιτο, οὐδὲν<sup>5</sup> ἂν εἴη ἀδύνατον. οὐκοῦν καὶ κατὰ τὸ μέσον<sup>6</sup> ὡσαύτως. καὶ ὅλως δέ, εἰ πάντῃ πέφυκε διαιρετόν, ἂν<sup>7</sup> διαιρεθῆι, οὐδὲν ἔσται ἀδύνατον γεγονός, ἐπεὶ οὐδ' ἂν εἴη μυρία μυριάκις διηρημένα ἦι, οὐδὲν ἀδύνατον καίτοι ἴσως οὐδεὶς ἂν διέλοι.<sup>7</sup> ἐπεὶ τοίνυν πάντῃ τοιοῦτόν ἐστι τὸ σῶμα, διηρηθῆτω.<sup>8</sup> τί οὖν ἔσται λοιπόν; μέγεθος; οὐ γὰρ οἷόν τε· ἔσται γὰρ τι οὐ διηρημένον, ἦν δὲ πάντῃ διαιρετόν. ἀλλὰ μὴν εἰ μὴθὲν ἔσται σῶμα μὴδὲ μέγεθος, διαιρέσεις<sup>9</sup> δ' ἔσται, ἢ ἐκ στιγμῶν ἔσται, καὶ ἀμεγέθη ἐξ ὧν σύγκειται, ἢ οὐδὲν παντάπασιν, ὥστε κἂν γίνοιτο ἐκ μηδενός κἂν εἴη συγκείμενον, καὶ τὸ πᾶν δὴ οὐδὲν ἄλλ' ἢ φαινόμενον. ὁμοίως δὲ κἂν ἦι ἐκ στιγμῶν, οὐκ ἔσται ποσόν.<sup>10</sup> ὅποτε γὰρ ἦπτοντο καὶ ἐν ἦν μέγεθος καὶ ἅμα ἦσαν, οὐδὲν ἐποίουν μείζον τὸ πᾶν<sup>11</sup> διαιρεθέντος γὰρ εἰς δύο καὶ πλείω,<sup>12</sup> οὐδὲν ἐλάττω οὐδὲ μείζον τὸ πᾶν τοῦ πρότερον, ὥστε κἂν πᾶσαι συντεθῶσιν, οὐδὲν ποιήσουσι μέγεθος.<sup>13</sup> ἀλλὰ μὴν καὶ εἰ τι διαιρουμένου οἷον ἔκπρισμα γίνεται τοῦ σώματος, καὶ οὕτως ἐκ τοῦ μεγέθους σῶμά τι ἀπέρχεται, ὁ αὐτὸς λόγος, ἐκεῖνο πῶς διαιρετόν.<sup>14</sup> εἰ δὲ μὴ σῶμα, ἀλλ' εἰδός τι χωριστόν ἢ πάθος, ὃ ἀπῆλθεν, καὶ ἔστι τὸ μέγεθος στιγμαί ἢ ἀφαί τοδὶ παθοῦσαι,<sup>15</sup> ἀποπον ἐκ μὴ μεγεθῶν μέγεθος εἶναι. ἔτι δὲ ποῦ ἔσονται καὶ ἀκίνητοι ἢ κινούμεναι αἱ στιγμαί;<sup>16</sup> ἀφή <γὰρ><sup>9</sup> ἀεὶ μία δυοῖν τινῶν, ὡς ὄντος τινός παρὰ τὴν ἀφήν καὶ τὴν διαιρέσιν καὶ τὴν στιγμῆν. εἰ δὴ τις θήσεται ὅτιοῦν ἢ ὀπηλικονοῦν σῶμα εἶναι πάντῃ διαιρετόν, πάντα ταῦτα συμβαίνει. ἔτι ἐὰν διελῶν συνθῶ τὸ ξύλον ἢ τι ἄλλο, πάλιν ἴσον τε καὶ ἐν. οὐκοῦν οὕτως ἔχει δηλονότι κἂν τέμω τὸ ξύλον καθ' ὅτιοῦν σημειῶν. πάντῃ ἄρα διηρηται δυνατόν. τί οὖν ἔστι παρὰ τὴν διαιρέσιν; εἰ γὰρ καὶ ἔστι τι πάθος ἄλλο,<sup>17</sup> πῶς εἰς ταῦτα διαλύεται καὶ γίνεται ἐκ τούτων; ἢ πῶς χωρίζεται ταῦτα; ὥστ' εἴπερ ἀδύνατον ἐξ ἀφῶν ἢ στιγμῶν εἶναι τὰ μεγέθη, ἀνάγκη εἶναι σώματα ἀδιαίρετα καὶ μεγέθη.<sup>17</sup>

*Aristoteles addit de suo*: οὐ μὴν ἀλλὰ καὶ ταῦτα θεμένοις οὐχ ἦττον συμβαίνει ἀδύνατον.<sup>18</sup> ἔσκεπται δὲ περὶ αὐτῶν ἐν ἑτέροις.<sup>19</sup> ἀλλὰ ταῦτα πειρατέον λύειν διὸ πάλιν ἐξ ἀρχῆς τὴν ἀπορίαν λεκτέον. τὸ μὲν οὖν ἅπαν σῶμα αἰσθητόν εἶναι διαιρετόν καθ' ὅτιοῦν σημειῶν καὶ ἀδιαίρετον, οὐδὲν ἄτοπον· τὸ μὲν γὰρ δύναμει διαιρετόν, τὸ δ' ἐντελεχείαι ὑπάρξει. τὸ δ' εἶναι ἅμα πάντῃ διαιρετόν δύναμει ἀδύνατον δόξειεν ἂν εἶναι. εἰ γὰρ δυνατόν, κἂν γένοιτο, οὐχ ὥστε εἶναι ἅμα ἅμφω ἐντελεχείαι ἀδιαίρετον καὶ διηρημένον, ἀλλὰ διηρημένον δύναμει καθ' ὅτιοῦν σημειῶν. οὐδὲν ἄρα ἔσται λοιπόν, καὶ εἰς ἀσώματον ἐφαρμόζον τὸ σῶμα. καὶ γένοιτο δ' ἂν πάλιν ἦτοι ἐκ στιγμῶν ἢ ὅλως ἐξ οὐδενός. καὶ τοῦτο πῶς δυνατόν; ἀλλὰ μὴν ὅτι γε διαιρεῖται εἰς χωριστὰ καὶ ἀεὶ εἰς ἐλάττω μεγέθη καὶ εἰς ἀπέχοντα καὶ κεχωρισμένα, φανερόν. οὕτε δὴ κατὰ μέρος διαιροῦντι εἴη ἀπειρος ἂν θρόψις, οὕτε ἅμα οἷόν τε διαιρεθῆναι κατὰ πᾶν σημειῶν (οὐ γὰρ δυνατόν) ἀλλὰ μέχρι του. ἀνάγκη ἄρα ἄτομα ἐνυπάρχειν μεγέθη ἄτομα, ἄλλως τε καὶ εἴπερ ἔσται γένεσις καὶ φθορὰ ἢ μὲν διακρίσει, ἢ δὲ συγκρίσει.<sup>20</sup> ὁ μὲν οὖν ἀναγκάζειν δοκῶν λόγος εἶναι μεγέθη ἄτομα οὕτως ἔστιν... Philopon. ad loc. 29, 8: ἐὰν ὑποθῶμεθα εἰς μυρία μυριάκις διηρημένον τὸ μέγεθος, κἂν μὴπω διηρηται μὴδὲ δυνατόν ἴσως διαιρεθῆναι διὰ τὴν τοῦ διαιροῦντος ἀσθένειαν, οὐκ ἀδύνατος οὐδὲ ἄτοπος ἢ ὑπόθεσις.

(34, 8) ἀναλαμβάνει οὖν τὸν Δημοκρίτου λόγον ἐν συντόμῳ καὶ διαρθροῖ μᾶλλον, καὶ οὕτως τὸν ἐλεγχὸν ἐπιφέρει.

(35, 10) ... κατὰ τοῦτο τοίνυν τὸ σημαινόμενον ἐκλαβὼν τὸ «πάντῃ διαιρετόν» ὁ Δημόκριτος, εἰς ἄτοπον ἀπάγει τὸν λόγον, πρὸς τὴν οικείαν ὑπόληψιν ἀπορῶν, οὐ τὸ κείμενον ἐξελέγγων.<sup>21</sup>

(36, 37) ... προθέμενος δὲ ὡς ἐν κεφαλαίῳ τὴν Δημοκρίτου ἀπορίαν ἀναλαβεῖν, πρῶτον (ὃ Ἀριστοτέλης) διορίζεται ποίῳ μὲν σημαινόμενῳ τοῦ «πάντῃ διαιρετοῦ» οὐδὲν ἄτοπον ἀκολουθεῖ, ποίῳ δὲ ἔπεται ὅσα παρὰ Δημοκρίτου ἄτομα συνῆκται, καὶ

φησιν ὅτι τὸ μὲν λέγειν «πάντη διαιρετὸν τὸ καθ' ὅτιον κμέρος»<sup>ο</sup> δυνάμενον διαιρεθῆναι, εἰ καὶ μήπω διήρηται» ἀληθές καὶ οὐδὲν ἔχει ἄτοπον ἐπόμενον (καὶ γὰρ τὸ ἐνεργεῖαι ἀδιαίρετον δυνατόν οὕτω λέγειν πάντη διαιρετὸν τῷ γὰρ δύνασθαι ἐπὶ τοῦ συνεχοῦς ὀπτιῶν σημεῖον λαμβάνεσθαι, δῆλον ὅτι καὶ διαίσεις ἐστὶ ἐν ἐκάστω μέρει τοῦ συνεχοῦς), τὸ δὲ λέγειν πάντη διαιρετὸν ὡς ἅμα πάντη δυνάμενον διαιρεθῆναι, ἄτοπον. πῶς δὲ καὶ διὰ τί ἄτοπον, πάλιν προστίθῃσιν ἀναλαμβάνων τὴν Δημοκρίτου ἀπορίαν· καὶ τότε ὕστερον τὴν λύσιν ἐπιφέρει, φάσκων παραλογίζεσθαι τὸν Δημόκριτον οὐ τὸν λόγον ἐλέγχοντα τὸν φάσκοντα πάντη διαιρετὸν τὸ μέγεθος ἀλλὰ σημαίνοντι τὸ πάντη διαιρετὸν κατὰ τὴν ἐκείνου ὑπόληψιν λαμβανόμενον.

(37, 22) πόσα δὲ ἔπεται ἄτοπα τῷ ὑποτίθεσθαι εἰς σημεῖα διηρημένον τὸ μέγεθος ἐφεξῆς ἐπιφέρει ἀναλαμβάνων τὴν Δημοκρίτου ἀπορίαν.

(37, 31) ἀπαγωγὴν εἰς ἀδύνατον τὸν λόγον τὸν φάσκοντα πάντη ἅμα διηρηθῆναι τὸ σῶμα, τῷ δεῖξαι ἐπόμενον τούτῳ τὸ ἐκ στιγμῶν ἢ ἐκ μηδενὸς συγκεῖσθαι τὰ μεγέθη, νῦν ἐκ τῆς ἐναργείας λαμβάνει, ὡς παρὰ Δημοκρίτου ποιούμενος τὸν λόγον, ὅτι ἡ διαίσεις ἀεὶ εἰς χωριστά, ταυτέστιν εἰς ὑφεστῶτα, γίνεται μεγέθη. εἰ γὰρ καὶ εἰς ἐλάττω ἀεὶ τῷ μεγέθει τμήματα γίνεται ἡ διαίσεις, ἀλλ' οὐν εἰς ὑφεστῶτα καὶ καθ' αὐτὰ ὑποστῆναι δυνάμενα.<sup>22</sup> εἰ δὲ τοῦτο ἐναργές, πρόδηλον ὡς οὐχ ἅμα ἄπειρά ποτε τὰ διαιρεθέντα οὐδὲ ἐπ' ἄπειρον ἢ διαίσεις, διὰ τὸ μὴ εἶναι ἄπειρα χωριστά μέρη ἐν τοῖς πεπερασμένοις μεγέθεσι. τὸ δὲ ἀεὶ οὐ τὸ ἐπ' ἄπειρον σημαίνει ἐν τούτοις (ὡς γὰρ ἀπὸ Δημοκρίτου ὁ λόγος συμπερινομένου τὰ εἰρημένα),<sup>23</sup> ἀλλ' ἀεὶ εἰς ἐλάττω διαίρεται, φησὶ, «μέχρι του»<sup>2</sup> ὡς ἐν τοῖς ἐξῆς φησὶ, μέχρις οὐ καταστήσει ἡ διαίσεις εἰς ἄτομα.

(39, 20) τὸ γὰρ πάντη, φησὶ, διαιρετὸν ἐστὶ μὲν ὡς ὑπάρχει τοῖς μεγέθεσιν, ἐστὶ δὲ ὡς οὐχ ὑπάρχει· οὐχ ὑπάρχει μὲν, ὡς Δημοκρίτος ἀκούσας<sup>24</sup> εἰς ἄτοπον ἀπήγαγε τὸν λόγον κατὰ τὸ ἅμα πάντη διαιρετὸν εἶναι, τοῦτο δὲ ἀδύνατόν ἐστι, διότι, φησὶν, οὐκ ἐστὶ στιγμή στιγμής ἐχομένη.<sup>25</sup> λαμβάνει γὰρ τοῦτο Ἀριστοτέλης ὡς ἐναργές. καὶ γὰρ καὶ παρὰ τῶν περὶ Δημόκριτον ὠμολογεῖτο.

(38, 22)<sup>26</sup> σκοτεινότερον ἢ λέξις ἡρμηνεύεται. δόξει γὰρ λέγειν, ὅτι εἴπερ ἐστὶ γένεσις καὶ φθορά, ἢ μὲν διακρίσει, ἢ δὲ συγκρίσει, ἀνάγκη καὶ ἄτομα εἶναι μεγέθη· ἐμπάλιν δὲ χρῆ ἐκ τῶν ἀτόμων πιστοῦσθαι, ὅτι κατὰ σύγκρισιν ἢ γένεσις, ἀτόμων μὲν γὰρ ὑποκειμένων ἐστὶ κατὰ σύγκρισιν ἢ γένεσις, κατὰ σύγκρισιν δὲ οὕσης τῆς γενέσεως οὐκ ἀνάγκη ἄτομα ὑποθέσθαι μεγέθη. ἀλλὰ δὴ καὶ ὅτι μὲν ἐστὶν ἄτομα, ὁ Δημοκρίτειος λόγος δοκεῖ ἀποδοδεῖχεναι, οὐ μὴν ὅτι κατὰ σύγκρισιν ἢ γένεσις. ὥστε δεῖ ἐκ τοῦ εἶναι ἄτομα συλλογίζεσθαι, ὅτι καὶ ἡ γένεσις κατὰ σύγκρισιν, οὐκ ἐμπάλιν ὡς ἡ λέξις δοκεῖ ὑποφαίνειν. χρῆ οὖν ἀπλοῦστερον ἐκλαβεῖν τὴν λέξιν, οὕτως εἰπόντα· «ἀνάγκη ἅρα ἄτομα μεγέθη ὑπάρχειν», καὶ ὑποστίξαντα ἐνταῦθα ὡς ἐξ ἄλλης ἀρχῆς «εἴπερ οὖν ἐστὶ γένεσις καὶ φθορά, ἢ μὲν διακρίσει ἐστὶ, ἢ δὲ συγκρίσει», ἢ οὕτως· «ἀνάγκη ἅρα ἄτομα μεγέθη ὑπάρχειν, ἐξ ὧν εἴπερ ἐστὶ γένεσις καὶ φθορά, ὅπερ ἐναργές ἐστίν, ἢ μὲν διακρίσει ἐστὶ, ἢ δὲ συγκρίσει».

105a. (D.O.) Aristot. Phys. I, 3, p. 187a 1: ἐνιοὶ δ' ἑνέδοσαν τοῖς λόγοις ἀμφοτέροις, τῷ μὲν ὅτι πάντα ἐν, εἰ τὸ ὄν ἐν σημαίνει — ὅτι ἐστὶ τὸ μὴ ὄν, τῷ δὲ ἐκ τῆς διχοτομίας — ἄτομα ποιήσαντες μεγέθη.

## b. AMERPH MATHEMATICA

### I. Indivisibilitas τῶν ἀμερῶν

106. (D.D.A 48).<sup>1</sup> Aët. I, 16, 2 (Dox. 315): οἱ τὰς ἀτόμους, περὶ τὰ ἀμερῆ<sup>α</sup> ἴστασθαι καὶ μὴ εἰς ἄπειρον εἶναι τὴν τομῆν. — Stob. I, 14, 1:<sup>2</sup> Δ. ... περὶ τὰ μερῆ<sup>β</sup> ἴστασθαι τὴν τομῆν.

107. (D.D.A 48a).<sup>1</sup> Schol. in Euclid. X, 1 (V, 436, 16 Heib.): οὐκ ἐστὶν ἐλάχιστον μέγεθος, ὡς οἱ Δημοκρίτειοί φασιν.

108. (D.O.) Aristot. De caelo I, 5, p. 271b 2: πότερον ἐστὶ τι σῶμα ἄπειρον,<sup>1</sup> ὥσπερ οἱ πλείστοι τῶν ἀρχαίων φιλοσόφων ὠήθησαν... (8) εἴπερ καὶ τὸ μικρόν

παραβῆναι τῆς ἀληθείας ἀφισταμένοις γίνεται πόρρω μυριοπλάσιον, οἷον εἰ τις ἐλάχιστον εἶναι τι φαίη μέγεθος· οὗτος γὰρ τοῦλάχιστον εἰσαγωγὴν τὰ μέγιστ' ἂν κινήσειε τῶν μαθηματικῶν. Simpl. ad loc. 202, 27: Δ. ἢ ὅστις ἂν οὕτως ὑπόθοιτο μικρά τινα ὑποθέμενος τὰς ἀρχὰς καὶ ἐλάχιστα μεγέθη διὰ τὸ μέγιστον δυνάμιν ὡς ἀρχὰς ἔχειν ἀμαρτάνους περὶ αὐτὰ τὰ μέγιστα τῶν ἐν γεωμετρίας ἐκίνησαν, τὸ ἔπ' ἄπειρον εἶναι τὰ μεγέθη διαιετὰ, δι' ὃ καὶ τὴν δοθεῖσαν εὐθείαν δίχα τεμεῖν δυνατόν.<sup>2</sup> Simpl. in De caelo III, 7, p. 306a 26; p. 649, 1: οἱ γὰρ σχήματι διορίζοντες τὰς οὐσίας τῶν στοιχείων... ἡ ἀδιαίρετα λέγοντες αὐτὰ ἀναγκάζονται μὴ πᾶν σῶμα διαιρετὸν λέγειν καὶ μάχεσθαι ταῖς μαθηματικαῖς ἐπιστήμαις τὰ ἐναντιώτατα αὐταῖς λέγοντες· ἐκεῖνοι μὲν γὰρ καὶ τὸ νοητὸν σῶμα... <δίχα><sup>β</sup> διαιρετὸν λαμβάνουσιν, οὗτοι δὲ οὐδὲ τὸ αἰσθητόν. Philopon. in De gen. et corr. I, 8, p. 325b 34, p. 164, 20: ἀναιροῦσιν οἱ ταῦτα λέγοντες τὰς ἀκριβεστάτας τῶν ἐπιστημῶν — τὰς μαθηματικὰς λέγω. ἐκεῖνοι γὰρ πᾶν μέγεθος καὶ τὸ κατ' ἐπίνοιαν λαμβανόμενον διαίρουσι... δίχα, οὗτοι δὲ οὐδὲ τὸ φυσικόν.

109. (D.L.A 15).<sup>1</sup> Aristot. De caelo III, 4, p. 303a 4: οὐδ' ὡς ἕτεροί τινες λέγουσιν, οἷον Λεύκιππος τε καὶ Δ. ὁ Ἀβδηρίτης, εὐλογοῦντα συμβαίνοντα· φασὶ γὰρ εἶναι τὰ πρῶτα μεγέθη πλήθει μὲν ἄπειρα, μεγέθει δὲ ἀδιαίρετα... (8) τρόπον γὰρ τινα καὶ οὗτοι πάντα τὰ ὄντα ποιοῦσιν ἀριθμούς καὶ ἐξ ἀριθμῶν.<sup>2</sup> καὶ γὰρ εἰ μὴ σαφῶς δηλοῦσιν, ὅμως τοῦτο βούλονται λέγειν... (20) πρὸς δὲ τούτοις ἀνάγκη μάχεσθαι ταῖς μαθηματικαῖς ἐπιστήμαις<sup>3</sup> ἄτομα σῶματα λέγοντας καὶ πολλὰ τῶν ἐνδόξων καὶ τῶν φαινομένων κατὰ τὴν αἰσθησὶν ἀναιρεῖν, περὶ ὧν εἴρηται πρότερον ἐν τοῖς Περί χρόνου καὶ κινήσεως... Simpl. in Phys. III, 7, p. 207b 27, p. 512, 34: ἐμποδίζει δὲ γεωμετρίαν ὁ τὰ ἀμερῆ καὶ ἐλάχιστα ἀρχὰς καὶ στοιχεῖα ὑποτιθέμενος· τὴν γὰρ εἰς ἄπειρον τομῆν ἀναιρεῖ, ἢ συναναιρεῖται πολλὰ τῶν νῦν προχειρώς δεικνυμένων ἐν τοῖς μαθήμασιν.

110. (D.O).<sup>1</sup> Aristot. De sensu 6, p. 445b 18: εἴκοι μαρτυρεῖν τοῖς τὰ ἄτομα ποιοῦσι μεγέθη· οὕτω γὰρ ἂν λούιτο ὁ λόγος. ἀλλ' ἀδύνατα· εἴρηται δὲ περὶ αὐτῶν ἐν τοῖς λόγοις τοῖς περὶ κινήσεως... (v. № 429).

111. (D.L.A 14). Simpl. in Phys. I, 2, p. 184b 15, p. 36, 1: οἱ δὲ περὶ Δ. καὶ Δ. τὰ ἐλάχιστα πρῶτα σῶματα ἄτομα καλοῦντες.<sup>1</sup>

112. (D.D.A 49).<sup>1</sup> Galen. De elem. sec. Hipp. I, 2 (I, 418 K.; 3, 20 Helmr.; 205, 2 Us.): ἀπαθῆ δ' ὑποτίθενται τὰ σῶματα εἶναι τὰ πρῶτα (τινὲς μὲν αὐτῶν ὑπὸ σκληρότητος ἀδραυστα, καθάπερ οἱ περὶ τὸν Ἐπίκουρον· ἐνιοὶ δὲ ὑπὸ σμικρότητος ἀδιαίρετα, καθάπερ οἱ περὶ τὸν Λεύκιππον).

113. (D.L.A 13).<sup>1</sup> Simpl. in Phys. VI, 1, p. 231a 21, p. 925, 10: οἱ δὲ τῆς ἐπ' ἄπειρον τομῆς ἀπεργνωκότες, ὡς οὐ δυναμένων ἡμῶν ἐπ' ἄπειρον τεμεῖν καὶ ἐκ τούτου πιστώσασθαι τὸ ἀκατάληκτον τῆς τομῆς, ἐξ ἀδιαίρετων ἔλεγον ὑφεστάναι τὰ σῶματα καὶ εἰς ἀδιαίρετα διαιεσθαι. πλὴν ὅτι Λεύκιππος μὲν καὶ Δημοκρίτος οὐ μόνον τὴν ἀπάθειαν αἰτίαν τοῖς πρῶτοις σῶμασι τοῦ μὴ διαιεσθαι νομίζουσιν, ἀλλὰ καὶ τὸ σμικρὸν καὶ ἀμερές, Ἐπίκουρος δὲ<sup>2</sup> ὕστερον ἀμερῆ μὲν οὐχ ἡγεῖται, ἄτομα δὲ αὐτὰ διὰ τὴν ἀπάθειαν εἶναι φησὶ, καὶ πολλαχοῦ μὲν τὴν Λευκίππου καὶ Δημοκρίτου δόξαν ὁ Ἀριστοτέλης διήλεγξεν, καὶ δι' ἐκείνους ἴσως τοὺς ἐλέγχους πρὸς τὸ ἀμερές ἐνισταμένους ὁ Ἐπίκουρος ὕστερον μὲν γενόμενος, συμπαθῶν δὲ τῇ Λευκίππου καὶ Δημοκρίτου δόξει περὶ τῶν πρῶτων σωμάτων, ἀπαθῆ μὲν ἐφύλαξεν αὐτὰ, τὸ δὲ ἀμερές αὐτῶν παρεῖλετο, ὡς διὰ τοῦτο ὑπὸ τοῦ Ἀριστοτέλους ἐλεγχόμενων. Cf. Theodoret. IV, 9 (Dox. 285): Ἐπίκουρος... μετὰ Δημοκρίτου... ἀδιαίρετον δὲ καὶ ἄτομον καὶ ναστὸν οἱ μὲν διὰ τὸ ἀπαθὲς ὠνομάσθαι φασίν· οἱ δὲ διὰ τὸ ἄγαν σμικρὸν, ἅτε δὴ τομῆν καὶ διαίσεις δεξασθαι οὐ δυνάμενον.

114. (D.O.) Asclep. in Metaph. IV, 2, p. 1014a 26, p. 307, 17: ὁ μόντοι γε Δ. τὰ στοιχεῖα λέγων τὰ <ἐλάχιστα><sup>α</sup> μεγέθη καὶ τὰς ἀτόμους, ἀδιαίρετα αὐτὰ ὑπετίθετο οὐ μόνον κατ' εἶδος.<sup>1</sup> Alex. ad loc. 355, 13: κατὰ δὲ τοὺς ταῖς ἀτόμους στοιχεῖαις χρωμένους καὶ κατὰ μέγεθος ἀδιαίρετα τὰ στοιχεῖα, οὐ κατ' εἶδος μόνον.

115. (D.O.) [Aristot.] De lin. insec., p. 969a 21: πάλιν δὲ τῶν σωματικῶν στοιχείων εὐθὺς τὸ ἀμερῆ αἰτιῶν. εἰ γὰρ αὐ καὶ ἀποφαίνονται τινες οὕτως, ἀλλὰ πρὸς γε τὴν ὑποκειμένην σκέψιν αὐτὸ τὸ ἐξ ἀρχῆς λαμβάνουσιν.<sup>1</sup> μᾶλλον δὲ ὅσαι μᾶλλον







τοῦτο λέγειν φυσικῶς βουλομένους θεωρεῖν... (33) διαιρετόν ἂν εἴη τὸ τοῦ ἀέρος στοιχείον, ὡσαύτως δὲ καὶ τὸ τοῦ πυρός καὶ ἕως τῶν λεπτομερεστέρων. εἰ δὲ διαιρετόν, τοῖς μὲν σχηματίζουσι τὸ πῦρ συμβήσεται μὴ εἶναι τὸ τοῦ πυρός μέρος πῦρ διὰ τὸ μὴ συγκείσθαι τὴν πυραμίδα ἐκ πυραμίδων, ἔτι δὲ μὴ πᾶν σῶμα εἶναι ἢ στοιχείον ἢ ἐκ στοιχείων (τὸ γὰρ μέρος τοῦ πυρός οὔτε πῦρ οὐδ' ἕτερον στοιχείον οὐδέν). Schol. Coisl. ad loc. 514b 5 Brandis: ἐπειδὴ γὰρ ἐνδέχεται διελθεῖν τὴν πυραμίδα καὶ παραλλήλῳ ἐπιπέδῳ τμηθῆναι, τὸ μὲν πρὸς τῇ κορυφῇ πυραμίδος ἔσται, τὸ δὲ πρὸς τῇ βάσει οὐκέτι πυραμίδος, ἀλλ', ὡς οὗτοί φασι, «κόλουρος πυραμίδος».

127. (D.O). Syrian. in Metaph. XIII, 8, p. 1083b 13, p. 143, 16: ὅταν δὲ μέγεθος ἐξ ἀδιαίρετων ὑφίστασθαι (sc. λέγωσιν οἱ Πυθαγόρειοι), οὐχ ὅτι συνελθόντα τὰ ἄτομα καὶ οἰονεῖ συμπαγέστα ποιεῖ τὰς διαστάσεις<sup>1</sup> φασί (τοῦτο γὰρ τὸ Δημοκρίτειον δόγμα καὶ ταῖς γεωμετρικαῖς καὶ πάσαις ὡς εἰπεῖν ταῖς ἐπιστήμαις ἀντιφθέγγεται)...

128. (D.D.B 162).<sup>1</sup> Schol. AB in Hom. II, XIII, 137: Δ. δὲ τὸ κυλινδρῖκόν σχῆμα ὀλοοῖτροχον καλεῖ. Eustath. in II., p. 925: ... Δ. δὲ, φασί, τὸ κυλινδροειδὲς σχῆμα οὕτω (sc. ὀλοοῖτροχον) καλεῖ, λαβὼν ἴσως ἀρχὴν ἐκ τοῦ «οὔτι κυλινδεταί ἐσσόμενός περ» (II, XIII, 142).

129. (D.O). Aristot. De caelo I, 1, p. 268a 30: οὐκ ἔστιν εἰς ἄλλο γένος μετάβασις,<sup>1</sup> ὡσπερ ἐκ μήκους εἰς ἐπιφάνειαν, εἰς δὲ σῶμα ἐξ ἐπιφανείας. Simpl. ad loc. 10, 1: μὴ ἐξ ἁμερῶν συγκείσθαι τὰ μεγέθη... Aristot. De caelo III, 1, p. 299a 6:<sup>2</sup> δῆλον ὅτι τοῦ αὐτοῦ λόγου ἐστὶ στερεὰ μὲν ἐξ ἐπιπέδων συγκείσθαι, ἐπίπεδα δ' ἐκ γραμμῶν, ταύτας δ' ἐκ στιγμῶν οὕτω δ' ἐχόντων οὐκ ἀνάγκη τὸ τῆς γραμμῆς μέρος γραμμῆν εἶναι. περὶ δὲ τούτων ἐπέσκεπται πρότερον ἐν τοῖς περὶ κινήσεως λόγοις (Phys. VI, 1; v. № 283), ὅτι οὐκ ἔστιν ἀδιαίρετα μήκη.

130. (D.O). Aristot. De caelo III, 4, p. 303a 29: ἔτι οὐδὲ κατὰ τὴν τούτων (Δευκίπτου καὶ Δημοκρίτου) ὑπόληψιν δόξειεν ἂν ἄπειρα γίνεσθαι τὰ στοιχεῖα, εἴπερ τὰ μὲν σῶματα διαφέρει σχήμασι, τὰ δὲ σχήματα πάντα σύγκειται ἐκ πυραμίδων, τὰ μὲν εὐθύγραμμα ἐξ εὐθύγραμμων, ἢ δὲ σφαῖρα ἐξ ὀκτώ μορίων<sup>1</sup> (cf. № 230; Simpl. ad loc. 649, 9). Simpl. ad loc. 613, 18: ὡς γὰρ ἐν τοῖς ἐπιπέδοις πᾶν εὐθύγραμμον ἐπίπεδον εἰς τρίγωνα διαιρεῖται<sup>2</sup> καὶ ἐκ τριγώνων συνέστηκε, διότι ἀπλοῦστατον καὶ ἀρχοειδέστατον τῶν ἐπιπέδων σχημάτων ἐστὶ τὸ τρίγωνον, οὕτω πᾶν ἐξ εὐθύγραμμων ἐπιπέδων περατούμενον στερεὸν εἰς πυραμίδας ἀναλύεται, καὶ ἔστιν ἀπλοῦστατον ἐν τοῖς στερεοῖς καὶ ἀρχοειδέστατον ἢ πυραμίδος, καὶ ἐκ ταύτης σύγκειται καὶ εἰς ταύτην διαιρεῖται τὰ εὐθύγραμμα στερεὰ σχήματα. ἀλλὰ τοῦτο μὲν δῆλον, καὶ ὅτι ἀνάγκη τῶν συνθέτων σχημάτων ἀρχὰς εἶναι πῶς δὲ τὴν σφαῖραν ἐξ ὀκτώ μορίων συγκείσθαι φησι, μαντείας ὄντως ἐδεήθησαν οἱ ἐξηγηταί. καλῶς δὲ, οἶμαι, ἐπέστησεν ὁ Ἀλέξανδρος, ὅτι πάντα τὰ σῶματα ἐκ πυραμίδων συγκείσθαι φησι, τὰ μὲν εὐθύγραμμα ἐξ εὐθύγραμμων, τὴν δὲ σφαῖραν ἐξ ὀκτώ πυραμίδων σφαιρικῶς ἐχουσῶν τὰς βάσεις. ἐὰν γὰρ σφαῖραν τέμνωμεν δίχα τῷ ὀρίζοντι κύκλῳ καὶ διὰ τοῦ κατὰ κορυφῆν τῆς σφαίρας δύο κύκλους γράψωμεν μεγίστους πρὸς ὀρθὰς τέμνοντας ἀλλήλους τε καὶ τὸν ὀρίζοντα τῷ ἰσημερινῷ καὶ τῷ μεσημβρινῷ ἀναλογοῦντας, εἰς ὀκτὼ ἴσα τμήματα διαιρεθήσεται ἡ σφαῖρα, τούτων δὲ ἕκαστον πυραμίδος ἐστὶν ἐκ τριγώνων ἰσοσκελῶν μὲν τῶν πρὸς τῷ κέντρῳ τῆς σφαίρας, βάσιν δὲ ἐχόντων ἰσόπλευρον τρίγωνον. ἐὰν οὖν αἱ βάσεις αὗται σφαιρικῆν ἐπιφάνειαν λάβωσιν, ἐξ ὀκτώ τοιούτων πυραμίδων ἢ σφαῖρα συγκείσεται.

131. (D.O). Aristot. De caelo III, 8, p. 306b 3: ὅλος δὲ τὸ πειρᾶσθαι τὰ ἀπλᾶ σῶματα σχηματίζεῖν, ἀλογόν ἐστι... (23) οὔτε γὰρ ἐξ αὐτῶν τῶν στοιχείων... οὐτ' ἐκ τῶν ἐπιπέδων συντιθεμένων (sc. ἐνδέχεται γίνεσθαι σῶμα τι τῶν συνεχῶν)... (32) ἐπεὶ τὸ πῦρ εὐκίνητόν ἐστι καὶ θερμαντικὸν καὶ καυστικόν, οἱ μὲν ἐποίησαν αὐτὸ σφαῖραν, οἱ δὲ πυραμίδα· ταῦτα γὰρ εὐκίνητότατα<sup>1</sup> μὲν διὰ τὸ ἐλάχιστον ἄπτεσθαι καὶ ἥμισυ βεβηκέναι, θερμαντικώτατα δὲ καὶ καυστικώτατα, διότι τὸ μὲν «ὄλον ἐστὶ γωνία»,<sup>2</sup> τὸ δὲ ὀξυγωνιώτατον, καίει δὲ καὶ θερμαίνει ταῖς γωνίας, ὡς φασιν. (p. 307a 16) Δημοκρίτῳ δὲ καὶ ἡ σφαῖρα ὡς γωνία τις οὕσα τέμνει ὡς εὐκίνητον... τοῦτο δ' ἐστὶ ψεῦδος φανερόν. ἅμα δὲ συμβήσεται καὶ τὰ μαθηματικά σῶματα καίειν καὶ θερμαίνειν· ἔχει γὰρ κάκεινα γωνίας, καὶ ἔνευσιν ἐν αὐτοῖς ἄτομοι καὶ<sup>3</sup> σφαῖραι καὶ πυραμίδες, ἄλλως τε καὶ εἰ ἔστιν ἄτομα μεγέθη, καθάπερ

φασίν... Simpl. ad loc. 659, 13: ὄγδοον τοῦτο κοινῶς πρὸς τοὺς συνθέσει μεγεθῶν εἴτε τῶν ἀτόμων, ὡς οἱ περὶ Δημοκρίτον λέγουσιν, εἴτε τῶν ἐπιπέδων, ὡς ὁ Τίμαιος, τὴν ἐξ ἀλλήλων γένεσιν τῶν σωμάτων ποιῶντας, καὶ δείκνυσιν αὐτοὺς καὶ<sup>4</sup> ἀναιροῦντας ὅλος τὴν γένεσιν... «στοιχεῖα» δὲ λέγει κατὰ μὲν Δ. τὰς ἀτόμους... ἐκ... τῆς τῶν στοιχείων τούτων συνθέσεως συνεχῆς οὐ γίνεται...<sup>3</sup> (661, 29) ἐπεὶ γὰρ εὐκίνητον, φησὶν, ἔστι τὸ πῦρ καὶ θερμαντικόν καὶ καυστικόν. οἱ μὲν περὶ Δ. «ἐποίησαν αὐτὸ σφαῖραν», οἱ δὲ τὰ ἐπίπεδα «πυραμίδα». καὶ γὰρ ἡ... σφαῖρα εὐκίνητος διὰ τὸ κατὰ σημείον ἄπτεσθαι τοῦ ὑποκειμένου ἐπιπέδου καὶ, ὡς ὁ Πλάτων (Polit. 270a) φησὶν, ἐπὶ ἀμικροτάτου ποδὸς βαίνειν... «καὶ θερμαντικώτατα καὶ καυστικώτατα ταῦτα τὰ σχήματα δοκεῖ, διότι καίει μὲν καὶ θερμαίνει ταῖς γωνίας», ὡς φασί, τὰ σῶματα διακρίνοντα καὶ διαιροῦντα λεπτομερῶς, «ἔστι δὲ ἢ μὲν πυραμίδος ὀξυγωνιώτατον, τὸ δὲ σφαιρικόν ὄλον γωνία». εἰ γὰρ τὸ συγκεκριμένον ἐστὶ γωνία, ἢ δὲ σφαῖρα καθ' ὅλην ἑαυτὴν συγκεκριμένη, εἰκότως ὅλη γωνία λέγεται. (664, 30) καὶ γὰρ ἐν τοῖς μαθηματικοῖς ἐστὶν ὀξεῖα γωνία καὶ πυραμίδες καὶ σφαῖραι, καὶ αὗται ἄτομοι, ὡσπερ καὶ αἱ ὑπὸ τούτων ὑποτιθέμεναι, τουτέστι μὴ διαιρούμεναι εἰς ὅμοια τῷ ὄλῳ... (665, 5) εἰ δὲ καὶ ἔστιν ἄτομα μεγέθη καὶ ἀπαθῆ καὶ ἄποια, ὡς οἱ περὶ Δ. ἔλεγον καὶ Ξενοκράτης, τὰς ἀτόμους γραμμὰς ὑποτιθέμενοι... Themist. ad loc. 201, 24: Alexander vero dicebat sermonis partem ab Aristotele dictam fuisse, ut Democrito responsum daret... (202, 20) sphaera quidem tota est angulus—quod enim secundum se totum gibbosum est, veluti angulus quidam existit.

132. (D.O). Philopon. in De anima I, 2, p. 405a 8, p. 84, 21: ἄξιον δὲ ζητῆσαι διὰ ποίαν αἰτίαν ὁ Δ. μικρομερεστέρως ἔλεγεν εἶναι τὰ σφαιρικῶς ἀτόμους, ὥστε καὶ διὰ τοῦτο εὐκίνητους εἶναι. ὅτι μὲν γὰρ καὶ εὐκίνητον τὸ σφαιροειδὲς, δῆλον· δείκνυται γὰρ ὅτι ἡ σφαῖρα κατὰ σημείον ἄπτεται τοῦ ἐπιπέδου· ἄτε οὖν κατὰ σημείον ἐφαπτομένη εὐκίνητος ἐστὶ ραδιῶς ἐξολισθαίνουσα... (84, 29) φημὲν οὖν ὅτι δείκνυται ἐν γεωμετρίας ὅτι τῶν εὐθύγραμμων καὶ ἰσοπεριμέτρων σχημάτων τὰ πολυγωνιώτερα τῶν ἐλάττους ἐχόντων γωνίας μείζον ἔχουσι τὸ ἐμβαδόν. οἷον ὑποκείσθω τετράγωνον ἔχον ἐκάστην πλευρὰν δύο πήχεων, ὡς εἶναι αὐτοῦ τὴν πᾶσαν περίμετρον πήχεων ὀκτώ, ὑποκείσθω δὲ καὶ ἕτερον ἐξάγωνον ἔχον ἐκάστην πλευρὰν ἐνός<sup>2</sup> τρίτου πήχεος, ὡς γίνεσθαι καὶ τούτου τὴν περίμετρον πήχεων ὀκτώ. ὑποκείσθω καὶ ἄλλο ὀκτάγωνον ἐκάστην ἔχον πλευρὰν πήχεος ἐνός, ὡς εἶναι καὶ τούτου τὴν περίμετρον πήχεων ὀκτώ. τούτων οὖν τῶν σχημάτων τοῦ τετραγώνου καὶ ἐξαγώνου καὶ ὀκταγώνου ἴσην ἐχόντων τὴν περίμετρον (ἕκαστον γὰρ ὀκτὼ πήχεων) μείζον μὲν ἔξει ἐμβαδόν τὸ ὀκτάγωνον ἔλαττον δὲ τὸ ἐξάγωνον καὶ τούτου ἔλαττον τὸ τετράγωνον. εἰ τοίνυν τὸ πολυγωνιώτερον πολυχωρητότερον, ὁ κύκλος ἄρα πάντων τῶν ἰσοπεριμέτρων σχημάτων πολυχωρητότατον ἔξει τὸ ἐμβαδόν,<sup>1</sup> διότι τὰ πολυγωνιώτερα τῶν σχημάτων ἐγγίξει μάλλον τῷ κύκλῳ. ὅσοι γὰρ γίνονται πολυγωνιώτερα, ἐγγύτερά<sup>2</sup> τοῦ ἀγώνια εἶναι,<sup>3</sup> ἄγνος δὲ ὁ κύκλος. ὁ αὐτὸς λόγος καὶ ἐπὶ τῶν στερεῶν· ὥστε ἡ σφαῖρα τῶν εὐθύγραμμων καὶ ἰσοπεριμέτρων στερεῶν πολυχωρητότερα ἐστὶ. εἰ τοίνυν τοῦτο οὕτως ἔχει καὶ τῶν ἰσοπεριμέτρων τὰ πολυγωνιώτερα μείζον ἔχουσι τὸ ἐμβαδόν, καὶ ἐναλλάξ ἄρα τῶν ἐχόντων τὸ αὐτὸ ἐμβαδόν σχημάτων τὰ πολυγωνιώτερα ἦντων τὴν περίμετρον ἔχουσιν. οὐκοῦν καὶ πάντων αἱ σφαῖραι μικροτέρων ἔχουσι τὴν περίμετρον. καλῶς οὖν ὁ Δ. τῶν ἴσων ἀτόμων τῷ ὄγκῳ τὰς σφαιρικῶς μικρομερεστέρως<sup>3</sup> ὑπετίθετο. Cf. Ptolem. Math. σύνταξ. I, 3, p. 13, 21 Heib.

## VI. Tactus

133. (= № 82). (D.D.B 111). Diog. IX, 33 (e Thrasyli catalogo): τὰ δὲ βιβλία αὐτοῦ (τοῦ Δημοκρίτου)... μαθηματικά... τάδε· Περὶ διαφορῆς<sup>2</sup> γνώμης, ἢ Περὶ ψάσιος κύκλου καὶ σφαίρης.<sup>1</sup> Cf. № CXV.

## VII. Incommensurabilitatis aporia

134. (D.D.B 11p). Diog. IX, 33 (e Thrasyli catalogo): μαθηματικὰ δὲ (τοῦ Δημοκρίτου) τάδε... Περὶ ἀλόγων γραμμῶν καὶ ναστῶν<sup>1</sup> α β. Cf. № CXV.

## c. GEOMETRIA

### I. Planimetria

135. (D.D.B 11n). Diog. IX, 33 (*e Thrasyli catalogo*): Μαθηματικά δὲ (τοῦ Δημοκρίτου) τάδε... Γεωμετρικῶν (*numerus librorum?*). Cf. № CXV.

136. (D.D.B 132). Hesych., s.v. ἀσκαληρές: ἰσόπλευρον παρὰ Δημοκρίτου.

137. (D.D.B 299).<sup>1</sup> Clem. Strom. I, 15, 69: τάδε λέγει Δημοκρίτος: ... καὶ γραμμῶν συνθέσις μετὰ ἀποδείξεως οὐδεὶς κώ με παρήλλαξεν οὐδ' οἱ Αἰγυπτίων καλεσόμενοι Ἀρπεδονάπται.<sup>2</sup> Cf. № XIV.

### II. Actinographia (perspectivae theoria)

138. (D.D.B 15b). Diog. IX, 33 (*e Thrasyli catalogo*): Μαθηματικά δὲ (τοῦ Δημοκρίτου) τάδε... Ἀκτινογραφία.<sup>1</sup> Cf. № CXV.

139. (D. 59 A 39). Vitruv. VII, prooem. 11: Primum Agatharchus Athenis, Aeschylus docente tragoediam, scaenam fecit et de ea commentarium reliquit. Ex eo moniti D. et Anaxagoras de eadem re scripserunt, quemadmodum oporteat ad aciem oculorum radiorumque extensionem certo loco centro constituto<sup>1</sup> lineas ratione naturali respondere,<sup>2</sup> uti de incerta re<sup>3</sup> certae imagines aedificiorum in scaenarum picturis redderent speciem et quae in directis planisque frontibus sint figurata alia abscedentia alia prominentia esse videantur. Cf. (D.D.A 135). Theophr. De sensu 54 (Dox. 513): τὰ δὲ μεγέθη καὶ τὰ διαστήματα πῶς ἐμφαίνεται, καίπερ ἐπιχειρήσας λέγειν, κέλλιπῶς<sup>4</sup> ἀποδίδωσιν.<sup>4</sup> Philopon. in De gen. et corr. I, 2, p. 315b 9, p. 23, 10 (№ 434): οἱ περὶ Δ. ... καὶ τὰ τετράγωνα δὲ τῶν σχημάτων κύκλωτερῆ πόρρωθεν φαίνεται,<sup>5</sup> καὶ κύκλον<sup>6</sup> δὲ πόρρωθεν κείμενον, εἰ κατὰ τοῦ κροτάφου θεασώμεθα, εὐθείαν ὀρώμεν... Epiphani. Adv. haer. III, 2, 9 (№ 53): μηδὲν κατὰ ἀλήθειαν (Δ.), ἀλλ' οὕτω φαίνεσθαι κατὰ τὴν ἐν τῷ ὕδατι κώπην.<sup>7</sup>

## d. INFINITAS

### I. Demonstrationes, quibus ostenditur infinitatem exsistere

140.<sup>a</sup> (D.O; cf. № I).<sup>1</sup> Aristot. Phys. III, 4, p. 203b 22: (τοῦ δ' εἶναι τι ἄπειρον ἢ πίστις ἐκ πέντε μάλιστα ἂν συμβαίνοι σκοποῦσιν) μάλιστα δὲ καὶ κυριώτατον, ὃ τὴν κοινὴν ποιεῖ ἀπορίαν πᾶσιν· διὰ γὰρ τὸ ἐν τῇ νοήσει μὴ ὑπολείπειν καὶ ὁ ἀριθμὸς δοκεῖ ἄπειρος εἶναι καὶ τὰ μαθηματικά μεγέθη καὶ τὸ ἔξω τοῦ οὐρανοῦ ... ἅμα δ' εἰ καὶ ἐστὶ κενόν καὶ τόπος ἄπειρος, καὶ σῶμα ἄπειρον εἶναι ἀναγκαῖον· ἐνδέξασθαι γὰρ ἢ εἶναι οὐδὲν διαφέρει ἐν τοῖς αἰθίοις. Philopon. ad loc. 405, 23: ἔνθεν γὰρ καὶ ὁ Δ. ἀπείρους εἶναι κόσμους ὑπετίθετο. Lact. De ira dei 10, 10 (p. 86, [11 Brandt]): Quoniam est omne, inquit (Leucippus), infinitum nec potest quidquam vacare, necesse est ergo innumerabiles esse mundos. *Plenius supra* (№ I).

### II. In corpore finito numerus infinitus atomorum contineri non potest. Solum infinita quantitas uniuscuiusque quattuor elementorum πανσπερμία atomorum nominari potest

140a. (D.L.A 28). Aristot. De anima I, 2, p. 404a 1: Δ. ... ἀπείρων γὰρ ὄντων σχημάτων καὶ ἀτόμων τὴν μὲν πανσπερμίαν στοιχεῖα λέγει τῆς ὅλης φύσεως (ὁμοίως δὲ καὶ Α.). Aristot. De caelo III, 2, p. 303a 15 (= № 275): οὐσαν

αὐτῶν (sc. τοῦ ἀέρος, τοῦ ὕδατος κτλ.) τὴν φύσιν οἷον πανσπερμίαν πάντων τῶν στοιχείων.

141. (D.O).<sup>1</sup> Philopon. in De gen. et corr. I, 1, p. 314a 15, p. 12, 2: ὁ δὲ Δ. καὶ Α. ἄτομα ὑπετίθεντο σώματα οὐ μόνον τῷ πλήθει ἄπειρα, ἀλλὰ καὶ τῇ τῶν σχημάτων διαφορᾷ, ὡς συμβαίνειν ἐκ τῶν τούτου λόγων τοῦ ἀπείρου εἶναι τι ἀπειρότερον· ἕκαστον γὰρ τῶν σχημάτων οὐκ ἐν μιᾷ ἀτόμῳ, ἀλλ' ἐν πλείοσι τιθέασιν. οἱ δὲ περὶ Ἐπίκουρον, ὡς φησὶν Ἀλέξανδρος, οὐκέτι κατὰ τοῦτο συνεφώνησαν Δημοκρίτῳ. ἐκεῖνοι μὲν γὰρ κατὰ μὲν τὸ πλήθος ἀπείρους τὰς ἀτόμους ὑποτίθενται, κατὰ δὲ τὰ σχήματα ἀπεριλήπτους μὲν, οὐκ ἀπείρους δέ.

142. (= №№ 277, 494). Aristot. De sensu 4, p. 441a 4: ἀνάγκη ... τὸ ὕδωρ ... ὕλην τοιαύτην εἶναι οἷον πανσπερμίαν χυμῶν... (18) ὁμοίως δὲ καὶ πανσπερμίας εἶναι τὸ ὕδωρ ὕλην ἀδύνατον. Philopon. in De anima I, 2, p. 404a 4, p. 67, 30: πανσπερμίαν φησὶ τὸ πλήθος τῶν σχημάτων· ὡς περὶ γὰρ ἐν τῇ πανσπερμίᾳ ἐστίν, ἐν τῷ σωρῷ,<sup>a</sup> καὶ σῖτος καὶ κριθή καὶ τὰ ἄλλα σπέρματα, οὕτω καὶ ἐν τοῖς ἀτόμοις πανσπερμίαν εἶναι τῶν σχημάτων. ταύτης δὲ τῆς δόξης φησὶν εἶναι καὶ Λεύκιππον· ἐπείπερ γὰρ ἦν Δημοκρίτου.<sup>b</sup> Simpl. ad loc. 26, 3: διὸ καὶ πανσπερμίαν αὐτὰ προσαγορεύει ὡς πάντων σπέρματα.

143. (D.O). Aristot. Metaph. III, 5, p. 1009a 26: καὶ Ἀναξαγόρας μεμίχθαι πᾶν ἐν παντί φησὶ καὶ Δ.· καὶ γὰρ οὗτος τὸ κενόν καὶ τὸ πλήρες ὁμοίως καθ' ὅτιον ὑπάρχειν μέρος.<sup>1</sup> Aristot. De gen. et corr. I, 2, p. 316b 29: οὕτε δὴ κατὰ μέρος διαιροῦντι εἴη ἂν ἄπειρος ἢ θρόψις. Philopon. ad loc. 37, 33 sqq.: (ὁ Ἀριστοτέλης λέγει) ὡς παρὰ Δ. ποιούμενος τὸν λόγον, ὅτι ἡ διαίρεσις ἀεὶ εἰς χωριστά, τωτέστιν εἰς ὑφεστῶτα γίνεται μεγέθη... εἰ δὲ τοῦτο ἐναργές, πρόδηλον ὡς οὐχ ἅμα ἄπειρα ποτε τὰ διαιρεθέντα οὐδὲ ἐπ' ἄπειρον ἢ διαίρεσις, διὰ τὸ μὴ εἶναι ἄπειρα χωριστά· μέρη ἐν τοῖς πεπερασμένοις μεγέθεσι. τὸ δὲ ἀεὶ οὐ τὸ ἐπ' ἄπειρον σημαίνει ἐν τετότοις—ὡς γὰρ ἀπὸ Δημοκρίτου ὁ λόγος συμπεριαιρουμένου τὰ εἰρημένα. Themist. in De caelo III, 4, p. 303a 25, p. 181, 13: Praeterea neque secundum sententiam eorum, qui Leucippi et Democriti sectam insequuntur, elementa, quae horum duorum sententia individua sunt, infinita<sup>a</sup> videntur existere...

144. (D.D.A 135). Theophr. De sensu 67 (Dox. 513): (Δ.) ἀπάντων δὲ τῶν σχημάτων οὐδὲν ἀκέραιον εἶναι καὶ ἀμιγῆς τοῖς ἄλλοις ἀλλ' ἐν ἐκάστῳ πολλὰ εἶναι. Schol. in Aristid. Panath. 130, 7 Jebb, 356 Fromm.: Δημοκρίτου τοῦτο τοῦ φυσικοῦ, ὃς πάντα ἐν πᾶσιν ἀξιώων εἶναι τὰ τῶν ὑλικῶν αἰτιῶν<sup>1</sup> ἔφασκεν ὁμοῦ πάντα χρήματα· ἐκ τούτου ἐξέπεσεν, ὥστε παροιμιῶδες ἐπὶ τῶν συγκεχυμένων πραγμάτων τοῦτο λέγεσθαι. Apost. XIV, 3 (Corp. Paroem. Gr. 609): Πάντα χρήματα· ἐπὶ τῶν συγκεχυμένων πραγμάτων· ἐλήφθη δὲ ἐκ τοῦ Δημοκρίτου τοῦ φυσικοῦ (= Arsen. 43, 27).

145. (D. 59 A 45). Aristot. Phys. III, 4, p. 203a 19: ὅσοι δ' ἄπειρα ποιοῦσι τὰ στοιχεῖα, καθάπερ Ἀναξαγόρας καὶ Δ., ὁ μὲν ἐκ τῶν ὁμοιομερῶν, ὁ δ' ἐκ πανσπερμίας τῶν σχημάτων... καὶ ὁ μὲν ὅτιον τῶν μορίων εἶναι μείγμα ὁμοίως τῷ παντί διὰ τὸ ὄραν ὅτιον ἐξ ὁμοίου γιγνόμενον... Δ. δὲ οὐδὲν ἕτερον ἐξ ἑτέρου γίνεσθαι τῶν πρώτων φησὶν. Simpl. ad loc. 461, 32: ὁ Δ. κἂν μὴ κατὰ ἔκκρισιν ἐποίησε τὴν γένεσιν μηδὲ πάντα ἔλεγεν ἐν πᾶσιν ἐνοπάρχειν ὡς Ἀναξαγόρας. (459, 26) πανσπερμίαν δὲ σχημάτων εἶπε τὴν τῶν Δημοκρίτειων ἀτόμων, ἐπειδὴ ἀπείρους ὑπετίθετο τῶν ἀτόμων καὶ τὰς κατὰ τὸ σχῆμα διαφορὰς. Philopon. ad loc. 396, 10: πανσπερμίαν δὲ τῶν σχημάτων φησὶν, ὅτι τὰς ἀτόμους οἱ περὶ Δ. οὐ μόνον κατὰ τὸν ἀριθμὸν εἶναι ἔλεγον ἀλλὰ καὶ τοῖς σχήμασι ἀπείρους.<sup>1</sup> Simpl. in De caelo IV, 6, p. 313a 14, p. 730, 9: ὁ Δ. λέγων τὰ ἐκ τοῦ ὕδατος ἀναφερόμενα θερμά· εἶναι γὰρ πάντων... σπέρματα ἐν πᾶσι, διὸ καὶ γίνεσθαι πάντα ἐκ πάντων. (D.D.A 135). Theophr. De sensu 78 (Dox. 513): (Δ.) ἄπειρα δὲ εἶναι καὶ τὰ χρώματα καὶ τοὺς χυλοὺς κατὰ τὰς μίξεις, ἐάν τις τὰ μὲν ἀφαιρῇ τὰ δὲ προστιθῇ καὶ τῶν μὲν ἑλαττον μίσγηι τῶν δὲ πλεον. οὐδὲν γὰρ ὁμοιον εἶσεσθαι θάτερον θάτερον.



## C. ATOMORUM DOCTRINA

### a. HISTORICA ET GENERALIA

#### I. De historia atomorum doctrinae

146. (D.L.A 7). Aristot. De gen. et corr. I, 8, p. 324b 35: ὁδῶι δὲ μάλιστα καὶ περὶ πάντων ἐνὶ λόγῳ<sup>1</sup> διωρίκασι Δ. καὶ Δ. ἀρχὴν ποιησάμενοι κατὰ φύσιν ἤπερ ἐστίν.<sup>2</sup> ἐνίοις<sup>3</sup> γὰρ τῶν ἀρχαίων ἔδοξε τὸ ὄν ἐξ ἀνάγκης ἔν εἶναι καὶ ἀκίνητον· τὸ μὲν γὰρ κενὸν οὐκ ὄν, κινήθηνα δ' οὐκ ἂν δύνασθαι μὴ ὄντος κενοῦ ἀκίνητον,<sup>4</sup> οὐδ' αὖ πολλὰ εἶναι μὴ ὄντος τοῦ διείργοντος... (p. 325a 13) ἐκ μὲν οὖν τούτων τῶν λόγων ὑπερβάντες τὴν αἰσθησιν<sup>5</sup> καὶ παριδόντες αὐτὴν ὡς τῷ λόγῳ δεόν ἀκολουθεῖν ἐν καὶ ἀκίνητον τὸ πᾶν εἶναι φασὶ καὶ ἄπειρον ἐνίοι.<sup>6</sup> τὸ γὰρ πέρασ περαίνειν ἂν πρὸς τὸ κενόν. οἱ μὲν οὖν οὕτως καὶ διὰ ταῦτα τὰς αἰτίας ἀπεφάναντο περὶ τῆς ἀληθείας· ἐτι<sup>7</sup> δὲ ἐπὶ μὲν τῶν λόγων δοκεῖ ταῦτα συμβαίνειν, ἐπὶ δὲ τῶν πραγμάτων μανίαι παραπλήσιον εἶναι τὸ δοξάζειν οὕτως... (p. 325a 23) Δ. δ' ἔχειν ὠιήθη λόγους, οἵτινες πρὸς τὴν αἰσθησιν ὁμολογούμενα λέγοντες οὐκ ἀναιρήσουσιν οὔτε γένεσιν οὔτε φθορᾶν οὔτε κίνησιν καὶ τὸ πλήθος τῶν ὄντων. ὁμολογήσας δὲ ταῦτα μὲν τοῖς φαινομένοις, τοῖς δὲ τὸ ἐν κατασκευάζουσιν ὡς οὐκ ἂν κίνησιν οὕσαν ἄνευ κενοῦ τὸ τε<sup>8</sup> κενόν μὴ ὄν καὶ τοῦ ὄντος οὐδὲν μεῖον<sup>9</sup> φησὶν εἶναι.<sup>7</sup> τὸ γε<sup>1</sup> κυρίως ὄν παντλήρες ὄν. ἀλλ' εἶναι τὸ τοιοῦτον οὐκ ἔν, ἀλλ' ἄπειρα τὸ πλήθος καὶ ἀόρατα διὰ σμικρότητα τῶν ὄγκων. ταῦτα δ' ἐν τῷ κενῷ φέρεσθαι (κενὸν γὰρ εἶναι), καὶ συνιστάμενα μὲν γένεσιν ποιεῖν, διαλυόμενα δὲ φθορᾶν. ποιεῖν δὲ καὶ πάσχειν ἢ τυγχάνουσιν ἀπτόμενα· ταύτη γὰρ οὐκ ἔν εἶναι. καὶ συντιθέμενα δὲ καὶ περιπλεκόμενα γενῶν· ἐκ δὲ τοῦ κατ' ἀλήθειαν ἐνός οὐκ ἂν γενέσθαι πλήθος οὐδ' ἐκ τῶν ἀληθῶς πολλῶν ἔν, ἀλλ' εἶναι τοῦτ' ἀδύνατον· ἀλλ' ὡσπερ Ἐμπειδοκλῆς καὶ ἐκ τῶν ἄλλων τινές<sup>8</sup> φασὶ πάσχειν διὰ πόρων, οὕτω πᾶσαν ἀλλοίωσιν καὶ πᾶν τὸ πάσχειν τοῦτον γίνεσθαι τὸν τρόπον, διὰ τοῦ κενοῦ γινομένης τῆς διαλύσεως καὶ τῆς φθορᾶς, ὁμοίως δὲ καὶ τῆς ἀεξήσεως, ὑπεισδυμένων στερεῶν. σχεδὸν δὲ καὶ Ἐμπειδοκλεῖ ἀναγκαῖον λέγειν ὡσπερ καὶ Δ. φησὶν. εἶναι γὰρ<sup>9</sup> ἅπτα στερεά, ἀδιαίρετα δὲ, εἰ μὴ πάντῃ πόροι συνεχεῖς εἰσιν, τοῦτο δ' ἀδύνατον.<sup>10</sup> οὐδὲν γὰρ ἔσται ἕτερον στερεὸν παρὰ τοὺς πόρους ἀλλὰ πᾶν κενόν. ἀνάγκη ἄρα τὰ μὲν ἀπτόμενα εἶναι ἀδιαίρετα, τὰ δὲ μεταξὺ<sup>11</sup> αὐτῶν κενά, οὓς ἐκεῖνος (sc. Ἐμπειδοκλῆς) λέγει πόρους. οὕτως δὲ καὶ Δ. λέγει περὶ τοῦ ποιεῖν καὶ πάσχειν.

146a<sup>1</sup> = № 105a.

147. (D.L.A 8). Simpl. in Phys. I, 2, p. 184b 15, p. 28, 4 (ex Theophr. Phys. opin., fr. 8; Dox. 483): οὐ τὴν αὐτὴν ἐβάδισε Παρμενίδῃ καὶ Ξενοφάνει περὶ τῶν ὄντων ὁδόν, ἀλλ' ὡς δοκεῖ<sup>1</sup> τὴν ἐναντίαν. ἐκείνων γὰρ ἔν καὶ ἀκίνητον καὶ ἀγένητον καὶ πεπερασμένον ποιούντων τὸ πᾶν καὶ τὸ μὴ ὄν μὴδὲ ζητεῖν συγχωροῦντων, οὕτως (Δ.) ἄπειρα καὶ ἀεὶ κινούμενα ὑπέθετο στοιχεῖα τὰς ἀτόμους καὶ τῶν ἐν αὐτοῖς σχημάτων ἄπειρον τὸ πλήθος διὰ τὸ μὴδὲν μᾶλλον τοιοῦτον ἢ τοιοῦτον εἶναι<sup>2</sup> καὶ γένεσιν καὶ μεταβολὴν ἀδιάλειπτον ἐν τοῖς οὖσι θεωρῶν. ἐτι δὲ οὐδὲν μᾶλλον τὸ ὄν ἢ τὸ μὴ ὄν ὑπάρχειν,<sup>3</sup> καὶ αἰτία ὁμοίως εἶναι τοῖς γινομένοις ἄμφω. τὴν γὰρ τῶν ἀτόμων οὐσίαν ναστήν καὶ πλήρη ὑποτιθέμενος ὄν ἔλεγεν εἶναι καὶ ἐν τῷ κενῷ φέρεσθαι, ὅπερ μὴ ὄν ἐκάλει καὶ οὐκ ἔλαττον τοῦ ὄντος εἶναι φησι. παραπλήσιως δὲ καὶ ὁ ἑταῖρος αὐτοῦ Δημόκριτος ὁ Ἀβδηρίτης ἀρχὰς ἔθετο τὸ πλήρες καὶ τὸ κενόν, ὦν τὸ μὲν ὄν τὸ δὲ μὴ ὄν ἐκάλει.

148. (D.O).<sup>1</sup> Schol. in Metaph. I, 4, p. 984b 1, p. 536a 27 Brandis (cod. Laur.): τὴν μὲν γῆν ὡς ὕλην (sc. λέγει Παρμενίδης), τὸ δὲ πῦρ ὡς ποιητικόν αἰτίον· ὁ δὲ καὶ ὄν πάλιν ἐκάλει, μὴ ὄν δὲ τὴν γῆν· καθόλου γὰρ τὸ χειρόν τῶν ἐναντίων μὴ ὄν ἐκάλει. ἔλεγεν ἄρα καὶ Παρμενίδης ἐν τοῖς πρὸς δόξαν τὸ ὄν καὶ τὸ μὴ ὄν ἀρχὰς εἶναι τῶν ὄντων, ὡσπερ καὶ Δημόκριτος ὁ Λευκίππου ὁμιλητῆς ὄν μὲν τὰς ἀτόμους, μὴ ὄν δὲ τὸ κενόν. ἀρχὰς δὲ καὶ οὗτοι δῆλον ὡς τὰ ἐναντία ἐτίθει· ἀντίκειται γὰρ τῷ τε θερμῷ τὸ ψυχρὸν καὶ τὸ κενὸν τῷ πλήρει ἥτοι ταῖς ἀτόμους,

ἄς καὶ σώματα Δημόκριτος ἐκάλει, κενὸν δὲ τὴν χώραν ἐν ἣι ταῦτ' ἔκειτο τὰ άτομα, κινούμενα δι' αἰῶνος. Alex. in Metaph. I, 5, p. 986b 17, p. 45, 5: (Παρμενίδης) δύο ἀρχὰς ὑπέθετο ... πῦρ τε καὶ γῆν, ὦν τὸ μὲν πῦρ ὄν, τὴν δὲ γῆν μὴ ὄν καὶ τὸ ψυχρὸν ἔλεγεν· ὥστε οὐ Δημόκριτος μόνος καὶ Λευκίππος ἐν ταῖς ἀρχαῖς τὸ ὄν καὶ τὸ μὴ ὄν ἐτίθειτο.

149. (D.D.A 1). Diog. IX, 42: μέμνηται δὲ<sup>1</sup> (ὁ Δ.) καὶ περὶ τῆς τοῦ ἐνός δόξης τῶν περὶ Παρμενίδην καὶ Ζήνωνα ὡς κατ' αὐτὸν μάλιστα διαβεβημένων, καὶ Πρωταγόρου τοῦ Ἀβδηρίτου, ὃς ὁμολογεῖται κατὰ Σωκράτην γεγονέναι.

150. (D.L.A 8). Simpl. in Phys. 28, 4<sup>o</sup> (ex Theophr. Phys. opin., fr. 8; Dox. 483): Δ. δὲ ὁ Ἐλεάτης ἢ Μιλήσιος (ἀμφοτέρως γὰρ λέγεται περὶ αὐτοῦ) κοινωνήσας Παρμενίδῃ τῆς φιλοσοφίας. Clem. Protr. 5, 19 (P.G. 8, p. 169 A): ὁ δὲ Μιλήσιος Δ.

151. (D.L.A 10). Hippol. Refut. I, 12, 1 (Dox. 564, 16 W.): Δ. δὲ Ζήνωνος ἑταῖρος οὐ τὴν αὐτὴν δόξαν διετήρησεν, ἀλλὰ φησὶν ἄπειρα εἶναι καὶ ἀεὶ κινούμενα καὶ γένεσιν καὶ μεταβολὴν συνεχῶς οὕσαν. στοιχεῖα δὲ λέγει τὸ πλήρες καὶ τὸ κενόν.

152. (D.O). Diog. Prooem. 15, 9: Ζήνων ὁ Ἐλεάτης, οὐ Λευκίππος, οὐ Δημόκριτος. (D.L.A 1). Diog. IX, 30 sqq.: Λευκίππος Ἐλεάτης ὡς δὲ τινες Ἀβδηρίτης, κατ' ἐνίοις δὲ Μιλήσιος·<sup>2</sup> οὗτος ἤκουσε Ζήνωνος. (D.L.A 5). [Galen.] Hist. philos. 3 (Dox. 601, 9): τούτου (i. e. Zenonis Eleatae) δὲ Δ. ὁ Ἀβδηρίτης ἀκουστής τὴν τῶν ἀτόμων εὐρεσιν ἐπιενόηκε πρῶτος. (D.L.A 4). Clem. Strom. I, 64 (II, 40, 24 St.): Παρμενίδης τοῖνον Ξενοφάνους ἀκουστής γίγεται, τούτου δὲ Ζήνων, εἶτα Δ., εἶτα Δημόκριτος.

153. (D.L.A 5). Tzetz. Chil. II, 980: Λευκίππου τοῦ μαθητοῦ Μελίσσου.<sup>1</sup>

154. (D.D.A 33). Diog. IX, 45: τὰ δὲ βιβλία αὐτοῦ... Πυθαγόρου.<sup>1</sup> (D.D.A 1). Diog. IX, 38: δοκεῖ δὲ, φησὶν ὁ Θρασύλλος, ζηλωτῆς γεγονέναι τῶν Πυθαγορικῶν· ἀλλὰ καὶ αὐτοῦ Πυθαγόρου μέμνηται θαυμάζων αὐτὸν ἐν τῷ ὁμωνύμῳ συγγράμματι, πάντα δὲ δοκεῖν παρὰ τούτου λαβεῖν καὶ αὐτοῦ δ' ἂν ἀκησέσθαι, εἰ μὴ τὰ τῶν χρόνων ἐμάχετο. πάντως μέντοι τῶν Πυθαγορικῶν τινος ἀκοῦσαι φησὶν αὐτὸν Γλαῦκος ὁ Ῥηγίνος, κατὰ τοὺς αὐτοὺς χρόνους αὐτῷ γεγονώς. φησὶ δὲ καὶ Ἀπολλόδοτος ὁ Κυζικηνὸς Φιλολάῳ αὐτὸν συγγεγονέναι. (D.L.A 5). Iambl. Vita Pythag. 104: οἱ ἐκ τοῦ διδασκαλείου τούτου, μάλιστα δὲ οἱ παλαιότατοι καὶ αὐτῷ συγχρονισάντες καὶ μαθητεύσαντες τῷ Πυθαγόρῳ πρεσβύτη νεοὶ Φιλόλαός τε καὶ Εὐρύτος... Λευκίππος τε καὶ Ἀλκμαίων. Cf. Porph. Vita Pythag. 3: Δούρις δ' ὁ Σάμιος ἐν δευτέρῳ τῶν Ὀρων παιδῶν τ' αὐτοῦ (Pythagorae) ἀναγράφει Ἀρίμνηστον καὶ διδάσκαλόν φησι γενέσθαι Δημοκρίτου (cf. № VII).

155. (D.O).<sup>1</sup> Philopon. in De gen. et corr. II, p. 314a 10, p. 15, 15: Δῆλον, φησὶ (ὁ Ἀριστοτέλης), καὶ ὅτι οὕτως λέγουσιν, τούτεστι κατὰ τὸν εἰρημένον τρόπον, τὴν γένεσιν γίνεσθαι, ἐκ τε τῆς Ἐμπειδοκλέους ῥήσεως λεγούσης «ἀλλὰ μόνον μίξις τε διάλλαξις τε μιγέντων», καὶ ὦν ὁ Δημόκριτος ἔφη τὰ σύνθετα «διαφέρειν τούτοις ἐξ ὧν εἰσίν».

156. (D. 11 A 1).<sup>1</sup> Diog. I, 22: ἦν τοῖνον ὁ Θαλῆς, ὡς μὲν Ἡρόδοτος καὶ Δούρις καὶ Δημόκριτός φασὶ, πατὴρ μὲν Ἐξαμβίου, μητὴρ δὲ Κλεοβουλίνης, ἐκ τῶν Θηλιδῶν, οἱ εἰσι Φοίνικες, εὐγενέστατοι τῶν ἀπὸ Κάδμου καὶ Ἀγήνορος... (23) δοκεῖ δὲ (ὁ Θαλῆς) κατὰ τινος πρῶτος ἀστρολογῆσαι καὶ ἡλιακὰς ἐκλείψεις καὶ τροπὰς προειπεῖν... μαρτυρεῖ δ' αὐτῷ... καὶ Δημόκριτος.

157. (D.D.A 7).<sup>1</sup> Aristot. Meteor. II, 7 (περὶ σεισμοῦ), p. 365a 17: Ἀναξαγόρας τε γὰρ ὁ Κλαζομένιος καὶ πρότερος Ἀναξιμένης ὁ Μιλήσιος ἀπεφάναντο καὶ τούτων ὑστερὸς Δ. ὁ Ἀβδηρίτης.

158. (D.O). Philopon. in Phys. III, 5, p. 204a 1, p. 409, 7: εἶδειξε (ὁ Ἀριστοτέλης) καὶ ἐν τῷ πρώτῳ βιβλίῳ ἐν τοῖς πρὸς Ἀναξαγόραν καὶ Δ. λόγους.<sup>1</sup>

159. (D.D.A 1). Diog. IX, 34: ὑστερον δὲ Λευκίππῳ παρέβαλε καὶ Ἀναξαγόρῳ κατὰ τινος, ἔτεσιν ὦν αὐτοῦ νεώτερος τετταράκοντα. Φαβωρίνος δὲ φησὶν ἐν Παντοδαπῇ ἱστορίᾳ λέγειν Δημόκριτον περὶ Ἀναξαγόρου, ὡς οὐκ εἶψαν αὐτοῦ αἱ δόξαι αἱ τε περὶ ἡλίου καὶ σελήνης, ἀλλ' ἀρχαῖαι,<sup>1</sup> τὸν δὲ ὑφηρηθῆναι, (35) διασῶρειν τε αὐτοῦ τὰ περὶ τῆς διακοσμῆσεως καὶ τοῦ νοῦ, ἐχθρῶς ἔχοντα πρὸς αὐτόν, ὅτι

δη μὴ προσήκατο αὐτόν. πῶς οὖν κατὰ τινὰς ἀκήκοον αὐτοῦ; (D. 59 A 1). Diog. II, 14: ἔδοξε δὲ πως (sc. Ἀναξαγόρας) καὶ Δημοκρίτῳ ἀπεχθῶς ἐσχηκέναι ἀποτυχῶν τῆς πρὸς αὐτὸν κοινολογίας.

160. (D.O.)<sup>1</sup> Sext. Adv. math. VII, 140: ὄψις γὰρ τῶν ἀδήλων τὰ φαινόμενα, ὡς φησὶν Ἀναξαγόρας, ὃν ἐπὶ τούτῳ Δ. ἐπαινεῖ. Vitruv. VII, prooem. 11 (v. № 139): D. et Anaxagoras de eadem re scripserunt, quemadmodum oporteat ad aciem oculorum radiorumque extentionem ... lineas ... respondere, ut de incerta re (sc. περὶ τῶν ἀδήλων) certae imagines redderent speciem.

161. (D.L.A 1). Diog. IX, 30: Α. ... πρῶτος ... ἀτόμους ἀρχὰς ὑπεστήσατο.

162. (D.L.A 2).<sup>1</sup> Diog. IX, 13 (Epicurea, p. 365, 19 Us.): ἀλλ' οὐδὲ Λεουκίππῳ τινα γεγενῆσθαι φησὶ (Ἐπικούρου) φιλόσοφον οὕτως αὐτὸς οὔτε Ἐρμαρχος, ὃν ἐνίοι φασὶ (καὶ Ἀπολλόδορος ὁ Ἐπικούρειος) διδάσκαλον Δημοκρίτου γεγενῆσθαι.

163. (D.D.A 31). Suda, s.v. Δημοκρίτος: γνήσια δὲ αὐτοῦ (τοῦ Δημοκρίτου) βιβλία εἰσὶ δύο, ὃ τε Μέγας διάκοσμος καὶ τὸ Περὶ φύσεως κόσμου.<sup>1</sup> ἔγραψε δὲ καὶ Ἐπιστολάς. (D.D.A 1). Diog. IX, 45 sqq.: τὰ δὲ βιβλία αὐτοῦ (sc. Democriti) ... Μέγας διάκοσμος, ὃν οἱ περὶ Θεόφραστον Λεουκίππου φασὶν εἶναι. Aët. I, 25, 4: Λεουκίππος ... λέγει ἐν τῷ Περὶ νοῦ.

164. (D.L.B 1a) Vol. Herc. Coll. alt. VIII, 58—62, fr. 1 (Grönert. Kolotes und Menedemos, S. 147): [ὄκ ἡισχύνθη γράφων, [ἵτι ὄλωσ δῆθεν τὰ] ἀπὸ πρότερον εἰρηται ἐν] τῷ Με[γ]άλῳ [διακόσμῳ], ὃν φασὶν<sup>1</sup> εἶνα[ι Λεουκίππου]. κάπ[ι] το[σ]ούτο τὸ [τῶν ἄλλων [ι]διοποιούμενος,<sup>1</sup> [λέγει, ὅτι ο]β μόνον ἐν τῷ [Μικρῷ δι]ακόσμῳ τιθεῖ[ς] [ἀ κὰν τῷ] Με[γ]άλῳ κεῖται] [ἐλέγγεται ὁ Δημοκρίτος. . .].

165. (D.L.A 8). Cic. Acad. priora II, 37. 118 (Dox. 119): L. plenum et inane: D. huic in hoc similis, uberior in ceteris. Cic. De nat. deor. I, 24, 66: Democriti, sive etiam ante Leucippi. . .<sup>1</sup>

166. (D.L.A 7). [Aristot.] De Mel., Xenoph., Gorgia 6, p. 980a 7: ἀντι τοῦ κενοῦ τὸ διηρηθῆναι λέγων (ὁ Γοργίας), καθάπερ ἐν τοῖς Λεουκίππου καλουμένοις λόγοις.<sup>1</sup>

167. (D.D.B 163). Sext. Adv. math. VII, 53: Ξενιάδης δὲ ὁ Κορίνθιος οὗ καὶ Δ. μέμνηται.

168. (D.D.A 1). Diog. IX, 41: εἴη ἂν οὖν (ὁ Δ.) κατ' Ἀρχέλαον τὸν Ἀναξαγόρου μαθητὴν καὶ τοὺς περὶ Οἰνοπίδην καὶ γὰρ τούτου μέμνηται. *Testimonia de Protagora Democriti praecursore v. №№ 76—78.*

169. (D.D.A 55).<sup>1</sup> Strabo XVI, p. 757: εἰ δὲ δεῖ Ποσειδωνίῳ πιστεῦσαι, καὶ τὸ περὶ τῶν ἀτόμων δόγμα παλαιὸν ἐστὶν ἀνδρὸς Σιδωνίου Μῶχου πρὸ τῶν Τρωϊκῶν χρόνων γεγονότος. Sext. Adv. math. IX, 363: Δ. δὲ καὶ Ἐπικούρος ἀτόμους, εἰ μὴ τι ἀρχαιότεραν ταύτην θετέον τὴν δόξαν, καὶ ὡς ἔλεγεν ὁ Στωϊκὸς Ποσειδώνιος ἀπὸ Μῶχου τινὸς ἀνδρὸς Φοίνικος καταγομένην. Cf. Diog. Prooem. 1; Ios. Ant. I, 9, 107; Iamb. Vita Pythag. 13—14.

170. (D.O, № 262 Makovelsky). [Plut.] De vita et poesi Homeri 150, fr. VII (p. 422 Bernardakis): εἰ δὲ δεῖ καὶ τῶν ἰδίας τινὰς αἰρέσεις ἐλομένων μνημονεῦσαι, εὐροιμεν ἂν κάκεινους παρ' Ὀμήρου τὰς ἀφορμὰς λαβόντας· Δημοκρίτον μὲν, τὰ εἰδῶλα ποιήσαντα ἐξ ἐκείνων (II, V, 449)· ἀπὸ τῶν οὐκ εἰδῶλων τεθεῖ' ἀργυροτόμος Ἀπόλλων. Eustath. in Odys. IV, 795 (p. 1518): ὅτι διδάσκαλος ὁ ποιητὴς Δημοκρίτῳ γέγονε καὶ τοῖς κατ' αὐτὸν τοῦ κατὰ εἰσκρισιν καὶ ἔμπωσιν εἰδῶλων τινῶν ἔξωθεν τοὺς ὀνειρούς γίνεσθαι. «εἰδῶλον» οὖν, φησί, ἀμαυρὸν «ποίησεν» ἦτοι ἔτευξεν, ἢ Ἀθηνᾶ.

## II. Testimonia generalia (ἄτομα καὶ κενόν)

171.<sup>1</sup> (partim D.D.A 120). Simpl. in De caelo III, 1, p. 299a 2, p. 564, 24 (fere eadem 576, 10 = № 122): Δ. δέ, ὡς Θεόφραστος ἐν τοῖς Φυσικοῖς (fr. 13; Dox. 491) ἱστορεῖ, ὡς ἰδιωτικῶς<sup>2</sup> ἀποδιδόντων τῶν κατὰ τὸ θερμὸν καὶ τὸ ψυχρὸν καὶ τὰ τοιαῦτα αἰτιολογούντων ἐπὶ τὰς ἀτόμους ἀνέβη, ὁμοίως δὲ καὶ

οἱ Πυθαγόρειοι ἐπὶ τὰ ἐπίπεδα, νομίζοντες<sup>3</sup> τὰ σχήματα αἴτια καὶ τὰ μεγέθη τῆς θερμότητος καὶ τῆς ψύξεως· τὰ μὲν γὰρ διακριτικὰ καὶ διαιρετικὰ θερμότητος συναίσθησιν παρέχεσθαι, τὰ δὲ συγκριτικὰ καὶ πιλητικὰ ψύξεως. (641, 5) αἱ γὰρ κατὰ τὸ θερμὸν καὶ τὸ ψυχρὸν καὶ τὰ τοιαῦτα ἀποδόσεις ἰδιωτικῶς ἀποδίδουσαι καὶ ὑπὸ Δ. πρότερον ἐλέγοντο,<sup>4</sup> ὡς Θεόφραστος. Aristot. Phys. II, 8, p. 198b 11<sup>5</sup> (№ 31): πῶς ἔχει ἐν τοῖς φυσικοῖς; εἰς γὰρ ταύτην τὴν αἰτίαν ἀνάγουσι πάντες ὅτι ἐπειδὴ τὸ θερμὸν τοιονδί πέφυκε καὶ τὸ ψυχρὸν, καὶ ἕκαστον δὴ τῶν τοιούτων ταδί ἐξ ἀνάγκης ἐστὶ καὶ γίνεται. Philopon. ad loc. 312, 4: «ἐπειδὴ γὰρ, φασι, τὸ θερμὸν τοιονδί καὶ τὸ ψυχρὸν τοιονδέ», διὰ τοῦτο τότε ἐγένετο, ἢ ὅτι ἐκ τῶνδε τῶν ἀτόμων συνέστηκε. Philopon. ad loc. 262, 17: Δ. ... ἐν τῇ τῶν κατὰ μέρος ἀποδόσει — οἶον διὰ τί τὰ θερμὰ διακρίνει καὶ τὰ λευκά; ἢ διὰ τί τὸ μέλι γλυκόν; — τὴν θέσιν καὶ τὴν τάξιν καὶ τὸ σχῆμα τῶν ἀτόμων αἰτιάται. Aristot. De part. animal. I, 1, p. 640b 4: οἱ μὲν οὖν ἀρχαῖοι καὶ πρῶτοι φιλοσοφήσαντες περὶ φύσεως περὶ τῆς ὑλικῆς ἀρχῆς καὶ τῆς τοιαύτης αἰτίας ἐσκόπου, τίς καὶ ποία τις, καὶ πῶς ἐκ ταύτης γίνεται τὸ ὅλον, καὶ τίνας κινούντος, οἷον νείκους καὶ<sup>6</sup> φιλίας ἢ νοῦ ἢ τοῦ αὐτομάτου,<sup>6</sup> τῆς δ' ὑποκειμένης ὅλης τοιάνδε τινὰ φύσιν ἐχούσης ἐξ ἀνάγκης, οἷον τοῦ μὲν πυρὸς θερμῆς, τῆς δὲ γῆς ψυχρῆς, καὶ τοῦ μὲν κούφης, τῆς δὲ βαρεῖαν, οὕτως γὰρ καὶ τὸν κόσμον γεννώσιν. Aristot. Metaph. XIII, 4, p. 1078b 19: Δ. ... ὀρίσατό πως τὸ θερμὸν καὶ τὸ ψυχρὸν (№ 99). (D.O). Simpl. in De caelo III, 1, p. 299a 2, p. 565: τοῦτο οὖν τὸ δεύτερον ὑποκείμενον, τὰ τῶν τεσσάρων στοιχείων φασὶν ὑφιστάται ἀρχαιοτέτερα στοιχεῖα, ἀλλὰ ταῦτα μὲν εἰς ἐνδείξιν παρεθέμην τοῦ μὴ ἀλόγως καὶ τοὺς Πυθαγορείους καὶ Δημοκρίτον ἀρχὰς τῶν ποιότητων ἐπιζητούντας εἰς τὰ σχήματα ἀνελεθεῖν.

172. (D.D.A 37). Simpl. in De caelo 294, 33: ὀλίγα δὲ ἐκ τῶν Ἀριστοτέλους Περὶ Δημοκρίτου (fr. 208 Rose) παραγραφέντα δηλώσει τὴν τῶν ἀνδρῶν ἐκείνων διάνοιαν. Δ. ἡγεῖται τὴν τῶν αἰδίων φύσιν εἶναι μικρὰς οὐσίας πλήθος ἀπείρους· ταύταις δὲ τόπον ἄλλον ὑποτιθήσιν ἀπειρον τῷ μεγέθει. προσαγορεύει δὲ τὸν μὲν τόπον τοῖσδε τοῖς ὀνόμασι τῷ τε κενῷ καὶ τῷ οὐδενὶ καὶ τῷ ἀπείρῳ· τῶν δὲ οὐσιῶν ἐκάστην τῷ τε δυνάμει<sup>7</sup> καὶ τῷ ναστῷ καὶ τῷ ὄντι.

173. (D.L.A 6). Aristot. Metaph. I, 4, p. 985b 4: Α. δὲ καὶ ὁ ἐπαῖρος αὐτοῦ Δ. στοιχεῖα μὲν τὸ πλήρες καὶ τὸ κενὸν εἶναι φασὶ, λέγοντες τὸ μὲν ὄν, τὸ δὲ μὴ ὄν. τούτων δὲ τὸ μὲν πλήρες καὶ στερεὸν τὸ ὄν, τὸ δὲ κενὸν καὶ μαγὸν τὸ μὴ ὄν· διὸ καὶ οὐδὲν μᾶλλον τὸ ὄν τοῦ μὴ ὄντος εἶναι φασὶν, ὅτι οὐδὲ τοῦ κενοῦ τὸ σῶμα,<sup>8</sup> αἴτια δὲ τῶν ὄντων ταῦτα ὡς ὄλην, καὶ καθάπερ οἱ ἐν ποιούντες τὴν ὑποκειμένην οὐσίαν τᾶλλα τοῖς πάθεσιν αὐτῆς γεννώσιν, τὸ μαγὸν καὶ τὸ πυκνὸν ἀρχὰς τιθέμενοι τῶν παθημάτων καὶ ὡς περὶ τῶν μαθηματικῶν<sup>1, b</sup> <τινες><sup>9</sup> τὸν αὐτὸν τρόπον καὶ οὗτοι τὰς διαφορὰς αἰτίας τῶν ἄλλων εἶναι φασὶν. (D.O). Alex. ad loc. 36, 12: φέρεται δὲ ἐν τισὶ γραφῇ τοιαύτη· «καὶ ὡς περὶ τῶν μαθηματικῶν». κὰν ἢ αὐτὴ ἢ γραφῇ, λέγοι ἂν περὶ Πλάτωνος, ὅτι ὡς ἐκεῖνος ἐκ τῶν μαθηματικῶν γένεσιν ποιῶν τῶν σωμάτων κατὰ τὴν τῶν τριγώνων διαφορὰν καὶ τὸ πλήθος τὰς τῶν σωμάτων γενναῖα διαφορὰς, οὕτως καὶ οὗτοι κατὰ τὰς διαφορὰς τῶν ἐν τοῖς πρώτοις σώμασι σχημάτων ἐγεννον τὰ ἐξ αὐτῶν.

174. (D.L.A 15). Aristot. De caelo III, 4, p. 303a 4: οἷον Α. τε καὶ Δ. ὁ Ἀβδηρίτης ... τρόπον γὰρ τινα καὶ οὗτοι πάντα τὰ ὄντα ποιοῦσιν ἀριθμοῦς καὶ ἐξ ἀριθμῶν· καὶ γὰρ εἰ μὴ σαφῶς δηλοῦσιν, ὅμως τοῦτο βούλονται λέγειν.

175. (D.O).<sup>1</sup> Theophr. Metaph., fr. 12, 34 Wimmer: μάλιστα δ' ἂν δόξειεν ἔχειν τὴν τάξιν τῶν μὲν αἰσθητῶν τὰ οὐράνια, τῶν δ' ἄλλων, εἰ μὴ ἄρα καὶ πρότερα τούτων, τὰ μαθηματικά· εἰ γὰρ καὶ μὴ πᾶν ἄλλ' ἐν τούτοις πλεόν τὸ τεταγμένον. πλὴν εἰ τις τοιαύτας λαμβάνει τὰς μορφὰς οἷας Δημοκρίτος ὑποτίθεται τῶν ἀτόμων.

176. (D.O). Schol. in Metaph. I, 4, p. 985b 6, p. 539a 3 Brandis (cod. Reg.): οἱ περὶ Λεουκίππου καὶ Δημοκρίτου στοιχεῖα τῶν ὄντων τὸ κενὸν καὶ τὸ πλήρες τιθέμενοι, καὶ πλήρη μὲν λέγοντες τὰς ἀτόμους τὰς διαφορούσας ἀλλήλων τῷ σχήματι, ἃς δὴ καὶ ἀτόμους ὡς ναστὰς καὶ ἀδιαιρέτους ὀνόμαζον, κενὸν δὲ τὸν ἐν τῷ παντὶ ἄερα,<sup>1</sup> ἐν ᾧ αὐταί, ὡς ἐκεῖνοι ἐδόξαζον, φέρονται.

177. (D.O). Asclep. in Metaph. I, 4, p. 985b 4, p. 33, 9: μετέρχεται λοιπὸν ἐπὶ τὸν Λεουκίππου καὶ τὸν μαθητὴν αὐτοῦ Δημοκρίτου καὶ φησὶν ὅτι στοιχεῖα

τῶν ὄντων ὀλιγά ἔλεγον τὰς ἀτόμους καὶ τὸ κενόν. καὶ τὰς μὲν ἀτόμους ἔλεγον ὄν, τὸ δὲ κενόν οὐκ ὄν. καὶ ἔλεγον, ὅτι οὐκ ἔστιν ἐπὶ πλεόν τὸ ὄν τοῦ μὴ ὄντος, ἐπειδὴ οὔτε τὸ σῶμα, τοῦτέστιν αἱ ἄτομοι, πλείονες ὑπάρχουσι τοῦ κενοῦ· πανταχοῦ γὰρ καὶ κενόν καὶ ἄτομοι ὑπάρχουσιν. οὕτως φησὶ καὶ ὁ Πλάτων ἐν τῇ Πολιτείᾳ (V, 22, p. 479 A), ὅτι οὐκ ἔστιν ἐπ' ἔλαττον τὸ μὴ ὄν τοῦ ὄντος... τὸ δὲ μηδαμῆ μηδαμῶς ὄν οὔτε ῥητόν λέγει εἶναι οὔτε δοξαστόν, περὶ οὗ ὁ Δημόκριτος φησὶ μὴ εἶναι ἐπ' ἔλαττον τοῦ ὄντος αἷτια· ταῦτα ὀλιγά ὑποτίθενται τὰς ἀτόμους καὶ τὸ κενόν οἱ περὶ τὸν Δημόκριτον.<sup>1</sup>

178. (D.O). Alex. in Metaph. III, 5, p. 1009a<sup>6</sup>, p. 303, 31: καὶ Δημόκριτος τὸ κενόν καὶ τὸ πλήρες μόνον εἶναι λέγων· ἐτίθει γάρ, φησὶν (ὁ Ἀριστοτέλης), ἄτομα καὶ κενόν, καὶ καθ' ὅτι οὐδὲν μέρος ἐκάστου τῶν αἰσθητῶν ὁμοίως ἀμφω ἐνυπάρχειν φησὶν, ὥστε καὶ τὴν γένεσιν αὐτῶν ἐκκρίσει ἐκ προϋπάρχοντος γίνεσθαι. Aselep. ad. loc. 275, 18: ὁ Δημόκριτος ἔλεγε πανταχοῦ εἶναι τὸ ὄν καὶ τὸ μὴ ὄν... πανταχοῦ <δὲ> ἔλεγε εἶναι καὶ τὸ κενόν καὶ τὰς ἀτόμους· <παρεσπαρμένους> β τῷ κενῷ ὑπετίθετο εἶναι τὰς ἀτόμους.

179. (D.D.A 57). Plut. Adv. Colot. 8, p. 1110 F: τί γὰρ λέγει Δ.; οὐσίας ἀπείρους τὸ πλήθος ἀτόμους τε καθ' ἑαυτοῦ, ἔτι δ' ἀποίους καὶ ἀπαθείς ἐν τῷ κενῷ φέρεσθαι διεσπαρμένους· ὅταν δὲ πελάσωσιν ἀλλήλαις ἢ συμπέσωσιν ἢ περιπλακῶσι, φαίνεσθαι τῶν ἀθροισμένων τὸ μὲν ὕδωρ τὸ δὲ πῦρ τὸ δὲ φυτὸν τὸ δ' ἄνθρωπον.

180. (D. D. A 56). Cic. De fin. I, 6, 17: Ille (sc. Democritus) atomos quas appellat, id est corpora individua propter soliditatem, censet in infinito inani, in quo nihil nec summum nec infimum nec medium nec ultimum nec extremum sit, ita ferri, ut concursioibus inter se cohaerescant, ex quo efficiantur ea, quae sint quaeque cernantur, omnia; eumque motum atomorum nullo a principio, sed ex aeterno tempore intellegi convenire.

181. (D. O). Cic. Acad. priora II, 40, 125: Quem (deligam)? Democritum? Semper putes esse, cum ita completa et conferta sunt omnia, ut et quod movebitur corporum cedat et qua quidque cesserit, aliud ilico subsequatur? Aut atomos ullas, e quibus quidquid efficiatur, illarum sit dissimillimum? Aut sine aliqua mente rem ullam effici posse praeclaram?

182. (D.O). Cic. De fin. I, 6, 21: Atomis, inane, imagines, quae εἰδωλα nominant, infinitio ipsa, quam ἀπειρίαν vocant, tota (Epicuro) ab illo (D.) est.

183. (D.O). Sext. Adv. math. X, 318 (= Hippol. Refut. X, 7): ἐξ ἀπειρων δ' ἐδόξασαν τὴν τῶν πραγμάτων γένεσιν οἱ περὶ Ἀναξαγόραν τὸν Κλαζομένιον καὶ Δημόκριτον καὶ Ἐπίκουρον καὶ ἄλλοι παμπληθεῖς, ἀλλ' οἱ δὲ περὶ τὸν Δημόκριτον καὶ Ἐπίκουρον ἐξ ἀνομοίων τε καὶ ἀπαθῶν, τοῦτέστι τῶν ἀτόμων.

184. (D.D.A 1). Diog. IX, 44: δοκεῖ δὲ αὐτῷ (sc. τῷ Δημοκρίτῳ) τάδε· ἀρχὰς εἶναι τῶν ὄλων ἀτόμους καὶ κενόν... καὶ τὰς ἀτόμους δὲ ἀπείρους εἶναι κατὰ μέγεθος<sup>1</sup> καὶ πλῆθος.

185. (D.D.A 49). Galen. De elem. sec. Hipp. I, 2 (I, 417 K.; 3, 20 Helmr.): νόμοι γὰρ χροῖή, νόμοι γλυκῆ etc. (v. № 90)... Δ. φησὶν... κατὰ δὲ τὴν ἀλήθειαν δὲν καὶ μηδὲν ἐστὶ τὰ πάντα, καὶ γὰρ αὐ καὶ τοῦτ' εἴρηκεν αὐτός, «δέν» μὲν τὰς ἀτόμους ὀνομάζων, «μηδέν» δὲ τὸ κενόν. αἱ μὲν οὖν ἄτομοι σύμψασαι σώματα οὔσαι σμικρὰ χωρὶς ποιότητων εἰσὶ, τὸ δὲ κενόν χώρα τις...

186. (D.L.A 12). Aët. I, 3, 15 (Dox. 285): Δ. Μιλήσιος ἀρχὰς καὶ στοιχεῖα τὸ πλήρες καὶ τὸ κενόν.

187. (D.L.A 15). Aët. I, 18, 3 (Dox. 316): Δ., Δ. ... Ἐπίκουρος τὰ μὲν ἄτομα ἀπειρα τῷ πλῆθει, τὸ δὲ κενόν ἀπειρον τῷ μεγέθει.

188. (D.O). Philopon. in Phys. I, 5, p. 188a 19, p. 110, 7: καὶ Δ. δὲ τὰς ἀτόμους καὶ τὸ κενόν ὑποτιθέμενος, τὰς ἀτόμους πλήρες ἐκάλει· τὸ πλήρες γὰρ καὶ τὸ κενόν ἀρχὰς εἶναι τῶν ὄντων ἔλεγε, τὸ δὲ πλήρες καὶ τὸ κενόν ἐναντία, ἅτινα ὄν καὶ οὐκ ὄν ἐκάλει, καὶ δὲν καὶ οὐδέν. δὲν μὲν τὸ πλήρες, τὸ δὲ κενόν οὐδέν.

189. (D.O). Philopon. in De anima I, 2, p. 403b 31, p. 67, 4: (ὁ Ἀριστοτέλης) πρώτην ἐκτίθεται τὴν Δημοκρίτειον δόξαν, ἔλεγε δὲ οὗτος ἀρχὰς τῶν φυσικῶν σωμάτων εἶναι τὰ ἄτομα καὶ τὸ κενόν· εἶναι γὰρ ἐν τῷ παντὶ ἀπειρα ἄτομα σώματα ἀπείρους σχήμασιν ἐξηλλαγμένα, ὧν τὴν σύνοδον καὶ τὴν διάστασιν ποιεῖν τὴν γένεσιν καὶ φθοράν...

190. (D.D.A 40). Hippol. Refut. I, 13 (Dox. 565; № 16): λέγει δὲ (sc. ὁ Δημόκριτος) ὁμοίως Λευκίππῳ περὶ στοιχείων, πλήρους καὶ κενοῦ, τὸ μὲν πλήρες λέγων ὄν, τὸ δὲ κενόν οὐκ ὄν· ἔλεγε δὲ ὡς ἀεὶ κινουμένων τῶν ὄντων ἐν τῷ κενῷ.

191. (D.O). Clem. Protr. 5, 19 (P.G. 8, p. 199 A): ὁ δὲ Μιλήσιος Λευκίππος καὶ Χίος Μητρόδορος διττάς, ὡς εἶπε, καὶ αὐτῷ ἀρχὰς ἀπελιπέτην, τὸ πλήρες καὶ τὸ κενόν. προσέθηκε καὶ λαβὼν τοῦτοις τοῖν δυεῖν τὰ εἰδωλα ὁ Ἀβδηρίτης Δ.<sup>1</sup>

192. (D.L.A 17; D.D.A 44). Herm. Irris. 12—13 (Dox. 654): ὁ Λευκίππος... ἀρχὰς εἶναι φησὶ τὰ ἀπειρα καὶ ἀεικίνητα καὶ ἐλάχιστα... Δ. ... ἀρχὰς τὸ ὄν καὶ τὸ μὴ ὄν, καὶ τὸ μὲν ὄν πλήρες, τὸ δὲ μὴ ὄν κενόν.

193. (D.O).<sup>1</sup> Aët. I, 9, 3 (Dox. 308): οἱ ἀπὸ Δημοκρίτου ἀπαθῆ τὰ πρῶτα, τὴν ἄτομον καὶ τὸ κενόν καὶ [τὸ] ἀσώματον. Cf. Theodoret. IV, 13 (Dox. 308): Δ. δὲ καὶ Μητρόδορος, καὶ Ἐπίκουρος ἀπαθῆ τὰ ἄτομα καὶ τὸ κενόν προσηγόρευσαν.

194. (D.O). Euseb. Praep. Evang. VII, 12 (P.G. 21, p. 541): ἀρχὴν τῶν ἀπάντων εἶναι ἀπεφῆναι... Ἐπίκουρος ἅμα Δημοκρίτῳ σώματα ἄτομα. Euseb. Praep. Evang. XIV, 3 (P.G. 21, p. 1185 D): ὁ δὲ Δημόκριτος ἀρχὰς τῶν ὄλων ἔφη εἶναι τὸ κενόν καὶ τὸ πλήρες, τὸ πλήρες ὄν λέγων καὶ στερεμνόν, τὸ δὲ κενόν μὴ ὄν. διὸ καὶ φησὶ μηδὲν μᾶλλον τὸ ὄν τοῦ μὴ ὄντος εἶναι· ὅτι τε ἐξ αὐτοῦ τὰ ὄντα ἐν τῷ κενῷ συνεχῶς καὶ ὀξέως κινεῖται.

195. (D.D.A 166). Eriphan. Adv. haer. III, 2, 9 (Dox. 590): Δ. ὁ τοῦ Δαμασκόπου Ἀβδηρίτης τὸν κόσμον ἀπειρον ἔφη καὶ ὑπὲρ κενοῦ κεῖσθαι.<sup>1</sup>

## b. DE ATOMO

### I. Quibus nominibus atomi notentur

196. ἡ ἄτομος<sup>1</sup> nomen tam saepe occurrit, ut locos huc pertinentes enumerare supervacaneum sit; aliquanto rarius est τὸ ἄτομον<sup>2</sup> nomen, velut Simpl. in Phys. I, 2, p. 184b 15, p. 36, 1: οἱ δὲ περὶ Δ. καὶ Δ. τὰ ἐλάχιστα πρῶτα σώματα ἄτομα καλοῦντες et saepius.

196a. (D.D. B 168). Simpl. in Phys. VIII, 9, p. 265b 24, p. 1318, 33: τὰ φυσικὰ καὶ πρῶτα καὶ ἄτομα σώματα· ταῦτα γὰρ ἐκεῖνοι φύσιν<sup>1</sup> ἐκάλουν.

197. (D.O) Philopon. in Phys. I, 5, p. 188a 19, p. 110, 7: Δ. δὲ τὰς ἀτόμους πλήρες ἐκάλει... τὸ δὲ πλήρες... ὄν ἐκάλει... καὶ δέν.<sup>1</sup> (D.D. A 37). Simpl. in De caelo I, 10, p. 279b 12, p. 294, 33: ἔλιγα δὲ ἐκ τῶν Ἀριστοτέλους Περὶ Δημοκρίτου... προσαγορεύει δὲ... τῶν δὲ οὐσιῶν ἐκάστην τῷ τε δέν<sup>1</sup> καὶ τῷ ναστῷ καὶ τῷ ὄντι. (D.D.A 49). Galen. De elem. sec. Hipp. I, 2: ὁ Δ. φησὶν... κατὰ δὲ τὴν ἀλήθειαν δέν<sup>ο</sup> καὶ μηδὲν ἐστὶ τὰ πάντα... «δέν» μὲν τὰς ἀτόμους ὀνομάζων. Plut. Adv. Colot. 4, p. 1109 A: «δέν» μὲν ὀνομάζων τὸ σῶμα.

198. (D.D.A 57). Schol. Basilii (ed. Pasquali, Gött. Nachr. 1910, p. 196): Δ. ιδέας.<sup>1</sup> [Clem.] Recogn. VIII, 15 (Dox. 250; de principiis): D. ideas. Plut. Adv. Colot. 8, p. 1110 F: τί γὰρ λέγει Δ.; οὐσίας ἀπείρους τὸ πλῆθος... εἶναι δὲ πάντα τὰς ἀτόμους ιδέας ὑπ' αὐτοῦ καλοῦμένας. (D.D.A 102). Aët. IV, 3, 5 (Dox. 388): Δ. (τὴν ψυχὴν) ἐκ τῶν... σφαιρικῶς... ἐχόντων τὰς ιδέας. (D.D.B 141). Hesych., s. v. ιδέα: ἡ ὁμοιότης, μορφή, εἶδος, καὶ τὸ ἐλάχιστον σῶμα.<sup>2</sup> Cf. titulum libri Democritei Περὶ ιδεῶν<sup>3</sup> (№ CXVI).

199. (D.O). Theodoret. IV, 57, 9 (Dox. 285): Δ. δὲ ὁ Ἀβδηρίτης ὁ Δαμασκόπου τὴν τοῦ κενοῦ καὶ τῶν ναστῶν<sup>4</sup> πρῶτος ἐπεισήγαγε δόξαν· ταῦτα δὲ Μητρόδορος ὁ Χίος ἀδιαίρετα καὶ κενόν προσηγόρευσε, ὡσπερ αὐ πάλιν Ἐπίκουρος ὁ Νεοκλέους ὁ Ἀθηναῖος, πέμπτη γενεᾷ μετὰ Δημοκρίτον γεγονώς, τὰ ὑπ' ἐκείνων ναστὰ καὶ ἀδιαίρετα δὴ κληθέντα ἄτομα προσηγόρευσε.

## II. De atomorum forma a sensuum perceptionibus spectata

200. (D.L.A 28). Aristot. De anima I, 2, p. 404a 1:1 (Δ.)... ἀπειρών γὰρ ὄντων σχημάτων καὶ ἀτόμων τὰ σφαιροειδῆ πῦρ καὶ ψυχὴν λέγει, οἷον ἐν τῷ αέρι τὰ καλούμενα ξύσματα, ἃ φαίνεται ἐν ταῖς διὰ τῶν θυρίδων ἀκτίσιν. ὦν τὴν πανσπερμίαν στοιχεῖα λέγει τῆς ὅλης φύσεως ὁμοίως δὲ καὶ Λεύκιππος... (p. 404a 16) εἴκοι δὲ καὶ τὸ παρὰ τῶν Πυθαγορείων λεγόμενον τὴν αὐτὴν ἔχειν διάνοιαν ἔφασαν γὰρ τινες αὐτῶν ψυχὴν εἶναι τὰ ἐν τῷ αέρι ξύσματα, οἱ δὲ τὸ ταῦτα κινῶν. (D.O.) δὲ τοῦτων εἴρηται, διότι συνεχῶς φαίνεται κινούμενα κἂν ἢ νημερία παντελής. (D.O.) Simpl. ad loc. 25, 30: σαφῆς δὲ ἡ Δημοκρίτου περὶ τῶν στοιχείων δόξα ἐκ τοῦ πρώτου τῆς Φυσικῆς ἀκροάσεως, ἃ ἄτομα ὑποτιθεμένη μικρὰ ἄττα σωμάτια, οἷα τὰ ἐν αέρι φαίνεται ταῖς διὰ τῶν θυρίδων ἀκτίσιν ξύσματα. οὐ γὰρ ταῦτα ἄλλ' ὅμοια τοῦτοις διὰ μικρότητα τὰ στοιχεῖα ὁ Δ. ὑπετίθετο, μιᾶς μὲν οὐσίας ὄντα ἅπαντα, μεγέθει γε καὶ σχήματι ἀλλήλων διαφέροντα· ἐξ ὧν ὡς σπερμάτων<sup>3</sup> τὰ σύνθετα πάντα συνίστασθαι σώματα. (26, 13): οὐ δεῖ γὰρ τῆς Ἀριστοτελικῆς ἐπερείδου ἱστορίας διὰ τὸ ὡς ἐπίπαν μόνον ἐκτίθεσθαι τὸ φαινόμενον, ὡς περὶ καὶ τὸ περὶ τῶν Πυθαγορείων ἐπαγόμενον. τὸν μὲν γὰρ Δημοκρίτου ἱστορεῖ ὅμοια τοῖς ἐν αέρι λέγειν ξύσμασι τὰ στοιχεῖα, τινὰς δὲ τῶν Πυθαγορείων αὐτὰ ταῦτα, οὐκ ἂν ταῦτα οἰηθέντων ποτὲ τῶν Πυθαγορείων ἀνδρῶν, ἐνδεικνυμένων δὲ ἴσως τὴν ἥδη μεριζομένην τῆς ψυχῆς οὐσίαν καὶ εἰς τὸ φανερόν προϊούσαν. Philopon. ad loc. 67, 21: οὐκ ἔλεγε ὁ Δημοκρίτος, ὅτι ταῦτα τὰ ὁρώμενα διὰ τῶν θυρίδων κοινοτρόδη ψήγματα, ἐκ τούτων εἶναι ἢ τὸ πῦρ ἢ τὴν ψυχὴν, ἢ ὅλος ταῦτα εἶναι τὰ ἄτομα· ἀλλ' ὡς περ, φησὶν, εἰσὶ ταῦτα ἐν τῷ αέρι, διὰ μικρομέρειαν δὲ τῷ μὴ ὁρᾶσθαι οὐδὲ εἶναι δοκοῦσιν, ἐλέγχονται δὲ ὄντα ὑπὸ τῶν ἀκτίνων, ὅταν διὰ θυρίδων προσβάλλωσιν, οὕτως εἶναι λεπτὰ καὶ ἀόρατα διὰ μικρότητα τὰ ἄτομα σώματα, ἅτινα ἤγειτο ἀρχὰς τῶν φυσικῶν πάντων, ὡς περ τῶν συνθέτων οἱ ἱατροὶ τὰ τέσσαρα στοιχεῖα... Themist. ad loc. 9, 13: εἰ δὲ μὴ ὁρᾶται ἡ ψυχὴ καίτοι σῶμα οὐσα οὐκ ἔστι διὰ τῶν θυρίδων τὰ ἐν τῷ αέρι καλούμενα ὡς φησὶ ξύσματα, ἃ φαίνεται ἐν ταῖς διὰ τῶν θυρίδων ἀκτίσιν, οὐκ ἂν φανείη μὴ ἐλλάμποντος τοῦ ἡλίου,<sup>4</sup> ἀλλὰ κενὸς παντάπασιν ἡμῖν ὁ ἀπὸρροεῖ καίτοι σωμάτων στερεῶν πεπληρωμένος· ὦν ἔτι πολὺ μικροτέρας καὶ ταχυτέρας τὰς ἀτόμους ὑπολαμβάνει καὶ μάλιστα γε ἅπασων τὰς σφαιροειδεῖς, ἐξ ὧν ἡ ψυχὴ διὰ καὶ τοῦ ζῆν ὅρον εἶναι φησὶ τὴν ἀναπνοήν. Sophon. in De anima paraphr. I, 1, p. 403b 15, p. 10, 37: ὡς γὰρ τὰ κοινοτρόδη ταῦτα σωμάτια εἰσὶ μὲν, οὐ φαίνονται δὲ διὰ τὸ μικρομέρες, εἰ μὴπου περιτόχοι τῷ ἐν τῇ σικίᾳ φωτὶ. οὕτω κακεῖνα τὰ πρώτα διὰ τὴν ὑπερβολὴν τῆς λεπτότητος ἀθεώρητα· ὦν τὸ πλήθος καὶ τὴν πανσπερμίαν στοιχεῖα τῆς ὅλης φύσεως. Philopon. in Phys. I, 2, p. 184b 15, p. 25, 5: Δ. δὲ καὶ Λ., καὶ Ἐπίκουρος τὰς ἀτόμους καὶ τὸ κενὸν ὑπετίθεντο, τότε κενὸν ἄπειρον εἶναι καὶ τὰς ἀτόμους τὰς ἐν αὐτῷ. ἀτόμους δὲ ἔλεγε τὰς ἀόρατα τὰ διὰ μικρότητα ἀφανῆ καὶ ἀδιαίρετα διὰ σκληρότητα, οἷα εἰσὶ τὰ διὰ τῶν θυρίδων ἐν ταῖς ἀκτίσιν κοινοτρόδη φαινόμενα ψήγματα, ἅπερ ἀφανῆ γίνεται μὴ ἐπιλαμπούσης ἀκτίσιν οὐ διὰ τὸ μὴ εἶναι, ἀλλὰ διὰ τὴν μικρότητα.

201. (D.O.) Theodoret. IV, 10, p. 102, 26 Raeder (Dox. 285—286) = Suda, s. v. ἄτομα (cf. P. G. 83, p. 901): καλοῦσι δὲ (Δ. καὶ Ἐπίκουρος, τὰ ἄτομα) οὕτω τὰ μικρότατα ἐκεῖνα καὶ λεπτότατα σώματα, ἃ διὰ τῶν φωταγωγῶν εἰσβάλλον ὁ ἥλιος δείκνυσιν ἐν αὐτῷ ἄνω [τε] καὶ κάτω παλλόμενα.<sup>1</sup> τούτοις δὲ καὶ Ἐκφαντος ὁ Συρακούσιος ὁ Πυθαγόρειος ἠκολούθησε. Eadem fere apud Philopon. in De gen. et corr. 39, 7 (N<sup>o</sup> 206).

202. (D.O.) Hieronym. in Isaiam prophet. XII, 40 (P.L. 24, p. 407 B): Atiunt autem Hebraei... hoc verbo Doc (דוּק) significari tenuissimum pulverem, qui vento raptante saepe in oculos mittitur, et sentitur potius quam videtur. Minutissima ergo frustra pulveris et paene invisibilia hoc verbo appellantur: quas forsitan Democritus cum Epicuro suo atomos vocat.

203. (D.O.) Lact. De ira dei 10, 9 (p. 86, 3 Brandt): Haec, inquit (Leucippus) ... per inane irrequietis motibus volitant et huc atque illuc feruntur, sicut pulveris minutias<sup>a</sup> videmus in sole, cum per fenestram radios ac lumen immiserit.

## III. De atomorum magnitudine

204. (D.D.A 37). Simpl. in De caelo I, 10, p. 279b 12, p. 295, 1: (ἐκ τῶν Ἀριστοτέλους Περὶ Δημοκρίτου): Δ. ἡγεῖται τὴν τῶν αἰθέρων φύσιν εἶναι μικρὰς οὐσίας... νομίζει δὲ εἶναι οὕτω μικρὰς τὰς οὐσίας, ὥστε ἐκφυγεῖν<sup>a</sup> τὰς ἡμετέρας αἰσθήσεις. ὑπάρχειν δὲ αὐταῖς παντοίας μορφὰς καὶ σχήματα παντοῖα καὶ κατὰ μέγεθος διαφορὰς.<sup>1</sup>

205. (D.O.) Aristot. De gen. et corr. I, 8, p. 325a 29: ἀλλ' εἶναι τὸ τοιοῦτον (τὸ ὄν) οὐκ ἐν, ἀλλ' ἄπειρα τὸ πλήθος καὶ ἀόρατα διὰ μικρότητα τῶν ὄγκων.

206. (D.O.) Philopon. in De gen. et corr. I, 2, p. 316b 32, p. 39, 4 (respicit locum ubi legitur: ἀνάγκη ἄρα ἄτομα ἐνυπάρχειν μεγέθη ἀόρατα. Agitur de atomis mathematicis, v. N<sup>o</sup> 204): ἀόρατα δὲ εἶπε μεγέθη τὰ ἄτομα, ἵν' ἐκφυγεῖ τὸν ἐκ τῆς αἰσθήσεως ἔλεγχον· οὐδὲν γὰρ τῶν φαινόμενων μεγεθῶν ἀδιαίρετόν ἐστιν ἀόρατα οὐκ ἡμῖν διὰ μικρότητα ἔλεγε εἶναι τὰ ἄτομα. καὶ οὐδὲν γε θαυμαστόν ἐστιν μὲν, διὰ μικρότητα δὲ μὴ ὁρᾶσθαι, ὡς περ καὶ τὰ ἐν τῷ αέρι κοινοτρόδη ψήγματα πρότερον ἡμῖν ἀόρατα ὄντα, ἐπειδὴν ἀκτίς διὰ θυρίδος εἰσβάλλῃ, ὁρατὰ ἐν αὐτῇ διὰ τὴν τοῦ φωτός λαμπρότητα γίνεται.

207. (D.D.A 47). Aët. I, 12, 6 (Dox. 311): Δ. ... δυνατόν εἶναι κοσμίαν ὑπάρχειν ἄτομον. (D.D.A 43). Dion. apud Euseb. Praep. Evang. XIV, 23, 2, 3: οἱ μὲν γὰρ ἀτόμους προσειπόντες ἀφθαρτὰ τινα καὶ μικρότατα σώματα πλήθος ἀνάριθμα... ταύτης δὲ τῆς δόξης Ἐπίκουρος γεγονάσι καὶ Δ., τοσοῦτον δὲ διεφώνησαν ὅσον ὁ μὲν ἐλαχίστας πάσας καὶ διὰ τοῦτο ἀνεπαισθήτους, ὁ δὲ καὶ μεγίστας εἶναι τινας ἀτόμους, ὁ Δ., ὑπέλαβεν.<sup>1</sup>

208. (D.O.) Themist. in De caelo III, 5, p. 304b 2, p. 186, 30: Ii qui individua faciunt non dicunt ea parva admodum esse.

209. (D.O.) Euseb. Praep. Evang. XIV, 14 (P. G. 21, p. 1232): Δ., ὡς μετὰ πλείστον Ἐπίκουρος ἠκολούθησεν, ἀρχὰς τῶν ὄντων σώματα ἄτομα, λόγοι δὲ θεωρητὰ...<sup>1</sup>

210. (D.O.) Philopon. in Phys. III, 4, p. 203a 11, p. 398, 11: ὁ Δ., φησὶ, τὰ πρώτα σώματα... εἰσὶν αὐτῶν καὶ αἱ μὲν μείζους, αἱ δὲ ἐλάττους (v. N<sup>o</sup> 230).

## IV. De atomorum apathia et soliditate (ἀπάθεια καὶ ναστότης)

211. (D.D.A 42).<sup>1</sup> Aristot. Metaph. VI, 13, p. 1039a 9: ἀδόνατον γὰρ εἶναι φησὶν (Democritus) ἐκ δύο ἐν ἢ ἐξ ἐνός δύο γενέσθαι· τὰ γὰρ μεγέθη<sup>2</sup> τὰ ἄτομα τὰς οὐσίας ποιεῖ. (D.O.) Alex. ad loc. 526, 13: ὡς γὰρ ὁ Δημοκρίτος ἔλεγε, ὅτι ἀδόνατον ἐκ δύο ἀτόμων μίαν γενέσθαι (ἀπαθεῖς γὰρ αὐτὰς ὑπετίθετο) ἢ ἐκ μιᾶς δύο (ἀτμήτους γὰρ αὐτὰς ἔλεγε), οὕτως καὶ ἡμεῖς φαιμεν ὡς ἀδόνατον ἐκ δύο ἐνεργειῶν οὐσῶν οὐσιῶν μίαν οὐσίαν γενέσθαι (v. N<sup>o</sup> 235).

212. (D.O.) Simpl. in Phys. I, 2, p. 185b 8 (εἰ μὲν τοίνυν συνεχές, πᾶσι τὸ ἐν· εἰς ἄπειρον γὰρ διαιρετὸν τὸ συνεχές), p. 81, 34: εἰ δὲ οὕτως ἐν τὸ ὄν ὡς ἀδιαίρετον, ἐπεὶ τὸ ἀδιαίρετον πολλαχῶς, ἢ τὸ μὴπω διηρημένον οἷον τε δὲ διαιρηθῆναι καθάπερ ἕκαστον τῶν συνεχῶν,<sup>1</sup> ἢ τὸ μὴδὲ ὅλος πεφυκὸς διαιρεῖσθαι τῷ μὴ ἔχειν μέρη εἰς ἃ <ἀν> διαιρηθῆναι, ὡς περ στιγμὴ καὶ μονάς, ἢ τῷ μὴ μὴ μὲν ἔχειν<sup>2</sup> καὶ μέγεθος, ἀπαθεῖς δὲ εἶναι διὰ στερεότητα καὶ ναστότητα, καθάπερ ἕκαστη τῶν Δημοκρίτου ἀτόμων... Simpl. in De caelo III, 4, p. 303a 4, p. 609, 17: μετέβη πρὸς τοὺς περὶ Λ. καὶ Δ. στοιχεῖα λέγοντας τὰς διὰ μικρότητα καὶ ναστότητα ἀτόμους...



213. (D.O). Aristot. Phys. VIII, 4, p. 255a 13: ἤ γὰρ ἐν καὶ συνεχὲς μὴ ἀφῆμι,<sup>1</sup> ταύτη ἀπαθές.

214. (D.L.A 14). Simpl. in De caelo I, 7, p. 275b 29, p. 242, 15: οὐδὲ ὡς διωρισμένα ἀπειρά τῷ πλήθει δυνατόν εἶναι τὰ στοιχειώδη σώματα, ὡς οἱ περὶ Λεύκιππον καὶ Δημόκριτον ὑποτίθεντο πρὸ αὐτοῦ γεγονότες καὶ μετ' αὐτὸν Ἐπίκουρος. οὗτοι γὰρ ἔλεγον ἀπείρους εἶναι τῷ πλήθει τὰς ἀρχάς, ἃς καὶ ἀτόμους καὶ ἀδιαιρέτους ἐνόμιζον καὶ ἀπαθεῖς, διὰ τὸ ναστάς εἶναι καὶ ἀμοίρους τοῦ κενοῦ· τὴν γὰρ διαίρεισιν κατὰ τὸ κενὸν τὸ ἐν τοῖς σώμασιν ἔλεγον γίνεσθαι. (D.D.A 125). Aët. I, 15, 8 (Dox. 314): Δ. τὰ... στοιχεῖα ἀποια,<sup>a</sup> τὰ τε ναστά<sup>b</sup> καὶ τὸ κενόν. Aët. I, 9, 3 (Dox. 308): οἱ ἀπὸ Δ. ἀπαθῆ τὰ πρῶτα· τὴν ἀτομον καὶ τὸ κενὸν καὶ ἀσώματον.<sup>c</sup> (D.D.A 46). Aët. I, 3, 16 (Dox. 285): Δ. τὰ ναστά καὶ κενά (sc. ἀρχάς εἶναι). Alex. in Metaph. I, 4, p. 985b 21, p. 35, 24: ἐξῆς δὲ τὴν Λευκίππου τε καὶ Δημοκρίτου περὶ στοιχείων δόξαν ἰστορεῖ<sup>d</sup>. . . πλήρες δὲ ἔλεγον τὸ σῶμα τὸ τῶν ἀτόμων διὰ ναστότητά τε καὶ ἀμιξίαν τοῦ κενοῦ.

215. (D.D.A 1). Diog. IX, 44: (τὰ ἄτομα) εἶναι ἀπαθῆ καὶ ἀναλλοίωτα διὰ τὴν στερεότητα. (D.D.A 49). Galen. De elem. sec. Hipp. I, 2 (I, 417 K.; 3, 20 Holmr.): ἀπαθῆ δ' ὑποτίθενται τὰ σώματα εἶναι τὰ πρῶτα. τινὲς μὲν αὐτῶν ὑπὸ σκληρότητος ἀθραυστα, καθάπερ οἱ περὶ Ἐπίκουρον (Epicur., p. 205, 29 Us.), εἶναι δὲ ὑπὸ σμικρότητος ἀδιαιρέτα, καθάπερ οἱ περὶ τὸν Λεύκιππον, ἀλλ' οὐδ' ἀλλοιοῦσθαι κατὰ τι δυνάμενα ταύτας δὴ τὰς ἀλλοιώσεις, ἃς ἅπαντες ἄνθρωποι πεπιστεύκασι εἶναι, διδαχθέντες ὑπὸ τῶν αἰσθήσεων, οἷον οὔτε θερμαίνεσθαι τί φασιν ἐκείνων οὔτε ψύχεσθαι, κατὰ δὲ τὸν αὐτὸν τρόπον οὔτε ξηραίνεσθαι οὐδ' ὑγραίνεσθαι, πολὺ δὲ δὴ μᾶλλον εἶ μὴτε λευκαίνεσθαι μὴτε μελαινεσθαι μὴτ' ἄλλην τινὰ ὅπως ἐπιδέχεσθαι ποιότητα κατὰ μηδεμίαν μεταβολήν.

216. (D.O). Plut. Adv. Colot. 8, p. 1111 A (288 Us.): ἐγκλητέος οὖν ὁ Δ.<sup>1</sup> οὐχὶ τὰ συμβαίοντα ταῖς ἀρχαῖς ὁμολογῶν, ἀλλὰ λαμβάνων ἀρχὰς αἷς ταῦτα συμβέβηκεν. ἔδει γὰρ ἀμετάβλητα μὴ θέσθαι τὰ πρῶτα, θέμενον δὲ δὴ συνορᾶν εἰ ποιότητος οἴχεται πάσης γένεσις. ἀρνεῖσθαι δὲ συνορῶντα τὴν ἀτομίαν ἀνασχυρότατον, οἷα Ἐπίκουρον<sup>a</sup> φησὶν (Κωλώτης) ἀρχὰς μὲν ὑποτίθεσθαι τὰς αὐτάς, οὐ λέγειν δὲ «νόμοι χροίην καὶ γλυκὺ καὶ λευκόν» καὶ τὰς ἄλλας ποιότητας. εἰ μὲν οὖν τὸ «οὐ λέγειν» τοιοῦτόν ἐστιν <οἷα><sup>b</sup> «οὐχ ὁμολογεῖν», τῶν εἰδικμένων τι ποιεῖ. . . οὐκ οὖν ἀναγκαῖον ὑποθέσθαι, μᾶλλον δὲ ὑπελέσθαι Δημοκρίτου ἀτόμους εἶναι τῶν ὅλων ἀρχὰς· θεμένωι δὲ τὸ δόγμα καὶ καλλωπισμένωι ταῖς πρώταις πιθανότησιν αὐτοῦ προσεκποτέον ἐστὶ τὸ δυσχερές, ἢ δεικτέον ὅπως ἅποια σώματα παντοδαπὰς ποιότητας αὐτῷ μόνωι τῷ συνελθεῖν παρέσχεον. οἷον εὐθύς τὸ καλούμενον θερμὸν ὁμῖν πόθεν ἀφίχεται καὶ πῶς ἐπιγέγονε ταῖς ἀτόμοις, αἷ<sup>c</sup> μὴτε ἦλθον ἔχουσαι θερμότητα μὴτε ἐγένοντο θερμαῖ συνελθεῖσαι; τὸ μὲν γὰρ ἔχοντος ποιότητα, τὸ δὲ πάσχειν περικότος· οὐδέτερον δὲ ταῖς ἀτόμοις ὑπάρχειν φατέ προσήκον εἶναι διὰ τὴν ἀφθαρσίαν. . .

217. (D.O). Euseb. Praep. Evang. XIV, 14, 5 (P.G. 21, p. 1232); Aët. I, 3, 18 (Dox. 285): Δημόκριτος, ὡς μετὰ πλείστον Ἐπίκουρος ἠκολούθησεν, ἀρχὰς<sup>a</sup> τῶν ὄντων σώματα ἄτομα, λόγῳ δὲ θεωρητὰ ἀμέτοχα κενῶ, ἀγένητα, αἶδια, ἀφθαρτα, οὔτε θραυσθῆναι δυνάμενα, οὔτε διαπλάσμων ἐκ τῶν μερῶν λαβεῖν, οὔτε ἀλλοιωθῆναι, εἶναι δ' αὐτὰ λόγῳ θεωρητὰ. ταῦτα μέντοι κινεῖσθαι ἐν τῷ κενῷ καὶ διὰ τοῦ κενοῦ. εἶναι δὲ καὶ αὐτὸ τὸ κενὸν ἀπειρον, καὶ τὰ σώματα ἀπειρα. . . καὶ εἴρηται ἄτομος οὐχ ὅτι ἐστὶν ἐλαχίστη, ἀλλ' ὅτι οὐ δύναται τμηθῆναι, ἀπαθῆς οὖσα καὶ ἀμέτοχος κενῶ. ὥστε ἐάν τις<sup>b</sup> εἴπηι ἄτομον ἀθραυστον, λέγει καὶ ἀπαθῆ, ἀμέτοχον κενῶ.

218. (D. O). Lact. De ira dei 10, 5 (p. 85, 6 Brandt): Tam minuta sunt, inquit (D.), ut nulla sit acies ferri tam subtilis, qua secari ac dividi possint, unde illis nomen imposuit atomorum. Lact. Inst. III, 17, 22: Cur igitur illa (semina) non sentimus aut cernimus? Quia nec colorem habent, inquit, nec calorem ullum nec odorem, saporis quoque et umoris expertia sunt, et tam minuta ut secari ac dividi nequeant. Sic eum, quia in principio falsum susceperat, consequentium rerum necessitas ad deliramenta perduxit. Ubi enim sunt aut unde ista corpuscula? Cur illa nemo praeter unum Leucippum somniavit? A quo D. eruditus hereditatem stultitiae reliquit Epicuro. Quae

si sunt corpuscula et quidem solida, ut dicunt, sub oculos certe venire possunt . . . tam minuta esse dicantur, ut nulla ferri acie dissici valeant. . .

219. (D.D.A 43). Dion. apud Euseb. Praep. Evang. XIV, 23, 3: (Ἐπίκουρος καὶ Δ.) ἀτόμους δὲ εἶναι φασὶν ἀμφότεροι καὶ λέγεσθαι διὰ τὴν ἄλυτον στερεότητα.

## V. De atomorum materia et formis

220. (D.D.A 44). Aristot. Phys. III, 4, p. 203a 33: Δ. δ' οὐδὲν ἕτερον ἐξ ἑτέρου γίνεσθαι τῶν πρώτων φησὶν. ἀλλ' ὅμως γὰρ αὐτῶι<sup>a</sup> τὸ κοινὸν σῶμα πάντων ἐστὶν ἀρχή, μεγέθει κατὰ μόρια<sup>1</sup> καὶ σχήματι διαφέρον.

220a. (D.L.A 15). Aristot. De caelo III, 4, p. 303a 4: οἷον Δ. τε καὶ Δ. ὁ Ἀβδηρίτης. . . (11) ἐπεὶ διαφέρει τὰ σώματα σχήμασιν, ἀπειρα δὲ τὰ σχήματα, ἀπειρα καὶ τὰ ἀπλᾶ σώματά φασιν εἶναι. ποῖον δὲ καὶ τί ἐκάστου τὸ σχῆμα τῶν στοιχείων, οὐδὲν ἐπιδιώρισαν, ἀλλὰ μόνον τῷ περὶ τὴν σφαίραν ἀπέδωκαν.

221. (D.D.A 57). Aristot. Metaph. XII, 1, p. 1069b 22: καὶ ὡς Δ. φησὶν. ἦν ὁμοῦ πάντα δυνάμει, ἐνεργεῖαι δ' οὐ.<sup>1</sup> Alex. ad loc. 673, 19: ἀλλὰ καὶ ὁ Δ. διὰ τοῦ «ἦν ὁμοῦ πάντα δυνάμει» ἐμφαίνει ὡς ἔσχεν ἀμυδρῶς ἐννοῖαν τῆς ὕλης· τὸ γὰρ «ἦν ὁμοῦ πάντα δυνάμει» ἴσον ἐστὶ τῷ ἐστὶν ἐν ἡμῖν ὁ δύναται πάντα. Galen. De elem. sec. Hipp. I, 2 (I, 416 K.): ἰδέαι δὲ καὶ δυνάμει δύναται<sup>a</sup> ἂν τις ἐν εἶναι λέγειν τὰ πάντα, καθάπερ οἱ περὶ τὸν Ἐπίκουρον τε καὶ Δημόκριτον τὰς ἀτόμους.

222. (D.L.A 7). Aristot. De gen. et corr. I, 8, p. 325b 24: ὥσπερ ἐν τῷ Τιμαίωι γέγραφε Πλάτων· τοσοῦτον γὰρ διαφέρει τοῦ μὴ τὸν αὐτὸν τρόπον Λευκίππου λέγειν, ὅτι ὁ μὲν στερεά, ὁ δὲ ἐπίπεδα λέγει τὰ ἀδιαιρέτα, καὶ ὁ μὲν ἀπείροις ὀρίσθαι σχήμασι τῶν ἀδιαιρέτων στερεῶν ἕκαστον, ὁ δὲ ὀρισμένους, ἐπεὶ ἀδιαιρέτα γὰρ ἀμφότεροι λέγουσι καὶ ὀρισμένα σχήμασιν.

223. (D.O). Aristot. Phys. I, 1, p. 184b 20: καὶ εἰ ἀπείρους (εἶναι τὰς ἀρχὰς ἀνάγκη) ἢ οὕτως ὥσπερ Δ., τὸ γένος ἐν, σχήματι δὲ ἢ εἶδει<sup>1</sup> διαφερούσας, ἢ καὶ ἐναντίας.

224. (D.O). Simpl. in Phys. I, 4, p. 187b 9 (τὸ δὲ κατ' εἶδος ἀπειρον ἄγνωστον ποῖόν τι), p. 166, 6: οἱ μὲν γὰρ περὶ Δ. καὶ Λεύκιππον, εἰ καὶ ἀπείρους κατὰ πλήθος ὑπέθεντο τὰς ἀρχὰς, ἀλλὰ τὸ εἶδος ἐκάστης<sup>a</sup> αὐτῶν καὶ τὴν οὐσίαν ἐν ὑπέθεντο καὶ ὀρισμένον ὥστε οὐκ ἂν εἶη κατ' αὐτοὺς ἄγνωστος ἢ ἀρχή, εἰ μὴ ἄρα σχήματα αὐτοῖς ἢ ἄλλα τινὰ κατ' εἶδος ἀπειρα περιπεθεῖσιν.

225. (D.O). Alex. De mixt. 1, p. 213, 14: (τῶν κατὰ φιλοσοφίαν δογμάτων καὶ τῶν περὶ μίξεώς τε καὶ κράσεως λόγων) διηγήθησαν πρὸς ἀλλήλους περὶ τοῦδε τοῦ δόγματος οἱ μίαν ὕλην ὑποκεῖσθαι πᾶσι τοῖς ἐν γενέσει σώμασιν λέγοντες πρὸς τοὺς ἐκ διωρισμένων τε καὶ κειρωμένων σωμάτων ποιούντας αὐτήν. ὧν οἱ μὲν ἄτομα σώματα ἀπειρα τῷ πλήθει, κατὰ σχῆμα καὶ μέγεθος μόνον τὴν πρὸς ἀλλήλα διαφορὰν ἔχοντα, τὰς ἀρχὰς καὶ τὰ στοιχεῖα φασὶν εἶναι, καὶ τῇ τούτων συνθέσει τε καὶ ποιῆσι περιπλοκῆι ἐτι τε τάξει καὶ θέσει τὰλλα γίνεσθαι· ἐφ' ἧς δόξης πρώτοι μὲν Δ. τε καὶ Δ. γενέσθαι δοκοῖσιν, ὕστεροι δὲ Ἐπίκουρός τε καὶ οἱ τὴν αὐτὴν ταῦται τραπέντες. αἰτία δ' αὐτοῖς τῆς διαστάσεως τῆς τοσῆδε χαλεπότητος τοῦ δόγματος. <τῶι> μὲν<sup>a</sup> γὰρ ἐναργὲς εἶναι κινεῖσθαι τινὰ τῶν σωμάτων πρὸς ἀλλήλα πάντες σχεδὸν οἱ περὶ φύσεώς τε καὶ τῶν γινόμενων φύσει φιλοσοφοῦντες ἦλθον ἐπὶ τῷ ζητεῖν τὴν αἰτίαν αὐτοῦ, τῷ δ' εἶναι χαλεπὴν τε αὐτοῦ τὴν εὐρεσίαν καὶ ἐκάστην τῶν ἀποδιδομένων αἰτιῶν οἰκείας τινὰς ἐπεσθαι δυσχερείας ἄλλος ἄλλῃ ἀπετράπετο.

226. (D.L.A 11). Cic. De deor. nat. I, 24, 66: Ista enim flagitia Democriti, sive etiam ante Leucippi, esse corpuscula quaedam<sup>a</sup> levia, alia aspera, rutunda alia, partim autem angulata vel hamata,<sup>1</sup> b curvata quaedam et quasi adunca.

227. (D.D.A 37). Aristot. apud Simpl. in De caelo I, 10, p. 279b 12, p. 295, 5: νομίζει δὲ (Δ.) εἶναι οὕτω μικρὰς τὰς οὐσίας ὥστε ἐκφυγεῖν τὰς ἡμετέ-

ρας αισθήσεις. ὑπάρχειν δὲ αὐταῖς παντοίας μορφᾶς καὶ σχήματα παντοῖα καὶ κατὰ μέγεθος διαφορὰς . . . τὰ μὲν γὰρ αὐτῶν εἶναι σκαληνά, τὰ δὲ ἀγκιστρῶδη,<sup>1</sup> τὰ δὲ κοίλα, τὰ δὲ κυρτά,<sup>2</sup> τὰ δὲ ἄλλας ἀναρίθμους ἔχοντα διαφορὰς.

228. (D.O.) Simpl. in Phys. I, 2, p. 185b 8, p. 44, 3: οἱ μὲν περὶ Δ. ὁμοουσίους τὰς ἀτόμους ὑποθέμενοι καθ' ἓν γένος τὸ πλήρες θεωρουμένας . . .

229. (D.O.) Aët. I, 14, 3 (Dox. 312): οἱ ἀπὸ Λευκίππου τὰ ἄτομα πολυσχήμονα.

230. (D.O.) Philopon. in Phys. III, 4, p. 203a, 34, p. 398, 11: ὁ Δ. φησὶ (ὁ Ἀριστοτέλης), τὰ πρῶτα σώματα — λέγω δὴ τὰς ἀτόμους — ἀγενήτους φησὶν (οὐδὲν γὰρ ἐκ τοῦ ἐτέρου γίνεται, οἷον ἡ σφαιρική ἐκ τῆς πυραμοειδοῦς),<sup>1</sup> μίαν μένουσιν κοινήν φύσιν σώματος ὑποτίθησι τοῖς σχήμασι πᾶσι, τούτου δὲ μέρη εἶναι τὰς ἀτόμους μεγέθει καὶ σχήματι διαφορούσας ἀλλήλων. οὐ μόνον γὰρ ἄλλο καὶ ἄλλο σχῆμα ἔχουσιν, ἀλλ' εἰσὶν αὐτῶν καὶ αἱ μὲν μείζους αἱ δὲ ἐλάττους.

231. (D.O.) Aristot. De caelo III, 8, p. 306b 32: τὸ πῦρ . . . οἱ μὲν ἐποίησαν αὐτὸ σφαῖραν (v. № 131). Simpl. in De caelo III, 7, p. 306a 21, p. 649, 9: τῆς πυραμίδος ἢ τῆς σφαίρας — ἐπειδὴ σφαῖραν τὸ πῦρ οἱ περὶ Δ. ἔλεγον. . . Philopon. in De gen. et corr. I, 1, p. 314a, 21, p. 12, 31: κατὰ Δ. . . οὐ γὰρ ἐκ τῶν αὐτῶν ἀτόμων πῦρ καὶ γῆ ἀλλὰ πῦρ μὲν ἐκ σφαιρικῶν σύγκειται ἀτόμων. Philopon. in Phys. II, 2, p. 194a 15, p. 229, 1: τὰς μὲν γὰρ σφαιρικός (sc. ἀτόμους) εἰδοποιεῖν τὸ πῦρ.

232. (D.D.A 73). Theophr. De igne 52: ἀπορεῖται δὲ τοῦτο, διὰ τί τὸ τῆς φλογὸς σχῆμα πυραμοειδὲς ἐστὶ καὶ φησὶ Δ. μὲν περιφυγομένων αὐτῶν<sup>2</sup> τῶν ἄκρων εἰς μικρὸν συναγεσθαι καὶ τέλος ἀποξέονεσθαι.<sup>1</sup>

233. (D.O.)<sup>1</sup> Philopon. in Phys. I, 5, p. 188a 19, p. 116, 21: Δημόκριτος . . . εἶναι μὲν γὰρ ἐναντίας ἀλλήλαις τοῖς σχήμασι τὰς ἀτόμους τῶι τὰς μὲν εἶναι γεγωνιωμένας, τὰς δὲ ἀγωνίους ἐναντίον γὰρ εἶναι τὸ γεγωνιωμένον τῶι ἀγωνίῳ. διαφέρειν οὖν τὰ σύνθετα κατὰ τε ταύτην τὴν ἐναντίωσιν τῶι τὰ μὲν ἐκ γεγωνιωμένων εἶναι<sup>2</sup> τὰ δὲ ἐξ ἀγωνίων. ἔτι δὲ καὶ κατὰ τὴν τάξιν τῶν ἀτόμων, οἷον ἐν τούτῳ πρώτας μὲν εἶναι τὰς σφαιρικός εἰς τύχοι, τὰς δὲ πυραμοειδὲς ὑστέρας (οἷον ἐν τῶι ἀνθρώπῳ τυχόν αἱ μὲν σφαιρικάι ἄνω, οὐδὲν σφαιροειδὲς ἢ κεφαλή, αἱ δὲ πυραμοειδὲς περὶ τὴν γένυν), ἐν ἐτέρῳ δὲ ἔμπροσθεν, ἐναντίον δὲ τὸ πρῶτον τῶι ὑστέρωι. ἔτι διαφέρουσι καὶ κατὰ τὴν θέσιν τῶν ἀτόμων, οἷον εἰ αἱ πυραμίδες ἐν τούτῳ μὲν τὰς κορυφὰς κάτω ἔχουσι, τὰς δὲ βάσεις ἄνω (οἷον ἐν τῇ γένυϊ κάτω μὲν αἱ κορυφαὶ ἄνω δὲ αἱ βάσεις), ἐν ἐτέρῳ δὲ ἄνω μὲν αἱ κορυφαὶ κάτω δὲ αἱ βάσεις.

234. (D.O.)<sup>1</sup> Aët. I, 3, 18 (Dox. 285—286; 270 Us.) = Euseb. Praep. Evang. XIV, 14, 5 (p. 290, 15 Dindorf): Δ. . . ἔλεγον δύο (sc. συμβεβηκέναι ταῖς ἀτόμοις) μέγεθος τε καὶ σχῆμα, ὃ δὲ Ἐπίκουρος . . . φησὶ . . . εἶναι . . . τὰ σχήματα τῶν ἀτόμων ἀπερίληπτα,<sup>2</sup> οὐκ ἄπειρά<sup>3</sup> μὴ γὰρ εἶναι μήτε ἀγκιστροειδεῖς, μήτε τριαινοειδεῖς, μήτε κρικοειδεῖς ταῦτα γὰρ τὰ σχήματά ἐστιν εὐθραυστα, αἱ δὲ ἄτομοι ἀπαθεῖς, ἄθραυστοι. *Similia Democrito obiciuntur apud Epicurum* (Epist. I, 42) (7, 17 Us.): πρὸς τε τούτοις τὰ ἄτομα τῶν σωμάτων καὶ μεστά, ἐξ ὧν καὶ αἱ συγκρίσεις γίνονται καὶ εἰς ἃ διαλύονται, ἀπερίληπτά ἐστὶ ταῖς διαφοραῖς τῶν σχημάτων. οὐ γὰρ δυνατόν γενέσθαι τὰς τοσαύτας διαφορὰς ἐκ τῶν αὐτῶν σχημάτων περιλειπημένων, καὶ καθ' ἑκάστην δὲ σχημάτισιν ἀπλῶς ἄπειροί εἰσιν αἱ ὁμοίαι, ταῖς δὲ διαφοραῖς οὐκ ἀπλῶς ἄπειροι ἀλλὰ μόνον ἀπερίληπτοι (v. № 225).

235. (D.O.) Lact. De ira dei 10, 5 (p. 85, 8 Brandt): Occurrebat ei (D.), quod si una esset omnibus eademque natura, non possent res efficere diversas, tanta varietate, quantam videmus inesse mundo. Dixit ergo, levia esse, et aspera, et rotunda, et angulata, et hamata. . . Si aspera et angulata sunt, et hamata, ut possint cohaerere, dividua ergo et secabilia sunt; hamos enim necesse est et angulos eminere, ut possint amputari. . . Lact. Inst. III, 17, 23 (p. 232, 14 Brandt): A quo (Leucippo) D. eruditus hereditatem stultitiae reliquit Epicuro. . . Litterae varias formas habent: ita, inquit, et haec ipsa primordia: nam sunt aspera, sunt hamata, sunt levia. Secari ergo et dividi possunt, si aliquid inest illis quod emineat; si autem levia sunt et hamis indigent, cohaerere non possunt, hamata igitur esse oportet, ut possint

invicem concatenari. Cum vero tam minuta esse dicantur, ut nulla ferri acie dissici valeant, quomodo hamos aut angulos habent? Quos, quia exstant, necesse est posse divelli.

*Plura testimonia de atomorum forma* (ῥυσμός) v. №№ 238—248. *De forma calidi, frigidi, dulcis etc.* v. №№ 428—439.

## C. QUOMODO ATOMI INTER SE SITAE SINT

### I. Quid sibi velit ἀφή

236. (D.L.A 7).<sup>1</sup> Philopon. in De gen. et corr. I, 8, p. 325a, 32, p. 158, 26: οὐ . . . κυρίως τὴν ἀφήν ἔλεγον ὁ Δ. λέγων ἄπεισθαι ἀλλήλων τὰς ἀτόμους . . . ἀλλὰ <τὸ><sup>2</sup> πλησίον εἶναι ἀλλήλων τὰς ἀτόμους καὶ μὴ πολὺ διεστάναι, τοῦτο ἀφήν ἐκάλεῖ. κενῶι γὰρ πάντως διείρησθαι αὐτάς. (160, 10) τὴν ἀφήν οἱ περὶ Δ. οὐ κυρίως ἔλεγον. (I, 2, p. 317a 10, p. 39, 23) οὐκ ἔστι στιγμὴ στιγμῆς ἐχομένη . . . καὶ γὰρ καὶ παρὰ τῶν περὶ Δ. ὁμολογεῖτο.

237. (D.O.) Aristot. Phys. III, 4, p. 203a 19: ὅσοι δ' ἄπειρα ποιοῦσι τὰ στοιχεῖα καθάπερ Ἀναξαγόρας καὶ Δ. . . τῇ ἀφῆι συνεχὲς τὸ ἄπειρον εἶναι φαίνεται.<sup>1</sup> Simpl. ad loc. 448, 26: οἱ δὲ ἄπειρα τῶι πλήθει τιθέντες ὡς περ Ἀναξαγόρας καὶ Δ. αὐτῶι τε τῶι πλήθει τὸ ἄπειρον εἰσῆγον καὶ ἔτι τῶι μεγέθει. τὰ γὰρ ἄπειρα τῶι πλήθει τῇ ἀφῆι συνεχιζόμενα, ἀλλ' οὐχὶ τῇ ἐνώσει ἄπειρον ποιεῖν μέγεθος. (459, 22) ὅτι δὲ τῇ ἀφῆι συνεχὲς ἄπειρόν τι, καὶ ἐκ τούτων γίνεται δῆλον. τὰ γὰρ ἄπειρα τῶι πλήθει μέγεθος ἔχοντα καὶ ὁμοειδῆ ὄντα, ὥστε καὶ ἄπεισθαι ἀλλήλων, ἄπειρον ποιεῖ μέγεθος τῇ ἀφῆι συνεχὲς. διὸ καὶ Εὐδήμος (fr. 39) ἐν τῶι δευτέρῳ τῶν Φυσικῶν «τὸ κατὰ πλήθος, φησὶν, ὁμοειδὲς ἄπειρα λέγειν οὐδὲν διαφέρει ἢ κατὰ τὸ μέγεθος ἄπειρον». Simpl. in De caelo III, 4, p. 303a 4, p. 609, 17: μετέβη πρὸς τοὺς περὶ Λευκίππου καὶ Δημόκριτον, στοιχεῖα λέγοντας τὰς διὰ σμικρότητα καὶ ναστότητα ἀτόμους ἀπείρους οὐσας κατὰ τε τὸν ἀριθμὸν καὶ τὰ σχήματα. ταύτας δὲ μόνας ἔλεγον συνεχεῖς τὰ γὰρ ἄλλα τὰ δοκοῦντα εἶναι συνεχῆ ἀφήν προσεγγίζειν ἀλλήλοις διὸ καὶ τὴν τοιῆν ἀνήρουν ἀπόλυσιν τῶν ἀπτομένων λέγοντες τὴν δοκοῦσαν τομήν, καὶ διὰ τοῦτο «οὔτε ἐξ ἐνὸς πολλὰ γίνεσθαι» ἔλεγον, οὐ γὰρ διαιρεῖσθαι τὴν ἄτομον «οὔτε ἐκ πολλῶν ἓν» κατὰ ἀλήθειαν συνεχὲς, ἀλλὰ τῇ συμπλοκῇ τῶν ἀτόμων ἕκαστον ἐν δοκεῖν γίνεσθαι. Philopon. in Phys. III, 8, p. 208a 14, p. 494, 20: ἀλλὰ καὶ κατὰ τὰς Δημοκρίτου ὑποθέσεις τοῦτο συμβαίνει αἱ γὰρ ἄτομοι ἐν τῶι κενῶι φερόμεναι πεπερασμένα μὲν εἰσιν, οὐδενὸς δὲ ἄπτονται.

### II. De uniuscuiusque atomi situ (ῥυσμός, τροπή, διαδιγῆ)

238. (D.D.A 45).<sup>1</sup> Aristot. Phys. I, 5, p. 188a 22: Δ. τὸ στερεὸν (πλήρες Simpl. 44, 16) καὶ κενόν, ὧν τὸ μὲν ὡς ὄν, τὸ δ' ὡς οὐκ ὄν εἶναι φησιν. ἔτι θέσει, σχήματι, τάξει. ταῦτα δὲ γένη ἐναντίων θέσεως ἄνω κάτω, πρόσθεν ὀπίσθεν,<sup>2</sup> σχήματος γωνία εὐθύ περιφερὲς.

239. (D.D.A 38). Aristot. De gen. et corr. I, 9, p. 327a 16: ὁρῶμεν δὲ τὸ αὐτὸ σῶμα συνεχὲς ὄν ὅτε μὲν ὑγρὸν ὅτε δὲ πεπηγός, οὐ διαιρέσει καὶ συνθέσει τοῦτο παθὸν οὐδὲ τροπῆι καὶ διαδιγῆι, καθάπερ λέγει Δ. οὔτε γὰρ μετατεθὲν οὔτε μεταβαλὸν<sup>1</sup> τὴν φύσιν<sup>2</sup> πεπηγός ἐξ ὑγροῦ γέγονεν.

240. (D.L.A 9). Aristot. De gen. et corr. I, 1, p. 314a 21: Δ. δὲ καὶ Δ. ἐκ σωμάτων ἀδιαιρέτων τάλλα συγκεῖσθαι φασι, ταῦτα δ' ἄπειρα καὶ τὸ πλήθος εἶναι καὶ τὰς μορφὰς, αὐτὰ δὲ πρὸς αὐτὰ διαφέρειν τούτοις ἐξ ὧν εἰσι καὶ θέσει καὶ τάξει τούτων. (p. 315b 6) Δ. δὲ καὶ Δ. ποιήσαντες τὰ σχήματα<sup>1</sup> τὴν ἀλλοίωσιν, καὶ τὴν γένεσιν ἐκ τούτων ποιοῦσι, διακρίσει μὲν καὶ συγκρίσει γένεσιν καὶ φθοράν, τάξει δὲ καὶ θέσει ἀλλοίωσιν. ἐπεὶ δ' ὄντο τάληθες ἐν τῶι φαίνεσθαι,<sup>2</sup> ἐναντία δὲ καὶ ἄπειρα τὰ φαινόμενα, τὰ σχήματα ἄπειρα ἐποίησαν. ὥστε ταῖς μεταβολαῖς τοῦ

συγκριμένου το αυτό έναντίον δοκεῖν ἄλλωι καὶ ἄλλωι, καὶ μετακινεῖσθαι μικροῦ ἐμμετρημένου καὶ ὅπως ἕτερον φαίνεσθαι ἐνός μετακινήθεντος· ἐκ τῶν αὐτῶν γὰρ τραγωιδία καὶ κωμωιδία γίνεται γραμμάτων.<sup>3</sup> Philopon. ad loc. 12, 30: ... ταῦτα οὖν, φησί, τὰ σύνθετα κατὰ τρεῖς τρόπους ἀλλήλων διαφέρει κατὰ Δημόκριτον, καθ' ἓνα μὲν τῶι ἐκ διαφόρων ἀτόμων συγκριθεῖν κατὰ τὸ σχῆμα, ὅπερ αὐτῶι σημαίνει τὸ τούτοις ἐξ ὧν εἰσιν· οὐ (13, 1) γὰρ ἐκ τῶν αὐτῶν ἀτόμων πῦρ καὶ γῆ, ἀλλὰ πῦρ μὲν ἐκ σφαιρικῶν σύγκριται ἀτόμων, γῆ δὲ οὐκ ἐκ τοιαύτων, κυβικῶν δὲ τυχόν, ἀλλά, φησί, καὶ θέσει καὶ τάξει τῶν ἀτόμων διενήνοχεν ἀλλήλων τὰ σύνθετα, πολλὰ μὲν γὰρ δύο τινῶν ἐκ τῶν αὐτῶν ἀτόμων συγκριμένων ἢ διαφορὰ ἔσται παρὰ τὴν τάξιν τῶν ἀτόμων, τῶι ἐπὶ τοῦδε μὲν, λόγου χάριν, πρώτας μὲν τὰς σφαιρικὰς<sup>4</sup> ἀτόμους τελευταίας δὲ τὰς πυραμοειδεῖς τετάχθαι, ἐπὶ δὲ τοῦ ἑτέρου ἔμπαλιν πρώτας μὲν τὰς πυραμοειδεῖς ὑστερας δὲ τὰς σφαιρικὰς, καθάπερ ἐπὶ τῆς ΩΣ καὶ ΣΩ συλλαβῆς ἔχει· τῶν γὰρ αὐτῶν στοιχείων ἢ τάξεις τὴν διαφορὰν ἐργάζεται. ὡσαύτως δὲ καὶ παρὰ τὴν θέσιν τῶν ἀτόμων ἢ τῶν συνθέντων διαφορὰ γίνεται, ποτὲ μὲν πλαγίως, ποτὲ δὲ ὀρθῶν, ἐπ' ἄλλων δὲ ὑπτίων οὐσῶν· τοῦ γοῦν Ζι στοιχείου ὡς πρὸς τὸ Ν κατὰ τὴν θέσιν μόνον ἢ διαφορὰ, καὶ τοῦ Γ πρὸς τὸ Δ. εἰδέναι δὲ χρῆ, ὅτι τῶν εἰρημένων πρῶτων διαφορῶν ἢ μὲν προτέρα, καθ' ἣν ἐκ τοίων ἢ τοίων σύγκριται<sup>5</sup> ἀτόμων, ἄλλα ποιεῖ τὰ σύνθετα καὶ παντάσῃν ἕτερα, ἢ δὲ παρὰ τὴν θέσιν καὶ τὴν τάξιν ἕτερα μὲν οὐχ ἕτερα δέ. Cf. № 434, sub finem. Philopon. in De gen. et corr. I, 1, p. 314b 15, p. 17, 32: τὰ γὰρ ἐκ τριγώνων φέρε οὐχ ἔξει ὁμοίως (sc. τοῖς ἐκ σφαιρῶν), ἔξω μὲν τῶν βάσεων οὐσῶν ἐντός δὲ τῶν κορυφῶν ἢ ἔμπαλιν (κατὰ τοὺς περὶ Δημόκριτον)... (v. № 433).

241. (D.L.A 6). Aristot. Metaph. I, 4, 985b 4: Δ. ... καὶ ὁ ἑταῖρος αὐτοῦ Δ. ... καὶ καθάπερ οἱ ἐν ποιῶντες τὴν ὑποκειμένην οὐσίαν τὰλλα τοῖς πάθεσιν αὐτῆς γεννῶσι, τὸ μανὸν καὶ τὸ πυκνὸν ἀρχὰς τιθέμενοι τῶν παθημάτων. καὶ ὡπερ τῶν μαθηματικῶν<sup>a</sup> <τινες><sup>b</sup> τὸν αὐτὸν τρόπον καὶ οὗτοι τὰς διαφορὰς αἰτίας τῶν ἄλλων εἶναι φασι. ταύτας μέντοι τρεῖς εἶναι λέγουσι, σχῆμά τε καὶ τάξιν καὶ θέσιν· διαφέρειν γὰρ φασι τὸ ὄν ῥυθμῶι καὶ διαδιγῆι<sup>1</sup> καὶ τροπῆι μόνον. τούτων δὲ ὁ μὲν ῥυθμὸς σχῆμά ἐστιν, ἢ δὲ διαδιγῆ τάξις, ἢ δὲ τροπῆ θέσις· διαφέρει γὰρ τὸ μὲν Α τοῦ Ν σχήματι, τὸ δὲ ΑΝ τοῦ ΝΑ τάξει, τὸ δὲ Ι τοῦ Η<sup>ο</sup> θέσει.<sup>2</sup> Lact. Inst. III, 17, 22 (p. 232, 14 Brandt): A quo (Leucippo) D. eruditus hereditatem stultitiae reliquit Epicuro. Vario, inquit, ordine ac positione conveniunt, sicut litterae: quae cum sint paucae, varie tamen collocatae innumerabilia verba conficiunt. At litterae varias formas habent. Ita, inquit, et haec ipsa primordia.

242. (D.O). Aristot. Metaph. VII, 2, p. 1042b 11: Δ. μὲν οὖν τρεῖς διαφορὰς ἔοικεν οἰομένωι εἶναι· τὸ μὲν γὰρ ὑποκείμενον σῶμα, τὴν ὕλην, ἐν καὶ ταυτόν, διαφέρειν δὲ ἢ ῥυθμῶι, ὃ ἐστὶ σχῆμα, ἢ τροπῆι, ὃ ἐστὶ θέσις, ἢ διαδιγῆι, ὃ ἐστὶ τάξις. Alex. ad loc. 548, 3 *nihilō differt*.

243. (D.D.A 125). Aët. I, 15, 8 (Dox. 314):<sup>a</sup> Δ. φύσει μὲν μηδὲν εἶναι χρώμα· τὰ μὲν γὰρ στοιχεῖα ἅποια, τὰ τε ναστὰ καὶ τὸ κενόν· τὰ δὲ ἐξ αὐτῶν συγκρίματα κεχρῶσθαι, διαταγῆι τε καὶ ῥυθμῶι καὶ προτροπῆι,<sup>1</sup> ὧν ἢ μὲν ἐστὶ τάξις, ὃ δὲ σχῆμα, ἢ δὲ θέσις. (D.L.A 32; № 95). Aët. IV, 9, 8 (Dox. 397): ταῦτα (ἄτομα καὶ κενόν) γὰρ εἶναι μόνα φύσει, τὰ δ' ἐκ τούτων θέσει καὶ τάξει καὶ σχήματι διαφέροντα ἀλλήλων συμβεβηκότα. *Philoponi fragmenta notabiliora v. №№ 232, 433, 434*.

244. (D.L.A 14). Simpl. in De caelo I, 7, p. 275b 29, p. 242, 22: διαφορούσας σχήμασι τε καὶ μεγέθεσι καὶ θέσει καὶ τάξει ... περιπλέκεσθαι ἀλλήλαις κατὰ τὴν τῶν σχημάτων καὶ μεγεθῶν καὶ θέσεων καὶ τάξεων συμμετρίαν.

245. (D.O). Philopon. in Phys. II, 4, p. 195b 28, p. 262, 17: (Δ.) ... ἐν τῆι τῶν κατὰ μέρος ἀποδόσει (οἷον διὰ τί τὰ θερμὰ διακρίνει καὶ τὰ λευκά; ἢ διὰ τί τὸ μέλι γλυκύ;); τὴν θέσιν καὶ τὴν τάξιν καὶ τὸ σχῆμα τῶν ἀτόμων αἰτιάται...

246. (D.O). Philopon. in Phys. I, 5, p. 188a 19, p. 116, 21: «καὶ Δ. πλήρης καὶ κενόν» (*Aristotelis verba*)· πλήρης γὰρ τὰς ἀτόμους ἐκάλει, κενῶι δὲ ταύτας διείργεσθαι. ἐκ τῆς συμπλοκῆς οὖν τοῦ κενοῦ καὶ τοῦ πλήρους εἰδοποιεῖσθαι πάντα. ἀλλ' ἐπειδὴ πολλὴ διαφορὰ ἐν τοῖς οὐσί, ἕτερας ὑποτιθέμενος ἐναντιώσεις, οὕτως

ἀπεδίδου τῆς διαφορᾶς τῶν ὄντων τοὺς λόγους· ὅσον γὰρ ἐπὶ τῶι κενῶι καὶ τῶι πλήρει, ἐπειδὴ πάντα ἐκ τούτων, οὐδὲν ἂν ἐμελλον ἀλλήλων διαίσειν· διὰ τοῦτο οὖν ἕτερα τρία γένη ἐναντίων ὑποτίθεται, ὧν πρὸς τὰς διαφορὰς διάφορα εἶναι καὶ τὰ αποτελούμενα.<sup>1</sup> (*Cetera v. № 233*) (117, 9) ἐναντιότητες δὲ κατὰ τὴν θέσιν τὸ ἄνω τῶι κάτω, τὸ δεξιὸν τῶι ἀριστερῶι,<sup>2</sup> τὸ ἔμπροσθεν τῶι ὀπίσθεν, ὥστε καὶ οὗτος ἀρχὰς τῶν ὄντων τὰ ἐναντία ὑποτίθεται, ἐκάλει δὲ τὸ σχῆμα τὴν θέσιν τὴν τάξιν Ἀβδερικῆς φωναῖς «ῥυθμὸν τροπῆν διαδιγῆν», ῥυθμὸν μὲν τὸ σχῆμα, τροπῆν τὴν θέσιν, διαδιγῆν τὴν τάξιν. Philopon. in De gen. et corr. I, 2, p. 315b 35, p. 26, 7: τροπῆι καὶ διαδιγῆι· ῥυθμὸς τροπῆ διαδιγῆ λέξεις εἰσιν Ἀβδερικαί, αἷς ἐχρᾶτο Δ. ῥυθμὸν μὲν καλῶν τὸ σχῆμα, τροπῆν τὴν θέσιν (οἷον εἰ ἢ βᾶσις μὲν τῆς πυραμίδος κάτω εἴη, ἢ κορυφῆ δὲ ἄνω ἢ ἔμπαλιν), διαδιγῆν δὲ τὴν τάξιν, ὅτι αἶθε μὲν εἰ τόχοι πρῶται, ἕτεροι δὲ ὕστεροι. Philopon. in De anima I, 2, p. 404a 6, p. 68, 3 sqq.

247. (D.L.A 14). Simpl. in Phys. I, 2, p. 184b 15, p. 36, 1: οἱ δὲ περὶ Λεούκιππου καὶ Δημόκριτον τὰ ἐλάχιστα πρῶτα σώματα ἄτομα καλοῦντες κατὰ τὴν τῶν σχημάτων αὐτῶν καὶ τῆς θέσεως καὶ τῆς τάξεως διαφορὰν τὰ μὲν θερμὰ γίνεσθαι καὶ πόρια τῶν σωμάτων, ὅσα ἐξ ἑυτέρων καὶ λεπτομερεστέρων καὶ κατὰ ὁμοίαν θέσιν κειμένων σύγκριται τῶν πρῶτων σωμάτων, τὰ δὲ ψυχρὰ καὶ ὑδατώδη, ὅσα ἐκ τῶν ἐναντίων, καὶ τὰ μὲν λαμπρὰ καὶ φωτεινὰ, τὰ δὲ ἀμυδρὰ καὶ σκοτεινὰ. Simpl. in De caelo I, 7, p. 275b 29, p. 242, 21: ταύτας δὲ τὰς ἀτόμους ἐν ἀπείρῳι τῶι κενῶι κεχωρισμένας ἀλλήλων καὶ διαφορούσας σχήμασι τε καὶ μεγέθεσι καὶ θέσει καὶ τάξει φέρεσθαι ἐν τῶι κενῶι.

*Similiter* Simpl. in Phys. I, 2, p. 184b 20, p. 44, 3. (D.D.A 38). Simpl. in Phys. I, 2, p. 184b 15, p. 28, 17 (ex Theophr. Phys. opin., fr. 8): ὡς <γὰρ> ὕλην τοῖς οὐσί τὰς ἀτόμους ὑποτιθέντες τὰ λοιπὰ γεννῶσι ταῖς διαφοραῖς αὐτῶν. τρεῖς δὲ εἰσιν αὗται, ῥυθμὸς τροπῆ διαδιγῆ, ταῦτόν δὲ εἰπεῖν σχῆμα καὶ θέσις καὶ τάξις.

248. (D.D.A 44). Herm. Irris. 13 (Dox. 654): τὸ δὲ πλήρες ἐν τῶι κενῶι τροπῆι καὶ ῥυθμῶι ποιεῖ τὰ πάντα.

#### d. DE INANI

##### I. Inane definitur

249. (D.O).<sup>1</sup> Aristot. Phys. IV, 8, p. 215a 11: τὸ γὰρ κενὸν μὴ ὄν τι καὶ στερῆσις δοκεῖ εἶναι. Themist. ad loc. 129, 8: τὸ γὰρ κενὸν μὴ ὄν τι καὶ στερῆσιν λέγει Δ.

250. (D.O). Simpl. in Phys. III, prooem. 1, p. 200b 12, p. 394, 25: τινῶν δὲ τὸν τόπον τὸ κενὸν ὑπολαμβάνοντων καὶ τὴν κίνησιν ἐν κενῶι γίνεσθαι πάντως λεγόντων, ὡπερ Δ. (397, 2) τῶν πρὸ αὐτοῦ φυσιολόγων τοῖς περὶ Δ. ἀρέσαν τὸ διὰ κενοῦ τὴν κίνησιν γίνεσθαι καὶ τὸ κενὸν εἶναι τόπον ἐστερημένον σώματος.

251. (D.O). Simpl. in Phys. IV, 1, p. 209a 18, p. 533, 14: ὁ Εὐδήμος ἐν τρίτῳι τῶν Φυσικῶν (fr. 39 Sp.) παρακολουθῶν τοῖς ἐνταῦθα λεγομένοις καὶ ὡς ἠμολογούμενον ἕκαστον τῶν αἰτίων ἀφαιρῶν τοῦ τόπου· «ἀλλ' ἄρα γε», φησὶν, «ὡς τὸ κινῆσαν;<sup>1</sup> ἢ οὐδὲ οὕτως ἐνδέχεται, ὃ Δημόκριτε· δεῖ γὰρ κινητικὸν εἶναι καὶ ἔχειν τινὰ δύναμιν». τὸ γὰρ κενὸν τόπον εἶπεν ὁ Δ. «ὅπερ τῆι ἑαυτοῦ φύσει κενὸν ὄντως καὶ ἀδρανὲς<sup>2</sup> ἂν ἦν», μήποτε οὖν ὡς τέλος.

252. (D.O). [Aristot.] De Mel., Xenoph., Gorgia 6, p. 980a 6: ἐκλιπές γὰρ ταύτηι, φησὶν (ὁ Γοργίας), ἢ διήρηται, τοῦ ὄντος, ἀντὶ τοῦ κενοῦ τὸ διηρῆσθαι<sup>1</sup> λέγων, καθάπερ ἐν τοῖς Λεουκίππου καλούμενοις λόγοις γέγραπται.

253. (D.O). Theodoret. IV, 14, p. 104 Raeder (Dox. 316; cf. Proleg. 46): τὸ δὲ κενὸν οἱ περὶ Δημόκριτον τῶν ἀτόμων ὀνομάσασιν τόπον, οἱ δὲ ἄλλοι ἅπαντες τοῦτόν γε ἀντικρὺς κωμωιδῶσι τὸν λόγον.<sup>1</sup>

254. (D.O). Simpl. in Phys. IV, 4, p. 211b 5, p. 571, 22 (= 273 Us.): ... ἢ τὸ διάστημα τὸ μεταξὺ τῶν ἐσχάτων τοῦ περιέχοντος τὸν τόπον ἀνάγκη εἶναι,

ὁ τινες καὶ τῶν προτέρων ὡς οἱ περὶ Δ. καὶ τῶν ὑστέρων ὡς οἱ περὶ Ἐπίκουρον. . . (27) τὸ δὲ διάστημα τοῦτο οἱ μὲν περὶ Δ. καὶ Ἐπίκουρον κενὸν εἶναι λέγουσιν οὕτως ὥστε ποτὲ μὲν πληροῦσθαι σώματος, ποτὲ δὲ καὶ κενὸν ἀπολείπεσθαι.

## II. Esse inane demonstratur. Inane motus causam esse

255. (D.L.A 19). Aristot. Phys. IV, 6, p. 213a 27: <sup>1</sup> οἱ δ' ἄνθρωποι βούλονται κενὸν εἶναι διάστημα, ἐν ᾧ μηδὲν ἐστὶ σῶμα αἰσθητὸν· οἴοντες δὲ τὸ ὄν ἅπαν εἶναι σῶμα, φασίν, ἐν ᾧ ὅλον μηδὲν ἐστὶ τοῦτ' εἶναι κενόν, διὸ τὸ πλήρες ἀέρος κενὸν εἶναι. οὐκ οὖν τοῦτο δεῖ δεικνύσθαι, ὅτι ἐστὶ τι ὁ ἀήρ, ἀλλ' ὅτι οὐκ ἐστὶ διάστημα ἕτερον τῶν σωμάτων οὔτε χωριστὸν οὔτε ἐνεργεῖαι ὄν, ὃ διαλαμβάνει τὸ πᾶν σῶμα, <sup>2</sup> ὥστ' εἶναι μὴ συνεχές, καθάπερ λέγει Δ. καὶ Α. καὶ (213b) ἕτεροι πολλοὶ τῶν φυσιολόγων, ἢ καὶ εἴ τι ἔξω τοῦ παντός σώματος ἐστὶν ὄντος συνεχούς. <sup>3</sup> οὗτοι <sup>4</sup> μὲν οὖν οὐ κατὰ θύρας πρὸς τὸ πρόβλημα ἀπαντῶσιν, ἀλλ' οἱ φάσκοντες εἶναι (sc. τὸ κενόν) μάλλον. λέγουσι δ' ἐν μὲν <sup>5</sup> ὅτι κίνησις ἢ κατὰ τόπον οὐκ ἂν εἴη (αὕτη δ' ἐστὶ φορά καὶ ἀξήσις)· οὐ γὰρ ἂν δοκεῖν εἶναι κίνησιν, εἰ μὴ εἴη κενόν· τὸ γὰρ πλήρες ἀδύνατον εἶναι δέξασθαι τι. εἰ δὲ δέξεται καὶ ἐστὶ δύο ἐν ταύτῳ, ἐνδέχεται ἂν καὶ ὅποσαοῦν εἶναι ἅμα σώματα· τὴν γὰρ διαφορὰν, δι' ἣν οὐκ ἂν εἴη τὸ λεχθέν, οὐκ ἐστὶν εἰπεῖν. εἰ δὲ τοῦτο ἐνδέχεται, καὶ τὸ μικρότατον δέξεται τὸ μέγιστον· πολλὰ γὰρ μικρὰ ἐστὶ τὸ μέγα· ὥστ' εἰ πολλὰ ἴσα ἐνδέχεται ἐν ταύτῳ εἶναι, καὶ πολλὰ ἄνισα . . . ἓνα μὲν οὖν τρόπον ἐκ τούτων δεικνύουσιν ὅτι ἐστὶ τι κενόν, ἄλλον δ' ὅτι φαίνεται ἓνα συνιόντα καὶ πιλούμενα, οἷον καὶ τὸν οἶνόν φασὶ δέχεσθαι μετὰ τῶν ἀσκήων τοὺς πίδακας, ὡς εἰς τὰ ἐνόητα κενὰ συνιόντος τοῦ πικνουμένου σώματος. <sup>6</sup> ἔτι δὲ καὶ ἡ ἀξήσις δοκεῖ πᾶσι γίνεσθαι διὰ κενού· τὴν μὲν γὰρ τροφήν σῶμα εἶναι, δύο δὲ σώματα ἀδύνατον ἅμα εἶναι. μαρτύριον δὲ καὶ τὸ περὶ τῆς τέφρας ποιοῦνται, ἢ δέχεται ἴσον ὕδωρ ὅσον τὸ ἀγγεῖον τὸ κενόν. <sup>7</sup>

256. (D.O). Aristot. Phys. IV, 9, p. 216b 22: εἰσὶ δὲ τινες <sup>1</sup> οἱ διὰ τοῦ μανοῦ καὶ πυκνοῦ οἴονται φανερόν εἶναι ὅτι ἐστὶ κενόν. εἰ μὲν γὰρ μὴ ἐστὶ μανὸν καὶ πυκνόν, οὐδὲ συνιέναι καὶ πιλεῖσθαι οἷόν τε. εἰ δὲ τοῦτο μὴ εἴη, ἢ ὅπως κίνησις οὐκ ἐστὶ, ἢ κυμανεῖ τὸ ὅλον, ὡς περὶ ἔφη Σοῦθρος, ἢ εἰς ἴσον <sup>2</sup> ἀεὶ μεταβάλλειν ἀέρα καὶ ὕδωρ. λέγω δ' οἷον εἰ ἐξ ὕδατος κυάθου γέγονεν ἀήρ, ἅμα ἐξ ἴσου ἀέρος ὕδωρ τοσοῦτον γεγενῆσθαι, ἢ κενὸν εἶναι ἐξ ἀνάγκης· συμπιλεῖσθαι γὰρ καὶ συνεπεκτείνεσθαι οὐκ ἐνδέχεσθαι ἄλλως . . . τὸ μανὸν λέγουσι τὸ πολλὰ κενὰ κεχωρισμένα <sup>3</sup> ἔχον. . . Themist. ad loc. 135, 10: εἴπερ ἐστὶ πύκνωσις ἢ εἰς ἐλάττωνα ὄγκον τοῦ αὐτοῦ σώματος συστολή καὶ μάνωσις ἢ εἰς πλείονα καὶ μείζονα ὄγκον τοῦ αὐτοῦ σώματος ἀνεσις, ἀνάγκη κενὸν ἐν τοῖς σώμασι παρεσπάρθαι, εἰς ὃ τὰ πιλούμενα συστέλλεται καὶ διαχεῖται τὰ ἀραιούμενα, οὐ μόνον δὲ πύκνωσιν καὶ μάνωσιν ἀναιροῦσι τὸ κενὸν ἀναιροῦντες, ἀλλ' ἤδη καὶ πᾶσαν κίνησιν. καὶ γὰρ ὅταν τι κατὰ τόπον κινήται, συστέλλομενα τὰ παρακείμενα σώματα δι' ὧν δίδεισι παρέχει χώραν τοῖς δι' αὐτῶν κινουμένοις, ὡς περὶ τοῖς διὰ πλήθους βαδίζουσι. . . <sup>4</sup> (136, 7) λέγουσιν ἐν τοῖς σώμασι τὸ κενὸν παρεσπάρθαι, ὡς εἶναι ἐν τῷ μανῷ διαστήματα κεχωρισμένα δεκτικὰ σωμάτων. . . Simpl. ad loc. 683, 6: οὐ μόνον γὰρ τὴν μάνωσιν καὶ πύκνωσιν ἀναιρεῖσθαι ἔλεγον οὗτοι ἀναιρουμένου τοῦ κενού, ἀλλ' ὅτι εἰ μὴ ἐστὶ κενόν, οὐκ ἐστὶ μάνωσις καὶ πύκνωσις, εἰ δὲ μὴ ἐστὶ μάνωσις καὶ πύκνωσις, ὅπως κίνησις οὐκ ἐστὶ, οὔτε γὰρ ἢ κατὰ τόπον οὔτε ἢ κατὰ ἀξήσιν οὔτε ἢ κατ' ἀλλοίωσιν καὶ γένεσιν· τὴν τε γὰρ κατὰ τόπον οὐκ ἄλλως γίνεσθαι φασὶν ἢ συστέλλομένων καὶ πιλουμένων τῶν σωμάτων καὶ χώραν τοῖς δι' αὐτῶν κινουμένοις παρεχόντων. ὡς περὶ τοῖς διὰ πλήθους βαδίζουσι, <sup>4</sup> καὶ τὰ ἀξανάμενα δὲ καὶ ἐπεκτείνόμενα κατὰ τὸν ὄγκον πικνουμένων ἄλλων καὶ συστέλλομένων εἰς τὰ ἐν αὐτοῖς κενὰ χώραν εἰς τὴν ἐπίδοσιν λαμβάνειν. ἀλλὰ καὶ τὰ γινόμενα μείζονα ἐξ ἐλαττόνων καὶ χώραν μείζονα καταλαμβάνοντα τῷ πιλεῖσθαι καὶ συστέλλεσθαι τινα γίνονται. πύκνωσις δὲ οὐκ ἐστὶ μὴ παρεσπαρμένου κενού τοῖς σώμασιν, ὅπως δὲ μάνωσεως μὴ οὔσης μὴ δύνασθαι τι ἐξ ἐλάττωνος γίνεσθαι μείζον· μάνωσιν δὲ κενὸν χωρὶς μὴ εἶναι διαλαμβάνοντος τὰ σώματα, ἀλλ' οὐδὲ ἀλλοίωσις γένοιτ' ἂν χωρὶς τῆς κατὰ τόπον κινήσεως· δεῖ γὰρ κινήθῃτα πλησιάζει ἀλλήλοις τὸ τε ἀλλοιοῦν καὶ τὸ ἀλλοιούμενον.

257. (D.O). Aristot. Phys. IV, 8, p. 216a 23: οἱ μὲν οὖν οἴονται τὸ κενὸν εἶναι, εἴπερ ἐστὶ ἢ κατὰ τόπον κίνησις, ἀποκρινόμενον καθ' αὐτό. <sup>1</sup> τοῦτο δὲ ταῦτόν ἐστὶ τῷ τὸν τόπον φάναι εἶναι τι κεχωρισμένον. Cf. Simpl. ad loc. 680, 19.

258. (D.D.A 46a). Aristot. De caelo III, 7, p. 305b 12 (*proxime supra*) οἱ μὲν οὖν περὶ Ἐμπεδοκλέα καὶ Δ. commemorantur: τὸ λεπτομερέστερον ἐν πλείονι τόπῳ γίγνεται. φανερόν δὲ τοῦτό γε καὶ ἐν τῇ μεταβάσει· διατριζομένου γὰρ καὶ πνευματομένου τοῦ ὕγρου ῥήγνεται τὰ περιέχοντα τοὺς ὄγκους ἀγγεῖα διὰ τὴν στενωχωρίαν. ὥστ' εἰ μὲν ὅπως μὴ ἐστὶ κενὸν μὴδ' ἐπεκτείνεται τὰ σώματα, καθάπερ φασὶν οἱ ταῦτα λέγοντες, <sup>1</sup> φανερόν τὸ ἀδύνατον. <sup>2</sup> εἰ δ' ἐστὶ κενὸν καὶ ἐπέκτασις, ἄλογον τὸ ἐξ ἀνάγκης ἀεὶ πλείω τόπον ἐπιλαμβάνειν τὸ χωριζόμενον. <sup>3</sup>

259. (D.O). Simpl. in De caelo III, 7, p. 305b 12, p. 634, 4: εἰ δὲ ἐστὶ κενόν, ὡς λέγουσιν οἱ περὶ Δημόκριτον, εἰς ὃ ἢ τῶν σωμάτων ἐπέκτασις γίνονται, ὅσον μὲν ἐπὶ τῷ τόπῳ δυνήσεται ἐπεκτείνεσθαι τὰ σώματα, ἄλογον δὲ τὸ ἐξ ἀνάγκης ἀεὶ τὸ ἕτερον, οἷον τὸν ἀέρα, χωρισθέντα ἐκ τῆς μίξεως πλείονα τόπον ἐπιλαμβάνειν. <sup>1</sup> οὕτω τὴν ἀρχὴν ὁ Ἀλέξανδρος ἐπὶ τοῦ κεχωρισμένου κενού ποιησάμενος τὴν ἐξήγησιν (τοῦτο γὰρ ἂν εἴη τόπος, εἰς ὃν ἢ ἐπέκτασις τοῖς σώμασι γίνονται), ἀνεπισημάντως ἐπὶ τὸ παρεσπαρμένον κενόν μετέβη λέγων· . . κατὰ τίνα γὰρ ἀνάγκην ἢ δύναμιν παρεμπύπτον τοῦτο διίστησι τὰ σώματα καὶ διαιρεῖ; . . . μήποτε δὲ ὁ Ἀριστοτέλης οὐ περὶ τοῦ παρεσπαρμένου κενού λέγει τὸ ὅλον ἐπιχειρήμα· τοῦτο γὰρ κατὰ τοὺς περὶ Δημόκριτον αἰτίων ἐστὶ τῆς τῶν σωμάτων ἐπεκτάσεως. <sup>2</sup> τὸ γὰρ κεχωρισμένον κενὸν αἴτιον μὲν ἐπεκτάσεως οὐκ ἐστὶν, ἐπεκτείνομένοις δὲ χώραν παρέχει, καὶ διὰ τοῦτο οὕτως εἶπεν· «εἰ μὲν ὅπως μὴδὲν ἐστὶ κενόν», μήτε τὸ χωριστὸν μήτε τὸ παρεσπαρμένον, <sup>3</sup> «μήτε ἐπεκτείνεται τὰ σώματα» ὡς οἱ περὶ Δημόκριτον τῇ παρεμπύπτωσι τοῦ κενού ἐπεκτείνεσθαι λέγουσιν αὐτά . . . «φανερόν, φησὶν, τὸ ἀδύνατον . . . εἰ δὲ ἐστὶ», φησί, «τὸ παρεσπαρμένον κενὸν καὶ ἢ ἐπέκτασις», ὡς Δ. βούλεται, ἄλογον τὸ μεμιγμένως μὲν τὰς ἀτόμους μὴ διεληφθῆναι τῷ κενῷ, χωριζόμενας δὲ τοῦτο πάσχειν, καὶ διὰ τοῦτο πλείονα τόπον ἐπέχειν τὸ χωριζόμενον.

260. (D.O). Aristot. Phys. IV, 7, p. 214a 22: ἤκει <sup>1</sup> γὰρ δὴ ἢ κίνησις ἢ κατὰ τόπον . . . τοῖς τὸ κενόν (sc. φάσκουσιν εἶναι τι παρὰ τὰ σώματα τὰ ἐπιπύπτοντα). αἴτιον δὲ κινήσεως οἴονται εἶναι τὸ κενόν οὕτως, ὡς ἐν ᾧ κινεῖται. (VIII, 9, 265b 24) διὰ δὲ τὸ κενὸν κινεῖσθαι φασὶ. <sup>2</sup> Philopon. in Phys. IV, 8, p. 214b 12, p. 630, 13: εἶναι κενόν . . . οἱ περὶ Δ. ἔλεγον . . . οἱ τὸ κενὸν λέγοντες εἶναι αἴτιον αὐτὸ κινήσεως ἔλεγον εἶναι (οὐ γὰρ ἂν εἶναι κίνησιν μὴ ὄντος κενού).

## III. Qua de causa τὸ μὴ ὄν a philosophis admittatur. Τὸ μὴ ὄν vacuum esse. De materia et structura vacui

261. (= № 105a). (D.O). Aristot. Phys. I, 3, p. 187a 1: ἐνοι δ' ἐνέδοσαν τοῖς λόγοις ἀμφοτέροις, τῷ μὲν ὅτι πάντα ἐν, εἰ τὸ ὄν ἐν σημαίνει — ὅτι ἐστὶ τὸ μὴ ὄν . . . (D.L.A 19). Aristot. De caelo I, 7, p. 275b 29: εἰ δὲ μὴ συνεχές τὸ πᾶν, ἀλλ' ὡς περὶ λέγει Δ. καὶ Α., διωρισμένα τῷ κενῷ, μίαν ἀναγκαῖον εἶναι πάντων τὴν κίνησιν. <sup>1</sup> διώριστα μὲν γὰρ τοῖς σχήμασιν· τὴν δὲ φύσιν εἶναι φασὶν αὐτῶν μίαν, ὡς περὶ ἂν εἰ χρυσὸς ἕκαστον εἴη κεχωρισμένον. <sup>2</sup>

262. (D.O).<sup>1</sup> Alex. in Metaph. IV, 5, p. 1009a 6, p. 303, 34: προσιστορεῖ δὲ ὅτι καὶ ὄν μὲν ἔλεγε Δημόκριτος τὸ πλήρες, μὴ ὄν δὲ τὸ κενόν, ἴσως καὶ ἀτοπίαν τινὰ αὐτοῦ δεικνύς τῆς δόξης δι' ὧν ἔλεγεν, εἴ γε τιθέμενος μὴ ὄν εἶναι τὸ κενόν, ἠγούμενος δὲ καὶ μηδὲν γίνεσθαι ἐκ τοῦ μὴ ὄντος, ἐκ τοῦ κενού ἔλεγεν πάντα τὰ γιγνόμενα οὐδὲν ἐλαττον ἢ ἐκ τοῦ πλήρους εἶναι τε καὶ γίνεσθαι, λέγων τὸ κενὸν μὴ ὄν· συνεχώρει γὰρ τὴν γένεσιν ἐκ τοῦ μὴ ὄντος γίνεσθαι, ὃ φύλασόμενος μίξει τὴν γένεσιν ὑπελάμβανε γίνεσθαι.

263. (D.O). Alex. in Metaph. I, 6, p. 988a 11, p. 60, 5: οὐκ ἐμνημόνευσε δὲ (sc. ὁ Ἀριστοτέλης λέγων περὶ τῶν σώμα τὴν ὕλικὴν ἀρχὴν θεμένων) Δευκίππου τε καὶ Δημοκρίτου, καθ' οὓς καὶ σῶμα τι καὶ ἀσώματον ἢ ὕλη· τὸ γὰρ κενὸν οὐ σῶμα. φθάνει δὲ καὶ προειρηθέναι <sup>2</sup> περὶ τούτων. (Idem Alex. in Metaph. I, 7, p. 988a 28, p. 61, 19; Asclep. ad loc. 53, 30).



264. (D.O). Asclep. in Metaph. I, 4, p. 985b 4, p. 33, 9: ('Αριστοτέλης) φησίν, ὅτι στοιχεῖα τῶν ὄντων ὀλίκα ἔλεγον (ὁ Α. καὶ ὁ Δ.) τὰς ἀτόμους καὶ τὸ κενόν... (v. №№ 177, 178).

265. (D.D.A 43). Dion. apud Euseb. Praep. Evang. XIV, 23, 2, 3: οἱ μὲν γὰρ ἀτόμους προσειπόντες... τί χωρίον κενόν μέγεθος ἀπεριόριστον προβαλλόμενοι.

266. (D.O). Simpl. in Phys. IV, cor. de loco, p. 601, 19 (=273 Us.): τῶν δὲ διαστατῶν λεγόντων (τὸ κενόν) οἱ μὲν ἐπὶ δύο διεστῶς ὡς ὁ 'Αριστοτέλης<sup>1</sup> τε καὶ ὁ Περὶπατος ἅπας, οἱ δὲ ἐπὶ τρία, καὶ τούτων οἱ μὲν πάντῃ ἀδιάφορον καὶ ποτε καὶ ἀνευ σώματος μένον ὡς οἱ περὶ Δ. καὶ 'Επίκουρον, οἱ δὲ διάστημα καὶ αἰεὶ σῶμα ἔχον καὶ ἐπιτήθειον πρὸς ἕκαστον ὡς οἱ κλεινοὶ τῶν Πλατωνικῶν καὶ ὁ Δαμψακηνὸς Σπράτων.<sup>2</sup>

267. (D.O). Simpl. in Phys. IV, cor. de loco, p. 618, 16 (=273 Us.): πάλιν δὲ αὐτῶν τὸ κενόν αὐτὸ τιθεμένων οἱ μὲν ἀπειρον εἶναι φασι καὶ ὑπερβάλλον ἀπειρίαι τὰ σώματα καὶ διὰ τοῦτο ἄλλο ἐν ἄλλοις ἑαυτοῦ μέρει καταδεχόμενον, ὡς ἂν ἔτυχεν, εἴπερ μέρη λέγειν ἐπὶ τοῦ ἀπείρου κενοῦ δυνατόν. τοιαύτην δὲ περὶ αὐτοῦ δόξαν ἐσχηκέναι δοκοῦσιν οἱ περὶ Δ. ἀρχαῖοι φυσιολόγοι.

#### IV. Duo genera inanis (τὸ μεταξὺ κενόν et τὸ ἔξω κενόν)

268. (D.O). Themist. in Phys. IV, 6, p. 213a 32, p. 123, 16: παρεσπάρθαι τοῖς σώμασιν αὐτὸ (sc. τὸ κενόν) ... λέγουσι Δ. τε καὶ Α. καὶ ἄλλοι πολλοὶ καὶ 'Επίκουρος (274 Us.) ὕστερον. οὗτοι γὰρ πάντες τὴν τοῦ κενοῦ παρεμπλοκὴν αἰτιῶνται τῆς διαιρέσεως τῶν σωμάτων, ἐπεὶ τὸ γε ἀληθὲς συνεχὲς ἀδιαίρετον κατ' αὐτούς. Porphyg. apud Simpl. in Phys. IV, 6, p. 213a 22, p. 648, 18: ἀχώριστον<sup>1</sup> μὲν γὰρ ἔθεντο ... αὐτὸ (sc. τὸ κενόν) οἱ περὶ τὸν Δ., διόπερ μηδὲ συνεχὲς τὸ πᾶν, μεσολαβουμένων τῶν σωμάτων ὑπὸ τοῦ κενοῦ...

269. (D.O). Philopon. in De anima I, 2, p. 403b 31, p. 67, 18: ὁ δὲ Δ. οὐ συνεχεῖς φησὶν εἶναι τὰς ἀτόμους, ἀλλὰ τῷ κενῷ διείρησθαι...

270. (D.O). Philopon. in Phys. IV, 7, p. 214a 22, p. 613, 21: καὶ τοῦτο (sc. τὸ κενόν) ... ἐγκατεσπαρμένον ἐν τοῖς σώμασι καὶ κωλύον αὐτὰ συνεχῆ εἶναι, ὡς περ ἔλεγον οἱ περὶ Δημόκριτον καὶ Λεούκιππον... (24) ἔξω δὲ τοῦ οὐρανοῦ<sup>1</sup> εἶναι κενόν τι κατ' αὐτό...<sup>2</sup> Simpl. in Phys. IV, 6, p. 213a 22, p. 648, 11 (=274 Us.): ἐκεῖνοι γὰρ ἔλεγον ἐνεργεῖαι τι τοιοῦτον εἶναι διάστημα, ὃ μεταξὺ τῶν σωμάτων ὑπάρχον οὐκ ἔστι συνεχῆ εἶναι τὰ σώματα, ὡς οἱ περὶ Δ. καὶ Λεούκιππον ἔλεγον, οὐ μόνον ἐν τῷ κόσμῳ κενόν εἶναι τι λέγοντες, ἀλλὰ καὶ ἔξω τοῦ κόσμου, ὅπερ δήλον ὅτι τόπος μὲν οὐκ ἂν εἴη, αὐτὸ δὲ κατ' αὐτὸ ὑφέστηκε. ταύτης δὲ τῆς δόξης γέγονε καὶ Μητροδόωρος ὁ Χίος ... ὕστερον δὲ καὶ 'Επίκουρος.

#### e. DE QUATTUOR ELEMENTIS

##### I. De conformatione quattuor elementorum

271. (D.D.A 1). Diog. IX, 44: δοκεῖ δὲ αὐτῷ (Democrito) τάδε ... τὰς ἀτόμους ... φέρεσθαι ... καὶ οὕτω πάντα τὰ συγκρίματα γενῶν πῦρ, ὕδωρ, ἀέρα, γῆν.<sup>1</sup> εἶναι γὰρ καὶ ταῦτα ἔξ ἀτόμων τινῶν συστήματα.

272. (D.O). Simpl. in De caelo III, 1, p. 299a 2, p. 565; v. № 171): τῶν τεσσάρων στοιχείων φασὶν ὑφιστάσθαι ἀρχαιοδέστερα στοιχεῖα. Sophon. in De anima paraphr. I, 1, p. 403b 15, p. 11, 2: (Δ.) ὠρίζετο ... ἄτομοι γὰρ καὶ κενόν κατ' αὐτὸν τῶν φυσικῶν σωμάτων καὶ πρώτων τῶν τεσσάρων δηλαδὴ στοιχείων ἀρχαί, ὡς περ ταῦτα τῶν ἔξ αὐτῶν καὶ συνθέτων οὕτω δὲ καὶ Α. τίθεται. Lact. De ira dei 10, 4 (p. 85, 2 Brandt): Quattuor elementis constare omnia philosophi veteres disserebant; ille (D.) noluit, ne alienis vestigiis videretur insistere. Sed ipsorum elementorum alia voluit esse primordia, quae nec videri possent, nec tangi, nec ulla corporis parte sentiri.

#### II. Quibus primordiis unumquidque quattuor elementorum constet

273. (D.O). Simpl. in Phys. I, 2, p. 184b 15, p. 35, 22: οἱ δὲ περὶ τὸν Λεούκιππον τε καὶ Δ. καὶ τὸν Πυθαγορικὸν Τίμαιον οὐκ ἐναντιοῦνται μὲν πρὸς τὸ τὰ τέτταρα στοιχεῖα τῶν συνθέτων εἶναι σωμάτων ἀρχάς, καὶ οὗτοι δέ, ὡς περ οἱ Πυθαγόρειοι καὶ Πλάτων καὶ 'Αριστοτέλης, ὀρῶντες εἰς ἄλλα μεταβάλλοντα τὸ πῦρ καὶ τὸν ἀέρα καὶ τὸ ὕδωρ, ἴσως δὲ καὶ τὴν γῆν, ἀρχαιοδέστερά τινα τούτων καὶ ἀπλοῦστερα ἐξήτουν αἰτία, δι' ὧν καὶ τὴν κατὰ τὰς ποιότητάς τῶν στοιχείων τούτων διαφορὰν ἀπολογήσονται. Sequitur post ratiocinationem de eis quae sunt apud Platonem ἐπίπεδα βάθος τι ἔχοντα στοιχεῖα, № 247.

274. (D.D.A 60a).<sup>1</sup> Aristot. De caelo III, 4, p. 303a 25: ἀδύνατον γὰρ ἀτόμων ὄντων τῶν στοιχείων μεγέθει καὶ μικρότητι διαφέρειν ἀέρα καὶ γῆν καὶ ὕδωρ· οὐ γὰρ οἶόν τ' ἔξ ἀλλήλων γίνεσθαι· ὑπολείπει γὰρ αἰεὶ τὰ μέγιστα σώματα ἐκκρινόμενα, φασὶ δ' οὕτω γίνεσθαι ὕδωρ καὶ ἀέρα καὶ γῆν ἔξ ἀλλήλων. Themist. ad loc. 179, 37; Simpl. ad loc. 612, 26: εἰ γὰρ ἔξ ὕδατος γῆν λέγουσι γίνεσθαι τῶν ἐν τῷ ὕδατι μεγίστων ἐκκρινόμενων, ἐπειδὴ δυνατόν ποτε ἀπὸ τοῦ ὕδατος πάντων ἐκκρινέντων τῶν μεγίστων καὶ ἀπὸ τοῦ ἀέρος ὁμοίως ἐπιλείπει τὴν τῶν μεγίστων ἐκκρίσιν, ἐπιλείπει καὶ ἡ τῆς γῆς ἀπὸ τοῦ ὕδατος καὶ ἡ τοῦ ὕδατος ἀπὸ τοῦ ἀέρος γένεσις, ὥστε εἶναι τι ὕδωρ, ἀφ' οὗ μὴ δυνατόν γῆν γένεσθαι, καὶ ἀέρα ἔξ οὗ μηκέτι ὕδωρ ἂν γένοιτο... εἰ δὲ τὰ μικρότερα ἐκκρινόμενα ἐπιλείπει, οὐκέτι ἀπὸ τῆς γῆς ὕδωρ οὔτε ἀπὸ τοῦ ὕδατος ἀήρ γενήσεται· καίτοι καὶ πᾶν μέρος ὕδατος εἰς ἀέρα μεταβάλλον ὀρῶμεν καὶ πᾶν μέρος ἀέρος εἰς ὕδωρ. εἰ δὲ τὸ πῦρ ἐκ μόνων σφαιροειδῶν σύγκειται,<sup>2</sup> τὰ δὲ ἄλλα ἐκ πάντων, οὔτε ἄλλο τι ἐκ πυρὸς γενήσεται οὔτε ἔξ ἄλλων αἰεὶ πῦρ (v. № 276).

275. (D.L.A 15). Aristot. De caelo III, 4, p. 303a 12: ποῖον δὲ καὶ τί ἐκάστου τὸ σχῆμα τῶν στοιχείων, οὐδὲν ἐπιδιώρισαν, ἀλλὰ μόνον τῷ πυρὶ τὴν σφαιρικὴν ἀπέδωκαν· ἀέρα δὲ καὶ ὕδωρ καὶ τὰλλα μεγέθει καὶ μικρότητι διεῖλον, ὡς οὖσαν αὐτῶν τὴν φύσιν οἶον πανσπερμίαν πάντων τῶν στοιχείων. Simpl. ad loc. 610, 18: οἱ δὲ μόνου τοῦ πυρὸς καὶ τῶν γεννητικῶν αὐτοῦ ἀτόμων σφαιρικὸν εἶπον τὸ σχῆμα· διὸ καὶ εὐλόγως αὐτὸ διαδύσεσθαι καὶ κινεῖσθαι τε καὶ κινεῖν καὶ διαιρεῖν, καὶ καίειν τὰ οἷς ἂν πλησιάσῃ διὰ τε τὴν περιφέρειαν καὶ λειότητά καὶ προσέτι τὴν μικρότητα τῶν στοιχείων... ἐκ μὲν μικροτέρων τῶν αὐτῶν (sc. τῶν στοιχείων) κατὰ τὸ σχῆμα ἀέρα λέγοντες, ἐκ δὲ μειζόνων ὕδωρ, ἐκ δὲ ἐτι μειζόνων γῆν, οὐκέτι κατὰ τὸ σχῆμα διαφερόντων, ἀλλ' ἐκ παντοδαπῶν σχημάτων καὶ τῶν αὐτῶν ἐκάστου τούτων γινόμενου... Simpl. in De caelo III, 5, p. 304b 6, p. 625, 1: οἱ περὶ Δ. τὰ τρία, ἀέρα καὶ ὕδωρ καὶ γῆν, τῇ μικρότητι τῶν στοιχείων ὁμοιοσχημῶν ὄντων διαφέρειν ἔλεγον.<sup>1</sup> Themist. in De caelo III, 4, p. 303a 12, p. 178, 28: Neque figuram aliquam, quae innovatur, unicuique elementorum tribuunt, quemadmodum ii qui igni figuram pyramidalem tribuunt, dicuntque terram eius figurae similitudinem repraesentare, quae cubus appellatur, reliquis vero duas alias figuras accommodant; siquidem ambo (L. et D.) igni modo tribuunt figuram, videlicet sphaericam, quoniam continui motus ac partium admodum tenuium existit, et ob hanc causam immergitur<sup>2</sup> ac omne permeat corpus, quoniam caret angulis, neque etiam a re aliqua prohibetur; atqui aeri, aquae et terrae nullam propriam tribuunt figuram. Neque etiam eiusmodi elementa nisi magnitudine inter se distinguuntur; terrae namque elementa aquae, necnon aquae elementa aeris elementis magnitudine praevalent. Secundum figuram autem eadem omnium ratio est; nihil enim eorum, quodcumque est, ex aliqua figura particulari, sed ex omnibus figuris quasi generatio ex semine confuso<sup>3</sup> generatur. Themist. ad loc. 179, 38: <sup>4</sup> Siquidem aiunt terram, aquam, aera et ignem alia ex aliis oriri, dum individua magna a parvis segregantur, distinguuntur ac separantur et ex contrario; sed hoc quidem modo alia ex aliis sic tantummodo oriri possunt, quatenus, dum magna dividuntur, parva ex illis efficiuntur. Exempli gratia, dicunt terram differre ab aqua non quia individua, ex quibus unaquaeque earum perficitur, figura differant inter se, cum individuorum, ex quibus unaquaeque earum innovatur, quaevis forma profecto eadem sit, sed differunt ex eo, quod individua, ex quibus terra ac

eius formae perficiuntur, secundum se magna existunt, individuorum autem, ex quibus terra<sup>a</sup> perficitur, multa quidem in aqua inveniuntur, at individuorum ex quibus terra perficitur, longe plura in terra deprehenduntur. Dicuntque ex terra in aquam secretionem, divisione ac segregatione individuorum, quae terram innovant, vel omnium vel plurimorum, fieri transmutationem, ac terram etiam ex aqua fieri secretionem, divisione ac segregatione individuorum, quae aquam constituunt, vel omnium vel plurimorum. Si enim individuum dividuum extitisset, quod in partes dividi non potest, per sui ipsius partes incrementum et defectum magnitudine admitteret; quare ex eis aqua innovabitur ea ratione qua magna parva efficiuntur, terra autem, secundum quod magna revertuntur. Cum autem magnitudine transmutationem non admittat, omnino quidem contingit, ut alterum deficiat, vel terra, vel aqua, nec ex iis, quae terram constituunt, aqua vel ex iis, quae aquam efficiunt, terra fiet, cum haec duo iuxta eorum sententiam alterum ex altero orientur. Haec enim duo, videlicet alia ex aliis oriri ac ea individua esse, sibi invicem adversantur. Cum autem <non><sup>b</sup> modum explicasset, quo individua vicissim alia ex aliis oriri <sed quo><sup>c</sup> aliud ex alio effici assertunt (hac nempe ratione,<sup>d</sup> quod maiora vel minora sunt). huic sane aliud quaesitum adiunxit atque inquit, quam ratione vicissim alia <individua><sup>e</sup> ex aliis orientur. Cum autem se illis opposuisset, ac illo altero quidem modo eos reiecisset, secundum quem aliquid per individua ipsa generari dicunt (quatenus nempe maiora vel minora efficiuntur), cum hoc sane refellit alia ex aliis vicissim generari. Iuxta vero eorum sententiam modus, quo aliud ex alio fit, alter est, quatenus aliud etiam per segregationem et secretionem invenitur; siquidem hac ratione dicitur ex eo, quod medicina concoquitur, hac de causa aliud efficitur, ut cum tenuiores vini partes ab igne resolvuntur, quod reliquum vini est, defrutum efficitur. Atque in universum sive hoc modo res se habeat, sive alio, convenit, ut in suffragium eorum convertatur, ex eo, quod eo modo, quo ipsi loquuntur, eodem sane referre deberet, ut res contra se habeat, et non per equivocacionem<sup>f</sup> sermonem illorum refellere.

276. (D.O). Simpl. in De caelo III, 7, p. 305a 33, p. 632, 16: καὶ Δ. τὰ ἐαυτοῦ στοιχεῖα τὰς ἀτόμους ἐξ ἀλλήλων γίνεσθαι λέγει ὡς ἀποκρινόμενας ἀπὸ τοῦ μίγματος.<sup>1</sup> ὕδατος γὰρ διαλυομένου ἀποκρινόμενα αἱ ἀτομοὶ εἰς ἀέρα συνίστανται τοιαύτως συμπλακείσθαι. οὗτοι οὖν ... ἐνυπάρχον ἕκαστον τῶν παρ' αὐτοῖς στοιχείων κατ' ἐνέργειαν ἐκκρίνεσθαι φασί...

277. (D.O). Aristot. De sensu 4, p. 441a 4: ... ἀνάγκη δ' ἢ ἐν αὐτῷ τὸ ὕδωρ ἔχειν τὰ γένη τῶν χυμῶν ἀναίσθητα διὰ μικρότητα,<sup>1</sup> καθάπερ Ἐμπροδοκλῆς φησιν, ἢ ὕλην τοιαύτην ἐνεῖναι οἷον πανσπερμίαν χυμῶν, καὶ ἅπαντα μὲν ἐξ ὕδατος γίνεσθαι, ἄλλα δ' ἐξ ἄλλου μέρους... (18) ὁμοίως δὲ καὶ τὸ πανσπερμίας εἶναι τὸ ὕδωρ ὕλην ἀδύνατον ἐκ τοῦ αὐτοῦ γὰρ ὁρῶμεν ὡς ἐκ τῆς αὐτῆς τροφῆς γινομένους ἑτέρους χυμούς. Alex. ad loc. 68, 24: εἴη δ' ἂν διὰ τούτων μνημονεύσας τῆς δόξης τῶν περὶ Δ., οἱ τὰς ἀτόμους στοιχεῖα πάντων ἔθεντο. *Alia testimonia circa πανσπερμίαν v. №№ 140—142, 280.*

278. (D. 30 A 5). [Aristot.] De Mel., Xenoph., Gorgia (περὶ Μελίσσου) 2, 11, p. 975b 27: φησὶ δὲ καὶ ὁ Δ. τὸ ὕδωρ τε καὶ τὸν ἀέρα ἕκαστον τε τῶν πολλῶν, ταῦτό<sup>a</sup> ὄν, ῥυθμῶι διαφέρειν.<sup>1</sup>

279. (D.O).<sup>1</sup> Philopon. in Phys. II, 2, p. 194a 15, p. 229, 1: τὰς μὲν γὰρ σφαιρικὰς (sc. ἀτόμους) εἰδοποιεῖν τὸ πῦρ, τὸ δὲ ὕδωρ τυχὸν τὰς κυβικὰς, καὶ ἄλλο ὑπ' ἄλλων σχημάτων εἰδοποιεῖσθαι. Philopon. in De gen. et corr. I, 1, p. 314a 21, p. 12, 31: κατὰ Δ. οὐ γὰρ ἐκ τῶν αὐτῶν ἀτόμων πῦρ καὶ γῆ, ἄλλα πῦρ μὲν ἐκ σφαιρικῶν, γῆ δὲ οὐκ ἐκ τοιαύτων, κυβικῶν δὲ τυχόν.

280. (D.D.A 135).<sup>1</sup> Theophr. De sensu 67 (Dox. 513): (Δ.) ... ἀπάντων δὲ τῶν σχημάτων οὐδὲν ἀκέραιον εἶναι καὶ ἀμιγῆς τοῖς ἄλλοις, ἀλλ' ἐν ἑκάστῳ (sc. χυμῶι) πολλὰ εἶναι... οὐ δ' ἂν ἐντῆι πλεῖστον, τοῦτο μάλιστα ἐνισχύσειν πρὸς τε τὴν αἰσθησίν καὶ τὴν δύναμιν.

281. (D.D.B 152).<sup>1</sup> Plut. Quaest. conv. IV, 2, 4, p. 665 F: τὸ κεραόνιον πῦρ ἀκριβείαι καὶ λεπτότητι θαυμαστόν ἐστιν, αὐτόθεν τε τὴν γένεσιν ἐκ καθαρᾶς καὶ ἀγνῆς ἔχον οὐσίας καὶ πᾶν εἴ τι συμμίγνυται νοσηρόν ἢ γεῶδες αὐτῷ τῆς περὶ τὴν κίνησιν ὀξύτητος ἀποσειομένης καὶ διακαθαίρουσας. «διόβλητον μὲν οὐδὲν, ὡς φησὶ Δ., <τὰ δὲ><sup>b</sup> παρ' αἰθρίας στέγει <εὐαγῆς><sup>a, b</sup> σέλας».

## D. MECHANICA ET COSMOGONICA

### a. DE MOTUS ET TEMPORIS NATURA

282. (D.O).<sup>1</sup> Aristot. De sensu 3, p. 440a 20 (*plenius № 483*): ἐπὶ μὲν οὖν τῶν παρ' ἄλληλα κειμένων<sup>2</sup> ἀνάγκη ὥσπερ καὶ μέγεθος λαμβάνειν ἀόρατον, οὕτω καὶ χρόνον ἀναίσθητον, ἵνα λάθωσιν αἱ κινήσεις ἀφικνούμεναι καὶ ἐν δοκῆι εἶναι διὰ τὸ ἅμα φαίνεσθαι... (30) ὅτι γὰρ οὐκ ἐστὶν οὐδὲν μέγεθος ἀόρατον, ἐν τοῖς ὕστερον ἐπισκοπετέον. εἰ δ' ἐστὶ μίξις τῶν σωμάτων, μὴ μόνον τὸν τρόπον τοῦτον, ὅνπερ οἴονται τινες, παρ' ἄλληλα τῶν ἐλαχίστων τιθεμένων, ἀδήλων δ' ἡμῖν διὰ τὴν αἰσθησίν. Alex. ad loc. 56, 13: ... τοιοῦτοι δὲ ἦσαν οἱ τε περὶ Δεῦκιππον καὶ Δ., οἱ καὶ ἐκ τῆς τῶν ἀοράτων διὰ μικρότητα παραδέσεως τὴν τῶν μεταξὺ χρωμάτων φαντασίαν ἐποιοῦν... (60, 8) πᾶσι μὲν οὖν τοῖς οὕτω τὸ ὄραν γίνεσθαι ἀναίσθητων χρόνων χρεῖα τοῖς δὲ καὶ τὴν τῶν χρωμάτων διαφορὰν τῆι τῶν ἀναίσθητων σωμάτων παραδέσει ἀνατιθεῖσιν... οὐ... μόνον ἀναίσθητα μεγέθη... ἀνάγκη λέγειν, ἀλλὰ καὶ χρόνους ἀναίσθητους. δύναται καὶ ὡς ἰδίως ἐπόμενον<sup>3</sup> τὸ δεῖν λέγειν ἀναίσθητους χρόνους εἶναι τοῖς καὶ τῆι τῶν σωμάτων κατὰ μικρὰ παραδέσει τὴν τῶν χρωμάτων διαφορὰν ἀνατιθεῖσιν εἰρηκέναι, οὕτως δ' ἅμα πολλὰ <ὄντα <τὰ> ὁρώμενα ὡς ἐν ὄφθαλμῷ, εἰ λανθάνοι ἢ ἀφ' ἑκάστου αὐτῶν ἀπόρροια καθ' αὐτὴν ἐπιπίπτουσα τοῖς ὄφθαλμοῖς καὶ δοκεῖ ὡς μία ἅπαξ καὶ <ἀφ' ἑνός> τοῦ ὁρώμενου γίνεσθαι. August. Ad Diosc. CXVIII, 30 (P.L. 33, p. 446) (*de Democrito*): Cum autem quaeritur ab eis, quare una imago videatur corporis alicuius, a quo innumerabiliter imagines fluunt; respondent, eo ipso quo frequenter fluunt et transeunt imagines, quasi quadam earum constipatione et densitate fieri ut ex multis una videatur...

283. (D.O). Aristot. Phys. VI, 1, p. 231a 24: ἀδύνατον ἐξ ἀδιαιρέτων εἶναι τι συνεχές· οἷον γραμμὴν ἐκ στιγμῶν... οὐ γὰρ ἐστὶ τὸ μὲν ἔσχατον, τὸ δ' ἄλλο τι μῦρον τοῦ ἀδιαιρέτου... οὐ γὰρ ἐστὶν ἔσχατον οὐδὲν τοῦ ἀμεροῦς... ὁ δ' αὐτὸς λόγος καὶ ἐπὶ πάντων τῶν ἀδιαιρέτων... ἀλλὰ μὴν οὐδὲ ἐφεξῆς ἐστὶ στιγμὴ στιγμῆ, ἢ τὸ νῦν τῷ νῦν, ὥστ' ἐκ τούτων εἶναι τὸ μήκος ἢ τὸν χρόνον... τοῦ δ' αὐτοῦ λόγου<sup>1</sup> καὶ μέγεθος, καὶ χρόνον, καὶ κίνησιν ἐξ ἀδιαιρέτων συγκείσθαι, καὶ διαιρεῖσθαι «εἰς ἀδιαιρέτα ἢ μηθέν».<sup>2</sup> δῆλον δὲ ἐκ τῶνδε· εἰ γὰρ τὸ μέγεθος ἐξ ἀδιαιρέτων συγκείται, καὶ ἡ κίνησις ἢ τοῦτου ἐξ ἴσων κινήσεων ἐστὶ ἀδιαιρέτων· οἷον εἰ τὸ ΑΒΓ ἐκ τῶν Α, Β, Γ ἐστὶν ἀδιαιρέτων, ἢ κινήσις, ἐφ' ἧς ΔΕΖ, ἢ ἐκινήθη τὸ Ο ἐπὶ τῆς ΑΒΓ διαστάσεως ἕκαστον μέρος ἔχει ἀδιαιρέτων... (p. 232a 6) εἰ δὲ τὴν μὲν ὅλην τὴν ΑΒΓ κινεῖται τι, καὶ ἡ κίνησις, ἢ κινεῖται, τὰ ΔΕΖ ἐστὶ, τὴν δὲ ἀμερῆ, τὴν Α, οὐδὲν κινεῖται, ἀλλὰ κεινῆται, εἴη ἂν ἡ κίνησις οὐκ ἐκ κινήσεων, ἀλλ' ἐκ κινήσεων καὶ τὸ κεινῆσθαι τι μὴ κινούμενον· τὴν γὰρ Α διεκλήθη οὐ διεκλήθη. ὥστε ἐστὶ τι βεβαδικέναι μὴδὲ ποτε βαδίξον· ταύτην γὰρ βεβαδικέναι οὐ βαδίξον ταύτην... ὁμοίως δὲ ἀνάγκη τῷ μήκει καὶ τῆι κινήσει ἀδιαιρέτων εἶναι τὸν χρόνον καὶ συγκείσθαι ἐκ τῶν νῦν, ὄντων ἀδιαιρέτων. (VI, 6, p. 237a 12)<sup>3</sup> εἰ τὸ συνεχές μεταβάλλον καὶ μὴ φθαρὲν μὴδὲ πεπαυμένον τῆς μεταβολῆς ἢ μεταβάλλειν ἢ μεταβεβληκέναι ἀναγκαῖον ἐν ὄνωσιν, ἐν δὲ τῷ νῦν οὐκ ἐστὶν μεταβάλλειν, ἀνάγκη μεταβεβληκέναι καθ' ἕκαστον τῶν νῦν· ὥστ' εἰ τὰ νῦν ἄπειρα, πᾶν τὸ μεταβάλλον ἄπειρα ἐστὶ μεταβεβληκός. οὐ μόνον δὲ τὸ μεταβάλλον ἀνάγκη μεταβεβληκέναι, ἀλλὰ καὶ τὸ μεταβεβληκός ἀνάγκη μεταβάλλειν πρότερον· ἅπαν γὰρ τὸ ἐκ τινος εἰς τι μεταβεβληκός ἐν χρόνῳ μεταβεβληκέναι. ἔστω γὰρ ἐν τῷ νῦν ἐκ τοῦ Α εἰς τὸ Β μεταβεβληκός, οὐκαθ' ἐν μὲν τῷ αὐτῷ νῦν ἐν τῷ ἔστιν ἐν τῷ Α, οὐ μεταβεβληκέναι... εἰ δ' ἐν ἄλλοι, μεταξύ ἐστὶ χρόνος· οὐ γὰρ ἦν ἐχόμενα τὰ νῦν. ἐπεὶ οὖν ἐν χρόνῳ μεταβεβλη-



ὁμοια. (44) τὰς ἀτόμους ... ἀπείρους εἶναι κατὰ μέγεθος καὶ πλῆθος, φέρεσθαι δ' ἐν τῷ ὅλῳ δινουμένως.

290. (D.D.A 83). Sext. Adv. math. IX, 113: ὥστε κατ' ἀνάγκην μὲν καὶ ὑπὸ δίνης, ὡς ἔλεγον οἱ περὶ τὸν Δημόκριτον, οὐκ ἂν κινῶτο ὁ κόσμος.

291. (D.L.A 10). Hippol. Refut. I, 12, 2 (Dox. 564, 16 W.): Δ. ... κόσμους δὲ <ᾧδε> γενέσθαι λέγει· ὅταν εἰς μέγα κενὸν ἐκ τοῦ περιέχοντος ἀδροισθῆι πολλά σώματα καὶ συρρῶντι, προσκρούοντα ἀλλήλοις συμπλέκεσθαι τὰ ὁμοιοσχημόνα καὶ παραπλήσια τὰς μορφάς, καὶ περιπλεχθέντων εἰς ἕτερα <μετακοσμηθῆναι καὶ ἕτερα> γίνεσθαι. αὐξίνει<sup>1</sup> δὲ καὶ φθίνειν διὰ τὴν ἀνάγκην. Epicur. Epist. II (Diog. X, 88 sqq. = p. 37 sq. Us.):<sup>2</sup> κόσμος ἐστὶ περιοχὴ τις οὐρανοῦ ... ἀποτομῆν ἔχουσα ἀπὸ τοῦ ἀπείρου ... ὅτι δὲ καὶ τοιοῦτος κόσμος εἰσὶν ἄπειροι τὸ πλῆθος, ἐστὶ καταλαβεῖν, καὶ ὅτι καὶ ὁ τοιοῦτος δύναται κόσμος γίνεσθαι καὶ ἐν κόσμῳ καὶ μετακοσμίῳ ὁ λέγομεν μεταξὺ κόσμων διάστημα ἐν πολυκένῳ τόπῳ καὶ οὐκ ἐν μεγάλῳ καὶ εἰλικρινεῖ κενῷ, καθάπερ τινές φασιν ... οὐ γὰρ ἀθροισμὸν δεῖ μόνον γενέσθαι οὐδὲ δῖνον ἐν ᾧ ἐνδὲχεται κόσμον γίνεσθαι κενῷ κατὰ τὸ δοξαζόμενον ἐξ ἀνάγκης, αὐξεσθαι τε, ἕως ἂν ἑτέρῳ προσκρούσῃ, καθάπερ τῶν φυσικῶν καλουμένων φησί τις.

292. (D.L.A 15).<sup>1</sup> Aristot. De caelo III, 4, p. 303a 4: οὐδ' ὡς ἑτεροὶ τινες λέγουσιν, οἷον Δ. τε καὶ Δ. ὁ Ἀβδηρίτης, εὐλογα τὰ συμβαίοντα· φασὶ γὰρ εἶναι τὰ πρῶτα μεγέθη πλῆθει μὲν ἄπειρα, μεγέθει δὲ ἀδιαιρέτα, καὶ οὐτ' ἐξ ἑνὸς πολλὰ γίνεσθαι οὔτε ἐκ πολλῶν ἐν, ἀλλὰ τῆι τούτων συμπλοκῇ καὶ ἐπαλλάξει<sup>2</sup> πάντα γενεῶσθαι. Simpl. ad loc. 609, 25: τὴν δὲ συμπλοκὴν Ἀβδηρίται «ἐπάλλαξιν» ἐκάλουν, ὡς περὶ Δημόκριτος.

293. (D.D.A 37). Aristot. apud Simpl. in De caelo I, 10, p. 279b 12, p. 295, 8: «Δ. ... ἐκ τούτων (sc. τῶν ἀτόμων) οὖν ἤδη καθάπερ ἐκ στοιχείων γενεῶν καὶ συγκρίνει τοὺς ὀφθαλμοφανεῖς καὶ τοὺς αἰσθητοὺς ὄγκους. στασιάζειν δὲ καὶ φέρεσθαι ἐν τῷ κενῷ διὰ τε τὴν ἀνομιότητα καὶ τὰς ἄλλας εἰρημνένας διαφοράς, καὶ ἐπιπίπτειν καὶ περιπλέκεσθαι περιπλοκῇ τοιαύτην, ἢ συμφύσειν μὲν ἀπὸ τῆς πλῆθους ἀλλήλων εἶναι ποιεῖ, φύσιν μὲντοι μίαν ἐξ ἐκείνων κατ' ἀλήθειαν οὐδ' ἠντιναοῦν γενεῶν. κομιδῆ γὰρ εὐρηθεῖς εἶναι τὸ δύο ἢ τὰ πλείονα γενέσθαι ἂν ποτε ἐν. τοῦ δὲ συμμένειν τὰς οὐσίας μετ' ἀλλήλων μέχρι τινὸς αἰτιᾶται τὰς ἐπαλλαγὰς καὶ τὰς ἀντιλήψεις τῶν σωμάτων· τὰ μὲν γὰρ αὐτῶν εἶναι σκαληνά, τὰ δὲ ἀγκυρῶδη, τὰ δὲ κοίλα, τὰ δὲ κυρτά, τὰ δὲ ἄλλα ἀναριθμούς ἔχοντα διαφοράς· ἐπὶ τοσοῦτον οὖν χρόνον σφῶν αὐτῶν ἀντέχεσθαι νομίζει καὶ συμμένειν, ἕως ἰσχυροτέρα τις ἐκ τοῦ περιέχοντος ἀνάγκη παραγενομένη διασείσῃ καὶ χωρὶς αὐτὰς διασπείρῃ».

294. (D.L.A 6). Alex. in Metaph. I, 4, p. 985b 4, p. 36, 21: λέγει μὲν περὶ Δ. τε καὶ Δ.· οὗτοι γὰρ λέγουσιν ἀλληλοτυπούσας καὶ κρουόμενας πρὸς ἀλλήλας κινεῖσθαι τὰς ἀτόμους.<sup>1</sup> Philopon. in De anima I, 4, p. 409a 10, p. 167, 20: τὴν ὑπόθεσιν Δημοκρίτου ... ἔλεγον αὐτὰ κινεῖσθαι ... διὰ τὸ πλῆθος αὐτῶν τῆι ἀντιθέσει τῆι πρὸς ἀλλήλα.

295. (D.L.A 14). Simpl. in De caelo I, 7, p. 275b 29, p. 242, 21: ταύτας δὲ τὰς ἀτόμους ἐν ἀπείρῳ τῷ κενῷ κεχωρισμένας ἀλλήλων καὶ διαφερούσας σχήμασι τε καὶ μεγέθεσι καὶ θέσει καὶ τάξει φέρεσθαι ἐν τῷ κενῷ καὶ ἐπικαταλαμβάνουσας ἀλλήλας συγκρούεσθαι καὶ τὰς μὲν ἀποπάλλεσθαι, ὅπῃ ἂν τύχῃσιν, τὰς δὲ περιπλέκεσθαι ἀλλήλαις κατὰ τὴν τῶν σχημάτων καὶ μεγεθῶν καὶ θέσεων καὶ τάξεων συμμετρίαν καὶ συμμένειν<sup>1,2</sup> καὶ οὕτως τὴν τῶν συνθέτων γένεσιν ἀποτελεῖσθαι.

296. (D.O.). Themist. in De caelo III, 2, p. 300b 8, p. 161, 16: Leucippi et Democriti sequaces, siquidem ponunt insectilia vi adinvicem in inanitate moveri<sup>1</sup> (cf. № 304: Aristot. De caelo III, 2, p. 300b 8).

297. (D.L.A 24). [Plut.] Plac. I, 4, 1 = Aët. I, 4 (Dox. 289):<sup>1</sup> ὁ τοίνυν κόσμος συνέστη περικεκλασμένῳ σχήματι· ἐσχηματισμένους τὸν τρόπον τούτων τῶν ἀτόμων σωμάτων ἀπρονόητον καὶ τυχαίαν ἔχόντων τὴν κίνησιν συνεχῶς τε καὶ τάχιστα κινουμένων, εἰς τὸ αὐτὸ πολλὰ σώματα συνηθροίσθη [καὶ] διὰ τοῦτο ποικιλίαν ἔχοντα καὶ σχημάτων καὶ μεγεθῶν.

298. (D.D.A 49). Galen. De elem. sec. Hipp. I, 2 (I, 417 K.; 3, 20 Helmr.): ὁ Δ. φησὶ ... φερόμενα ταῦτα τὰ σώματα ἄνω τε καὶ κάτω σύμπαντα διὰ παντός τοῦ αἰῶνος ἢ περιπλέκεται πως ἀλλήλοις ἢ προσκρούει καὶ ἀποπάλλεται, καὶ διακρίνει δὲ

καὶ συγκρίνει πάλιν εἰς ἀλλήλα κατὰ τὰς τοιαύτας ὁμιλίας καὶ τούτου τὰ τε ἄλλα συγκρίματα πάντα ποιεῖ καὶ τὰ ἡμέτερα σώματα καὶ τὰ παθήματα αὐτῶν καὶ τὰς αἰσθήσεις.<sup>1</sup>

299. (D.D.A 43). Dion. apud Euseb. Praep. Evang. XIV, 23, 2, 3: ταύτας δὲ φασὶ (Ἐπίκουρος καὶ Δ.) τὰς ἀτόμους ὡς ἔτυχεν ἐν τῷ κενῷ φερομένας ἀτομάτως τε συμπιπτούσας ἀλλήλαις διὰ ῥύμην ἄτακτον καὶ συμπλεκόμενας διὰ τὸ πολυσχημόνας οὐσας ἀλλήλων ἐπιλαμβάνεσθαι,<sup>1</sup> καὶ οὕτω τὸν τε κόσμον καὶ τὰ ἐν αὐτῷ, μᾶλλον δὲ κόσμους ἀπείρους ἀποτελεῖν.

300. (D.O.). Aristot. Phys. VIII, 1, p. 250b 11: πότερον δὲ γέγονε ποτε κίνησις οὐκ οὐσα πρότερον, καὶ φθείρεται πάλιν οὕτως ὥστε κινεῖσθαι μηδὲν, ἢ οὐτ' ἐγένετο οὐτε φθείρεται, ἀλλ' αἰεὶ ἦν καὶ αἰεὶ ἔσται, καὶ τοῦτ' ἀθάνατον καὶ ἀπαυστον ὑπάρχει τοῖς οὐσιν, οἷον ζωὴ<sup>2</sup> τις οὐσα<sup>1</sup> τοῖς φύσει συνεστῶσι πᾶσιν; εἶναι μὲν οὖν κίνησιν πάντες φασὶν οἱ περὶ φύσεως τι λέγοντες διὰ τὸ κοσμοποιεῖν καὶ περὶ γένεσεως καὶ φθορᾶς εἶναι τὴν θεωρίαν πᾶσαν αὐτοῖς, ἢν ἀθάνατον ὑπάρχειν μὴ κινήσεως οὐσης, ἀλλ' ὅσοι μὲν ἀπείρους τε κόσμους εἶναι φασὶ, καὶ τοὺς μὲν γίνεσθαι τοὺς οὐσας, ἀλλ' ὅσοι μὲν ἀπείρους τε κόσμους εἶναι φασὶ (ἀναγκαῖον γὰρ τὰς γενέσεις καὶ δὲ φθείρεσθαι τῶν κόσμων, αἰεὶ φασὶν εἶναι κίνησιν (ἀναγκαῖον γὰρ τὰς γενέσεις καὶ τὰς φθοράς εἶναι μετὰ κινήσεως αὐτῶν). Simpl. ad loc. 1120, 18: «κοσμοποιεῖν» οὐστάσιν αὐτοῦ διὰ κινήσεως παραδιδόντας. οὕτω γὰρ καὶ Δ. κοσμοποιεῖ ... συγκρίνεσθαι καὶ διακρίνεσθαι τὰ ἄτομα σώματα. (1121, 5) οἱ μὲν γὰρ ἀπείρους τῷ πλῆθει τοὺς κόσμους ὑποθέμενοι, ὡς οἱ περὶ Ἀναξίμανδρον καὶ Δ. καὶ ἕτερον οἱ περὶ Ἐπίκουρον, γινομένους αὐτοὺς καὶ φθειρομένους ὑπέθεντο ἐπ' ἄπειρον, ἄλλων μὲν αἰεὶ γινομένων, ἄλλων δὲ φθειρομένων, καὶ τὴν κίνησιν αἰδίον ἔλεγον· ἄνευ γὰρ κινήσεως οὐκ ἔστι γένεσις ἢ φθορά.

301. (D.O.).<sup>1</sup> Cic. De fin. I, 6, 18: Cum in rerum natura duo quaerenda sint, unum, quae materia sit, ex qua quaeque res efficiatur, alterum, quae vis sit, quae quidque efficiat, de materia disseruerunt, vim et causam efficiendi reliquerunt (Epicurus et D.). Sed hoc commune vitium: illae Epicuri propriae ruinae: censet enim, eadem illa individua et solida corpora ferri suo deorsum pondere ad lineam; hinc naturalem esse omnium corporum motum. . . Cum illud occurreret, si omnia deorsum e regione ferrentur, et, ut dixi, ad lineam, nunquam fore, ut atomus altera alteram posset attingere. . . Deinde eadem illa atomorum, in quo etiam D. haeret turbulenta congere. . . Cic. De fato 10, 22: Qui potest pelli (sc. atomus) alia ab alia, si gravitate ieruntur ad perpendicularium corpora individua rectis lineis ut Epicuro placet? . . . Hanc Epicurus rationem (sc. παρέγκλισιν) induxit ob eam rem, quod veritus est, ne, si semper atomus gravitate ferretur naturali ac necessaria, nihil liberum nobis esset, cum ita moveretur animus, ut atomorum motu cogereetur. Id Democritus auctor atomorum accipere maluit, necessitate omnia fieri, quam a corporibus individuis naturales motus avellere.

302. (D.O.). Lact. De ira dei 10, 9 (p. 86, 3 Brandt): «Haec, inquit (Leucippus), per inane irrequietis motibus volitant et huc atque illuc feruntur, sicut pulveris minutias videmus in sole, cum per fenestram radios ac lumen immiserit. Ex his arbores et herbae, et fruges omnes oriuntur; ex his animalia et aqua, ignis et universa gignuntur, et rursus in eadem resolvuntur». Ex his etiam mundus ipse concretus est. . . Ait omnia ex individuis corpusculis fieri. (10, 23, p. 89, 1 Brandt) Sed putemus artus et ossa et nervos et sanguinem de atomis posse condescere. Quid sensus, cogitatio, memoria, mens, ingenium, quibus seminibus coagmentari possunt? Minutissimis, inquit. Sunt ergo alia maiora. Quomodo igitur insecabilia? Nonne prodigio simile est . . . natum esse . . . D., qui auditor eius fuit, vel Epicurum, in quem vanitas omnis de Leucippi fonte profluit. . .

303. (D.O.). August. Ad Diosc. CXVIII, 31 (P.L. 33, p. 447): Si enim concesseris (D. et Epicuro) esse atomos, si concesseris etiam concursu fortuito se ipsas pellere et agitare; num et illud eis fas est concedere, ut inter se



atomi fortuito concurrentes rem aliquam ita conficiant, ut eam forma modificent, figura determinant, aequalitate poliant, colore illustrent.

304. (D.D.A 71; v. № 21). Aristot. Phys. VIII, 1, p. 251b 12: εἰ δὴ ἔστιν ὁ χρόνος κινήσεως ἀριθμὸς ἢ κινήσις τις, εἴπερ αἰεὶ χρόνος ἔστιν, ἀνάγκη καὶ κίνησιν αἰδίου εἶναι. ἀλλὰ μὴν περὶ γε χρόνου ἔξω ἐνός<sup>1</sup> ὁμονοητικῶς ἔχοντες φαίνονται πάντες· ἀγένητον γὰρ εἶναι λέγουσιν. καὶ διὰ τούτου Δ. γε δεῖκνυσιν ὡς ἀδύνατον ἅπαντα γεγονέναι· τὸν γὰρ χρόνον ἀγένητον εἶναι...<sup>2</sup> (3, p. 253b 9) καὶ φασὶ τινες κινεῖσθαι τῶν ὄντων οὐ τὰ μὲν τὰ δ' οὐ, ἀλλὰ πάντα καὶ αἰεὶ,<sup>3</sup> ἀλλὰ λανθάνειν τοῦτο τὴν ἡμετέραν αἰσθησιν. πρὸς οὓς καίπερ οὐ διορίζοντας ποῖαν κίνησιν<sup>4</sup> λέγουσιν, ἢ πάσας οὐ χαλεπὸν ἀπαντήσαι. Simpl. ad loc. 1196, 8: πάντα δὲ κινεῖσθαι ἔλεγον οἱ Ἑρακλείπειοι... ὁ δὲ Ἀλέξανδρος τὰς ἀτόμους φησὶ κατὰ τοὺς τιθεμένους αὐτὰς αἰεὶ κινουμένας αἰτίας καὶ τοῖς ἐξ αὐτῶν συγκρίμασι γίνεσθαι, κἂν μὴ αἰσθητῶς, «καὶ κατὰ τούτους δέ, φησὶ, τὸ κενὸν ἀκίνητόν ἐστιν». Aristot. Phys. VIII, 7, p. 260a 26: τριῶν δ' οὐσῶν κινήσεων, τῆς τε κατὰ μέγεθος καὶ τῆς κατὰ πάθος καὶ τῆς κατὰ τόπον, ἣν καλοῦμεν φορᾶν, ταύτην ἀναγκαῖον εἶναι πρώτην... εἰ ἄρα ἀνάγκη αἰεὶ κίνησιν εἶναι, ἀνάγκη καὶ φορᾶν αἰεὶ εἶναι πρώτην τῶν κινήσεων... Simpl. ad loc. 1266, 34: ὡς ἤρθεκε Δημοκρίτῳ τε καὶ Ἀναξαγόρῳ, καὶ Ἐμπεδοκλεῖ κτὲ (v. № 330). Aristot. Phys. VIII, 8, p. 265a 3: οὐδ' οἱ φυσιολόγοι καλῶς λέγουσιν, οἱ πάντα τὰ αἰσθητὰ κινεῖσθαι φάσκοντες αἰεὶ... (D.L.A 16). Aristot. De caelo III, 2, p. 300b 8:<sup>5</sup> διὸ καὶ Λευκίππῳ καὶ Δημοκρίτῳ τοῖς λέγουσιν αἰεὶ κινεῖσθαι τὰ πρῶτα σώματα ἐν τῷ κενῷ καὶ τῷ ἀπείρῳ,<sup>6</sup> λεκτέον, τίνα κίνησιν<sup>7</sup> καὶ τίς ἢ κατὰ φύσιν αὐτῶν κίνησις. Simpl. ad loc. 583, 20: ἔλεγον αἰεὶ κινεῖσθαι τὰ πρῶτα κατ' αὐτοὺς σώματα, τουτέστι τὰς ἀτόμους, ἐν τῷ ἀπείρῳ κενῷ βίαι.

305. (D.O). Aristot. De caelo III, 2, p. 300b 31:<sup>1</sup> τοῖς δ' ἄπειρα ἐν ἀπείρῳ τὰ κινούμενα ποιοῦσιν, εἰ μὲν ἐν τῷ κινῶν, ἀνάγκη μίαν φέρεσθαι φορᾶν, ὡστ' οὐκ ἀτάκτως κινήθησεται, εἰ δ' ἄπειρα τὰ κινῶντα, καὶ τὰς φορὰς ἀναγκαῖον ἀπείρους εἶναι· εἰ γὰρ πεπερασμένοι, τάξις τις ἔσται· οὐ γὰρ τῷ μὴ φέρεσθαι εἰς τὸ αὐτὸ ἢ ἀταξία συμβαίνει· οὐδὲ γὰρ νῦν<sup>2</sup> εἰς τὸ αὐτὸ φέρεται πάντα, ἀλλὰ τὰ συγγενῆ μόνον... ἀτοπον... τὸ... ἄτακτον ἔχειν κίνησιν. (p. 301a 11) οὐδὲν ὡς ἔτυχε γίγνεται... Simpl. ad loc. 588, 10: ταῦτα πρὸς τοὺς περὶ Δημοκρίτον ἐπάγει (ὁ Ἀριστοτέλης), οὗτοι γὰρ εἰσιν οἱ ἄπειρα τὰ κινούμενα ἐν ἀπείρῳ τῷ κενῷ ποιοῦντες. λέγει οὖν πρὸς τούτους ὅτι τὸ κινῶν ἦτοι ἐν ἔστιν ἢ πεπερασμένα ἢ ἄπειρα κτλ... (589, 4) «ἐπεὶ τὸ ἀτάκτως οὐδὲν ἐστὶν ἕτερον ἢ τὸ παρὰ φύσιν» ἕως τοῦ «οὐδὲν γὰρ ὡς ἔτυχε γίγνεται»... καὶ τοῦτο τοῖς περὶ Δημοκρίτον ἐπάγει (sc. ὁ Ἀριστοτέλης) μᾶλλον· οὗτοι γὰρ ἄπειρα λέγουσι τὰ κινούμενα... συμβαίνει οὖν αὐτοῖς... τὸ τὴν μὲν ἀταξίαν εἶναι κατὰ φύσιν... εἴπερ τὸν ἄπειρον χρόνον ἀτάκτως κινούμενα ἐπ' ὀλίγον καταλλήλως συμπλεκόμενα τάττεται καὶ κοσμεῖται<sup>3</sup>... οἱ δὲ τὴν κατὰ φύσιν κίνησιν ἄτακτον λέγοντες τὰ κατὰ φύσιν ὡς ἔτυχε γίνεσθαι ἔλεγον... (591, 12) ἠναγκάσθη <δὴ> τὸν λόγον ἐκτρέψας ἀντιπεῖν τοῖς τὴν παρὰ φύσιν πρὸ τῆς κατὰ φύσιν ὑποτιθεμένοις· οὗτοι δὲ ἦσαν οἱ τε περὶ Δημοκρίτον ἐν ἀπείρῳ τῷ κενῷ τὰ ἄπειρα ἄτομα λέγοντες ἐπ' ἄπειρον χρόνον κινεῖσθαι πρὸ τῆς κοσμοποιίας καὶ ὁ Τιμαίος ἐκ προῦπαρχούσης πλημμυλοῦς κινήσεως τὸν κόσμον γίνεσθαι.

306. (D.O).<sup>1</sup> Simpl. in De anima I, 3, p. 406b 12, p. 39, 26: οὐκέτι ὑπετίθετο τῇ τῶν ἀτόμων ἐξόδοι ἢ ἀκίνησιν ἠρεμίζεσθαι τὸ σῶμα· ἢ μὲν γὰρ ἐξόδος ἀζώϊαν ἀλλ' οὐκ ἠρέμῃσιν εἰσήγε τοῦ ζώϊου. τὴν δὲ ἀκίνησιν τῶν ἀτόμων οὐτε ὑπετίθεντο οἱ περὶ Δημοκρίτον, ἀκίνητα εἶναι βουλόμενοι. (D.D.A 47). Simpl. in Phys. I, 2, p. 184b 18, p. 42, 10: Δ. φύσει ἀκίνητα<sup>a</sup> λέγων τὰ ἄτομα πληγῆ<sup>2</sup> <κ>κινῆσθαι<sup>b</sup> φησιν. (D.L.A 17). Herm. Irris. 12 (Dox. 654): ὁ Δ. ... ἀρχὰς εἶναι φησὶ τὰ ἄπειρα καὶ ἀκίνητα<sup>c</sup> καὶ ἐλάχιστα. (D.D.A 40). Hippol. Refut. I, 13, 2 (Dox. 565, 16 W.): Δ. ... ἔλεγε ... ὡς αἰεὶ κινουμένων τῶν ὄντων ἐν τῷ κενῷ... Similiter № 190.

307. (D.D.A 47). Cic. De fato 20, 46: Aliam... quandam vim motus habebant; a Democrito impulsio, quam plagam<sup>1</sup> ille appellat, a te, Epicure, gravitatis et ponderis.

308. (D.O). Sext. Adv. math. IX, 112—113: ἀλλ' ὑπὸ μὲν δίνης καὶ κατ' ἀνάγκην οὐκ εὐλογον... καὶ εἰ μὲν (ἢ κινήσει) ἄτακτος, οὐκ ἂν δυναθῆι τεταγμένως τι κινεῖν· εἰ δὲ μετὰ τάξεώς τι κινεῖ καὶ συμφωνίας, θεῖα τις ἔσται καὶ δαιμόνιος· οὐ γὰρ ἂν ποτὲ τεταγμένως καὶ σωτηρίως τὸ ὅλον ἐκίνοι μὴ νοερά καὶ θεῖα κἀθεστῶσα. τοιαύτῃ δὲ οὕσα οὐκέτι ἂν εἴη δίνη· ἄτακτον γάρ ἐστιν αὕτη καὶ ὀλιγοχρόνιον. ὡστε κατ' ἀνάγκην μὲν καὶ ὑπὸ δίνης, ὡς ἔλεγον οἱ περὶ τὸν Δημόκριτον, οὐκ ἂν κινῶτο ὁ κόσμος...

309. (D.O). Themist. in Metaph. XII, p. 1071b 26, p. 16, 34:<sup>1</sup> Leucippus commiscuit sempiternum motum suis illis particulis indivisibilibus, ut Plato posuit inordinatum motum ante opus dei.

310. (D.D.A 43). Dion. apud Euseb. Praep. Evang. XIV, 23, 2, 3: ... ταύτας δὴ φασὶ τὰς ἀτόμους ὡς ἔτυχε ἐν τῷ κενῷ φερομένας... ταύτης δὲ τῆς δόξης Ἐπικούρου γεγονάσι καὶ Δ. ... (D.L.A 24) [Plut.] Plac. I, 4, 1 = Aët. I, 4: τῶν ἀτόμων... τυχαίαν ἐχόντων τὴν κίνησιν... (v. № 383a).

311. (D.D.A 47). Aët. I, 23, 3 (Dox. 319): Δ. ἐν γένος κινήσεως τὸ κατὰ παλμὸν<sup>1</sup> ἀπεφαίνεται.

312. (D.O). Suda, s.v. Βίραρμένη: καὶ Δ. εἶπε... τῶν μικροτάτων ἐκείνων σωμάτων καὶ προδήλως φερομένων ἄνω καὶ κάτω παλλομένων τε καὶ περιπλεκομένων καὶ δισταμένων καὶ περιφερομένων ἐξ ἀνάγκης...

313. (D.D.A 58; B 168). Aristot. Phys. VIII, 9, p. 265b 24: διὰ δὲ τὸ κενὸν<sup>1</sup> κινεῖσθαι φασιν· καὶ γὰρ οὗτοι τὴν κατὰ τόπον κίνησιν κινεῖσθαι τὴν φύσιν λέγουσιν. Simpl. ad loc. 1318, 33: τουτέστι τὰ φυσικὰ καὶ πρῶτα καὶ ἄτομα σώματα· ταῦτα γὰρ ἐκείνοι φύσιν ἐκάλουν καὶ ἔλεγον κατὰ τὴν ἐν αὐτοῖς βαρότητα κινούμενα ταῦτα διὰ τοῦ κενοῦ εἰκοντος καὶ μὴ ἀντιτυποῦντος κατὰ τόπον κινεῖσθαι· περιπαλάσσεσθαι<sup>2,3</sup> γὰρ ἔλεγον αὐτὰ καὶ οὐ μόνον πρώτην ἀλλὰ καὶ μόνην ταύτην οὗτοι κίνησιν τοῖς στοιχείοις ἀποδίδασιν.

## II. De primordiali atomorum celeritate

314. (D.O). Aristot. Phys. IV, 8, p. 216a 16: ... διὰ τοῦ κενοῦ... διὰ τίνα γὰρ αἰτίαν (sc. τὰ μείζω ῥοπήν ἔχοντα ἢ βάρους ἢ κορυφότητος) οἰσθήσεται θάπτον· ἐν μὲν γὰρ τοῖς πλήρησιν ἐξ ἀνάγκης... ἰσοταχῆ ἄρα πάντ' ἔσται. ἀλλ' ἀδύνατον, ὅτι μὲν οὖν εἰ ἔστι κενόν, συμβαίνει τοῦναντίον ἢ δι' ὁ κατασκευάζουσιν οἱ φάσκοντες εἶναι κενόν, φανερόν... Simpl. ad loc. 679, 4:<sup>1</sup> ἀλλ' οὐδὲ τῆς παρὰ τὸ σχῆμα διαφορᾶς (sc. τῆς ταχύτητος) τὴν αἰτίαν οἱ τὸ κενὸν εἰσάγοντες ἀποδώσουσι. ζητεῖται γὰρ διὰ τί πλατῆς μὲν σίδηρος ἢ μόλυβδος ἐπιπολάζει μᾶλλον τῷ ὕδατι, στρογγύλος δὲ οὐκέτι οὐδὲ μακρὸς, κἂν πάνυ μικρότερος τύχη. καὶ τοῖς μὲν ἄλλοις βραδύδιον ὑπάρχει λέγειν... τοῖς δὲ τὸ κενὸν λέγουσιν ἀδύνατον οὕτως αἰτιολογεῖν. (12) «ἐκ δὴ τούτων, φησὶν ὁ Ἀλέξανδρος, ἔνεστι λέγειν πρὸς Ἐπικούρον, οὐδὲν δὲ ἦπτον ἴσως καὶ πρὸς Δ. καὶ Λευκίππον καὶ ἀπλῶς τοὺς ἀρχὰς τὰ ἄτομα λέγοντας καὶ τὸ κενόν, ὅτι εἰ μὲν ἀνισοταχῶς ἐν τῷ κενῷ φέρονται αἱ ἄτομοι, τὰς αἰτίας τῆς ἀνισοταχοῦς φορᾶς ὦρα λέγειν αὐτοῖς· οὐδὲν γὰρ αὐταῖς τὸ μέγεθος ἢ τὸ βάρος ἢ τὸ σχῆμα πρὸς τὸ τάχος συμβάλλεται. εἰ δὲ ἰσοταχῶς, οὐδέποτε καταλήφεται ἢ ἕτερα τὴν ἕτεραν, οὐδὲ ἀλληλοτυπήσουσιν ἢ περιπλακῆσονται. οὐδὲ γὰρ ἢ τῶν σχημάτων διαφορὰ οἷα τέ ἐστιν ἄνισον αὐτῶν ποιεῖν τὴν φορᾶν. καὶ γὰρ τὰ σχήματα τῷ διαιρεῖν ἢ τῷ μὴ διαιρεῖν ἄνισον τὴν φορᾶν ποιεῖ, ἐν δὲ τῷ κενῷ οὐδὲν ἐστὶ τὸ διαιρούμενον<sup>2</sup> ὡστε οὐδὲ γένεσις ἔσται τινὸς κατ' αὐτούς». μήποτε δὲ τοῦτο τὸ ἄτοπον αὐτοῖς ἀκολουθήσει, εἰ λέγοιεν αἰεὶ κινεῖσθαι τὰς ἀτόμους. εἰ γὰρ καὶ ἠρεμοῖσι καὶ ἰσοταχῶς κινῶνται, ἐπικαταλαμβάνουσιν ἀλλήλας... εἰ δὲ μὴ αἱ ῥοπαὶ τοῖς σώμασιν εἰσιν αἰτίαι τῆς κινήσεως τῆς ἐν τῷ κενῷ, οὐδ' ἂν κινῶτο τὴν ἀρχὴν ἐν τῷ κενῷ τὰ σώματα.<sup>3</sup>

### III. De attractione et repulsione. De notione vis

315. (partim D.D.A 63). Aristot. De gen. et corr. I, 7, p. 323b 10: Δ. δὲ παρὰ τοὺς ἄλλους<sup>1</sup> ἰδίως ἔλεξε μόνος· φησὶ γὰρ τὸ αὐτὸ καὶ ὁμοίον εἶναι τὸ τε ποιοῦν καὶ τὸ πάσχον. οὐ γὰρ ἐγχωρεῖν τὰ ἕτερα καὶ διαφέροντα πάσχειν ὑπ' ἀλλήλων, ἀλλὰ κἂν ἕτερα ὄντα ποιῆτι τι εἰς ἀλλήλα οὐχ ἢ ἕτερα ἀλλ' ἢ ταῦτόν τι ὑπάρχει, ταύτηι τοῦτο συμβαίνειν αὐτοῖς. Aristot. De sensu 6, p. 446b 10: οὐ γὰρ δὴ τῷ πως ἔχειν τὸ μὲν ὄραϊ, τὸ δ' ὄραται, ὡσπερ <διότι><sup>2</sup> ἴσα ἐστίν... (v. № 431).

316. (D.D.B 164). Sext. Adv. math. VII, 116: παλαιά... δόξα περὶ τοῦ τὰ ὁμοία τῶν ὁμοίων εἶναι γνωρίστικά... (117) ἀλλ' ὁ μὲν Δ. ἐπὶ τε τῶν ἐμφύχων καὶ ἀψύχων ἴστησι τὸν λόγον. «καὶ γὰρ ζῶια, φησὶν, ὁμογενέσι ζῴοις συναγελάζεται ὡς περισσότεραὶ περισσότεραις καὶ γέρανοι γέρανοις καὶ ἐπὶ τῶν ἄλλων ἀλόγων ὡσαύτως. <ὡσαύτως><sup>3</sup> δὲ καὶ ἐπὶ τῶν ἀψύχων, καθάπερ ὄραν πάρεστιν ἐπὶ τε τῶν κοσκινουμένων<sup>1</sup> σπερμάτων καὶ ἐπὶ τῶν παρὰ ταῖς κυματωγαῖς ψηφίδων ὅπου μὲν γὰρ κατὰ τὸν τοῦ κοσκίνου δῖνον διακριτικῶς φακοὶ μετὰ φακῶν τάσσονται καὶ κριθαὶ μετὰ κριθῶν καὶ πυροὶ μετὰ πυρῶν, ὅπου δὲ κατὰ τὴν τοῦ κύματος κίνησιν αὶ μὲν ἐπιμήκεις ψηφίδες εἰς τὸν αὐτὸν τόπον ταῖς ἐπιμήκεισιν ὠθοῦνται, αἱ δὲ περιφερεῖς ταῖς περιφερέσιν ὡς ἂν συναγωγόν τι<sup>2</sup> ἐγούσης τῶν πραγμάτων τῆς ἐν τούτοις ὁμοιότητος».<sup>3</sup> ἀλλ' ὁ μὲν Δημόκριτος οὕτως. (D.D.A 128). Aët. IV, 19, 13 (Dox. 408): καὶ τὸν ἄερα φησὶν εἰς ὁμοιοσχήμονα θρόπτεσθαι σώματα (v. № 491)... «κολοῖός» γὰρ «παρὰ κολοῖόν ἰζάνει» καὶ «ὡς αἰεὶ τὸν ὁμοῖον ἄγει θεός ὡς τὸν ὁμοῖον»<sup>4</sup> (Homer. Odys. XVII, 218). καὶ γὰρ ἐν τοῖς αἰγιαλοῖς αἱ ὁμοῖαι ψῆφοι κατὰ τοὺς αὐτοὺς τόπους ὄρωνται κατ' ἄλλο μὲν αἱ σφαιροειδεῖς, κατ' ἄλλο δὲ αἱ ἐπιμήκεις· καὶ ἐπὶ τῶν κοσκινουμένων δὲ ἐπὶ τὸ αὐτὸ συναλλίεσθαι τὰ ὁμοιοσχήμονα, ὥστε χωρὶς εἶναι τοὺς κυάμους καὶ ἐρεβίνθους. Cf. Aristot. Eth. Magna II, 11, p. 1208b 9: καὶ γὰρ «κολοῖός» φασὶ «παρὰ κολοῖόν ἰζάνει» καὶ «αἰεὶ τοὶ τὸν ὁμοῖον ἄγει θεός ὡς τὸν ὁμοῖον».

317. (D.D.A 135).<sup>1</sup> Theophr. De sensu 49 (Dox. 513): Δ. δὲ περὶ μὲν αἰσθήσεως οὐ διορίζει πότερα τοῖς ἐναντίοις ἢ τοῖς ὁμοίοις ἐστίν. εἰ μὲν γὰρ <τῷ> ἀλλοιοῦσθαι ποιεῖ τὸ αἰσθάνεσθαι, δόξαιεν ἂν τοῖς διαφοροῖς· οὐ γὰρ ἀλλοιοῦται τὸ ὁμοῖον ὑπὸ τοῦ ὁμοίου· πάλιν δὲ τὸ μὲν αἰσθάνεσθαι καὶ ἀπλῶς ἀλλοιοῦσθαι <τῷ> πάσχειν, ἀδύνατον δὲ, φησὶ, τὰ μὴ ταῦτα πάσχειν, ἀλλὰ κἂν ἕτερα ὄντα ποιῆτι οὐχ <ἢ> ἕτερα ἀλλ' ἢ ταῦτόν τι ὑπάρχει, τοῖς ὁμοίοις, διὸ περὶ μὲν τούτων ἀμφοτέρως ἐστὶν ὑπολαβεῖν... (50), v. № 478: αἱ φλέβες <αἱ> κατὰ τοὺς ὀφθαλμοὺς εὐθεῖται καὶ ἀνικμοὶ καὶ ὁμοιοσχήμεναι <οἷαί τε><sup>2</sup> τοῖς ἀποτυπομένοις. τὰ γὰρ ὁμόφυλα μάλιστα ἕκαστον γνωρίζειν... (54) ἀλογον δὲ καὶ τὸ μάλιστα μὲν ὄραν φάναι τὰ ὁμόφυλα, τὴν δὲ ἔμφασιν ποιεῖν τοῖς ἀλλόχρωσιν ὡς οὐκ ἐμφαινομένων τῶν ὁμοίων.

318. (D.D.A 38). Theophr. Phys. opin., fr. 8 apud Simpl. in Phys. I, 2, p. 184b 15, p. 28, 19 (post № 245): πεφυκέναι γὰρ τὸ ὁμοῖον ὑπὸ τοῦ ὁμοίου κινεῖσθαι καὶ φέρεσθαι τὰ συγγενῆ πρὸς ἀλλήλα καὶ τῶν σχημάτων ἕκαστον εἰς ἕτερον ἐγκοσμούμενον σύγκρισιν ἄλλην ποιεῖν διάθεσιν· ὥστε εὐλόγως ἀπίρων ὁσῶν τῶν ἀρχῶν πάντα τὰ πάθη καὶ τὰς οὐσίας ἀποδώσειν ἐπηγγέλλοντο, ὑφ' οὗ τέ τι γίνεται καὶ πῶς· διὸ καὶ φασὶ μόνους τοῖς ἀπειρα ποιοῦσι τὰ στοιχεῖα πάντα συμβαίνειν κατὰ λόγον. (D.L.A 1). Diog. IX, 31 (v. № 382): φέρεσθαι... πολλὰ σώματα... ἄπερ... προσκρούοντα καὶ παντοδαπῶς κυκλοῦμενα διακρίνεσθαι χωρὶς τὰ ὁμοία πρὸς τὰ ὁμοία. (D.D.A 99a). Hibeh pap. 16, p. 62 Grenfell—Hunt («geschr. unter Philadelphos, vermutlich Fr. des Theophr. Περὶ ὕδατος, Diog. V, 45». H. Diels) col. 2: [ση]πεδόνος ἀπο. λ. λιπομένης<sup>1</sup>, ἀποκρίνεσθαι φησὶν ἐν τῷ ὕδατι τὰ ὁμοία πρὸς τὰ ὁμοία καθάπερ ἐν τῷ παντί... (D.L.A 10). Hippol. Refut. I, 12, 2 (Dox. 564, 16 W.): Α... προσκρούοντα ἀλλήλοις συμπλέκεσθαι τὰ ὁμοιοσχήμονα καὶ παραπλήσια τὰς μορφάς.

319. (D.D.A 33). Diog. IX, 47 (catalogus librorum D.): Περὶ τῆς λίθου. (D.D.A 165).<sup>1</sup> Alex. Quaest. II, 23 (II, 72, 28 Bruns, περὶ τῆς Ἡρακλείας λίθου, διὰ τί ἔλκει τὸν σίδηρον): ὁ Δ. δὲ καὶ αὐτὸς ἀπορροίας τε γίνεσθαι τίθεται καὶ τὰ ὁμοία φέρεσθαι πρὸς τὰ ὁμοία ἄλλα,<sup>2</sup> καὶ εἰς τὸ κενὸν πάντα φέρεσθαι. ταῦθ'

ὑποθέμενος λαμβάνει τὸ τὴν λίθον καὶ τὸν σίδηρον ἐξ ὁμοίων ἀτόμων συγκεῖσθαι, λεπτοτέρων δὲ τὴν λίθον, καὶ ἐκείνου ἀραιότεραν τε καὶ πολυκενωτέραν αὐτὴν εἶναι καὶ διὰ τοῦτ' εὐκίνητοτερ' ὄντα τὰ ἀτομα ὄντων ἐπὶ τὸν σίδηρον φέρεσθαι (πρὸς γὰρ τὰ ὁμοία ἢ φορὰ) καὶ ἐνδύμενα εἰς τοὺς πόρους τοῦ σιδήρου κινεῖν τὰ ἐν ἐκείνῳ σώματα διαδύμενα δι' αὐτῶν διὰ λεπτότητα, τὰ δὲ κινηθέντα ἔξω τε φέρεσθαι ἀπορρέοντα καὶ πρὸς τὴν λίθον διὰ τε ὁμοιότητα καὶ διὰ τὸ κενὰ ἔχειν πλειῶν, οἷς ἐπόμεινον τὸν σίδηρον διὰ τὴν ἀθρόαν ἐκκρίσιν τε καὶ φορὰν φέρεσθαι καὶ αὐτὸν πρὸς τὴν λίθον, οὐκέτι δὲ ἡ λίθος πρὸς τὸν σίδηρον φέρεται, ὅτι μὴ ἔχει τοσαῦτα ὁ σίδηρος κενὰ ὅσα ἡ λίθος. ἀλλὰ τὸ μὲν τὴν λίθον καὶ τὸν σίδηρον ἐξ ὁμοίων συγκεῖσθαι δέξαιτ' ἂν τις, πῶς δὲ καὶ τὸ ἤλεκτρον καὶ τὸ ἄχυρον; ὅταν δὲ καὶ ἐπ' ἐκείνων λέγητι τις ταύτην τὴν αἰτίαν, ἔστι πολλὰ ἐλκόμενα ὑπὸ τοῦ ἤλεκτρον, οἷς πᾶσιν εἰ ἐξ ὁμοίων σύγκεται, κάκεινα ἐξ ὁμοίων ἀλλήλοις συγκείμενα ἔλκοι ἂν ἀλλήλα. Idem apud Simpl. in Phys. 1056, 1: ἡ γὰρ ἀπορροῖαί τινές εἰσιν ἀπὸ τῶν ἡρεμοῦντων καὶ οὕτως ἐλκόντων σωματικά, δι' ὧν ἀποτρεμένων καὶ ἐμπλεκόμενων, ὡς τινες λέγουσιν, ἔλκεται τὰ ἐλκόμενα ἢ...

320. (D.D.A 37). Aristot. Περὶ Δημοκρίτου apud Simpl. in De caelo 295, 9: στασιάζειν δὲ καὶ φέρεσθαι ἐν τῷ κενῷ διὰ τε τὴν ἀνομοιότητα<sup>1</sup> καὶ τὰς ἄλλας εἰρημένας διαφοράς...

321. (D.D.A 131).<sup>1</sup> Theophr. De caus. pl. VI, 2, 3: ἀτόπον δὲ κάκεινο τοῖς τὰ σχήματα λέγουσιν, ἢ τῶν ὁμοίων διαφορὰ κατὰ μικρότητα καὶ μέγεθος εἰς τὸ μὴ τὴν αὐτὴν ἔχειν δύναμιν. οὐ γὰρ ἐπὶ τῆς μορφῆς ἀλλὰ τῶν ὄγκων αἱ δυνάμεις, οὐδὲ εἰς μὲν τὸ διαβιάσασθαι καὶ ἀπλῶς τὸ μᾶλλον καὶ τὸ ἥττον τάχ' ἂν τις ἀποδοίη, εἰς δὲ τὸ μὴ ταῦτο δύνασθαι μηδὲ ποιεῖν, οὐκ εὐλογον, ἐπεὶ ἐν τοῖς σχήμασιν αἱ δυνάμεις,<sup>2</sup> εἰ γὰρ ὁμοιοσχῆμα ταῦτα, ταῦτόν ἂν εἴη τὸ ὑπάρχον, ὡσπερ καὶ ἐν ταῖς ἄλλοις.

322. (D.D.A 140). Aët. V, 4, 3 (Dox. 417/8): Στράτων καὶ Δ. καὶ<sup>1</sup> τὴν δύναμιν σῶμα· πνευματικῆ<sup>2</sup> γάρ. (322 Us.). Grammaticus Byzantinus, Cod. Paris. 2555, BAG, p. 1168: ὁ Δ. καὶ ὁ Ἐπίκουρος καὶ οἱ Στωϊκοὶ... ὅτι «πᾶν ὁ ἔχει ἐνέργειαν... ἦγον δύναται δράσαι... σῶμά ἐστι».

323. (D.D.A 47). Aët. I, 12, 6 (Dox. 311): Δ. τὰ πρῶτὰ φησὶ σώματα... κινεῖσθαι κατ' ἀλληλοτυπίαν ἐν τῷ ἀπίρῳ. (D.D.A 66). Aët. I, 26, 2 (Dox. 321, περὶ οὐσίας ἀνάγκης): Δ. τὴν ἀντιτυπίαν καὶ φορὰν καὶ πληγὴν<sup>1</sup> τῆς ὕλης. (D.L.A 1). Diog. IX, 31: φέρεσθαι... πολλὰ σώματα... προσκρούοντα... διακρίνεσθαι χωρὶς... Alex. in Metaph. I, 4, p. 985b 4, p. 36, 21. Cf. № 294: Δ. τε καὶ Δ... λέγουσιν ἀλληλοτυπούσας καὶ κρουόμενας πρὸς ἀλλήλας κινεῖσθαι τὰς ἀτόμους. (D.O). Simpl. in De caelo I, 7, p. 275b 29, p. 242, 21 (D.L.A 14): ταύτας δὲ τὰς ἀτόμους ἐν ἀπίρῳ τῷ κενῷ... συγκρούεσθαι καὶ τὰς μὲν ἀποπάλλεσθαι, ὅπη ἂν τόχωσιν... (D.D.A 49). Galen. De elem. sec. Hipp. I, 2 (№ 298): φερόμενα ταυτὶ τὰ σώματα... προσκρούει καὶ ἀποπάλλεται...

### IV. De concretione et discretione. De mixtione

324. (D.D.B 137).<sup>2</sup> Hesych., s.v. συγγονή:<sup>1</sup> σύστασις. Δημόκριτος.

325. (D.D.B 138). Hesych., s.v. ἀμειψικοσμίη:<sup>1</sup> μετακόσμησις.

326. (D.D.B 139). Hesych., s.v. ἀμειψιρυσμίη:<sup>1</sup> ἀλλάσεις τὴν σύγκρισιν ἢ μεταμορφοῦσθαι. Diog. IX, 47: φυσικὰ δὲ (τοῦ Δ.) τάδε... Περὶ ἀμειψιρυσμιῶν.

327. (D.D.B 139a). Hesych., s.v. ἀμειψίχροσόν:<sup>1</sup> μεταβάλλον τὰ χρώματα.<sup>2</sup>

328. (D.O). Aristot. Phys. I, 4, p. 187a 12: ὡς δ' οἱ φυσικοὶ<sup>1</sup> λέγουσι, δύο τρόποι εἰσὶν οἱ μὲν... (31) οἱ δὲ σύγκρισιν καὶ διάκρισιν (sc. τὴν γένεσιν φασὶν εἶναι). Philopon. ad loc. 95, 12: «οἱ δὲ σύγκρισιν καὶ διάκρισιν». οἱ τε περὶ τὸν Δ. καὶ Ἐμπεδοκλέα συγκρίσει γὰρ ὁ μὲν τῶν στοιχείων ὁ δὲ τῶν ἀτόμων τὰ ἄλλα γίνεσθαι φασὶ, διακρίσει δὲ φθείρεσθαι. Philopon. in Phys. I, 5, p. 188a 19, p. 110, 11: σύγκρισίν τε καὶ διάκρισιν ὁ... Δ. αἰτίας ἔλεγεν εἶναι γένεσεως καὶ φθορᾶς...

329. (D.O). Aristot. Phys. VIII, 1, p. 250b 15: είναι μὲν οὖν κινήσει πάντες φασι· οἱ περὶ φύσεώς τι λέγοντες διὰ τὸ κοσμοποιεῖν<sup>1</sup> καὶ περὶ γενέσεως καὶ φθορᾶς· εἶναι τὴν θεωρίαν πᾶσαν αὐτοῖς, ἣν ἀδύνατον ὑπάρχειν μὴ κινήσεως οὐσης. ἀλλ' ὅσοι μὲν ἀπείρους τὸ κόσμους εἶναι φασι... ἀεὶ φασι εἶναι κινήσειν (ἀναγκαῖον γὰρ τὰς γενέσεις καὶ τὰς φθορὰς εἶναι μετὰ κινήσεως αὐτῶν). Simpl. ad loc. 1120, 18: «κοσμοποιεῖν» δὲ λέγει τοὺς φυσικούς... οὕτω γὰρ καὶ Δ. κοσμοποιεῖ... συγκρίνεσθαι καὶ διακρίνεσθαι τὰ ἄτομα σώματα... λέγοντες. (1121, 6) οἱ περὶ Ἀναξίμανδρον καὶ Δ. καὶ ὅσπερ οἱ περὶ Ἐπίκουρον... ἀνευ γὰρ κινήσεως οὐκ ἔστι γενέσεις ἢ φθορά (v. № 300).

330. (D.O).<sup>1</sup> Aristot. Phys. VIII, 7, p. 260a 26: τριῶν δ' οὐσῶν κινήσεων, τῆς τε κατὰ μέγεθος καὶ τῆς κατὰ πάθος, καὶ τῆς κατὰ τόπον, ἣν καλοῦμεν φοράν, ταύτην ἀναγκαῖον εἶναι πρώτην... (260b 5) εἰ ἄρα ἀνάγκη ἀεὶ κινήσειν εἶναι, ἀνάγκη καὶ φοράν ἀεὶ εἶναι, πρώτην τῶν κινήσεων<sup>2</sup>... καὶ γὰρ βαρὺ καὶ κοῦφον, καὶ μαλακὸν καὶ σκληρόν, καὶ θερμὸν καὶ ψυχρὸν πυκνότητες δοκοῦσι καὶ ἀραιότητες εἶναι τινες, πύκνωσις δὲ καὶ μάνωσις σύγκρισις καὶ διάκρισις, καθ' ἃς γενέσεις καὶ φθορὰ λέγεται τῶν οὐσιῶν. συγκρινόμενα δὲ καὶ διακρινόμενα ἀνάγκη κατὰ<sup>3</sup> τόπον μεταβάλλειν. ἀλλὰ μὴν καὶ τοῦ ἀβέβαιου καὶ φθίνοντος μεταβάλλει κατὰ τόπον τὸ μέγεθος, ἔτι καὶ ἐντεθῆεν ἐπισκοποῦσιν ἔσται φανερόν, ὅτι ἡ φορά πρώτη. Simpl. ad loc. 1266, 33: εἴτε γὰρ σύγκρισις καὶ διάκρισις αὐτόθεν ἔστιν ἢ γενέσεις καὶ φθορά,<sup>3</sup> ὡς ἤρθεκε Δ. τε καὶ Ἀναξαγόρας καὶ Ἐμπεδοκλῆς καὶ ὅσοι τὰ πρῶτα σώματα ἀπαθῆ ὑποθέμενοι τελέως ἐκ τούτων ἐγένοντο τὰ ἄλλα...

331. (D.O). Aristot. Phys. VIII, 8, p. 265a 3: οὐδ' οἱ φυσιολόγοι<sup>1</sup> καλῶς λέγουσιν οἱ πάντα τὰ αἰσθητὰ κινεῖσθαι φάσκοντες ἀεὶ κινεῖσθαι γὰρ ἀνάγκη τούτων τινὰ τῶν κινήσεων, καὶ μάλιστα κατ' ἐκείνους [ἔστιν]<sup>2</sup> ἀλλοιοῦσθαι· βεῖν γὰρ φασι ἀεὶ καὶ φθίνειν, ἔτι δε καὶ τὴν γενέσειν καὶ τὴν φθοράν ἀλλοιοῦσιν λέγουσιν.

332. (D.D.A 58). Aristot. Phys. VIII, 9, p. 265b 17: ὅτι δ' ἡ κατὰ τόπον φορά πρώτη τῶν κινήσεων μαρτυροῦσι πάντες, ὅσοι περὶ κινήσεως πεποιήθηται μνείαν· τὰς γὰρ ἀρχὰς αὐτῆς ἀποδιδόσκει τοῖς κινουμένοις ταύτην κινήσειν. διάκρισις γὰρ καὶ σύγκρισις κινήσεις κατὰ τόπον εἰσίν... (24) διὰ δὲ τὸ κενόν<sup>1</sup> κινεῖσθαι φασι· καὶ γὰρ οὗτοι τὴν κατὰ τόπον κινήσειν κινεῖσθαι τὴν φύσιν<sup>2</sup> λέγουσιν· ἢ γὰρ διὰ τὸ κενὸν κινήσειν φορά ἔστι καὶ ὡς ἐν τόποι. τῶν δ' ἄλλων οὐδεμίαν ὑπάρχειν τοῖς πρώτοις, ἀλλὰ τοῖς ἐκ τούτων οἰονται· ἀβέβαιεσθαι γὰρ καὶ φθίνειν καὶ ἀλλοιοῦσθαι συγκρινόμενων καὶ διακρινόμενων τῶν ἀτόμων σωμάτων φασι.

333. (D.D.A 58). Simpl. ad loc. 1318, 32: ὡς οἱ περὶ Δ. διὰ τὸ κενόν... καὶ οὐ μόνον πρώτην ἀλλὰ καὶ μόνην ταύτην οὗτοι κινήσειν τοῖς στοιχείοις ἀποδιδόσκει, τὰς δὲ ἄλλας τοῖς ἐκ τῶν στοιχείων· ἀβέβαιεσθαι γὰρ καὶ φθίνειν καὶ ἀλλοιοῦσθαι καὶ γίνεσθαι καὶ φθεῖρεσθαι προσκρινόμενων καὶ ἀποκρινόμενων τῶν πρώτων σωμάτων φασι. (1320, 16) οἱ δὲ περὶ Δ. μόνην τὴν κατὰ τόπον κινήσειν ἔλεγον· καὶ γὰρ τὰ ἀλλοιοῦμενα κατὰ τόπον ἔλεγον κινεῖσθαι, λανθάνειν δὲ τοῦτο τῷ μὴ ὄλον, ἀλλὰ κατὰ μέρη ἀμείβειν τὸν τόπον.

334. (D.O). Simpl. in Phys. IV, 1, p. 208a 29, p. 522, 15: πάντες γὰρ τῆς κατὰ τόπον κινήσεως μᾶλλον ἢ τῶν ἄλλων αἰσθανόμεθα. τοιγαροῦν καὶ φθοράν ἀνεῖλον τινες, ὡς οἱ περὶ Ἀναξαγόραν, καὶ ἀλλοιοῦσιν, ὡς οἱ ἀνόμοι χροίη<sup>1</sup> λέγοντες, τὴν δὲ κατὰ τόπον κινήσειν οὐδεὶς σπουδῆ λέγων· ἐάσθω γὰρ ἡ Ζήνωνος ἀπορία...

335. (D.D.A 46a partim). Aristot. De caelo III, 7, p. 305a 33: πάλιν οὖν ἐπισκεπτέον τίς ὁ τρόπος τῆς ἐξ ἀλλήλων γενέσεως, πότερον ὡς Ἐμπεδοκλῆς λέγει καὶ Δ. ἢ ὡς οἱ εἰς τὰ ἐπίπεδα διαλύοντες... οἱ μὲν οὖν περὶ Ἐμπεδοκλέα καὶ Δ. λανθάνουσιν αὐτοὶ αὐτοὺς οὐ γενέσειν ἐξ ἀλλήλων ποιούντες ἀλλὰ φαινομένην γενέσειν· ἐνυπάρχον γὰρ ἕκαστον ἐκρίνεσθαι φασι, ὡς περὶ ἐξ ἀγγείου τῆς γενέσεως οὐσης, ἀλλ' οὐκ ἔκ τινος ὕλης, οὐδὲ γίνεσθαι μεταβάλλοντος... ὅτι μὲν οὖν οὐκ ἔστι τῆς ἐκρίσεως ἢ εἰς ἀλλήλα μεταβάσεις, εἰρηται. Simpl. ad loc. 632, 6: Δ. δὲ καὶ τῶν τὰ ἐπίπεδα λεγόντων τῆς συγκρίσεως καὶ διακρίσεως τῶν ἀτόμων καὶ τῶν ἐπιπέδων τὴν τῶν στοιχείων ἐξ ἀλλήλων γενέσειν ποιούντων, πρὸς πρώτους ὑπαντᾷ (ὁ Ἀριστοτέλης) τοὺς περὶ Ἐμπεδοκλέα καὶ Δ. καὶ Ἀναξαγόραν κοινὸν ἐνιδὼν αὐτῶν τῆς δόξης τὸ τὰ παρ' ἑκάστου τιθέμενα στοιχεῖα ἀίδια ὄντα τότε γίνεσθαι βροκεῖν, ὅταν ἀπὸ τῶν ἄλλων

διακριθῆι. Simpl. in Phys. III, 4, p. 203a 33, p. 461, 32: ὁ Δ. καὶ μὴ κατὰ ἐκρίσειν ἐποίει τὴν γενέσειν μὴδὲ πάντα ἔλεγεν ἐν πᾶσιν ἐνυπάρχειν.

336. (D.O). Aristot. De gen. et corr. I, 1, p. 314a 8: ὅσοι μὲν γὰρ ἐν τῷ τὸ πᾶν λέγουσιν εἶναι καὶ πάντα ἐξ ἐνός γεννώσιν, τούτοις μὲν ἀνάγκη τὴν γενέσειν ἀλλοιοῦσιν φάσαι καὶ τὸ κυρίως γινόμενον ἀλλοιοῦσθαι· ὅσοι δὲ πλείω τὴν ὕλην ἐνός τιθέασιν, οἷον Ἐμπεδοκλῆς καὶ Ἀναξαγόρας καὶ Δ., τούτοις δὲ ἕτερον. Philopon. ad loc. 10, 15: ὅσοι δὲ πλείω τὰ στοιχεῖα ὑποτίθενται, δύνανται χωρίζεσθαι γενέσειν ἀλλοιώσεως, συγκρίσει μὲν καὶ διακρίσει τὴν γενέσειν καὶ τὴν φθοράν ὑποτιθέμενοι, τῆς μεταθέσεως δὲ καὶ τῆς μετατάξεως τὴν ἀλλοίωσιν, καθάπερ οἱ περὶ Δημόκριτον καὶ Λεύκιππον ὑπέθεντο...

337. (D.O). Aristot. De gen. et corr. I, 2, p. 315b 15: ἐπεὶ δὲ δοκεῖ σχεδὸν πᾶσιν ἕτερον εἶναι γενέσεις καὶ ἀλλοιώσεις καὶ γίνεσθαι μὲν καὶ φθεῖρεσθαι συγκρινόμενα καὶ διακρινόμενα, ἀλλοιοῦσθαι δὲ μεταβαλλόντων τῶν παθημάτων, περὶ τούτων ἐπιστήσασθαι θεωρητέον. ἀπορίας γὰρ ἔχει ταῦτα καὶ πολλὰς καὶ εὐλόγους. εἰ μὲν γὰρ ἔστι σύγκρισις ἢ γενέσεις, πολλὰ ἀδύνατα συμβαίνει· εἰ δ' αὖ λόγιοι ἕτεροι ἀναγκαστικοὶ καὶ οὐκ εὐποροὶ διαλύειν ὡς οὐκ ἐνδέχεται ἄλλως ἔχειν. εἰ δὲ<sup>2</sup> μὴ ἔστι σύγκρισις ἢ γενέσεις, ἢ ὅλως οὐκ ἔσται<sup>3</sup> γενέσεις καὶ ἀλλοιώσεις, ἢ καὶ τοῦτο διαλύσαι, χαλεπὸν ὄν, πειρατέον. ἀρχὴ δὲ τούτων πάντων πότερον οὕτω γίνεται καὶ ἀλλοιοῦται καὶ ἀβέβαιεσθαι τὰ ὄντα καὶ τὰναντία τούτοις πάσχει, τῶν πρώτων ὑπαρχόντων μεγεθῶν ἀδιαίρετον, ἢ οὐθὲν ἔστι μέγεθος ἀδιαίρετον· διαφέρει γὰρ τοῦτο πλείστον (sequitur № 101)... διὸ μᾶλλον εὐλόγον σώματα εἶναι ἀδιαίρετα, ἀλλὰ καὶ ταῦτα πολλὰ ἔχει ἀλόγιστον, ὅμως δὲ τούτοις ἀλλοιοῦσιν καὶ γενέσειν ἐνδέχεται ποιεῖν, καθάπερ εἰρηται, τροπῆ καὶ διαδιγῆ μετακινουόμενα τὸ αὐτὸ καὶ ταῖς τῶν σχημάτων διαφοραῖς, ὡς περὶ ποιῆ Δ. διὸ καὶ χροίαν οὐ φησὶν εἶναι· τροπῆ γὰρ χρωματίζεσθαι (sequitur № 105, tum concludit Aristoteles). (316b 32) ἀνάγκη ἄρα ἄτομα ἐνυπάρχειν μεγεθῆ ἀόρατα, ἄλλως τε καὶ εἴπερ<sup>1</sup> ἔσται γενέσεις καὶ φθορά ἢ μὲν διακρίσει, ἢ δὲ συγκρίσει.

338. (D.L.A 7).<sup>1</sup> Aristot. De gen. et corr. I, 8, p. 325b 3: Δ... πᾶσαν ἀλλοίωσιν καὶ πᾶν τὸ πάσχειν τούτων γίνεσθαι τὸν τρόπον, διὰ τοῦ κενοῦ γινόμενης τῆς διαλύσεως καὶ τῆς φθορᾶς, ὁμοίως δὲ καὶ τῆς ἀβέβαιεσθαι ὑπεισυδομένων στερεῶν. (29) ἐκ δὲ τούτων αἱ γενέσεις καὶ αἱ διακρίσεις Λευκίππου μὲν δύο τρόποι· ἂν εἶεν διὰ τὸ κενὸν καὶ διὰ τῆς ἀφῆς (ταύτη<sup>2</sup> γὰρ διαιρετὸν ἕκαστον), Πλάτωνι δὲ κατὰ τὴν ἀφῆν μόνον· κενὸν γὰρ οὐκ εἶναι φησι.

339. (D.D.A 37). Aristot. apud Simpl. in De caelo I, 10, p. 279b 12, p. 295, 20: λέγει δὲ τὴν γενέσειν καὶ τὴν ἐναντίαν αὐτῆι διάκρισιν οὐ μόνον περὶ ζώων, ἀλλὰ καὶ περὶ φυτῶν καὶ περὶ κόσμων καὶ συλλήβδην περὶ τῶν αἰσθητῶν σωμάτων πάντων. εἰ τοίνυν ἢ μὲν γενέσεις σύγκρισις τῶν ἀτόμων ἔστιν, ἢ δὲ φθορὰ διάκρισις, καὶ κατὰ Δημόκριτον ἀλλοίωσις ἂν εἴη ἢ γενέσεις.

340. (D.O). Aristot. De gen. et corr. I, 9, p. 327b 33: διαιρετέον, πότερον ἢ μίξις πρὸς τὴν αἰσθησιν τί ἔστιν. ὅταν γὰρ οὕτως εἰς μικρὰ διαιρεθῆι τὰ μιγνόμενα, καὶ τεθῆι παρ' ἀλλήλα τούτων τὸν τρόπον ὥστε μὴ δῆλον ἕκαστον εἶναι τῆι αἰσθήσει, τότε μίμικται ἢ οὐ, ἀλλ' ἔστιν ὥστε ὅτιον παρ' ὅτιον εἶναι μόνον τῶν μιγνόμενων; λέγεται μὲν οὖν ἐκείνως, οἷον κριθᾶς «μεμίχθαι» πυρᾶς,<sup>1</sup> ὅταν ἦτισον παρ' ὄντιον τεθῆι... Philopon. ad loc. 192, 29: ἕνα μὲν οὖν μίξεως τρόπον τούτων ὑποτίθεται, καθ' ὃν σὺνίζεται μὲν τὰ εἶδη τῶν μιγνόμενων, ἀνεπαίσθητα δὲ γίνεται τῆι σμικρότητι τῆς παραθέσεως (Empedocles)· δεύτερον δὲ οὐκέτι σιωζόμενου τοῦ εἶδους τῶν μιγνόμενων, ἀλλ' ἀναλυόμενων αὐτῶν εἰς τὰ ἐξ ὧν σύγκριται, καὶ οὕτως τῶν στοιχείων αὐτῶν παρακειμένων ἀλλήλοις, ὡς περὶ ἔλεγον οἱ τὰ ἄτομα ὑποτιθέμενοι.<sup>2</sup>

341. (D. 59 A 54). Aët. I, 17, 2 (Dox. 315): οἱ περὶ Ἀναξαγόραν καὶ Δ. τὰς κράσεις κατὰ παράθεσιν γίνεσθαι τῶν στοιχείων. (D.O). Simpl. in De caelo III, 4, p. 303a 4, p. 612, 20: καὶ κράσεις δὲ ἀναιρεθῆσεται κατ' αὐτούς· παράθεσις γὰρ ἔσται μόνον τῶν σωμάτων. Themist. ad loc. 177, 33: Ambo hi (D. et Epicurus) posuerunt principia individua, quae «primae magnitudines» dicuntur ac ea numero infinita esse aiunt. At magnitudine ponunt ea individua, hoc est minime discreta, cum e corporum numero haec tantum continua sint quandoquidem in iis inane non inest... Aiunt fieri non posse

ut aliquid sit divisibile, nisi ea, in quae segregatur connectuntur et complexu colliguntur. Sed hac quidem ratione necessario convenit, ut inter ea inane sit in illis extensum. Dicuntque omnia haec non mixtione et corruptione, sed [concurso et] complexu generari. (179, 27) Non dari temperamentum (i. e. κράσις), neque continuitatem in corporibus neque etiam affectus in eo quod afficitur, nec insuper animatum et plantam in corpore uniri, neque mutationem, neque conversionem, neque accretionem continuam et quae eiusdem generis sunt, quae partim sensui perspicua sunt, partim hominum multitudini videntur.

342. (D.D.A 64). Alex. De mixt. 2 (II 214, 18 Bruns): Δ. μὲν οὖν ἠγοούμενος τὴν λεγομένην κράσιν γίνεσθαι κατὰ παράθεσιν σωμάτων, διαιρουμένων τῶν κίρναμένων εἰς μικρὰ καὶ τῆι παρ' ἀλλήλα θέσει τὴν μίξιν ποιουμένων, οὐδὲ τὴν ἀρχὴν φησὶν εἶναι πρὸς ἀλήθειαν τινα κεκραμένα, ἀλλ' εἶναι τὴν δοκοῦσαν κράσιν παράθεσιν σωμάτων ἀλλήλοις κατὰ μικρὰ σιζίζοντων αὐτῶν ἐκάστου τὴν οἰκείαν φύσιν, ἣν εἶχον καὶ πρὸ τῆς μίξεως· δοκεῖν δ' αὐτὰ κεκράσθαι τῶι τὴν αἰσθησὶν διὰ μικρότητα τῶν παρακειμένων μηδενὸς αὐτῶν αἰσθάνεσθαι δύνασθαι μόνου. (D.O) (214, 27) παραθέσει δὲ τοιαύτη τὰς κράσεις ἀνάπτουσι καὶ οἱ τὰς ὁμοιομερείας ὅλην εἶναι τῶν γινόμενων λέγοντες. Ἐπίκουρος δὲ φεύγειν βουλόμενος τὸ ὑπὸ Δημοκρίτου ῥηθὲν «οὐδὲ» ἐπεσθαι τοῖς παραθέσει τῶν κίρναμένων τὴν κράσιν γίνεσθαι λέγουσι, παραθέσει μὲν τινῶν σωμάτων<sup>1</sup> καὶ αὐτὸς τὰς κράσεις γίνεσθαι λέγει, ἀλλ' οὐκ αὐτῶν τῶν μιγνυμένων σωμάτων σιζιζόμενων ἐν τῆι διαιρέσει, ἀλλ' ἀναλυομένων εἰς τὰ στοιχεῖα καὶ τὰς ἀτόμους, ἐξ ὧν ἕκαστον αὐτῶν συγκείμενόν πως τὸ μὲν οἶνος ἦν, τὸ δὲ ὕδωρ, τὸ δὲ μέλι, τὸ δὲ ἄλλο τι...

#### V. Ignis per lucem producit calorem

342a. (D. O). Brunus. De rerum princip., p. 40v (Opera latine conscripta, Florentiae, 1891, vol. I, pars 3, p. 515, l. 16 sqq.): Bene ergo dixit D., lucem substantiam siccam<sup>1</sup> (i. e. οὐσίαν ξηράν), quae in humido producit calorem<sup>2</sup> et ex calore lucet, communicata vero atque diffusa a corpore lucido<sup>3</sup> per lucem producit calorem, ut patet in speculis, quae ex superficie concava perlectunt lucem et exsuscitant calorem in opposita corpora; et in amphoribus aqua plenis, quae superficie convexa in subiectum corpus immittunt lucem et ignem.<sup>4</sup>

#### VI. Innumeros esse mundos interitu obnoxios

343. (D.O). Aristot. De caelo I, 10, p. 279b 12: γενόμενον μὲν οὖν ἅπαντες εἶναι φασιν, ἀλλὰ γενόμενον οἱ μὲν αἰδίου οἱ δὲ φθαρτὸν ὡς περὶ ὅτι οὖν ἄλλο τῶν συνισταμένων... Alex. apud Simpl. et Simpl. ad loc. 294, 26: οἱ δὲ γενητόν, φησὶ (ὁ Ἀλέξανδρος), καὶ φθαρτὸν λέγοντες τὸν κόσμον ὡς ὅτι οὖν ἄλλο τῶν συνισταμένων εἶεν ἂν οἱ περὶ Δ. ὡς γὰρ ἕκαστον τῶν ἄλλων γίνεται καὶ φθείρεται κατ' αὐτοῦ, οὕτως καὶ τῶν κόσμων τῶν ἀπείρων ἕκαστος· ὡς γὰρ ἐπὶ τῶν ἄλλων τὸ γινόμενον οὐ ταῦτόν τῶι φθαρέντι, εἰ μὴ ἄρα κατ' εἶδος, οὕτως καὶ ἐπὶ τῶν κόσμων λέγουσιν... αἱ ἀτομοὶ αἱ αὐταὶ μένουσιν ἀπαθείς οὐσαι...

344. (D.O). Aristot. De caelo I, 10, p. 280a 23: τὸ δ' ὅλος γενόμενον φθαρήναι καὶ μὴ ἀνακάμπτειν<sup>1</sup> ὄντος μὲν ἐνός (sc. τοῦ κόσμου) ἀδύνατόν ἐστιν... (26) ἀπείρων δ' ὄντων ἐνδέχεται μᾶλλον. (D.D.A 82). Alex. apud Simpl. et Simpl. ad loc. 310, 5: «ἢ διάλυσις αὐτοῦ καὶ φθορὰ, ἥτις δύναμιν εἶχεν τοῦ γενέσθαι κόσμος... εἰς ἄλλον κόσμον, ὧν ἀπείρων ὄντων καὶ ἀλλήλους διαδεχομένων, οὐκ ἀνάγκη πάλιν ἐπὶ τὸν αὐτὸν τὴν ἐπάνοδον γίνεσθαι». οὕτως δὲ ἐδόκει τοῖς περὶ Δ. καὶ Δ... οἱ δὲ Δημοκρίτου κόσμοι εἰς ἑτέρους κόσμοις μεταβάλλοντες...

345. (D.L.A 21).<sup>1</sup> Simpl. in De caelo I, 5, p. 271b 1, p. 202, 16: Δ. δὲ καὶ Δ. ἀπείρους τῶι πλήθει τοὺς κόσμοις ἐν ἀπείρῳ τῶι κενῷ, καὶ ἐξ ἀπείρων τῶι πλήθει τῶν ἀτόμων συνιστάναι φησὶ. Simpl. in Phys. II, 4, p. 195b 36,

p. 331, 18: (οἱ δὲ περὶ Δ.)... τῶν κόσμων ἀπάντων πολλῶν ἢ καὶ ἀπείρων ὄντων κατ' αὐτοῦς.

346. (D.O). Themist. in Phys. II, 4, p. 195b 36, p. 49, 12: Δ. ... τοὺς ἀπείρους οὐρανοὺς καὶ τὴν δίνην... εἰς ἄλλο μὲν οὐδὲν αἰτίον ἀναφέροντες, τύχης δὲ ἀνάφαντες μόνης καὶ τοῦ αὐτομάτου. Simpl. in Phys. IV, 10, p. 218b 30, p. 701, 30: πλείους ἦσαν, φησὶν (ὁ Ἀριστοτέλης), οὐρανοί, ταυτέστι κόσμοι, ὡς περὶ ὑποτίθενται οἱ περὶ Δ. Philopon. in Phys. II, 4, p. 195b 28, p. 262, 2: ἀπείρους γὰρ κόσμοις ὑποτιθέμενος ὁ Δ. κατὰ τύχην μὲν ἔλεγεν ἐν ταῖς τῶι μέρει τοῦ κενοῦ ἀπείρου ὄντος τὸν κόσμον τοῦτον γενέσθαι, ἐν ἄλλῳ δὲ ἄλλον. ἀλλὰ καὶ αὐτῆς τῶν ὄντων διακοσμήσεως τὴν τύχην αἰτίαν φησὶν εἶναι.<sup>1</sup>

347. (D.O). Aristot. Phys. III, 4, p. 203b 25: ἀπείρου δ' ὄντος τοῦ ἔξω, καὶ σῶμα ἄπειρον εἶναι δοκεῖ καὶ κόσμοι· τί γὰρ μᾶλλον τοῦ κενοῦ ἐνταῦθα ἢ ἐνταῦθα; (v. № 1, cum testimoniis Philoponi et Simplicii ibidem allatis; № 139).

348. (D.O). Aristot. Phys. VIII, 1, p. 250b 18: ... ὅσοι μὲν ἀπείρους τε κόσμοις εἶναι φασιν, καὶ τοὺς μὲν γίνεσθαι τοὺς δὲ φθείρεσθαι τῶν κόσμων, αἰετῶς εἶναι κίνησιν. Simpl. ad loc. 1120, 18: «κοσμοποιεῖν» δὲ λέγει τοὺς φυσικοὺς. οὕτω γὰρ καὶ Δ. κοσμοποιεῖ... (1121, 5) οἱ μὲν γὰρ ἀπείρους τῶι πλήθει τοὺς κόσμοις ὑποθέμενοι, ὡς οἱ περὶ Ἀναξίμανδρον καὶ Δ. καὶ ὕστερον οἱ περὶ Ἐπίκουρον, γινόμενους αὐτοῦς καὶ φθειρομένους ὑπέθεντο ἐπ' ἄπειρον, ἄλλων μὲν αἰετῶς γινόμενων, ἄλλων δὲ φθειρομένων (v. №№ 300, 329).

349. (D.O). Alex. in Metaph. VI, 15, p. 1040a 33 (ἐτι ὅσα ἐπ' ἄλλου ἐνδέχεται, οἷον ἐάν ἕτερος γένηται τοιοῦτος, δηλον ὅτι ἥλιος ἔσται), p. 534, 7: ἐτι, φησὶν, ὅσα ἐπ' ἄλλου ἐνδέχεται ταυτέστιν ἐτι εἴπερ ἦσαν ἐκτός τοῦδε τοῦ κόσμου ἄλλοι κόσμοι, ὡς ὁ Δ. ἔφασκε, δηλον ὅτι καὶ οἱ ἐν ἐκείνοις τοῖς κόσμοις ἥλιοι περὶ γῆν ἂν διήρχοντο ἢ τῆι νυκτὶ ἐκρύπτοντο, ὥστε ὁ λόγος ὁ τοῦδε τοῦ ἡλίου κοινὸς ἂν καὶ ἡρμοῦς κακείνοις. (D.D.A 40). Hippol. Refut. I, 13 (Dox. 565, 16), 2: λέγει δὲ ὁμοίως Λευκίππει περὶ στοιχείων, πλήρους καὶ κενοῦ, τὸ μὲν πλήρες λέγων ὄν, τὸ δὲ κενὸν οὐκ ὄν. ἔλεγε δὲ ὡς αἰετῶς κινουμένων τῶν ὄντων ἐν τῶι κενῷ· ἀπείρους δὲ εἶναι κόσμοις καὶ μεγεθεὶ διαφέροντας.<sup>1</sup> ἐν τισὶ δὲ μὴ εἶναι ἥλιον μηδὲ σελήνην, ἐν τισὶ δὲ μείζω τῶν παρ' ἡμῖν καὶ ἐν τισὶ πλείω. (3) εἶναι δὲ τῶν κόσμων ἄμισα τὰ διαστήματα καὶ τῆι μὲν πλείους, τῆι δὲ ἐλάττους, καὶ τοὺς μὲν αὔξεσθαι, τοὺς δὲ ἀκμάζειν, τοὺς δὲ φθίνειν, καὶ τῆι μὲν γίνεσθαι, τῆι δ' ἐκλείπειν. φθείρεσθαι δὲ αὐτοῦς ὑπ' ἀλλήλων προσπίπτοντας. εἶναι δὲ ἐνίους κόσμοις ἐρήμους ζώων καὶ φυτῶν καὶ παντὸς ὕγροῦ.<sup>2</sup>

350. (D. O). Cic. De fin. I, 6, 21: (Epicuro a Democrito sunt) innumera-biles mundi, qui et oriantur et intereant cottidie. (D. D. A 81). Cic. Acad. priora II, 17, 55: Ais Democritum dicere innumerabiles esse mundos et quidem sic quosdam inter sese non solum similes, sed undique perfecte et absolute ita pares, ut inter eos nihil prorsus intersit.

351. (D.O). Philo. De aetern. 3 (VI, p. 75, 5 Cohn—Reiter = De mundo, t. II, § 8, p. 609 Mangeii): Δ. μὲν οὖν καὶ Ἐπίκουρος καὶ ὁ πολὺς ὄμιλος τῶν ἀπὸ τῆς Στοῆς φιλοσόφων, γένεσιν καὶ φθορὰν ἀπολείπουσι τοῦ κόσμου, πλὴν οὐχ ὁμοίως. οἱ μὲν γὰρ πολλοὺς κόσμοις ὑπογράφουσι, ὧν τὴν μὲν γένεσιν ἀλληλοτυπίας καὶ ἐπιπλοκαῖς ἀτόμων ἀνατιθέασι, τὴν δὲ φθορὰν ἀντικοπιᾶς καὶ προσράξει τῶν γεγονότων...

352. (D. 12 A 17). Aët. II, 1, 3 (Dox. 327): Ἀναξίμανδρος, Ἀναξίμανδρος, Ἀναξίμανδρος, Ἐπιφάνης, Διογένης, Δ., Δ., Ἐπίκουρος ἀπείρους κόσμοις ἐν τῶν ἀπείρῳ κατὰ πᾶσαν περιαγωγὴν...<sup>1</sup> (= Cyrill. Alex. Contra Iulian. II, 46).

353. (D.L.A 22). Aët. II, 4, 6 (Dox. 331): Ἀναξίμανδρος... Δ. φθαρτὸν τὸν κόσμον. (D.D.A 84). Aët. II, 4, 9 (Dox. 331): Δ. φθείρεσθαι τὸν κόσμον τοῦ μείζονος τὸν μικρότερον νικῶντος.

354. (D.O). Plut. Quaest. conv. VIII, 9, 3, p. 733 C: καίτοι τοὺς γε Δημοκρίτειους ἴσμεν καὶ λέγοντας καὶ γράφοντας, ὅτι καὶ κόσμοις ἐκτός φθαρέντων, καὶ σωμάτων ἀλλοφύλων ἐκ τῆς ἀπορροίας ἐπιρρεόντων, ἐνταῦθα πολλάκις ἀρχαὶ παρεμπίπτουσι λοιμῶν καὶ παθῶν οὐ συνήθων.



355. (D.L.A 1). Diog. IX, 31: (Λ.) κόσμους τε ἐκ τούτου (sc. ἐκ τοῦ πλήρους καὶ τοῦ κενοῦ) ἀπείρους εἶναι καὶ διαλύεσθαι εἰς ταῦτα (sc. εἰς τὰ στοιχεῖα) (cf. D.D.A 1).

356. (D.D.A 1). Diog. IX, 44: (Δ. λέγει) ἀπείρους τε εἶναι κόσμους καὶ γενητοὺς καὶ φθαρτοὺς.

357. (D.O). Theodoret. IV, 15 (Dox. 327): Λ. καὶ Δ., καὶ Ἐπίκουρος πολλοὺς εἶναι καὶ ἀπείρους (sc. τοὺς κόσμους) ἐδόξασαν.

358. (D. O). Ambros. Hexaemer. I, 1, 2 (P. L. 14, p. 123 C): Nam Pythagoras unum mundum asserit: alii innumerabiles dicunt esse mundos, ut scripsit D., cui plurimum de physicis vetustas auctoritatis detulit. . .

359. (D. O).<sup>1</sup> August. Contra acad. III, 10, 23 (P. L. 32, p. 945): Quomodo enim inter D. et superiores physicos de uno mundo et innumerabilibus litem diiudicabimus, cum inter ipsum heredemque eius Epicurum concordia manere nequiverit?

360. (D.O). Ioann. Saresb. Polycrat. VIII (P.L. 199, pp. 722—723): Alexandri pectus laudis insatiabile, qui Anaxarcho,\* comiti suo, ex auctoritate Democriti praeceptoris, innumerabiles mundos esse referenti: «Heu me, inquit, miserum, quod nec uno quidem adhuc potitus sum!». Elias in Categ. 112, 23: καὶ ποτε τοῦ Ἀριστοτέλους εἰπόντος, ὅτι ἀπειροὶ κόσμοι κατὰ Δημόκριτον, ἐπιδακρῦσαι φασὶ τὸν Ἀλέξανδρον, ὅτι οὐδ' ἐνός ὄλου κόσμου ἠδυνήθη ἐπικρατῆσαι. . .<sup>1</sup>

## VII. Num etiam extra τοὺς κόσμους gravitas et summum et infimum sit

361. (D.D.A 56). Cic. De fin. I, 6, 17: Ille (D.) . . . in infinito inani, in quo nihil nec summum, nec infimum, nec medium, nec ultimum, nec extremum sit. . . (D.O). Aristot. De caelo IV, 1, p. 308a 17: ἄτοπον γὰρ τὸ μὴ νομίζειν εἶναι τι ἐν τῷ οὐρανῷ τὸ μὲν ἄνω τὸ δὲ κάτω, καθάπερ τινὲς ἀξιοῦσιν· οὐ γὰρ εἶναι τὸ μὲν ἄνω, τὸ δὲ κάτω φασίν, εἴπερ πάντη ὁμοίος ἐστὶ.<sup>1</sup> Simpl. ad loc. 679, 1: «εἰπὼν . . . τί μὲν τὸ ἄνω αὐτὸς οἰεῖται τί δὲ τὸ κάτω, ἀντιλέγει μεταξὺ πρὸς τοὺς μὴ νομίζοντας εἶναι τι τῷ κόσμῳ τὸ μὲν ἄνω τὸ δὲ κάτω. ταύτης δὲ γεγονάσι τῆς δόξης Ἀναξίμανδρος καὶ Δ. διὰ τὸ ἀπειρον ὑποτίθεσθαι τὸ πᾶν ἐν γὰρ τῷ ἀπειρῷ οὐδὲν ἐστὶν ἄνω ἢ κάτω φύσει· ὅροι γὰρ ταῦτα καὶ πέρατα διαστάσεως· ἄλλοι δὲ, ὧν καὶ ὁ παρὰ Πλάτωνι Τίμαιος (63 A), πρὸς ὃν μάλιστα ἀποτεινεται, οὐκ ἀξιοῦσιν ἐν τῷ κόσμῳ εἶναι τὸ μὲν ἄνω τὸ δὲ κάτω διὰ τὴν ὁμοιότητα. Epicur. Epist. I, 60: καὶ μὴν καὶ τοῦ ἀπειροῦ, ὡς μὲν <τὸ> ἀνωτάτω ἢ κατωτάτω, οὐ δεῖ κατηγορεῖν τὸ ἄνω ἢ κάτω.<sup>2</sup>

362. (D.O). Aristot. De caelo III, 1, p. 299a 25: εἰ δὴ τῶν ἀδυνάτων ἐστὶν ἑκατέρου μέρους μὴδὲν ἔχοντος βάρους τὰ ἄμφω ἔχειν βάρους, τὰ δ' αἰσθητὰ σώματα πάντα ἢ ἓνια βάρους ἔχει, οἷον ἢ γῆ καὶ τὸ ὕδωρ, ὡς κἂν αὐτοὶ φαίεν, εἰ ἢ στιγμή μὴδὲν ἔχει βάρους . . . οὐδὲ τῶν σωμάτων οὐδὲν. . .<sup>1</sup> ἀλλὰ μὴν οὐδ' ἐκ μὴ ἔχοντων βάρους ἐστὶ βάρους. τὸ τε γὰρ ἐπὶ πόσων συμβήσεται τοῦτο καὶ ἐπὶ ποίων, πῶς διοριῶσι μὴ βουλόμενοι πλάττειν; καὶ εἰ πᾶν μείζον βάρους βάρους βάρει, συμβήσεται καὶ ἕκαστον τῶν ἀμερῶν βάρους ἔχειν· εἰ γὰρ αἱ τέσσαρες στιγμαὶ<sup>2</sup> βάρους ἔχουσι, τὸ δ' ἐκ πλειόνων ἢ τοδὶ βαρέος ὄντος βαρύτερον, τὸ δὲ βαρέος βαρύτερον ἀνάγκη βαρὺ εἶναι. . . ὥστε τὸ μείζον μᾶλλον στιγμῆ βαρύτερον ἐστὶ ἀφαιρεθέντος τοῦ ἴσου, ὥστε καὶ ἢ μία στιγμή βάρους ἔξει. . . Aristot. Metaph. I, 4, p. 985b 19: περὶ δὲ κινήσεως,<sup>3</sup> ὅθεν ἢ πῶς ὑπάρχει τοῖς οὐσί, καὶ οὗτοι (Λ. δὲ καὶ ὁ ἐταῖρος αὐτοῦ Δ.) ῥαθύμως ἀφείσαν. Alex. ad loc. 36, 21: λέγει μὲν περὶ Λ. καὶ Δ. . . οὐδὲ γὰρ τὸ πόθεν ἢ βαρύτερος ἐν ταῖς ἀτόμοις λέγουσι. τὰ γὰρ ἀμερῆ τὰ ἐπινοούμενα ταῖς ἀτόμοις καὶ μέρη ὄντα αὐτῶν ἀβαρῆ φασὶν εἶναι. ἐκ δὲ ἀβαρῶν συγχευμένων πῶς ἂν βάρους γέννηται; εἴρηκε δὲ περὶ τούτων ἐπὶ πλέον ἐν τῷ τρίτῳ Περὶ οὐρανοῦ<sup>4</sup> (III, 1, p. 299a 25).

363. (D.D.A 135). Theophr. De sensu 68 (Dox. 513): ἄτοπον δ' ἂν φανείη . . . βαρὺ μὲν καὶ κοῦφον, καὶ μαλακὸν καὶ σκληρὸν, καὶ μεγέθει καὶ σμικρότητι, καὶ τῷ

μανῶι καὶ πυκνῶι <διορίσαι><sup>5</sup> (τὸν Δ.) . . . βαρέος μὲν καὶ κοῦφου, καὶ σκληροῦ καὶ μαλακοῦ καθ' αὐτὰ ποιεῖν φύσεις (μέγεθος μὲν γὰρ καὶ σμικρότης καὶ τὸ πυκνὸν καὶ τὸ μανὸν οὐ πρὸς ἕτερον ἐστὶ). . .<sup>1</sup>

364. = № 313. (D.D.A 58). Simpl. in Phys. VIII, 9, p. 265b 24, p. 1318, 34: ταῦτα γὰρ (sc. τὰ ἄτομα σώματα) . . . κατὰ τὴν ἐν αὐτοῖς βαρύτερα κινούμενα . . . διὰ τοῦ κενοῦ εἰκόντος καὶ μὴ ἀντιτιποῦντος κατὰ τόπον κινεῖσθαι περιπαλάσσεσθαι.<sup>1</sup> γὰρ ἔλεγον αὐτὰ (οἱ περὶ Δ.).

365. (D.D.A 47). Aët. I, 3, 18 (Dox. 285) (= Euseb. Praep. Evang. XIV, 14): Δ. μὲν γὰρ ἔλεγε δύο, μέγεθος τε καὶ σχῆμα, ὁ δὲ Ἐπίκουρος τούτους καὶ τρίτον βάρους προσέθηκεν· ἀνάγκη γὰρ, φησί, κινεῖσθαι τὰ σώματα τῆι τοῦ βάρους πληγῆι. 12, 6 (Dox. 311): Δ. τὰ πρῶτα φησὶ σώματα (ταῦτα δ' ἦν τὰ ναστά) βάρους μὲν οὐκ ἔχειν, κινεῖσθαι δὲ κατ' ἀλληλοτυπίαν ἐν τῷ ἀπειρῷ.<sup>1</sup> Cic. De fato 20, 46: Declinat, inquit (Epicurus), atomus. Primum cur? Aliam enim quandam vim motus habebant a Democrito impulsione quam plagam ille appellat, a te, Epicure, gravitatis et ponderis.<sup>2</sup>

366. (D.O). Philopon. in Phys. II, 4, p. 196a 24, p. 262, 3: ὁ Δ. . . ἔλεγον . . . ὁ ἄηρ . . . οὐκ ἔαυ αὐτὴν (τὴν γῆν) καταπίπτειν.<sup>1</sup>

## c. DE MUNDI MECHANICA TEMPERATIONE

### I. Omnia ad centrum turbinis nitī. De gravitate

367. (D.O). Aristot. De caelo I, 8, p. 277a 33: ἀλλὰ μὴν οὐδ' ὑπ' ἄλλου φέρεται αὐτῶν τὸ μὲν ἄνω τὸ δὲ κάτω· οὐδὲ βίαι,<sup>1</sup> ὥσπερ τινὲς φασὶ τῆι ἐκθλίψει. . . (6) τῆι βίαι καὶ τῆι ἐκθλίψει. Simpl. ad loc. 267, 30: ταύτης δὲ γεγονάσι τῆς δόξης μετ' αὐτὸν Στράτων τε καὶ Ἐπίκουρος (276 Us.) (268) πᾶν σῶμα βαρύτερα ἔχειν νομίζοντες καὶ πρὸς τὸ μέσον φέρεσθαι, τῷ δὲ τὰ βαρύτερα ὑφίστανται τὰ ἥττον βαρέα ὑπ' ἐκείνων ἐκθλίβεσθαι βίαι πρὸς τὸ ἄνω, ὥστε εἰ τις ὑφείλε τὴν γῆν, ἔλθειν ἂν τὸ ὕδωρ εἰς τὸ κέντρον, καὶ εἰ τις τὸ ὕδωρ, τὸν ἀέρα, καὶ εἰ τὸν ἀέρα, τὸ πῦρ. . . (268, 32) οἱ δὲ τοῦ πάντα πρὸς τὸ μέσον φέρεσθαι κατὰ φύσιν τεκμήριον κομίζοντες τὸ τῆς γῆς ὑποσπομένης τὸ ὕδωρ ἐπὶ τὸ κάτω φέρεσθαι καὶ τοῦ ὕδατος τὸν ἀέρα. . . (269, 4) ἰστέον δὲ, ὅτι οὐ Στράτων μόνος οὐδὲ Ἐπίκουρος πάντα ἔλεγον εἶναι τὰ σώματα βαρέα, καὶ φύσει μὲν ἐπὶ τὸ κάτω φερόμενα, παρὰ φύσιν δὲ ἐπὶ τὸ ἄνω . . . καὶ γὰρ οἱ τὰς ἀτόμους λέγοντες ναστάς οὕσας βαρείας ἔλεγον αὐτὰς καὶ βάρους τοῖς συνθέτοις αἰτίας, ὥσπερ κουφότητος τὸ κενόν.

368. (D.D.A 60). Aristot. De gen. et corr. I, 8, p. 326a 9: καίτοι βαρύτερόν γε κατὰ τὴν ὑπεροχὴν<sup>1</sup> φησὶν εἶναι Δ. ἕκαστον τῶν ἀδιαίρετων. Aristot. De caelo IV, 2, p. 309a 1: τοῖς δὲ στερεά (τὰ πρῶτα λέγουσιν) μᾶλλον ἐνδέχεται λέγειν τὸ μείζον εἶναι βαρύτερον αὐτῶν. τῶν δὲ συνθέτων, ἐπειδήπερ οὐ φαίνεται τοῦτον ἔχειν ἕκαστον τὸν τρόπον, ἀλλὰ πολλὰ βαρύτερα ὀρθῶν ἐλάττω τὸν ὄγκον ὄντα καθάπερ ἐρίου χαλκόν, ἕτερον τὸ αἰτίον οἰονταί τε καὶ λέγουσιν εἶναι· τὸ γὰρ κενὸν ἐμπεριλαμβανόμενον κουφίζειν τὰ σώματά φασὶ καὶ ποιεῖν ἐστὶν ὅτε τὰ μείζω κουφότερα· πλεῖον γὰρ ἔχειν κενόν . . . λέγουσι μὲν οὖν τοῦτον τὸν τρόπον, ἀνάγκη δὲ προσθεῖναι<sup>2</sup> τοῖς οὕτω διορίζουσιν μὴ μόνον τὸ κενὸν ἔχειν πλεῖον, ἂν ἢ κουφότερον, ἀλλὰ καὶ τὸ στερεὸν ἐλάττω· εἰ γὰρ ὑπερέξει τῆς τοιαύτης ἀναλογίας, οὐκ ἐστὶ κουφότερον.<sup>3</sup> διὰ γὰρ τοῦτο καὶ τὸ πῦρ εἶναι φασὶ κουφώτατον, ὅτι πλεῖστον ἔχει κενόν, συμβήσεται οὖν μικροῦ πυρὸς πολλὸν χρυσοῦ πλεῖον ἔχοντα τὸ κενόν· εἶναι κουφότερον, εἰ μὴ<sup>4</sup> καὶ στερεὸν ἔξει πολλαπλάσιον . . . ἐναντίας δὲ<sup>5</sup> (sc. τῆς ὕλης οὐσης) (p. 310a) καθάπερ οἱ τὸ κενόν καὶ πλήρες οὐκ ἐστὶ <εἰπεῖν><sup>6</sup> τὰ μεταξὺ<sup>6</sup> τῶν ἀπλῶς βαρέων καὶ κοῦφων διὰ τίν' αἰτίαν βαρύτερα καὶ κουφότερα ἀλλήλων καὶ τῶν ἀπλῶν ἐστίν. τὸ δὲ μεγέθει καὶ σμικρότητι διορίζειν πεπλασμένῳ μὲν εἶσι μᾶλλον τῷ πρότερον . . . καὶ μὴ<sup>7</sup> ἀπλῶς εἶναι μὴδὲν κοῦφον μήτε φερόμενον ἄνω, ἀλλ' ἢ ὑστερίζον ἢ ἐκθλιβόμενον, καὶ πολλὰ μικρὰ ὀλίγων μεγάλων βαρύτερα εἶναι.<sup>7</sup> εἰ δὲ τοῦτο ἐστὶν, συμβήσεται πολλὸν ἀέρα καὶ πολλὸ πῦρ ὕδατος εἶναι βαρύτερα καὶ γῆς ὀλίγη. τοῦτο δ' ἐστὶν

ἀδύνατον. Simpl. ad loc. 684, 20: μέτεισιν ἐπὶ τοὺς περὶ Δ. καὶ Δ. τοῦ μὲν βάρους τὴν τῶν ἀτόμων αἰτιωμένους ναστότητα, τῆς δὲ κορυφότητος τὴν τοῦ κενοῦ παρεμπλοκήν... (685, 17) «τὸ γὰρ κενόν... τὰ σώματα κορυφίζουσιν»... καθόλου δὲ καὶ πάντως τοῦ κορυφότερου αἰτίων εἶναι νομίζουσι τὸ πλεόν ἐνυπάρχειν αὐτῶν κενόν. (693, 4) ἀλλ' οὐδὲ οἱ τὸ κενόν καὶ πλήρες αἰτιώμενοι τῆς κατὰ κορυφότητα καὶ βαρύτητα διαφορᾶς τῶν στοιχείων τὴν αἰτίαν εἶχον ἀπολογίζεσθαι. οἱ γὰρ μὴ ἔχοντες εἰπεῖν, διὰ τί τὸ μὲν κενόν κορυφόν ἐστὶ, τὸ δὲ στερεόν βαρὺ, οὐδὲ τῶν ἐκ τούτων συγκειμένων τῆς διαφορᾶς τὴν αἰτίαν ἔχουσι λέγειν. (9) αἰτιᾶται δὲ καὶ τοὺς μεγέθει καὶ σμικρότητι διορίζοντας ὡς τῶν ἐν ὑποκείμενον καὶ μίαν φύσιν ποιεῖν τῶν τῶν μεγέθει διαφερόντων τοῖς αὐτοῖς ἐνεχομένοις, οἷς καὶ οἱ μίαν ὕλην ποιοῦντες ἐνεχόντο.<sup>8</sup> ταῦτα δὲ ἦν τὸ μὴ εἶναι τὸ μὲν ἀπλῶς κορυφόν καὶ φερόμενον ἄνω κατ' αὐτούς, τὸ δὲ ἀπλῶς βαρὺ καὶ φερόμενον κάτω· πάντα γὰρ μίαν ἔξει φυσικὴν ῥοπήν κατ' αὐτούς,<sup>9</sup> ἢ πλείω δὲ ἢ ἐλάσσω ταύτην, οὐ μὴν διάφορον κατ' εἶδος εἴπερ ἐν τὸ ὑποκείμενον. εἰ δὲ μὴ ἐστὶ τὸ φερόμενον ἄνω φύσει, δῆλον, ὅτι τὰ νῦν ἄνω φέρεσθαι δοκοῦντα ἢ ὑστερίζοντα καὶ προλαμβάνοντα<sup>10</sup> ὑπὸ τῶν βαρυτέρων ἐν τῇ ἐπὶ τὸ κάτω φορᾷ ἄνω δοκεῖ εἶναι, ἢ ἐκθλιβόμενα ὑπὸ τῶν βαρυτέρων ἐπὶ τὸ ἄνω φέρεται βίαι, ἀλλ' οὐ κατὰ φύσιν... (25) τοῦτο δὲ, φησὶν Ἀλέξανδρος,<sup>11</sup> δύναται καὶ πρὸς τοὺς περὶ Δημόκριτον λέγεσθαι, οἱ ἐκ τῶν μικρῶν σφαιρικῶν ἀτόμων ἔλεγον συντίθεσθαι τὸ πῦρ. (D.D.A 61). Simpl. ad loc. 569, 5: οἱ γὰρ περὶ Δημόκριτον καὶ ὕστερον Ἐπικούρου τὰς ἀτόμους πάσας ὁμοφυσεῖς οὐσας βάρους ἔχειν φασί, τῶν δὲ εἶναι τινα βαρύτερα ἐξωθούμενα τὰ κορυφότερα ὑπ' αὐτῶν ὑφικανόντων ἐπὶ τὸ ἄνω φέρεσθαι, καὶ οὕτω λέγουσιν οὗτοι δοκεῖν τὰ μὲν κορυφα εἶναι τὰ δὲ βαρέα. (712, 27) οἱ περὶ Δημόκριτον οἰοῦνται πάντα μὲν ἔχειν βάρους, τῶν δὲ ἐλαττον ἔχειν βάρους τὸ πῦρ ἐκθλιβόμενον ὑπὸ τῶν προλαμβάνοντων ἄνω φέρεσθαι καὶ διὰ τοῦτο κορυφόν δοκεῖν. τούτοις δὲ τὸ βαρὺ μόνον εἶναι δοκεῖ καὶ αἰεὶ φέρεσθαι πρὸς τὸ μέσον τοῦτο.

369. (D.D.A 135). Theophr. De sensu 61 sqq. (Dox. 513): βαρὺ μὲν οὖν καὶ κορυφόν τῶν μεγέθει διαιρεῖ Δ.· εἰ γὰρ διακριθεῖη καθ' ἐν ἑκάστον, εἰ καὶ κατὰ σχῆμα διαφέρει, σταθμὸν ἂν ἐπὶ μεγέθει<sup>1</sup> τὴν φύσιν ἔχειν.<sup>2</sup> οὐ μὴν ἀλλ' ἐν γε τοῖς μεικτοῖς κορυφότερον μὲν εἶναι τὸ πλεόν ἔχον κενόν,<sup>3</sup> βαρύτερον δὲ τὸ ἐλαττον. ἐν ἐνίοις μὲν οὕτως εἴρηκεν. (62) ἐν ἄλλοις δὲ κορυφόν εἶναι φησὶν ἀπλῶς τὸ λεπτόν. παραπλησίως δὲ καὶ περὶ σκληροῦ καὶ μαλακοῦ. σκληρὸν μὲν γὰρ εἶναι τὸ πυκνόν, μαλακὸν δὲ τὸ μαρόν. καὶ τὸ μᾶλλον δὲ καὶ ἥττον καθορίζει<sup>4</sup> μάλιστα<sup>5</sup> κατὰ λόγον. διαφέρειν δὲ τι τὴν θέσιν καὶ τὴν ἐναπόληψιν<sup>4</sup> τῶν κενῶν τοῦ σκληροῦ καὶ μαλακοῦ καὶ βαρέος καὶ κορυφου. διὸ σκληρότερον μὲν εἶναι σιδήρον, βαρύτερον δὲ μόλυβδον· τὸν μὲν γὰρ σιδήρον ἀνωμάλως συγκεῖσθαι καὶ τὸ κενόν ἔχειν πολλαχῆ καὶ κατὰ μεγάλα, πεπυκνωσθαι δὲ κατὰ ἕνια, ἀπλῶς δὲ πλεόν ἔχειν κενόν. τὸν δὲ μόλυβδον ἐλαττον ἔχοντα κενόν ὁμαλῶς συγκεῖσθαι κατὰ πᾶν ὁμοίως· διὸ βαρύτερον μὲν, μαλακώτερον δ' εἶναι τοῦ σιδήρου. (71) καίτοι τὸ γε βαρὺ καὶ κορυφόν ὅταν διορίζῃ τοῖς μεγέθεισιν, ἀνάγκη τὰ ἀπλᾶ πάντα τὴν αὐτὴν ἔχειν ὁρμὴν τῆς φορᾶς,<sup>5</sup> ὥστε<sup>6</sup> μῖα τις ἂν ὕλης εἴη καὶ τῆς αὐτῆς φύσεως.

370. (D. 59 A 88). Aristot. De caelo II, 13, p. 295a 9: ... εἰ βίαι νῦν ἢ γῆ μένει, καὶ συνῆλθεν ἐπὶ τὸ μέσον φερομένη διὰ τὴν δίνην· ταύτην γὰρ τὴν αἰτίαν πάντες λέγουσιν ἐκ τῶν ἐν τοῖς ὕδροις καὶ περὶ τὸν ἀέρα συμβαινόντων· ἐν τούτοις γὰρ αἰεὶ φέρεται τὰ μείζω καὶ βαρύτερα πρὸς τὸ μέσον τῆς δίνης, διὸ δὴ καὶ τὴν γῆν πάντες ὅσοι τὸν οὐρανὸν γεννώσιν, ἐπὶ τὸ μέσον συνελθεῖν φασιν.<sup>1</sup> (D.O). Simpl. ad loc. 526, 34 sqq.: εἶτα μεταξὺ εἰπὼν, ὅτι διὰ τὴν δίνην τοῦ οὐρανοῦ εἰς τὸ μέσον συνελθεῖν τὴν γῆν λέγουσι πάντες οἱ γένεσιν τοῦ κόσμου παραδιδόντες (οὐ γὰρ Ἐμπεδοκλῆς μόνος, ἀλλὰ καὶ οἱ περὶ Ἀναξαγόραν καὶ ἄλλοι)<sup>2</sup> καὶ ὅτι πρὸς τοῦτο ἠνέχθησαν ἐκ τοῦ καὶ τὰς ἐν ὕδατι καὶ τὰς ἐν ἀέρι γινόμενας συστροφὰς τὰ μείζω καὶ βαρύτερα τῶν σωμάτων πρὸς τὸ μέσον συνωθεῖν καὶ τοῦ μὲν ἐνεχθῆναι κατ' ἀρχὰς τὴν δίνην αἰτιῶνται. (D.O). Simpl. ad loc. 530, 29: οἱ γὰρ τὸν κόσμον γεννῶντες ἐξ ἀρχῆς ὑπὸ τῆς δίνης εἰς τὸ μέσον ἀπωσθεῖσαν τὴν γῆν, ὡς τὰ κάρφη τὰ ἐν τοῖς δινομένοις ὕδασι (sc. φασί) μένειν λοιπὸν ἐν τῶν μέσῳ βίαι. (D.O; v. № 18). Philopon. in Phys. II, 4, p. 196a 24, p. 265, 6: τὴν δίνην δὲ τὴν εἰς τοιαύτην τάξιν τὸ πᾶν καταστήσασαν ὅπως ἔχει νῦν, ὥστε συμπεριάγεσθαι τῶν οὐρανῶν τὸν ἀέρα, διὰ τὴν ὀξεῖαν δὲ περιδίνην τὴν γῆν ἐν τῶν μέσῳ φυλάττεσθαι. Cf. №№ 288, 289.

371. (D.D.A 93a).<sup>1</sup> Seneca. Nat. quaest. V, 2: D. ait: «Cum in angusto inani multa sint corpuscula (quae ille atomos vocat), sequi ventum. At contra quietum et placidum aëris statum esse, cum in multo inani pauca sint corpuscula. Nam quemadmodum in foro aut vico, quamdiu paucitas est, sine tumultu ambulatur, ubi turba in angustum concurrat, aliorum in alios incidentium rixa fit: sic in hoc quo circumdati sumus spatio, cum exiguum locum multa corpora impleverint, necesse est alia aliis incidant et impellant ac repellantur implicenturque et comprimentur, ex quibus nascitur ventus, cum illa quae colluctabantur, incubuere et diu fluctuata ac dubia inclinavere se. At ubi in magna laxitate corpora pauca versantur, nec arietare possunt nec impelli». (D.O). Themist. in Phys. IV, 9, p. 216b 23, p. 135, 15 (tractatur de iis qui οἰοῦνται τὸ κενόν εἶναι, εἴπερ ἐστὶ ἢ κατὰ τόπον κίνησις): ὅταν τι κατὰ τόπον κίνηται, συσπυκνόμενα τὰ παρακείμενα σώματα δι' ὧν δίδουσι, παρέχει χώραν τοῖς δι' αὐτῶν κινουμένοις, ὥσπερ τοῖς διὰ πλήθους βαδίζουσι... (D.O). Simpl. ad loc. 683, 6: τὴν τε γὰρ κατὰ τόπον (sc. κίνησιν) οὐκ ἄλλως γίνεσθαι φασὶν ἢ συσπυκνόμενων καὶ πιλομένων τῶν σωμάτων καὶ χώραν τοῖς δι' αὐτῶν κινουμένοις παρεχόντων, ὥσπερ τοῖς διὰ πλήθους βαδίζουσι... (D.O). Aristot. De caelo II, 14, p. 297a 8:<sup>2</sup> ἑκάστον... τῶν μορίων βάρους ἔχει μέρη πρὸς τὸ μέσον, καὶ τὸ ἐλαττον ὑπὸ τοῦ μείζονος ὠθούμενον οὐχ οἷόν τε κυμαίνειν, ἀλλὰ συμπιέζεσθαι μᾶλλον καὶ συγχωρεῖν ἕτερον ἐτέρωι, ἕως ἂν ἔλθῃ ἐπὶ τὸ μέσον. δεῖ δὲ νοῆσαι τὸ λεγόμενον ὥσπερ ἂν εἰ γινόμενης (sc. γῆς) τρόπον ὃν καὶ τῶν φυσιολόγων λέγουσι τινες γενέσθαι. πλὴν ἐκεῖνοι μὲν βίαν αἰτιῶνται τῆς κάτω φορᾶς.<sup>3</sup>

372. (D.L.A 24). [Plut.] Plac. I, 4, 2 = Aët. I, 4 (Dox. 289): ἀθροισμένων δ' ἐν ταῦτῳ τούτων (sc. τῶν σωμάτων) τὰ μὲν ὅσα μείζονα ἦν καὶ βαρύτερα πάντως ὑπεκάθιζεν ὅσα δὲ μικρὰ καὶ περιφερῆ καὶ λεῖα καὶ εὐόλιστα, ταῦτα καὶ ἐξεθλίβετο κατὰ τὴν σύνοδον τῶν ἀτόμων εἰς τε τὸ μετέωρον ἀνεφέρετο (v. № 383 adn.).

373. (D.L.A 17). Herm. Irris. 12 (Dox. 654): ὁ Δ. ... ἀρχὰς εἶναι φησὶ τὰ ἄπειρα καὶ ἀσικίνητα<sup>4</sup> καὶ ἐλάχιστα· καὶ τὰ μὲν λεπτομερῆ ἄνω χωρήσαντα πῦρ καὶ ἀέρα γενέσθαι τὰ δὲ παχυμερῆ κάτω ὑποστάντα ὕδωρ καὶ γῆν.

374. (D. O).<sup>1</sup> Alphonso. De quadratura circuli, fol. 99a (mea interpretatio e lingua hebraica): ... et pars quaeque locum sibi congruentem in universo quaeret (i. e. «quanto maius corpus eiusdem ponderis est, tanto magis ad cycli peripheriam appropinquabit, quanto autem minus est, tanto magis ad centrum appropinquabit»). Ecce omnino ea causa levitatis gravitatisque, quae a Platone, Democrito, Leucippo (?) ceterisque viris antiquis prolata est.

374a. (D.D.A 12). Megasthen. apud Strab. XV, p. 703: ἐν δὲ τῇ ὀρεινῇ (sc. τῆς Ἰνδικῆς) Σίλαν ποταμὸν εἶναι, ὅι μὴδὲν ἐπιπλεῖ. Δημόκριτον μὲν οὖν ἀπίστεῖν... καὶ Ἀριστοτέλης δὲ ἀπίστεῖ (= №№ XXII, 408).

## II. Motus corporis pendet ex forma eius nec non e materia medii in quo corpus movetur. Frictio

375. (D.D.A 62). Aristot. De caelo IV, 6, p. 313a 14:<sup>1</sup> τὰ δὲ σχήματα οὐκ αἰτία τοῦ φέρεσθαι ἀπλῶς ἢ κάτω ἢ ἄνω, ἀλλὰ τοῦ θάπτον ἢ βραδύτερον... ἀπορεῖται γὰρ νῦν διὰ τί τὰ πλατέα σιδήρια καὶ μόλιβδος ἐπιπλεῖ ἐπὶ τοῦ ὕδατος, ἀλλὰ δὲ ἐλάττω καὶ ἥττον βαρέα, ἂν ἦι στρογγύλα ἢ μακρά, οἷον βελόνη, κάτω φέρεται, καὶ ὅτι ἕνια διὰ μικρότητα ἐπιπλεῖ, οἷον τὸ φῆγμα καὶ ἄλλα γεώδη καὶ κανιορῶδη ἐπὶ τοῦ ἀέρος. περὶ δὲ τούτων ἀπάντων τὸ μὲν νομίζειν αἰτίων εἶναι, ὥσπερ Δ., οὐκ ὀρθῶς ἔχει. ἐκεῖνος γὰρ φησὶ τὰ ἄνω φερόμενα θερμὰ ἐκ τοῦ ὕδατος ἀνοχωρεῖν τὰ πλατέα τῶν ἐχόντων βάρους, τὰ δὲ στενὰ διαπίπτειν· ὀλίγα γὰρ εἶναι τὰ ἀντικρούοντα αὐτοῖς. εἶδει δ' ἐν τῶν ἀέρι εἶτι μᾶλλον τοῦτο ποιεῖν, ὥσπερ ἐνίσταται κάκεινος αὐτός. ἀλλ' ἐνοστὰς λύει μαλακῶς· φησὶ γὰρ οὐκ εἰς ἐν ὁρμᾶν τὸν σῶν, λέγων «σοῦν» τὴν κίνησιν τῶν ἄνω φερομένων σωμάτων. Simpl. ad loc. 730, 9: ἔλυσε δὲ τὴν ἀπορίαν τέως ὁ Δ. λέγων τὰ ἐκ τοῦ ὕδατος ἀναφερόμενα θερμὰ· εἶναι γὰρ πάντων σπέρματα ἐν πᾶσι,<sup>2</sup> διὸ καὶ γίνεσθαι πάντα ἐκ πάντων ταῦτα δὴ τοῖς πλάτεσιν ἀντικρούοντα

πολλά ὄντα ἐκ πλείονος τοῦ ὑπὸ τὰ πλατέα ὕδατος «ἀναχωθεῖν». αὐτά, τουτέστιν ἀνοχεῖν, τὰ δὲ στενά ὀλίγων ὄντων τῶν ὑπαντῶντων αὐτοῖς θερμῶν διολισθαίνειν αὐτῶν τὴν ἀντέρεισιν... (18) διὰ τοῦτο γὰρ φησιν ἐν τῷ ἀέρι μὴ ἀνέχεσθαι τὰ πλατέα ὑπὸ τῶν ἀναδιδομένων θερμῶν, ὅτι μὴ πεπύκνωται ταῦτα ἐν τῷ ἀέρι λεπτοῦ τε ὄντι καὶ κεχυμένῳ, ὡς περ ἐν τῷ ὕδατι· διεσπαρμένων οὖν αὐτῶν οὐκ εἰς ἐν ὀρμαίῃ ἢ κίνησις αὐτῶν, ὥστε ἀνέχειν τὸ ὑπερκείμενον, κἂν πλατὺ ᾖ. ἐν δὲ τῷ ὕδατι παχυτέρῳ τε καὶ σπερροτέρῳ ὄντι συγκροτεῖται καὶ πυκνοῦται μᾶλλον τὰ ἀναφερόμενα θερμά· λέγει δὲ ἂν ἴσως καὶ τὸ εὐκίνητον τοῦ ἀέρος αἴτιον τοῦ σκεδασμοῦ. Themist. ad loc. 246, 38: «Democritus enim»<sup>a</sup> putabat causam, cur corpora, quae lata sunt, innatent, et quae angusta sunt, in profundum ferantur, insectilia esse corpuscula, quae ignis essentia praedita sunt, cum ex aqua sursum exspirant ac dissolvuntur. Dum enim latis corporibus occurrunt, cum multa sint insectilia, ea sustinent ac ferunt; cum autem angustis corporibus obviant, quia pauciora sunt, quae ipsis occurrunt insectilia, non possunt ea sustinere. Dicit: quodsi a Democrito etiam quaeramus, cur hoc in aere non accidat,<sup>b</sup> ut corpora lata in eo innatent, angusta autem in profundum ferantur, ipse debilem ac mechanicam explicationem affert, dicens hoc in aere non contingere, quoniam insectilia corpuscula, quae sursum exspirant, hac caliditate et firmitudine non moventur, quia in eo diffunduntur. Simpl. in Phys. IV, 8, p. 216a 16, p. 679, 4: ἀλλ' οὐδὲ τῆς παρὰ τὸ σχῆμα διαφορᾶς (sc. τῆς ταχύτητος) τὴν αἰτίαν οἱ τὸ κενὸν εἰσάγοντες ἀποδώσουσι. ζητεῖται γὰρ διὰ τί πλατὺς μὲν σίδηρος ἢ μόλυβδος ἐπιπολάζει μᾶλλον τῷ ὕδατι, στρογγύλος δὲ οὐκέτι οὐδὲ μακρὸς, κἂν πᾶν μικρότερος τόχη. καὶ τοῖς μὲν ἄλλοις ῥαῖδιον ὑπάρχει λέγειν... τοῖς δὲ τὸ κενὸν λέγουσιν ἀδύνατον οὕτως αἰτιολογεῖν. Simpl. in De caelo IV, 5, p. 313a 14, p. 729, 22: ἐπειδὴ τινες ἦσαν τὰ σχήματα τῆς κατὰ φύσιν κινήσεως αἰτιώμενοι, ὡς περ οἱ πυραμίδι καὶ οἱ σφαίραι<sup>3</sup> τὸ πῦρ διὰ τὸ εὐκίνητον σχηματίζοντες, λέγει, ὅτι ἀπλῶς μὲν τὸ σχῆμα κινήσεως οὐκ ἔστιν αἴτιον... Simpl. in De caelo III, 4, p. 303a 12, p. 610, 18: τοῦ πυρός... σφαιρικόν εἶπον τὸ σχῆμα· διὸ καὶ εὐλόγως αὐτὸ διαδύεσθαι καὶ κινεῖσθαι τε καὶ κινεῖν καὶ διαιρεῖν... διὰ τε τὴν περιφέρειαν καὶ λειότητα καὶ προσέτι τὴν μικρότητα τῶν στοιχείων (v. № 275).

376. (D. 13 A 20).<sup>1</sup> Aristot. De caelo II, 13, p. 294b 13: Ἀναξίμενης δὲ καὶ Ἀναξαγόρας καὶ Δ. τὸ πλάτος αἴτιον εἶναι φασι τοῦ μένειν αὐτὴν (sc. τὴν γῆν).<sup>2</sup> οὐ γὰρ τέμνειν ἀλλ' ἐπιπωματίζειν τὸν ἀέρα τὸν κάτωθεν, ὅπερ φαίνεται τὰ πλάτος ἔχοντα τῶν σωμάτων ποιεῖν· ταῦτα γὰρ καὶ πρὸς τοὺς ἀνέμους ἔχει δυσκινήτως διὰ τὴν ἀντέρεισιν. ταῦτό δὲ τοῦτο ποιεῖν τῷ πλατεῖ φασι τὴν γῆν πρὸς τὸν ὑποκείμενον ἀέρα, τὸν δ' οὐκ ἔχοντα τὸ μεταστῆναι τόπον ἰκανόν<sup>3</sup> ἀθρόον<sup>4</sup> τὸν κάτωθεν ἡρεμεῖν, ὡς περ τὸ ἐν ταῖς κλεψύδραις ὕδωρ, ὅτι δὲ δύναται πολὺ βάρος φέρειν ἀπολαμβάνομενος καὶ μένων ὁ ἀήρ, τεκμήρια<sup>5</sup> πολλὰ λέγουσιν. πρῶτον μὲν οὖν εἰ μὴ πλατὺ τὸ σχῆμα τῆς γῆς ἔστι, διὰ τοῦτο μὲν οὐκ ἂν ἡρεμοῖ. καίτοι τῆς μονῆς οὐ τὸ πλάτος αἴτιον ἐξ ὧν λέγουσιν, ἀλλὰ τὸ μέγεθος μᾶλλον, διὰ γὰρ τὴν στενοχωρίαν οὐκ ἔχων τὴν ἀπόδοσιν ὁ ἀήρ μένει διὰ τὸ πλῆθος· πολὺς δ' ἔστι διὰ τὸ ὑπὸ μεγέθους πολλοῦ ἐναπολαμβάνεσθαι τοῦ τῆς γῆς. (D. 59 A 88). Simpl. in De caelo II, 13, p. 294a 11, p. 520, 28:<sup>6</sup> μένειν αὐτὴν (τὴν γῆν) ἀνεχομένην ὑπὸ τοῦ ὑποκειμένου ἀέρος, ὃν ἐπιπωματίζει πλατεῖα ὅσα καὶ τυμπανοειδῆς ἢ γῆ καὶ οὐ συγχωρεῖ ἀναχωρεῖν· οὕτω δὲ Ἀναξίμενης καὶ Ἀναξαγόρας καὶ Δ. ἐδόκουν λέγειν... (33) τὴν ὁμοιότητα καὶ τὴν ἰσορροπίαν αἰτίαν τῆς μονῆς... ὡς Ἀναξίμανδρος καὶ Πλάτων.

377. (D.O). Philopon. in Phys. IV, 8, p. 215a 22, p. 644, 25: ἕτερον τοῦτο ἐπιχειρήμα ἐξ αὐτῶν ὧν λέγουσιν οἱ τὸ κατεσπαρμένον κενὸν ὑποτιθέμενοι ἐν τοῖς σώμασιν, οἵτινές εἰσιν οἱ περὶ Δημόκριτον. νῦν μὲν γάρ, φησί, τὴν αἰτίαν ἀποδίδοτε τοῦ μᾶλλον μὲν κινεῖσθαι ἐν ἀέρι ἢ ττον δὲ ἐν ὕδατι ἐν δὲ τῇ γῆι μηδαμῶς, ἐπειδὴ πάντα μὲν ἐκ τῆς τοῦ κενοῦ συμπλοκῆς καὶ τῶν ἀτόμων συνέστηκεν, οὐχ ὅμοια δὲ ἐν πᾶσιν ἢ συμπλοκή, ἀλλ' εἰσὶ τὰ κενὰ ἢ μείζονα ἢ ἐλάττωνα ἐν τοῖς σώμασι. διὰ τοῦτο ἐν μὲν τῷ ἀέρι θάττον κινεῖται, διότι μεγαλομερῆ ἔστι τὰ τοῦ ἀέρος κενὰ. ὠθοῦμενα οὖν αἱ τοῦ ἀέρος ἄτομα ὑπὸ τοῦ κινουμένου ῥαϊδίως εἰς τὰ κενὰ χωροῦσι καὶ διδάσκει τὴν ἀπόδοσιν τῷ κινουμένῳ.<sup>1</sup> ἐν δὲ τῷ ὕδατι βραδυτέρα ἢ κίνησις· μικρό-

τερα γὰρ τὰ κενὰ, καὶ ἡ πύλησις οὖν ἢ εἰς αὐτὰ χρονωτέρα. ἐν δὲ τῇ γῆι διὰ τὸ πᾶν μικρομερῆ εἶναι τὰ κενὰ κίνησις οὐ γίνεται· οὐ γὰρ δύναται εἰς αὐτὰ πιληθῆναι αἱ ἄτομοι.

### III. Ἡ διὰ τὴν δίνησιν φορά

378. (D.O). Aristot. De caelo II, 1, p. 284a 24: οὔτε διὰ τὴν δίνησιν θάπτονος τυγχάνοντα (τὸν οὐρανὸν) φοράς τῆς οἰκείας ῥοπῆς ἔτι σώζεσθαι τοσοῦτον χρόνον, καθάπερ Ἐμπεδοκλῆς φησιν.<sup>1</sup> Simpl. ad loc. 375, 25: ἀλλ' οὐδὲ διὰ τὴν ταχυσίαν τοῦ αἰθερίου σώματος δίνησιν ἐλαττωμένης τῆς κατὰ τὴν οἰκείαν ῥοπὴν βαρεῖαν οὖσαν φοράς αὐτοῦ τε τοῦ οὐρανοῦ καὶ τῆς γῆς ἢ τε τοῦ οὐρανοῦ κύκλωι κίνησις αἰθίος μένει καὶ ἡ τῆς γῆς ἐν τῷ μέσῳ στάσις,<sup>2</sup> ὡς Ἐμπεδοκλῆς τε ἐδόκει λέγειν καὶ Ἀναξαγόρας καὶ Δ. ... κἂν γὰρ βάρος ἔχη καὶ τὸ αἰθέριον σῶμα καὶ ἡ γῆ, ἀλλὰ ταχυτέρας οὐσης τῆς κυκλοφορίας ἢ κατὰ τὴν ἐπὶ τὸ κάτω ῥοπὴν καὶ ἐπικρατούσης ἐκείνης μένειν ἐν τοῖς αὐτοῖς τόποις τὴν μὲν γῆν ἐπὶ τοῦ μέσου ἐστῶσαν, τὸν δὲ οὐρανὸν ἐπὶ τοῦ περίεξι κινούμενον ὡς περ φασι τὸ ἐν τῇ φιάλῃ ὕδωρ οὐκ ἐκχεῖσθαι περιδινουμένης τῆς φιάλης, ἐὰν θάπτον ἢ δίνησις γένηται τῆς ἐπὶ τὸ κάτω τοῦ ὕδατος φοράς. Philopon. in Phys. II, 4, p. 196a 24, p. 262, 3: ὁ Δ. ... ἔλεγεν... τὰς... ἀτόμους κατὰ τύχην κινουμένας συνελθεῖν καὶ ποιῆσαι ἐξωτέρῳ μὲν τοῦ κόσμου παντός τὸν οὐρανὸν καὶ ἐφεξῆς ὡς ἔχει τάξεως τὰ λοιπά, καὶ τὴν γῆν δὲ κατὰ τύχην ἐστάναι, τὴν γὰρ τοῦ οὐρανοῦ δίνην συμπεριάγειν αὐτῆς ἐντός ἀέρα. οὗτος δ' ὁ ἀήρ διὰ τὸ συνεχῆς εἶναι τῇ γῆι πανταχόθεν αὐτῆς ἀπτόμενος τῇ ὀξείᾳ περιδινήσει οὐκ ἔστι αὐτὴν καταπίπτειν,<sup>3</sup> ἀλλ' ἀκίνητον φυλάττει, ὡς περ οἱ τὰς φιάλας πεπληρωμένας ὕδατος περιάγοντες καὶ μὴ ἐκχέοντες τι τοῦ ὕδατος διὰ τὴν ὀξείαν περιαγωγὴν ταχυτέρα γὰρ οὖσα ἢ κίνησις καὶ ἡ περιαγωγὴ τοῦ περιέχοντος τῆς κατὰ φύσιν τοῦ ἐντός κινήσεως φθάνει περιελθεῖν πρὶν ἐκεῖνο τῆς οἰκείας ἐκπεσεῖν ἔδρας.

### IV. Cur res quae in centro turbinis iacent immobiles sint

379. (D. 28 A 44). Aët. III, 15, 7 (Dox. 380): Παρμενίδης, Δ. διὰ τὸ πανταχόθεν ἴσον ἀφροσῶσαν (sc. τὴν γῆν) μένειν ἐπὶ τῆς ἰσορροπίας οὐκ ἔχουσαν αἰτίαν δι' ἣν δεῦρο μᾶλλον ἢ ἐκεῖσε ῥέψειν ἂν· διὰ τοῦτο μόνον μὲν κραδαίνεσθαι, μὴ κινεῖσθαι δέ.<sup>1</sup> (D. 12 A 26). Aristot. De caelo II, 13, p. 295b 10: εἰσὶ δὲ τινες, οἱ διὰ τὴν ὁμοιότητά φασι αὐτὴν μένειν, ὡς περ τῶν ἀρχαίων Ἀναξίμανδρος· μᾶλλον μὲν γὰρ οὐδὲν ἄνω ἢ κάτω ἢ εἰς τὰ πλάγια φέρεσθαι προσήκειν τὸ ἐπὶ τοῦ μέσου ἰδρυμένον καὶ ὁμοίως πρὸς τὰ ἔσχατα ἔχον· ἅμα δ' ἀδύνατον εἰς τάναντία ποιεῖσθαι τὴν κίνησιν· ὡς' ἐξ ἀνάγκης μένειν.

### V. Corporum motus mutuo nexu coniunctos esse (vectis similitudinem in motibus apparere)

380. (D.O). Aristot. De caelo II, 7, p. 289b 13: οὐκ ἔστι δ' εὐλογον τὸ τὸν αὐτὸν λόγον ἔχειν τὰ τάχη τῶν ἀστρων καὶ τὰ μεγέθη τῶν κύκλων. Simpl. in De caelo III, 2, p. 300b 8, p. 582, 20: οἱ μὲν γὰρ περὶ Δ. καὶ Δ. ἔλεγον αἰεὶ κινεῖσθαι τὰ πρῶτα κατ' αὐτοὺς σώματα, τουτέστι τὰς ἀτόμους, ἐν τῷ ἀπείρῳ κενῷ βίαι, ὁ δὲ Τίμαιος... λέγει οὖν πρὸς μὲν τὴν προτέραν δόξαν εἰ ἄλλη ὑπ' ἄλλης τῶν ἀτόμων βίαι καὶ παρὰ φύσιν κινεῖται αἰεὶ, τίς ἢ κατὰ φύσιν αὐτῶν κίνησις· τὸ γὰρ βίαι κινούμενον ὡσεὶ τι μολχλαί<sup>1</sup> κινούμενον ὑπὸ κινουμένου κινεῖται... (D.D.A 88). Lucr. V, 621 sqq.:

Nam fieri vel cum primis id posse videtur,  
Democriti quod sancta viri sententia ponit,  
Quanto quaeque magis sint terram sidera propter,  
Tanto posse minus cum caeli turbine ferri.

## I. Generalia

381. (D.D.A 57). Aristot. *Metaph.* XI, 2, p. 1069b 22: καὶ ὡς Δ. φησιν, ἣν ὁμοῦ πάντα δυνάμει, ἐνεργεῖται δ' οὐ. Cf. № 221 c. adn. (D.O). Themist. in *De caelo* III, 2 p. 300b 8, p. 162, 24: Ante mundum in inanitate ac tempore infinito innumerabilia corpora velut insectilia extitisse asserunt, quemadmodum L. ponebat.

382. (D.L.A 1; D.D.A 1). Diog. IX, 31 sqq.: ἰσορρόπως<sup>1</sup>, α<sup>2</sup> διὰ τὸ πλῆθος μηκέτι δυναμένων περιφέρεισθαι, τὰ μὲν λεπτὰ χωρεῖν εἰς τὸ ἔξω κενόν, ὡς περ διαιττόμενα<sup>3</sup>. τὰ δὲ λοιπὰ συμμένειν<sup>2</sup> καὶ περιπλεκόμενα συγκατατρέχειν ἀλλήλοις καὶ ποιεῖν πρῶτον τι σύστημα σφαιροειδές. (32) τοῦτο δ' οἷον ὑμένα<sup>3</sup> ἀφίστασθαι περιέχοντα ἐν ἑαυτῷ παντοῖα σώματα· ὧν κατὰ τὴν τοῦ μέσου ἀντέρεισιν περιδινουμένων λεπτόν γενέσθαι τὸν περίεξ ὑμένα συρρέοντων αἰεὶ τῶν συνεχῶν κατ' ἐπίφασιν τῆς δίνης, καὶ οὕτω γενέσθαι τὴν γῆν, συμμενόντων τῶν ἐνεχθέντων ἐπὶ τὸ μέσον, αὐτόν τε πάλιν τὸν περιέχοντα οἷον ὑμένα αὔξεσθαι κατὰ τὴν ἐπέκκρισιν τῶν ἐξωθεν σωμάτων· δίνῃ τε φερόμενον αὐτόν, ὧν ἂν ἐπιφάσῃ, ταῦτα ἐπικτάσθαι, τούτων δὲ τινα συμπλεκόμενα ποιεῖν σύστημα, τὸ μὲν πρῶτον κάθυρον καὶ πηλώδες. ξηρανθέντα καὶ περιφερόμενα οὖν τῇ τοῦ ὄλου δίνῃ, εἴτ' ἐκπυρωθέντα τὴν τῶν ἀστέρων ἀποτελέσαι φύσιν. (33) (*sequitur* № 389) καὶ πάντα μὲν τὰ ἄστρα πυροῦσθαι διὰ τὸ τάχος τῆς φορᾶς, τὸν δὲ ἥλιον καὶ ὑπὸ τῶν ἀστέρων ἐκπυροῦσθαι· τὴν δὲ σελήνην τοῦ πυρός ὀλίγον μεταλαμβάνειν. ἐκλείπειν δὲ, δι' οὗ ἐκλείπειν<sup>4</sup> ἥλιον καὶ σελήνην τῷ κεκλιῖσθαι<sup>4</sup> τὴν γῆν πρὸς μεσημβρίαν· τὰ δὲ πρὸς ἄρκτωι αἰεὶ τε νίφασθαι καὶ κατάψυχα εἶναι καὶ πήγνυσθαι. καὶ τὸν μὲν ἥλιον ἐκλείπειν σπανίως, τὴν δὲ σελήνην συνεχῶς διὰ τὸ ἀνίσους εἶναι τοὺς κύκλους αὐτῶν. εἶναι τε ὡς περ γενέσεις κόσμου, οὕτω καὶ αὔξεις καὶ φθίσεις καὶ φθορὰς κατὰ τινα ἀνάγκην, ἣν ὁποῖα ἐστὶν διασαφεῖ. . . (44) δοκεῖ δὲ αὐτῷ (sc. Δημοκρίτῳ) τάδε· ἀρχὰς εἶναι τῶν ὄλων ἀτόμους καὶ κενόν, τὰ δ' ἄλλα πάντα νενομισθαι. ἀπείρους τε εἶναι κόσμους καὶ γενητούς καὶ φθαρτούς. μηδὲν τε ἐκ τοῦ μὴ ὄντος γίνεσθαι μηδὲ εἰς τὸ μὴ ὄν φθείρεσθαι. καὶ τὰς ἀτόμους δὲ ἀπείρους εἶναι κατὰ μέγεθος καὶ πλῆθος, φέρεσθαι δ' ἐν τῷ ὄλωι δινουμένας, καὶ οὕτω πάντα τὰ συγκρίματα γεννᾶν, πῦρ, ὕδωρ, ἀέρα, γῆν· εἶναι γὰρ καὶ ταῦτα ἐξ ἀτόμων τινῶν συστήματα· ἅπερ εἶναι ἀπαθῆ καὶ ἀναλλοίωτα διὰ τὴν στερρότητα. τὸν τε ἥλιον καὶ τὴν σελήνην ἐκ τοιούτων λείων καὶ περιφερῶν ὄγκων συγκεκρίσθαι. . . (45) πάντα τε κατ' ἀνάγκην γίνεσθαι, τῆς δίνης αἰτίας οὐσης τῆς γενέσεως πάντων, ἣν ἀνάγκην λέγει. Cf. Diog. I, 7, 1: κατὰ γὰρ τὴν ἐξ ἀρχῆς τῶν ὄλων σύστασιν μίαν ἔχειν ἰδέαν (ἔφησαν οἱ γενητόν καὶ φθαρτόν εἶναι νομίσαντες τὸν κόσμον) οὐρανόν τε καὶ γῆν, μεμειγμένης αὐτῶν τῆς φύσεως· μετὰ δὲ ταῦτα διαστάντων τῶν σωμάτων ἀπ' ἀλλήλων τὸν μὲν κόσμον περιλαβεῖν ἅπασαν τὴν ὀρωμένην ἐν αὐτῷ σύνταξιν, τὸν δ' ἀέρα κινήσεως τυχεῖν συνεχῶς καὶ τὸ μὲν πυρῶδες αὐτοῦ πρὸς τοὺς μετεωροτάτους τόπους συνδραμεῖν, ἀνωφερῶς οὐσης τῆς τοιαύτης φύσεως διὰ τὴν κορυφήντα· ἀπ' ἧς αἰτίας τὸν μὲν ἥλιον καὶ τὸ λοιπὸν πλῆθος τῶν ἀστέρων ἐναποληφθῆναι τῇ πάσῃ δίνῃ· τὸ δὲ ἰλουῶδες καὶ θολερὸν μετὰ τῆς τῶν ὑγρῶν συγκρίσεως ἐπὶ ταῦτα καταστήναι διὰ τὸ βάρος· (2) εἰλούμενον δ' ἐν ἑαυτῷ συνεχῶς καὶ συστρεφόμενον ἐκ μὲν τῶν ὑγρῶν τὴν θάλασσαν, ἐκ δὲ τῶν στερεμνωτέρων ποιῆσαι τὴν γῆν πηλώδη καὶ παντελῶς ἀπαλήν. (3) ταύτην δὲ τὸ μὲν πρῶτον τοῦ περὶ τὸν ἥλιον πυρός καταλάμψαντος πῆξιν λαβεῖν.<sup>6</sup>

383. (D.L.A 24). [Plut.] *Plac.* I, 4, 2 sqq. (Dox. 289 sq.):<sup>1</sup> ἀθροισμένων δ' ἐν ταῦτῳ τούτων (sc. τῶν ἀτόμων) τὰ μὲν ὅσα μείζονα ἦν καὶ βαρύτερα πάντως ὑπεκάθιζεν· ὅσα δὲ μικρὰ καὶ περιφερῆ καὶ λεῖα καὶ εὐλόιστα, ταῦτα καὶ ἐξεδίβητο κατὰ τὴν σύνοδον τῶν ἀτόμων εἰς τε τὸ μετώρον ἀνεφέρετο. ὡς δ' οὖν ἐξέλειπε μὲν ἢ πληκτικὴ δυνάμεις μεταρρίζουσα οὐκέτι τε ἦγεν ἢ πληγῆ πρὸς τὸ μετώρον, ἐκωλύετο δὲ ταῦτα κάτω φέρεσθαι, ἐπιέζετο πρὸς τοὺς τόπους τοὺς δυναμένους δέξασθαι· οὗτοι δὲ ἦσαν οἱ περίεξ, καὶ πρὸς τούτοις τὸ πλῆθος τῶν σωμάτων περιεκλάτο. περιπλεκόμενά τε ἀλλήλοις κατὰ τὴν περίκλασιν τὸν οὐρανὸν ἐγέννησε. (3) τῆς δ' αὐτῆς ἐχό-

μεναι φύσεως<sup>3</sup> αἱ ἄτομοι ποικίλαι οὔσαι, καθὼς εἴρηται, πρὸς τὸ μετώρον ἐξωθούμεναι τὴν τῶν ἀστέρων φύσιν ἀπετέλουν. τὸ δὲ πλῆθος τῶν ἀναθυμιωμένων σωμάτων ἐπληρτεῖ τὸν ἀέρα καὶ τοῦτον ἐξέθλιβε. πνευματούμενος δὲ οὗτος κατὰ τὴν κίνησιν καὶ συμπεριλαμβάνων τὰ ἄστρα συμπεριῆγεν αὐτὰ καὶ τὴν νῦν περιφορὰν αὐτῶν μετώρον ἐφόλαττε· κάπειτα ἐκ μὲν τῶν ὑποκαθιζόντων ἐγεννήθη ἡ γῆ, ἐκ δὲ τῶν μεταρρίζομένων οὐρανός, πῦρ, ἀήρ. (4) πολλῆς δὲ ὕλης ἐστὶ περιελημμένης ἐν τῇ γῆι πυκνουμένης τε ταύτης κατὰ τὰς ἀπὸ τῶν πνευμάτων πληγὰς καὶ τὰς ἀπὸ τῶν ἀστέρων αὔρας<sup>3</sup> προσεδίβητο πᾶς ὁ μικρομερῆς σχηματισμός ταύτης καὶ τὴν ὑγρὰν φύσιν ἐγένεα· ῥευστικῶς δὲ αὕτη διακειμένη κατεφέρετο πρὸς τοὺς κοίλους τόπους καὶ δυναμένους χωρῆσαι τε καὶ στέξει, ἢ καθ' αὐτὸ τὸ ὕδωρ ὑποστὰν ἐκοίλαινε τοὺς ὑπακειμένους τόπους· τὰ μὲν οὖν κυριώτατα μέρη τοῦ κόσμου τὸν τρόπον τοῦτον ἐγεννήθη.

384. (D.D.A 17). Plin. N.h. XVIII, 273: (Democritus) primus intellexit ostenditque caeli cum terris societatem.

## II. Mundum nostrum rotundum esse

385. (D.L.A 22). Aët. II, 2, 2 (Dox. 329): Α. καὶ Δ. σφαιροειδῆ τὸν κόσμον.<sup>1</sup>

## III. De caeli origine

386. (D.L.A 23). Aët. II, 7, 2 (Dox. 336): Α. καὶ Δ. χιτῶνα κύκλοι καὶ ὑμένα περιτείνουσι τῷ κόσμῳ διὰ τῶν ἀγχιτροειδῶν ἀτόμων συμπεπλεγμένον.<sup>1</sup>

387. (D. 59 A 78). Aët. II, 16, 1 (Dox. 345): Ἀναξαγόρας, Δ., Κλεάνθης ἀπ' ἀνατολῶν ἐπὶ δυσμᾶς φέρεσθαι πάντας τοὺς ἀστέρας.

388. (D.O; v. № 17). [Alex.] in *Metaph.* XII, 6, p. 1071b 26, p. 690, 29: Α. καὶ Πλάτων . . . διὰ τί ὧδι μὲν τάδε κινεῖνται, ὧδι δὲ τάδε, τούτων τὴν αἰτίαν οὐ λέγουσιν . . . ἔδει τὴν αἰτίαν λέγειν, δι' ἣν ἢ μὲν ἀπλανῆς ἀπὸ ἀνατολῆς ἐπὶ δυσμᾶς κινεῖται, αἱ δὲ πλανώμεναι ἀνάπαλιν· οὐ γὰρ ὡς εἶχε πᾶν ὁ κινεῖται τὴν κίνησιν ποιεῖ.<sup>1</sup>

389. (D.L.A 1).<sup>1</sup> Diog. IX, 30: (Α.) ἐκ τε τῆς κινήσεως κατὰ τὴν αὔξῃσιν<sup>2</sup> αὐτῶν (τῶν πρώτων σωμάτων) γίνεσθαι τὴν τῶν ἀστέρων φύσιν. φέρεσθαι δὲ τὸν ἥλιον ἐν μείζονι κύκλῳ περὶ τὴν σελήνην. . . (33) εἶναι δὲ τὸν τοῦ ἡλίου κύκλον ἐξώτατον, τὸν δὲ τῆς σελήνης προσγειότατον, τῶν ἄλλων μεταξὺ τούτων ὄντων.

390. (D.D.A 86). Aët. II, 15, 3 (Dox. 344; περὶ τάξεως ἀστέρων): Δ. τὰ μὲν ἀπλανῆ πρῶτον, μετὰ δὲ ταῦτα τοὺς πλάνητας, ἐφ' οἷς ἥλιον φωσφόρον<sup>1</sup> σελήνην. (D.D.A 88). Lucr. V, 628; v. *etiam* № 394 (*De sole*):

Inferior multo quod sit quam fervida signa.

(D.D.B 5ab). Diog. IX, 46: φυσικὰ δὲ (Δημοκρίτου) τάδε. . . Κοσμογραφίη. Περὶ πλανήτων. . . (D.D.A 92). Seneca. *Nat. quaest.* VII, 3, 2: D. quoque, subtilissimum antiquorum omnium, suspicari se ait plures stellas esse, quae currant,<sup>2</sup> sed nec numerum illarum posuit nec nomina, nondum comprehensis quinque siderum<sup>3</sup> cursibus.

391. (D.D.A 40). Hippol. *Refut.* I, 13, 4 (Dox. 565): (Α.) τοῦ δὲ παρ' ἡμῖν κόσμου πρότερον τὴν γῆν τῶν ἀστέρων γενέσθαι, εἶναι δὲ τὴν μὲν σελήνην κάτω, ἔπειτα τὸν ἥλιον, εἶτα τοὺς ἀπλανεῖς ἀστέρας. τοὺς δὲ πλάνητας οὐδ' αὐτοὺς ἔχει ἴσον ὕψος. ἀκμάζειν δὲ κόσμον, ἕως ἂν μηκέτι δύνῃται ἐξωθέν τι προσλαμβάνειν.

392. (D.L.B 1). Achill. *Isag.* I, 13 (*ex Eudoro*): τοὺς ἀστέρας δὲ ζῶια εἶναι οὔτε Ἀναξαγόρα οὔτε Δημοκρίτῳ ἐν τῷ Μεγάλῳ διακόσμῳ δοκεῖ.

393. (D.D.A 85). Aët. I, 13, 4 (Dox. 341; περὶ οὐσίας ἀστέρων): Δ. πέτρους (sc. τὰ ἄστρα). Diog. IX, 32: (τὸν κόσμον) αὔξεσθαι κατὰ τὴν ἐπέκκρισιν τῶν ἐξωθεν σωμάτων . . . τούτων δὲ (sc. τῶν ἀτόμων) τινα συμπλεκόμενα ποιεῖν σύστημα,



τὸ μὲν πρῶτον κάθυγρον καὶ πηλῶδες, ξηρανθέντα δὲ καὶ περιφερόμενα ... εἶτ' ἐκπυρωθέντα τὴν τῶν ἀστέρων ἀποτελέσαι φύσιν, καὶ πάντα μὲν τὰ ἀστρα πυροῦσθαι διὰ τὸ τάχος τῆς φορᾶς. Mich. Glycas. Ann. I, 20 (P.G. 158, p. 61 C = Theodoret. IV, 17; Dox. 341): ὁ Ἀναξαγόρας τοιαύδε περὶ τῆς τῶν ἀστέρων ἐκενολόγησε φύσεως: ἀπὸ γὰρ τῆς τοῦ παντός περιδινησεως πέτρους εἶπεν ἀνασπασθῆναι,<sup>1</sup> καὶ τούτους ἐκπυρωθέντας καὶ ἄνω παγίντας ἀστέρας ὀνομασθῆναι. τὰ αὐτὰ δὲ καὶ Δ. περὶ τούτου δοκεῖ.

394. (D.D.A 88). Lucr. V, 621 sqq.<sup>1</sup>

Nam fieri vel cum primis id posse videtur,  
Democriti quod sancta viri sententia ponit,  
Quanto quaeque magis sint terram sidera propter,  
Tanto posse minus cum caeli turbine ferri.  
Evanescere enim rapidas illius et acris  
Imminui sup̄ter viris ideoque relinqui  
Paulatim solem cum posterioribus signis,<sup>2</sup>  
Inferior multo quod sit quam fervida signa.  
Et magis hoc lunam: quanto demissior eius  
Cursus abest procul a caelo terrisque propinquat,  
Tanto posse minus cum signis tendere cursum.  
Flaccidiore etiam quanto iam turbine fertur  
Inferior quam sol, tanto magis omnia signa  
Hanc adipiscuntur circum praeterque feruntur.  
Propterea sit ut haec ad signum quodque reverti  
Mobilius videatur, ad hanc quia signa revisunt.<sup>3</sup>

395. (D.D.A 39). [Plut.] Strom. 7 (Dox. 581): Δ. ὁ Ἀβδηρίτης ... ἡλίου δὲ καὶ σελήνης γένεσιν φησὶ κατ' ἰδίαν φέρεσθαι ταῦτα μηδέπω τὸ παράπαν ἔχοντα θερμὴν φύσιν, μηδὲ μὴν καθόλου λαμπροτάτην, τούναντίον δὲ ἐξωμοιωμένην τῇ περὶ τῆν γῆν φύσει· γεγονέναι γὰρ ἐκότερον τούτων πρότερον εἶ κατ' ἰδίαν ὑποβολὴν τινα κόσμου.<sup>1</sup> ὕστερον δὲ μεγεθοποιουμένου τοῦ περὶ τὸν ἡλίον κύκλου ἐναποληφθῆναι ἐν αὐτῷ τὸ πῦρ. Epicur. Epist. II (Diog. X, 90): ἡλίος τε καὶ σελήνη καὶ τὰ λοιπὰ ἀστρα <ὄ><sup>2</sup> καθ' ἑαυτὰ γενόμενα ὕστερον ἐμπεριελαμβάνετο ὑπὸ τοῦ κόσμου<sup>2</sup> (hoc contra Democritum). V. etiam № 393.

396. (D.D.A 87). Aët. II, 20, 7 (Dox. 349): Δ. μύθρον ἢ πέτρον διάπυρον (sc. εἶναι τὸν ἡλίον). Cic. De fin. I, 6, 20: Sol Democrito magnus videtur, quippe homini erudito in geometriaque perfecto, huic (sc. Epicuro) bipedalis.<sup>1</sup>

397. (D.D.A 1). Diog. IX, 44: τὸν τε ἡλίον καὶ τὴν σελήνην ἐκ τοιούτων λείων καὶ περιφερῶν ὄγκων συγκεκρίσθαι.<sup>1</sup>

397a. (D.D.B 25). Eustath. in Odyss. XII, 65, p. 1713: ... τὰς ἀτμίδας αἷς ὁ ἡλῖος τρέφεται, καθὰ δοξάζει Δ.<sup>1</sup>

398. (D. 59 A 77). Aët. II, 25, 9 (Dox. 356; περὶ σελήνης οὐσίας): Ἀναξαγόρας καὶ Δ. στερέωμα διάπυρον, ἔχον ἐν ἑαυτῷ πεδία καὶ ὄρη καὶ φάραγγας. Cf. Achill. Isag. 21 (p. 49, 4 M.): ἕτεροι δὲ γῆν πεπυρωμένην στερέμνιον ἔχουσαν πῦρ (sc. τὴν σελήνην) εἶναι δὲ ἐπ' αὐτῆς οἰκησιν ἄλλην<sup>1</sup> ποταμούς τε καὶ ὅσα ἐπὶ γῆς.

399. (D.D.A 89a). Plut. De facie in orbe lunae 16, p. 929 C: ἀλλὰ κατὰ στάθμην,<sup>1</sup> φησὶ Δ., ἰσταμένη τοῦ φωτίζοντος ὑπολαμβάνει καὶ δέχεται<sup>2</sup> τὸν ἡλίον (ἢ σελήνην) ὥστε αὐτὴν τε φαίνεσθαι καὶ διαφαίνειν ἐκείνον εἰκὸς ἦν. (D.L.A 1). Diog. IX, 33: καὶ πάντα μὲν τὰ ἀστρα πυροῦσθαι διὰ τὸ τάχος τῆς φορᾶς, τὸν δὲ ἡλίον καὶ ὑπὸ τῶν ἀστέρων ἐκπυροῦσθαι· τὴν δὲ σελήνην τοῦ πυρός ὀλίγον λαμβάνειν.<sup>3</sup> Olympiod. in Meteor. I, 8, p. 345a 25, p. 67, 34: Ἀναξαγόρου καὶ Δημοκρίτου (v. № 417) ... καὶ δηλοῖ ἢ σελήνην, ταύτης γὰρ ἕτερον μὲν τὸ ἴδιον φῶς, ἕτερον δὲ τὸ ἀπὸ ἡλίου· τὸ γὰρ ἴδιον αὐτῆς φῶς ἀνθρακώδες ἐστίν, ὡς δηλοῖ ἡμῖν ἢ ἐκλείψις αὐτῆς.

400. (D.D.A 90). Aët. II, 30, 3 (Dox. 361; διὰ τί γεώδης φαίνεται σελήνην): Δ. ... ἀποσκίασμά τι τῶν ὑψηλῶν ἐν αὐτῇ μερῶν. ἀγκη γὰρ αὐτὴν ἔχειν καὶ νάπας.<sup>1</sup>

#### IV. De terra

401. (D.O). Aristot. De caelo II, 13, p. 293b 33: τοῖς μὲν γὰρ δοκεῖ (ἢ γῆ) εἶναι σφαιροειδῆς, τοῖς δὲ πλατεῖα καὶ τὸ σχῆμα τυμπανοειδῆς· ποιοῦνται δὲ τεκμήριον, ὅτι δύνων καὶ ἀνατέλλων ὁ ἥλιος εὐθείαν καὶ οὐ περιφερῆ τὴν ἀπόκρυψιν φαίνεται ποιοῦμενος ὑπὸ τῆς γῆς, ὡς δέον, εἴπερ ἦν σφαιροειδῆς, περιφερῆ γίνεσθαι τὴν ἀποτομήν. (294a 8) ἀλλ' εἶτι προστιθέασι καὶ φασὶ διὰ τὴν ἡμερίαν ἀναγκαῖον τὸ σχῆμα τοῦτ' ἔχειν αὐτὴν. Themist. in De caelo II, 13, p. 294b 13, p. 127, 33: «Anaximenes autem, Anaxagoras, atque Democritus...»; hoc autem superiorum relatum fuit, dum aliorum sententiam de figura terrae meminuit<sup>1</sup> (quod semel tantum factum est, p. 293b 34).

402. (D.D.A 95). Aët. III, 13, 4 (Dox. 378): Δ. κατ' ἀρχὰς μὲν πλάττεσθαι τὴν γῆν διὰ τε μικρότητα καὶ κορυφότητα, πυκνωθεῖσαν δὲ τῷ χρόνῳ καὶ βαρυνθεῖσαν καταστῆναι.

403. (D. 59 A 88). Simplic. in De caelo II, 12, p. 293a 15, p. 511, 22: τῶν δὲ πεπερασμένων τὸν κόσμον λεγόντων οἱ μὲν πλείστοι ἐπὶ τοῦ μέσου κεῖσθαι λέγουσι τὴν γῆν, ὡς περὶ Ἐμπεδοκλῆς καὶ Ἀναξίμανδρος καὶ Ἀναξίμενης καὶ Ἀναξαγόρας καὶ Δ. καὶ Πλάτων. Aët. III, 15, 7 (Dox. 380): Παρμενίδης, Δ. διὰ τὸ πανταχόθεν ἴσον ἀφροσώσαν (sc. τὴν γῆν) μένειν ἐπὶ τῆς ἰσορροπίας οὐκ ἔχουσαν αἰτίαν δι' ἣν δεῦρο μάλλον ἢ ἐκεῖσε ρέψειεν ἄν' διὰ τοῦτο μόνον μὲν κραδαίνεσθαι, μὴ κινεῖσθαι δέ.

404. (D.L.A 1). Diog. IX, 30: τὴν γῆν ὀχεῖσθαι περὶ τὸ μέσον δινομένην. σχῆμά τε αὐτῆς τυμπανώδες εἶναι.<sup>1</sup>

405. (D.L.A 26; D.D.A 94). Aët. III, 10, 4 sqq. (Dox. 377; περὶ σχήματος γῆς): Δ. τυμπανοειδῆ· Δ. δισκοειδῆ μὲν τῷ πλατεῖ,<sup>1</sup> κοίλην δὲ τῷ μέσῳ. (D. 59 A 87). Exc. astron. cod. Vatic. 381 (ed. E. Maas, Aratea, p. 143): ὅτι οὐτὲ κοίλη ἢ γῆ, ὡς Δ., οὐτε πλατεῖα, ὡς Ἀναξαγόρας.

#### e. GEOGRAPHICA ET METEOROLOGICA

##### I. Geographia et geologia

406. (D.D.B 14c). Diog. IX, 47—48: Μαθηματικὰ δὲ (Δημοκρίτου) τάδε... Γεωγραφίη...

407. (D.D.B 15). Agathem. I, 1, 2: εἶτα (post Anaximandrum Hecatacum Hellanicum) Δαμάστης ὁ Σιγαιεύς<sup>2</sup> (F. Gr. Hist. 5, T 4 I 153) τὰ πλείστα ἐκ τῶν Ἑκαταίου μεταγράψας Περίπλου ἐγράψεν· ἐξῆς Δ. καὶ Εὔδοξος καὶ ἄλλοι τινὲς γῆς περιόδους καὶ περίπλους ἐπραγματεύσαντο, οἱ μὲν οὖν παλαιοὶ τὴν οἰκουμένην<sup>1</sup> ἐγράψον στρογγύλην, μέσην δὲ κεῖσθαι τὴν Ἑλλάδα καὶ ταύτης Δελφοῦς· τὸν ὀμφαλὸν γὰρ ἔχειν τῆς γῆς. πρῶτος δὲ Δ. πολύπειρος ἀνὴρ συνείδεν, ὅτι προμήκης ἐστὶν ἢ γῆ ἡμιόλιον τὸ μήκος τοῦ πλάτους ἔχουσα· συνήνευσε τούτῳ καὶ Δικαίαρχος ὁ Περιπατητικὸς. (D.D.A 94). Eustath. in Il. VII, 446, p. 690: τὴν δὲ οἰκουμένην γῆν Ποσειδῶνιος μὲν ὁ Στωϊκὸς καὶ Διονύσιος (v. Geogr. Gr. min. II, p. 105 M.) σφενδοειδῆ φασὶ, Δ. δὲ προμήκη.

408. (D.D.A 12). Strab. XV, p. 703 (ex Megasthene): ἐν δὲ τῇ ὀρεινῇ [India] Σίλαν ποταμὸν εἶναι, ὃι μηδὲν ἐπιπλεῖ. Δ. μὲν οὖν ἀπιστεῖν ἄτε πολλὴν τῆς Ἀσίας πεπλανημένον (= №№ XXII, 374a).

409. (D.D.A 100). Aristot. Meteor. II, 3, p. 356b 4: περὶ δὲ τῆς ἀλμυρότητος αὐτῆς (sc. τῆς θαλάττης) λεκτέον καὶ πότερον αἰεὶ ἐστὶν ἢ αὐτὴ ἢ οὐτ' ἦν οὐτ' ἔσται, ἀλλ' ὑπολείψει· καὶ γὰρ οὕτως οἰονταί τινες. τοῦτο μὲν οὖν εὐκλασι πάντες ὁμολογεῖν, ὅτι γέγονεν, εἴπερ καὶ πᾶς ὁ κόσμος· ἅμα γὰρ αὐτῆς ποιῶσιν τὴν γένεσιν. ὥστε δῆλον ὡς εἴπερ αἰδίων τὸ πᾶν, καὶ περὶ τῆς θαλάττης οὕτως ὑποληπτέον. τὸ δὲ νομίζειν ἐλάττω τε γίνεσθαι τὸ πλῆθος, ὡς περὶ φησὶ Δ., καὶ τέλος ὑπολείψειν,<sup>1</sup> τῶν Διοδώρου μύθων<sup>2</sup> οὐδὲν διαφέρειν εἰσικεν [ὁ πεπεισμένος οὕτως].<sup>3</sup> καὶ γὰρ ἐκεῖνος ἐμ-

θολόγησεν ὡς δις μὲν ἡ Χάρυβδις ἀναροφήσασα τὸ μὲν πρῶτον τὰ ὄρη ἐποίησε φανερά, τὸ δὲ δεύτερον τὰς νήσους, τὸ δὲ τελευταίον ῥοφήσασα ξηρὰν ποιήσῃ ἀμίπαν. ἐκείνῳ μὲν οὖν ἤρμωσεν ὀριζομένῳ πρὸς τὸν πορθμῆα τοιοῦτον εἰπεῖν μῦθον. τοῖς δὲ τὴν ἀλήθειαν ζητοῦσιν ἦρτον δι' ἣν γὰρ αἰτίαν ἔμεινε τὸ πρῶτον, εἴτε διὰ βάρος, ὡσπερ τινὲς καὶ τούτων φασίν... εἴτε καὶ δι' ἄλλο τι, δὴλον ὅτι διὰ τοῦτο διαμένειν ἀναγκαῖον καὶ τὸν λοιπὸν χρόνον αὐτῆν. (D.O). Alex. ad loc. 78, 14: ... ὡς Δημοκρίτος οἰεῖται. οὗτος γὰρ ἡγεῖται ἀεὶ αὐτῆν (sc. τὴν θάλασσαν) ἐλάττω γινομένην διὰ τὰς ἀποκρίσεις τε καὶ ἀναθυμιάσεις τέλος ποτὲ ἀναλωθῆσθαι καὶ ξηρανθῆσθαι. (D.O). Olympiod. in Meteor. II, 2, p. 353b 20, p. 143, 10: ἐπειδὴ γὰρ ὁ Δημόκριτος ἐναντίως τοῖς πολλοῖς ὑπετίθετο περὶ θαλάττης πάντων γὰρ λεγόντων, ὅτι εἰ αἰδίον τὸ πᾶν, αἰδίος ἐστὶ καὶ ἡ θάλασσα μέρος οὐσα τοῦ παντός, εἰ δὲ φθαρτὸν τοῦτο, φθαρτὴ καὶ ἡ θάλασσα... (19) τοῦτο δ' ἔλεγε ἀπατόμενος ἐκ τοῦ ὄραν αὐτὸν ὁσημέραι τὴν θάλασσαν ἠπειρομένην καὶ τοὺς πρῶην ὑγροὺς τόπους ξηραίνομένους<sup>3</sup> διὰ τὸ προσεχῶς<sup>4</sup> γεγενῆσθαι τὸν ἐπὶ Δευκαλίωνα κατακλυσμόν (μετὰ γὰρ τὸν κατακλυσμόν λοιπὸν ἡ γῆ μεταβάλλουσα ἐπὶ τὸ ξηρότερον ἢ πρῶην ὑγρὰ καὶ τεθαλασσωμένη γίνεται ξηρὰ), ὡς εἰ ἦν προσεχῶς ὁ Ἡρακλείτειος γεγεννημένος ἐμπυρισμός, ἔλεγε κἄν<sup>5</sup> ὁ Δ. τὴν ξηρὰν γῆν μεταβάλλεσθαι εἰς θάλασσαν καὶ οὐ τὴν θάλασσαν φθείρεσθαι. αὕτη μὲν ἡ τοῦ Δημοκρίτου ὑπόθεσις. (II, 3, p. 356b 9, p. 149, 251) ... τὴν ἀπάτην τὴν Δημοκρίτου λέγει, ὅτι θεωρῶν κατὰ τινα μέρη αὐτῆς ἠπειρομένην ἔδοξέ ποτε καὶ πᾶσαν αὐτῆν ξηραίνεσθαι.

410.\* (D.D.A 99a). Hibeh pap. 16, p. 62 Grenfell—Hunt, col. 1: <sup>1</sup> <διαφωνία μὲν οὖν μάλιστά που γεγενῆται> περὶ τῆς γενέσεως τῆς ἀλμυρότητας> οἱ μὲν γὰρ ὑπόκειμιά φασίν τῆς πρῶτης ὑγρότητας <ἐξατμισθέντων πλείστον ὑδάτων οἱ δὲ κίθρων> εἶναι τῆς γῆς. Δημοκρίτος δὲ κρῖσις δοκεῖ τοῖς ἐν τῇ γῇ<sup>2</sup> ποιεῖν <τῆν γένεσιν αὐτῆς><sup>2</sup> οἷον ἁλῶν καὶ νίπτρων... (5 lineae desunt) (col. 2) <ση> πεδόνας ἀπο . λ . λιπομένης ἀπ . δ . πέσθαι φησὶν ἐν τῷ ὑγρῷ τὰ ὅμοια πρὸς τὰ ὅμοια καθάπερ ἐν τῷ παντί, καὶ οὕτως γενέσθαι θάλατταν καὶ τᾶλλα τὰ ἀλμυρῶντα<sup>3</sup> πάντα συνεχεθέντων τῶν ὁμοφύλων.<sup>3</sup> ὅτι δὲ ἐκ τῶν ὁμογενῶν ἐστὶν θάλαττα καὶ ἐξ ἄλλων εἶναι φανερόν· οὔτε γὰρ λιβακτῶν οὔτε θεῖον οὔτε σίλφιον οὔτε στυπτηρίαν οὔτε ἀσφαλτον οὔτε ὄσα μεγάλα καὶ θαυμαστά πολλαχῶς γίνεσθαι τῆς γῆς. τούτοι μὲν οὖν πρόχειρον, εἰ καὶ μῆθὲν ἄλλο, σκέψασθαι, διότι μέρος ποιῶν τὴν θάλατταν τοῦ κόσμου τὸν αὐτὸν τρόπον φησὶ γενέσθαι καὶ τὰ θαυμαστά καὶ τὰ παραλογώτατα τῆς φύσεως, ὡσπερ οὐ πολλὰς οὐσας ἐν τῇ γῇ διαφορὰς. ἐπεὶ ποιῶντι <γε> τοὺς χυλοὺς διὰ τὰ σχήματα, καὶ τὸ ἀλμυρὸν ἐγ' μεγάλων καὶ γωνιοειδῶν, οὐκ ἄλογόν πως περὶ τῆς <γῆς> γίνεσθαι τὸν αὐτὸν τρόπον τὴν ἀλμυρότητα ὅπερ κἄν τῇ θαλάττῃ.

411. (D.D.A 99). Aët. IV, 1, 4 (Dox. 385; περὶ Νείλου ἀναβάσεως): Δ. τῆς χιόνος τῆς ἐν τοῖς πρὸς ἄρκτον μέρεσιν ὑπὸ θερινᾶς τροπᾶς ἀναλυομένης τε καὶ διαχωμένης νέφη μὲν ἐκ τῶν ἀτμῶν πιλοῦσθαι· τούτων δὲ συνελανομένων πρὸς μεσημβρίαν καὶ τὴν Αἴγυπτον<sup>1</sup> ὑπὸ τῶν ἐτησίων ἀνέμων ἀποτελεῖσθαι βραχέαιους ὄμβρους, ὅφ' ὧν ἀνατίμπασθαι τὰς τε λίμνας καὶ τὸν Νεῖλον ποταμόν. Diod. I, 39: Δ. δὲ ὁ Ἀβδηρίτης φησὶν οὐ τὸν περὶ τὴν μεσημβρίαν τόπον χιονίζεσθαι, καθάπερ εἰρηκεν Εὐριπίδης καὶ Ἀναξαγόρας, ἀλλὰ τὸν περὶ τὰς ἄρκτους, καὶ τοῦτο ἐμφανὲς εἶναι πᾶσι. τὸ δὲ πλήθος τῆς σωρευομένης χιόνος ἐν τοῖς βορείοις μέρεσι περὶ μὲν τὰς τροπὰς μένειν πεπηγός, ἐν δὲ τῷ θέρει διαλυομένων ὑπὸ τῆς θερμασίας τῶν πάγων πολλὴν τηκεδὸνα γίνεσθαι, καὶ διὰ τοῦτο πολλὰ γεννᾶσθαι καὶ παχέα νέφη περὶ τοὺς μετεωροτέρους τῶν τόπων, θαψιλοὺς τῆς ἀναθυμιάσεως πρὸς τὸ ὑψος αἰρομένης. ταῦτα δ' ὑπὸ τῶν ἐτησίων ἐλαύνεσθαι, μέχρι ἂν ὅτου προσπέσῃ τοῖς μεγίστοις ὄρεσι τῶν κατὰ τὴν αἰκουμένην, ἃ φησὶν εἶναι περὶ τὴν Αἰθιοπίαν· ἐπειτα πρὸς τοὺς οὐσίον ὑψηλοῖς βιαίως θραυόμενα παμμεγέθεισ ὄμβρους γεννᾶν, ἐξ ὧν πληροῦσθαι τὸν ποταμὸν μάλιστα κατὰ τὴν τῶν ἐτησίων ὥραν. βῆιδιον δὲ καὶ τοῦτον ἐξελέγξει τοὺς χρόνους τῆς ἀξήσεως ἀκριβῶς ἐξετάζοντα· ὁ γὰρ Νεῖλος ἀρχεται μὲν πληροῦσθαι κατὰ τὰς θερινὰς τροπὰς, οὐπω τῶν ἐτησίων πνεόντων, λήγει δ' ὕστερον ἰσημερίας φθινοπωρινῆς, πάλαι προπεπαυμένων τῶν εἰρημένων ἀνέμων. Anon. Flor. post Athen. II (Περὶ τῆς τοῦ Νείλου ἀναβάσεως) (vol. 1, p. 131 Mein.): Δ. δὲ λέγει περὶ τὰς χειμερινὰς τροπὰς τοὺς περὶ τὰς ἄρκτους τόπους χιονίζεσθαι· περὶ τροπᾶς δὲ θερινᾶς μεταστάντος τοῦ ἡλίου τηκομένης τῆς χιόνος καὶ ἀνατιμωμένης ὑπὸ τῆς τήξεως νέφη γίνεσθαι, διὰ τὸ

τοὺς ἐτησίας ὑπολαμβάνοντας φέρειν πρὸς μεσημβρίαν. συνωθουμένων δὲ τῶν νεφῶν ἐπὶ τὴν Αἰθιοπίαν καὶ τὴν Διβὴν ὄμβρον γίνεσθαι πολὺν, ὃν καταρρέοντα πληροῦν τὸν Νεῖλον. τὴν οὖν αἰτίαν ἀναπληρώσεως κατὰ τὴν φησὶ Δ. Cf. Seneca. Nat. quaest. IV, 22.

412. (D.D.A 99). Schol. Apoll. Rhod. IV, 269, Wendel: Δ. ... ὁ φυσικὸς ἀπὸ τοῦ κατὰ μεσημβρίαν ὑπερκειμένου πελάγους λαμβάνειν τὸν Νεῖλον τὴν ἐπίχυσιν, ἀπογλυκαίνεσθαι δὲ τὸ ὕδωρ διὰ τὸ διάστημα καὶ τὸ μήκος τοῦ πόρου καὶ ὑπὸ τοῦ καύματος ἀφεψόμενον· διὸ καὶ ἐναντίαν φησὶν ἔχειν τὴν γεῦσιν.<sup>1</sup>

413. (D.D.A 97). Aristot. Meteor. II, 7, p. 365a 14: περὶ δὲ σεισμῶ καὶ κινήσεως γῆς μετὰ ταῦτα λεκτέον... ἔστι δὲ τὰ γε παρεληλυμένα μέχρι τοῦ νῦν χρόνου τρία καὶ παρὰ τριῶν. Ἀναξαγόρας τε γὰρ ὁ Κλαζομένιος καὶ πρότερος Ἀναξιμένης ὁ Μιλήσιος ἀπεφήναντο, καὶ τούτων ὕστερος Δ. ὁ Ἀβδηρίτης· Ἀναξαγόρας μὲν οὖν φησὶ... Δ. δὲ φησὶ πλήρη τὴν γῆν ὕδατος οὐσαν καὶ πολὺ δεχομένην ἕτερον ὄμβριον ὕδωρ ὑπὸ τούτου κινεῖσθαι· πλείονός τε γὰρ γινομένου διὰ τὸ μὴ δύνασθαι δεχεσθαι τὰς κοιλίας ἀποβιαζόμενον<sup>2</sup> ποιεῖν τὸν σεισμόν, καὶ ξηραίνομένην καὶ ἔλκουσαν εἰς τοὺς κενούς τόπους ἐκ τῶν πληρεστέων τὸ μεταβάλλον ἐπιπίπτειν κινεῖν.<sup>1</sup> Ἀναξιμένης δὲ... Alex. ad loc. 115, 13 (*tantummodo enarrat Aristotelem, unica immutatione admissa, quae in apparatu critico adnotatur.*) (116, 10) καταλιπὼν (sc. ὁ Ἀριστοτέλης) ἀνατίρητον τὴν Δημοκρίτου, ἴσως διὰ τὸ ἐπιτόλαιον.

414. (D. D. A 98). Seneca. Nat. quaest. VI, 20 (*ex Posidonio*): D. plura putat (sc. terrae motus efficere), ait enim motum aliquando spiritu fieri, aliquando aqua, aliquando utroque, et id hoc modo prosequitur: «Aliqua pars terrae concava est: in hanc aquae magna vis confluit. Ex hac est aliquid<sup>1</sup> tenue et ceteris liquidius. Hoc cum superveniente gravitate reiectum est,<sup>2</sup> illiditur terris et illas movet, nec enim fluctuari potest sine motu eius, in quod impingitur... Ubi in unum locum congesta est et capere se desiit, aliquo incumbit et primo viam pondere aperit deinde impetu. Nec enim exire nisi per vexum potest diu inclusa nec in dereum cadere moderate aut sine concussione eorum, per quae vel in quae cadit. Si vero, cum iam rapi coepit, aliquo loco substitit et illa vis fluminis in se revoluta est, in continentem terram repellitur et illam, qua parte maxime pendet, exagitat. Praeterea aliquando<sup>3</sup> madefacta tellus liquore penitus accepto altius sedit et fundus ipse vitiatur: tunc ea pars premitur, in quam maxime aquarum vergentium pondus inclinatur. Spiritus vero nonnumquam impellit undas et, si vehementius institit, eam scilicet partem terrae movet, in quam coactas aquas intulit: nonnumquam in terrena itinera coniectus<sup>4</sup> et exitum quaerens movet omnia: ut terra autem penetrabilis ventis est, ita spiritus subtilior est quam ut possit excludi, vehementior, quam ut sustineri concitatus ac rapidus».

## II. De rebus caelestibus

415. (D.L.A 25; D.D.A 93). Aët. III, 3, 10 (Dox. 369): Δ. πυρὸς ἐναποληφθέντος νέφει παχυτάτοις ἐκπτώσιν ἰσχυρὰν βροντὴν ἀποτελεῖν ἀποφαίνεται. Δ. βροντὴν μὲν ἐκ συγκρίματος ἀνωμάλου τὸ περιελιφθὸς αὐτὸ νέφος πρὸς τὴν κάτω φερόν ἐκβιαζόμενον· ἀστραπὴν δὲ σύγκρουσιν<sup>5</sup> νεφῶν, ὅφ' ἦς τὰ γεννητικὰ τοῦ πυρὸς διὰ τῶν πολυκένων ἀραιωμάτων ταῖς παρατρίψεσιν εἰς τὸ αὐτὸ συναλιζόμενα διηθεῖται· κεραυνοὺν δὲ, ὅταν ἐκ καθαρωτέρων καὶ λεπτοτέρων ὁμαλωτέρων τε καὶ πυκναρμόνων, καθάπερ αὐτὸς γράφει, γεννητικῶν τοῦ πυρὸς ἢ φορὰ βιάζεται· πρηστῆρα δὲ, ὅταν πολυκενώτερα συγκρίματα πυρὸς ἐν πολυκένους κατασχεθέντα χώραις καὶ περιοχαῖς ὕμενων ἰδίων σωματοποιούμενα τῷ πολυμυγεῖ τὴν διὰ<sup>6</sup> τὸ βᾶρος<sup>6</sup> ὀρμὴν λάβῃ.<sup>1</sup> (D.D.B 152). Plut. Quaest. conv. IV, 2, 4, p. 665 F: <sup>4</sup> τὸ κεραύνιον πῦρ ἀκριβεῖαι καὶ λεπτότητι θαυμαστόν ἐστίν, αὐτόθεν τε τὴν γένεσιν ἐκ καθαρᾶς καὶ ἀγνῆς ἔχον οὐσίας καὶ πᾶν εἴ τι συμμίγνεται νοτερόν ἢ γεῶδες αὐτόν τῆς περὶ τὴν κίνησιν δέουτος ἀποσειομένης καὶ διακαθαίρουσης. «διόβλητον μὲν οὐδὲν, ὡς φησὶ Δ., <τὰ δὲ> παρ' αἰθρίης στέγειν <εὐαγὲς> σέλας».<sup>2</sup>

416. (D.O). Aristot. Meteor. I, 6, p. 342b 27: Ἀναξαγόρας μὲν οὖν καὶ Δ. φασὶν εἶναι τοὺς κομήτας «σύμφασιν» τῶν πλανήτων ἀστέρων, ὅταν διὰ τὸ πλησίον

ἐλθεῖν δόξωσι θιγγάνειν ἀλλήλων... (343b 25) καίτοι Δ. γε προσπεφλομένης τῆς δόξης τῆς αὐτοῦ· φησὶ γὰρ ὄφθαι διαλυομένων τῶν κομητῶν ἀστέρων τινάς.\* (D.D.A 92). Alex. ad loc. 26, 11: περὶ δὲ τῶν κομητῶν Ἀναξαγόρας μὲν καὶ Δ. λέγουσι τὸν κομητὴν λεγόμενον ἀστὴρα «σύμφασιν» εἶναι τῶν πλανήτων ἀστέρων· οὗτοι δὲ εἰσιν ὁ τε τοῦ Κρόνου καὶ ὁ τοῦ Διὸς καὶ ὁ τῆς Ἀφροδίτης καὶ ὁ τοῦ Ἄρεος καὶ ὁ τοῦ Ἑρμοῦ. τούτους γὰρ, ὅταν ἐγγὺς ἀλλήλων γένωνται, φαντασίαν ἀποτελεῖν ὡς ἄρα ἔπτονται ἀλλήλων καὶ ἔστιν εἰς ἀστὴρ, ὁ καλούμενος κομητῆς. «σύμφασιν» γὰρ λέγει τὴν ἐκ πάντων τῶν συνελθόντων ὡς ἐξ ἑνὸς φαντασίαν γενομένην. Philopon. ad loc. 75, 24: οὗτοι δ' εἰσιν ὁ τε τοῦ Κρόνου καλούμενος καὶ ὁ τοῦ Διὸς καὶ ὁ τοῦ Ἄρεος καὶ ὁ τοῦ Ἑρμοῦ καὶ ὁ τῆς Ἀφροδίτης· οὐ γὰρ δὴ καὶ τὸν ἥλιον συνηριθμοῦν καὶ τὴν σελήνην. δῆλον γὰρ εἶχε τὸν ἔλεγχον. ὅταν οὖν, φασίν, εἰς τοῦτο πλησιάζουσιν οὗτοι καὶ θιγγάνειν ἀλλήλων δόξωσιν (οὐ γὰρ δὴ γε θιγγάνουσιν ἐν τῷ αὐτῷ μὴ ὄντες ἐπιπέδω) μέγεθος ἀποτελοῦσι καὶ μίαν ἐργάζονται «σύμφασιν», ταυτέστιν ἐν φῶς ἐκ πάντων συμπεφορημένον φαίνεται. καὶ οἰμαί γε, εἴ τις αὐτοὺς ἠρώτησε, τί δήποτε οὖν ποτὲ μὲν μείζων ὁ κομητῆς ποτὲ δ' ἐλάττω φαίνεται, εἶπον ἂν ὡς ὀπηνίκα πυκνότεραν πρὸς ἀλλήλους τὴν θέσιν ἔχοισιν, ἐλάττω φαίνεσθαι τὸν κομητὴν, ὅποτε δὲ διεσπῆκαίεν πως καὶ μὴ λίαν ἐγγὺς εἴησαν, μείζονα εἶναι δοκεῖν, καὶ μάλιστα ὅταν καὶ τῶν ἀπλανῶν τινες αὐτοῖς πλησιάζαντες μίαν ἅμα τοῦτοις ποιήσονται «σύμφασιν». εἰ δὲ καὶ τῶν ἄλλοτε ἄλλων αὐτοῦ σχημάτων τὴν αἰτίαν ζητοῦμεν, εἰπεῖν ἂν πάλιν τὴν διάφορον αὐτῶν πρὸς ἀλλήλους θέσιν τε καὶ σχέσιν τούτων αἰτίαν εἶναι, τῶν μὲν ἐπ' εὐθείας κειμένων τῶν δ' ἐκ πλαγίου, νοτιωτέρων ὄντων ἢ βορειωτέρων, ἢ ὀπωσοῦν ἄλλως δυνατὸν εἶη θέσεως αὐτοῦς ἔχειν πρὸς ἀλλήλους ἢ σχέσεως. (D. 59 A 81). Aët. III, 2, 2 (Dox. 366): Ἀναξαγόρας, Δ. σύνοδον ἀστέρων δεῖν ἢ καὶ πλειόνων κατὰ συναγωγασμόν.<sup>1</sup> Schol. Arat., p. 545, 20 Maas: Δ. δὲ καὶ Ἀναξαγόρας κατὰ σύλληψιν δύο πλανωμένων, ἥνικα πλησίον ἀλλήλων γένωνται, καθάπερ ἐσπῆτρων ἀντιλαμπόντων ἀλλήλοις τοὺς κομητῆτας συνίστασθαι λέγουσι, καὶ οὗτοι δὲ πλανώμενοι τοῦτο λέγουσιν· οὗτε γὰρ ἐν τῷ ζωδιακῷ μόνον φαίνονται ἀλλὰ καὶ ἐν τοῖς βορείοις καὶ τοῖς νοτίοις, τρεῖς τε ἐν τῷ αὐτῷ πολλάκις ὄρωνται κομηταί· πέντε δὲ ὄντων πλανήτων τρεῖς ὄρασθαι κομητῆτας ἀδύνατον.<sup>2</sup> (D.B. III, Supplem., 653, 44). Seneca. Nat. quaest. VII, 3, 1 sqq.: Necessarium est autem veteres ortus cometarum habere collectos, deprehendi enim propter raritatem eorum cursus non potest nec explorari, an vices seruent et illos ad suum diem certus ordo producat. Nova haec caelestium observatio est et nuper in Graeciam inventa. Democritus quoque, subtilissimus antiquorum omnium, suspicari se ait plures esse stellas, quae currant (reliqua v. N. 390).

417. (D. 59 A 80). Aristot. Meteor. I, 8, p. 345a 25: οἱ δὲ περὶ Ἀναξαγόραν καὶ Δημόκριτον φῶς εἶναι τὸ γάλα λέγουσιν ἀστρῶν τινῶν· τὸν γὰρ ἥλιον ὑπὸ τὴν γῆν φερόμενον οὐχ ὄραν ἕνα τῶν ἀστρῶν, ὅσα μὲν οὖν περιορᾶται ὑπ' αὐτοῦ, τούτων μὲν οὐ φαίνεσθαι τὸ φῶς (κωλύεσθαι γὰρ ὑπὸ τῶν τοῦ ἡλίου ἀκτίνων). ὅσοις δ' ἀντιφράττει ἢ γῆ ὡστε μὴ ὄρασθαι ὑπὸ τοῦ ἡλίου, τὸ τούτων οἰκείον φῶς φασίν εἶναι τὸ γάλα. (D.D.A 91). Alex. ad loc. 37, 23: Ἀναξαγόρας δὲ καὶ Δ. φῶς εἶναι τὸ γάλα λέγουσιν ἀστρῶν τινῶν. ὁ γὰρ ἥλιος νόκτωρ ὑπὸ γῆν ἰὼν ὅσα περιλάμπει τῶν ὑπὲρ γῆς ὄντων ἀστρῶν, τούτων μὲν μὴ γίνεσθαι φασίν φανερόν τὸ οἰκείον φῶς ἐμποδιζόμενον ὑπὸ τῶν τοῦ ἡλίου ἀκτίνων· ὅσοις δὲ ἡ σκιά τῆς γῆς ἐπιπροσθοῦσα ἐπισκοτεῖ, ὡς μὴ ἐπιλάμπεσθαι τῷ ἀπὸ τοῦ ἡλίου φωτί, τούτων δὲ τὸ οἰκείον φῶς ὄρασθαι, καὶ τοῦτο εἶναι τὸ γάλα. Olympiod. ad loc. 67, 32: τρίτη δόξα Ἀναξαγόρου καὶ Δημόκριτου. οὗτοι φασὶ τὸν γαλαξίαν εἶναι τὸ ἴδιον φῶς τῶν ἀστέρων τῶν μὴ φωτιζομένων ὑπὸ τοῦ ἡλίου. ἔχουσι γὰρ, φησὶ,<sup>1,2</sup> τὰ ἀστρα τὸ ἴδιον φῶς καὶ ἐπίκνητον τὸ ἀπὸ τοῦ ἡλίου (sequitur N. 399). ἀλλ' οὐ πάντα, φησὶ, τὸ ἐπίκνητον δέχονται· τὰ οὖν μὴ δεγόμενα ἐκεῖνα τὸν κύκλον τοῦ γαλαξίου ἀπεργάζονται.

418. (D.D.A 91).<sup>1</sup> Aët. III, 1, 6 (Dox. 365; περὶ γαλακτος): Δ. πολλῶν καὶ μικρῶν καὶ συνεγῶν ἀστέρων συμφωτιζομένων ἀλλήλοις διὰ τὴν πύκνωσιν συναγωγασμόν. Achill. Isag. (p. 55, 24 sqq. M.; περὶ τοῦ γαλαξίου): ἄλλοι δὲ ἐκ μικρῶν πᾶν καὶ πεπυκνωμένων καὶ ἡμῶν δοκούντων ἠνώσθαι διὰ τὸ διάστημα τὸ ἀπὸ τοῦ οὐρανοῦ ἐπὶ τὴν γῆν ἀστέρων αὐτῶν εἶναι φασίν, ὡς εἴ τις ἀλάσι λεπτοῖς καὶ πολλοῖς καταπάσειέ τι.

### III. De ecliptica

419. (D.L.A 27; D.D.A 96). Aët. III, 12, 1—2 (Dox. 377; περὶ ἐγκλίσεως γῆς): Δ. παρεκπεσεῖν τὴν γῆν εἰς τὰ μεσημβρινὰ μέρη διὰ τὴν ἐν τοῖς μεσημβρινοῖς ἀραιότητα, ἅτε δὴ πεπηγῶτων τῶν βορείων διὰ τὸ κατεφῶχθαι τοῖς κρυμοῖς, τῶν δὲ ἀντιθέτων πεπυρωμένων. Δ. διὰ τὸ ἀσθενέστερον εἶναι τὸ μεσημβρινὸν τοῦ περιέχοντος ἀξονομένην τὴν γῆν κατὰ τοῦτο ἐγκλιθῆναι· τὰ γὰρ βόρεια ἄκρατα, τὰ δὲ μεσημβρινὰ<sup>1</sup> κέκραται· ὅθεν κατὰ τοῦτο βεβάρηται, ὅπου περισσῆ ἐστὶ τοῖς καρποῖς καὶ τῆς αὔξει. (D. L. A1). Diog. IX, 33: ἐκλειπτικὸν δέ, δι' οὗ<sup>2</sup> ἐκλείπειν [δὲ]<sup>b</sup> ἥλιον καὶ σελήνην, τῷ κεκλίσθαι τὴν γῆν πρὸς μεσημβρίαν· τὰ δὲ πρὸς ἄρκτωι αἰεὶ τε νίφασθαι καὶ κατάφυχρα εἶναι καὶ πῆγνυσθαι.

420. (D.D.A 89).<sup>1</sup> Aët. II, 23, 7 (Dox. 353; περὶ τροπῶν ἡλίου): Δ. ἐκ τῆς περιφερούσης αὐτὸν διήσεως.

### IV. Astronomia descriptiva et temporum ratio

421.<sup>1</sup> (D.D.A 33). Diog. IX, 47—48: Μαθηματικὰ δὲ (Δημοκρίτου) τάδε: ... Ἐκπετάσματα.<sup>2</sup> Μέγας ἐνιαυτός, ἢ Ἀστρονομίη, παράπηγμα<sup>3</sup>. ... Οὐρανογραφίη. Πολογραφίη.

422. (D.D.B 14, 5). Schol. Apollon. Rhod. II, 1098 (v. N. 424, 5): Δ. ἐν τῷ Περὶ ἀστρονομίας. (D.D.B 13). Apollon. Dyscol. De pronom., p. 65, 15 Schneid.: καὶ Φερεκύδης ἐν τῇ Θεολογίᾳ καὶ ἐπὶ Δ. ἐν τοῖς Περὶ ἀστρονομίας καὶ ἐν τοῖς ὑπολειπομένοις συντάγμασι συνεχέστερον χρῶνται τῇ ἐμεῦ καὶ ἐπὶ τῇ ἐμέο. Diog. V, 43: καταλέλοιπε δὲ βιβλία καὶ αὐτὸς (ὁ Θεόφραστος)... ἐστὶ δὲ τάδε: ... Περὶ τῆς Δημοκρίτου ἀστρολογίας<sup>1</sup> ἄ.

423. (D. D. B 12). Censor. 18, 8: Est et Philolai ... annus<sup>1</sup> ... et Democriti ex annis LXXXII cum intercalariis (sc. mensibus) perinde (sc. atque Callippi) viginti octo.

424. (D. D. B 14).<sup>1</sup> Fragmenta ephemeridis ex Astronomia.

1. Vitruv. IX, 6, 3: De naturalibus autem rebus Thales Milesius, Anaxagoras Clazomenius, Pythagoras Samius, Xenophanes Colophonius, D. Abderites rationes, quibus eae res natura rerum gubernarentur quemadmodumcumque effectus habeant, excogitatas reliquerunt. Quorum inventa secuti siderum <ortus> et occasus tempestatumque significatus<sup>2</sup> Eudoxus, Euctemon, Callippus, Meto, Philippus, Hipparchus, Aratus ceterique ex astrologia parapegmatorum disciplinis invenerunt et eas posteris explicatas reliquerunt. Vitruv. IX, 5, 4: Quae figurata conformataque sunt siderum in mundo simulacra natura divinaque mente designata ut Democrito physico placuit, exposui, sed tantum ea quorum ortus et occasus possumus animadvertere et oculis contueri.<sup>3</sup>

2. Eudox. Ars astron. 22, 21 (p. 25 Blass): Εὐδόξωι Δημοκρίτωι χειμεριναὶ τροπαὶ ἀθῦρ ὅτε μὲν π ὅτε δὲ ἰθ. (23, 3) ἀπὸ ἰσημερίας μεθοπωρινῆς ἐπὶ χειμερινὰς τροπὰς Εὐδόξωι ἡμέραι ρβ, Δημοκρίτωι ἡμέραι ρα ... ἀπὸ τροπῶν χειμερινῶν εἰς ἰσημερινὰν ἐαρινὴν Εὐδόξωι καὶ Δημοκρίτωι ἡμέραι ρα, Εὐκλήμωνι ρβ.

3.<sup>4</sup> [Gemin.] Isag. (ephemeris II circiter saec. ante Chr.), p. 218, 14 Manit. (Scorpio): ἐν δὲ τῇ δ ἡμέραι<sup>5</sup> Δημοκρίτωι Πλειάδες δύνουσιν ἅμα ἡσὶ· ἀνεμοὶ χειμῆριος ὡς τὰ πολλὰ καὶ φύχη ἦδη καὶ πάχνη ἐπιπνεῖν φιλεῖ, φυλλορροεῖν ἄρχεται τὰ δένδρα μάλιστα.

220, 5: ἐν δὲ τῇ ιγ Δημοκρίτωι Λύρα ἐπιτέλλει ἅμα ἡλίωι ἀνίσχοντι· καὶ ὁ ἀήρ χειμῆριος γίνεται ὡς ἐπὶ τὰ πολλὰ.

222, 9 (Sagittarius): ἐν δὲ τῇ ις Δημοκρίτωι Ἄστος ἐπιτέλλει ἅμα ἡλίωι καὶ ἐπισημαίνειν φιλεῖ βροντῆ καὶ ἀστραπῆ καὶ ὕδατι ἢ ἀνέμωι ἢ ἀμφοτέρα ὡς ἐπὶ τὰ πολλὰ.

- 224, 5 (Capricornus): ἐν δὲ τῇ ιβ̄ Δημοκρίτῳ νότος πνεῖ ὡς <ἐπὶ τὰ πολλά>.<sup>9</sup>  
 224, 22 (Aquarius): ἐν δὲ τῇ γ̄ Εὐκτῆμονι ὑετία, Δημοκρίτῳ ἀλογχος,<sup>6</sup> χειμῶν.  
 226, 4: ἐν δὲ τῇ ις̄ Δημοκρίτῳ ζέφυρος πνεῖν ἀρχεται καὶ παραμένει. ἡμέραι γ̄ καὶ μ̄ ἀπὸ τροπῶν.  
 226, 15 (Pisces): ἐν δὲ τῇ δ̄ Δημοκρίτῳ ποικίλαι ἡμέραι γίνονται ἀλκυονίδες καλούμεναι.  
 226, 23: ἐν δὲ τῇ ιδ̄ Δημοκρίτῳ ἄνεμοι πνέουσι ψυχροί, οἱ ὀρνιθία<sup>7</sup> καλούμενοι, ἡμέρας μάλιστα ἐννέα.  
 228, 23 (Aries): Δημοκρίτῳ Πλειάδες κρύπτονται ἅμα ἡλίῳ ἀνίσχοντι καὶ ἀφανεῖς γίνονται νόκτας μ̄.  
 232, 16 (Gemini): ἐν δὲ τῇ ῑ Δημοκρίτῳ ὕδωρ γίνεται.  
 232, 21: ἐν δὲ τῇ κδ̄ Δημοκρίτῳ ἀρχεται Ὁρίων ἐπιτέλλειν καὶ φιλεῖ ἐπισημαίνειν ἐπ' αὐτῶν.  
 4. Plin. N. h. XVIII, 231:<sup>8</sup> D. talem futuram hiemem arbitratur, qualis fuerit brumae dies et circa eum terni, item solstitio aestatem (cf. [Theophr.] De sign. 57). (312) Dein consentiunt, quod est rarum, Philippus . . . Democritus, Eudoxus IIII Kal. Oct. (28 Sept.). Capellam matutino exoriri et III Kal. (29 Sept.) Haedos.  
 5. Schol. Apollon. Rhod. II, 1098:

(Zeus δ' ἀνέμου βορέας μένος κίνησεν ἄηται,  
 ὕδατι σημαίνων διερὴν ὁδὸν Ἀρκτοόρου):

τοῦτο δὲ ἔφη, ἔπειτα κατὰ τὴν ἐπιτολὴν τοῦ Ἀρκτοόρου σφοδροὶ καταχέονται ὄμβροι, ὡς φησὶ Δ. ἐν τῷ Περὶ ἀστρονομίας καὶ Ἀρατος (Phaen. 745).

6. Clodii calend. apud Ioann. Lyd. De ost., p. 157, 18 Wachsm.<sup>2</sup>: καὶ ταῦτα μὲν ὁ Κλωδῖος ἐκ τῶν παρὰ Θεόδοκους ἱερῶν πρὸς λέξιν καὶ οὐκ αὐτὸς μόνος, ἀλλὰ μὴν καὶ Εὐδοξός τε ὁ πολὺς, Δημόκριτος πρῶτος αὐτῶν, Βάρρων τε ὁ Ῥωμαῖος κτλ.

7. Ptolem. Apparit. epileg. apud Ioann. Lyd. De ost., p. 275, 1 Wachsm.<sup>2</sup>: καὶ τούτων ἀνέγραφα τὰς ἐπισημασίας καὶ κατέταξα κατὰ τε Αἰγυπτίους καὶ Δοσίθεον . . . Δημόκριτον· τούτων δὲ Αἰγύπτιοι ἐτήρησαν παρ' ἡμῖν . . . Δ. ἐν Μακεδονίᾳ καὶ Θράκῃ. διὸ δὴ μάλιστα ἂν τις ἐφαρμόζοι τὰς μὲν τῶν Αἰγυπτίων ἐπισημασίας ταῖς περὶ τοῦτον τὸν παράλληλον χώραις . . . τὰς δὲ Δημοκρίτου . . . καθ' ὃν ἡ μείσθη τῶν ἡμερῶν ὥρων ἐστὶν ἰσημερινῶν ιε.

p. 213, 19. Thoth ιζ̄ (14 Sept.): . . . Δημοκρίτῳ Ἀβδηρίτη <ἐπισημαίνει καὶ> χελιδῶν ἀφανίζεται.

- 215, 18. Thoth κδ̄ (26 Sept.): Δημοκρίτῳ ὑετὸς καὶ ἀνέμων ἀταξία.  
 217, 12. Phaophi η̄ (5 Oct.): Δημοκρίτῳ χειμᾶζει· σπόρου ὥρα.  
 220, 13. Athyr β̄ (29 Oct.): Δημοκρίτῳ φύχη ἢ πάχνη.  
 223, 14. Athyr ιζ̄ (13 Nov.): Δημοκρίτῳ χειμῶν καὶ κατὰ γῆν καὶ κατὰ θάλασσαν.  
 227, 5. Choiak ᾱ (27 Nov.): Δημοκρίτῳ ὁ οὐρανὸς ταραχώδης καὶ ἡ θάλασσα ὡς τὰ πολλά.  
 229, 10. Choiak δ̄ (5 Dec.): Δημοκρίτῳ χειμῶν.  
 230, 11. Choiak ιδ̄ (10 Dec.): Δημοκρίτῳ βρονταί, ἀστραπαί, ὕδωρ, ἄνεμοι.  
 233, 8. Tybi ᾱ (27 Dec.): Δημοκρίτῳ μέγας χειμῶν.  
 233, 15. Tybi γ̄ (29 Dec.): Δημοκρίτῳ ἐπισημαίνει.  
 234, 17. Tybi δ̄ (4 Ian.): Δημοκρίτῳ νότος ὡς τὰ πολλά.  
 237, 17. Tybi κς̄ (20 Ian.): Δημοκρίτῳ ἐφύβει.  
 238, 6. Tybi κδ̄ (24 Ian.): Δημοκρίτῳ μέγας χειμῶν.  
 240, 12. Mechir ιβ̄ (6 Febr.): Δημοκρίτῳ ζέφυρος ἀρχεται πνεῖν.  
 241, 6. Mechir ιδ̄ (8 Febr.): Δημοκρίτῳ ζέφυρος πνεῖ.

- 243, 5.<sup>9</sup> Mechir λ̄ (24 Febr.): Δημοκρίτῳ ποικίλαι ἡμέραι αἱ καλούμεναι ἀλκυονίδες.  
 245, 1. Phamenoth ιᾱ (7 Mart.): Δημοκρίτῳ ἄνεμοι ψυχροί· ὀρνιθία ἐπὶ ἡμέρας δ̄.  
 246, 16. Phamenoth κβ̄ (18 Mart.): Δημοκρίτῳ ἐπισημαίνει, ἄνεμος ψυχρός.  
 247, 18. Pharmuthi ᾱ (27 Mart.): Δημοκρίτῳ ἐπισημαίνει.  
 252, 2. Pharmuthi κδ̄ (24 Apr.): Δημοκρίτῳ ἐπισημαίνει.  
 258, 10. Payni γ̄ (28 Mai.): Δημοκρίτῳ ὑετία.  
 259, 9. Payni δ̄ (3 Iun.): Δημοκρίτῳ ὕδωρ ἐπιγίνεται.  
 262, 19. Payni κη̄ (22 Iun.): Δημοκρίτῳ ἐπισημαίνει.  
 263, 18. Epiphi δ̄ (28 Iun.): Δημοκρίτῳ ζέφυρος καὶ ὕδωρ ἑώιον, εἴτα βορέαι πρόδρομοι<sup>10</sup> ἐπὶ ἡμέρας ζ̄.  
 267, 4. Epiphi κβ̄ (16 Iul.): Δημοκρίτῳ ὕδωρ, καταιγίδες.  
 268, 21. Mesori β̄ (26 Iul.): Δημοκρίτῳ, Ἰππάρχῳ νότος καὶ καῦμα.  
 271, 22. Mesori κς̄ (19 Aug.): Δημοκρίτῳ ἐπισημαίνει ὕδασι καὶ ἀνέμοις.  
 8. Ioann. Lyd. De mens. IV, 16 sqq. (ephemeris).  
 78, 15 Wünsch. (15 Ian.): Δ. δὲ τὸν λίβα<sup>11</sup> μετὰ ὄμβρου φησὶ γίνεσθαι.  
 79, 5 (18 Ian.): Δ. λέγει δύεσθαι τὸν Δελφίνα καὶ τροπὴν ὡς ἐπὶ πολὺ γίνεσθαι.  
 79, 16 (23 Ian.): Δ. ἄνεμον λίβα πνεῦσαι λέγει.  
 109, 3 (17 Mart.): ἐν δὲ τῇ ἡμέρᾳ τῶν Βακχαναλίων Δ. δύεσθαι τοὺς Ἰχθύας λέγει.  
 159, 16 (2 Sept.): ἐν ταύτῃ τῇ ἡμέρᾳ ὁ Δ. λέγει ἐναλλαγὴν ἀνέμων συμβαίνειν καὶ βροχῆς ἐπικρατεῖαν.  
 163, 10. (6 Oct.): ὁ Δ. τοὺς Ἐρίφους ἀνίσχειν καὶ βορρᾶν πνεῖν δισχυρίζεται.  
 169, 3 (25 Nov.): ὁ Δ. λέγει τὸν ἥλιον <ἐν> Τοξότη γίνεσθαι.

## E. DE SENSIBUS ET COGNITIONE

### a. GENERALIA

#### I. Ad rei historiam

425. (D.D.A 135). Theophr. De sensu 57 (Dox. 513; post *N&N* 461, 478, 488): καὶ περὶ μὲν ὄψεως καὶ ἀκοῆς οὕτως ἀποδίδωσι, τὰς δὲ ἄλλας αἰσθήσεις σχεδὸν ὁμοίως ποιεῖ τοῖς πλείστοις.<sup>1</sup>

426. (D.D.A 135). Theophr. De sensu 59 (Dox. 513): περὶ δὲ τῶν αἰσθητῶν, τίς ἢ φύσις καὶ ποῖον ἕκαστόν ἐστιν, οἱ μὲν ἄλλοι παραλείπουσιν. τῶν μὲν γὰρ ὑπὸ τὴν ἀφῆν περὶ βαρέος καὶ κοῦφου, καὶ θερμοῦ καὶ ψυχροῦ λέγουσιν, οἷον ὅτι τὸ μὲν μανὸν καὶ λεπτόν θερμόν, τὸ δὲ πυκνὸν καὶ παχὺ ψυχρόν, ὡσπερ Ἀναξαγόρας διαιρεῖ τὸν ἀέρα καὶ τὸν αἰθέρα. σχεδὸν δὲ καὶ τὸ βαρὺ καὶ τὸ κοῦφον τοῖς αὐτοῖς καὶ ἐπὶ ταῖς ἄνω καὶ κάτω φοραῖς, καὶ πρὸς τούτοις περὶ τε φωνῆς, ὅτι κινήσεις τοῦ ἀέρος, καὶ περὶ ὁσμῆς, ὅτι ἀπορροή τις. Ἐμπεδοκλῆς δὲ καὶ περὶ τῶν χρωμάτων, καὶ ὅτι τὸ μὲν λευκὸν τοῦ πυρὸς τὸ δὲ μέλαν τοῦ ὕδατος.<sup>2</sup> οἱ δ' ἄλλοι τσοῦτον μόνον, ὅτι τὸ τε λευκὸν καὶ τὸ μέλαν ἀρχαί, τὰ δ' ἄλλα μειγνυμένων γίνονται τούτων. καὶ γὰρ Ἀναξαγόρας ἀπλῶς εἴρηκε περὶ αὐτῶν. (60) Δ. δὲ καὶ Πλάτων ἐπὶ πλείστον εἰσὶν ἡμῶν, καθ' ἕκαστον γὰρ ἀφορίζει.

427. (D. 31 B 109a). Pap. Oxyrh. 1609, XIII, 94: οὐ δεῖ δὲ εἰδῶλον τοιοῦτον ἀκοῦειν οἷον τὸ κατὰ Δ. ἢ Ἐπίκουρον ἢ ὡς Ἐμπεδοκλῆς ἀπορροᾶς φαίη ἂν ἀπιέναι ἀπὸ ἐκάστου τῶν κατοπτριζομένων καὶ τρεῖς ὄμμασιν ὡσπερ εὐόσας <εἰκόνας ἐναρμόζεσθαι>.



## II. Sensus e ratione atomorum explicantur

Όμοια όμοιους γιγνώσκεισθαι *demonstratur* № 316.

428. (D.D.A 119 et 126). Aristot. De sensu 4, p. 442a 29: Δ. δὲ καὶ οἱ πλείστοι τῶν φυσιολόγων, ὅσοι λέγουσι περὶ αἰσθήσεως, ἀποπάτατόν τι ποιούσιν· πάντα γὰρ τὰ αἰσθητὰ ἀπτά<sup>1</sup> ποιούσιν, καίτοι εἰ οὕτω τοῦτ' ἔχει, δῆλον ὡς καὶ τῶν ἄλλων αἰσθήσεων ἑκάστη ἀφή τίς ἐστίν. τοῦτο δ' ὅτι ἀδύνατον οὐ χαλεπὸν συνιδεῖν. ἔτι δὲ ὡς<sup>2</sup> κοινοῖς τῶν αἰσθήσεων πασῶν χρῶνται <τοῖς><sup>3</sup> ἰδίοις.<sup>4</sup> μέγεθος γὰρ καὶ σχῆμα καὶ τὸ τραχὺ καὶ τὸ λεῖον, ἔτι δὲ τὰ ὀξὺ καὶ τὸ ἀμβλὺ τὸ ἐν τοῖς ὄγκοις κοινὰ τῶν αἰσθήσεων ἐστίν, ἔ<στι><sup>5</sup> δὲ μὴ πασῶν, ἀλλ' ὀφείως γε καὶ ἀφῆς. διὸ καὶ περὶ μὲν τούτων ἀπατώνται, περὶ δὲ τῶν ἰδίων οὐκ ἀπατώνται, οἷον ὄψις περὶ χρώματος καὶ ἀκοή περὶ φήφω, οἱ δὲ τὰ ἴδια εἰς ταῦτα ἀνάγουσιν, ὡς περ Δ.· τὸ γὰρ λευκὸν καὶ τὸ μέλαν τὸ μὲν τραχὺ φησὶν<sup>6</sup> εἶναι τὸ δὲ λεῖον, εἰς δὲ τὰ σχήματα ἀνάγει τοὺς χυμούς. (Cf. № 496). (D. O.). Alex. ad loc. 83, 3: ἀπτά<sup>4</sup> δὲ ἐποίουν πάντα τὰ αἰσθητὰ, ὅτι τῆι ἀπορροίαι τῆι ἀπὸ τῶν αἰσθητῶν καὶ τῆι τούτων ἐμπύσει εἰς τὰ αἰσθητήρια τὴν ἀντίληψιν ἔλεγον γίνεσθαι, τῶν αἰσθητηρίων κινουμένων ὑπ' αὐτῶν καὶ τὰς τῶν ἐν αὐτοῖς σχημάτων τε καὶ μεγεθῶν καὶ λειοτήτων καὶ τραχυτήτων διαφορὰς. ἔτι τὸ λευκὸν καὶ τὸ γλυκὺ καὶ τὸ εὐώδες καὶ τῶν ἄλλων δὲ ἕκαστον αἰσθητῶν οὐδενὶ ἑτέρω φασὶν ἀλλήλων οἱ περὶ Δημόκριτον διαφέρειν ἢ τοῖς σχήμασι καὶ τοῖς μεγέθεσι καὶ ταῖς λειότησι τε καὶ τραχυτήτι. ταῦτα γὰρ τοῖς αἰσθανομένοις τοιαῦτα φαίνεται ὅποια φαίνεται παρὰ τὸ τὴν ἀφήν τὴν καθ' ἑκάστην αἰσθησάντων αὐτῶν ἐμπιπτόντων οὕτω πάσχειν τε καὶ διατίθεσθαι. (93, 12) ἀπορροίας εἶναι λέγοντες καὶ ταύτας αἰτιώμενοι ὡς αἰτίας τοῦ ὄραν οὐ καλῶς ἔλεγον. ἀνάγκη γὰρ ἦν σωματικῆς τοιαύτης ἀπορροίας ἀπὸ τῶν ὁρατῶν γινόμενης μηδὲ πρὸς ὀλίγων<sup>5</sup> σώζεσθαι τὰ ὁρώμενα, ἀλλὰ διαφορεῖσθαι.

429. (D.O.).<sup>1</sup> Aristot. De sensu 6, p. 445b 3: ἀπορήσεις δ' ἂν τις, εἰ πᾶν σῶμα εἰς ἄπειρον διαιρεῖται, ἄρα καὶ τὰ παθήματα τὰ αἰσθητὰ, οἷον χρῶμα καὶ χυμὸς, καὶ ὄσμη, καὶ βᾶρος, καὶ φήφος, καὶ ψυχρὸν, καὶ θερμὸν, καὶ κοφρον, καὶ σκληρόν, καὶ μαλακόν; ἢ ἀδύνατον· ποιητικὸν γὰρ ἐστίν ἕκαστον αὐτῶν τῆς αἰσθήσεως· τῶι δύνασθαι γὰρ κινεῖν αὐτὴν λέγεται πάντα. ὡστ' ἀνάγκη τὴν τε αἰσθησάντων εἰς ἄπειρα διαιρεῖσθαι καὶ πᾶν εἶναι μέγεθος αἰσθητῶν.<sup>2</sup> ἀδύνατον γὰρ λευκὸν μὲν ὄραν μὴ ποσὸν δὲ. εἰ γὰρ μὴ οὕτως, ἐνδέχοιτ' ἂν εἶναι σῶμα μὴδὲν ἔχον χρῶμα μηδὲ βᾶρος μηδ' ἄλλο τι τοιοῦτον πάθος. ὡστ' οὐδ' αἰσθητὸν ὅλως.<sup>3</sup> ταῦτα γὰρ<sup>4</sup> τὰ αἰσθητὰ. τὸ ἄρ' αἰσθητὸν ἔσται συγκείμενον οὐκ ἐξ αἰσθητῶν, ἀλλ' ἀναγκαῖον.<sup>5</sup> οὐ γὰρ δὴ ἐκ γε τῶν μαθηματικῶν. ἔτι τίνοι κρινόμενα ταῦτα ἢ γνωσόμεθα; ἢ τῶι νοῖ; ἀλλ' οὐ νοητὰ, οὐδὲ νοεῖ ὁ νοῦς τὰ ἐκτός μὴ μετ' αἰσθήσεως. ἄρα δ' εἰ ταῦτ' ἔχει οὕτως ἔοικε μαρτυρεῖν τοῖς τὰ ἄτομα ποιούσι μεγέθη· οὕτω γὰρ ἂν λούοιτο ὁ λόγος. ἀλλ' ἀδύνατα· εἴρηται δὲ περὶ αὐτῶν ἐν τοῖς λόγοις τοῖς περὶ κινήσεως... Alex. ad loc. 112, 20: λέγουσι δὲ οἱ τὰς ἀτόμους ὑποτιθέμενοι<sup>6</sup> ἀπαθῆ τὰ ἄτομα σῶματα ὄντα ἐν τῆι ποιῆι πρὸς ἄλληλα συνθέσει τε καὶ σχέσει τὰ πάθη καὶ τὰς τοιαύτας ποιότητας ἀπογενῶν. (111, 12) τὸ γὰρ φυσικὸν καὶ αἰσθητὸν σῶμα ἀναγκαῖον καὶ διαιρεῖσθαι εἰς μέρη φυσικά. πᾶν δὲ φυσικὸν σῶμα σὺν πάθει καὶ σύγκειται ἐκ τοιούτων. εἰ γὰρ μὴ ἐκ τοιούτων εἴη συγκείμενον καὶ εἰς τοιαῦτα διαιρούμενον, εἴη ἂν ἐκ μαθηματικῶν σωματῶν τὰ φυσικά συγκείμενα· ἀπαθῆ γὰρ τὰ μαθηματικά. ἀλλὰ μὴν ἀδύνατον ἐκ τοιούτων λέγειν συγκεῖσθαι σῶματα φυσικά τε καὶ αἰσθητὰ, τῶι ταῦτα, λέγω δὲ τὰ μαθηματικά σῶματα, μὴδ' ἐν ὑποστάσει εἶναι καθ' αὐτά, ἀλλὰ τῆι ἐπινοίαι χωριζόμενα<sup>7</sup> τῶν παθῶν λαμβάνεσθαι. (113, 3) φησὶ δὲ εἰρησθαι περὶ τῶν τὰ ἄτομα ὑποτιθεμένων σωματῶν, ὅτι ἀδύνατα λέγουσιν, ἐν τοῖς Περὶ κινήσεως λόγοις, Περὶ κινήσεως λέγων τὰ τελευτάτα τῆς Φυσικῆς ἀκροάσεως, ἐν οἷς ὅτι μὴ οἷόν τε ἄτομον εἶναι τι μέγεθος δέδειχε.

430. (D.D.A 135; v. № 504). Theophr. De sensu 63: (Δ.) ὁ τι γὰρ ἂν ἄθρον ἦ, τοῦτ' ἐνίσχυειν<sup>1</sup> ἑκάστωι, τὸ δ' εἰς μακρὰ διανενημένον ἀναίσθητον εἶναι. Aristot. De sensu 6, p. 445b 31 sqq.:<sup>2</sup> καὶ διὰ τοῦτο (διὰ τὸ δυνάμει καὶ ἐνεργείαι ἕτερον εἶναι) τὸ μυριοσημόριον λανθάνει τῆς κέγχρου ὁρωμένης, καίτοι ἢ ὄψις ἐπελήλυθεν, καὶ ὁ ἐν τῆι διέσει φθόγγος λανθάνει, καίτοι συνεχῶς ὄντος ἀκούει τοῦ μέλους παντός. τὸ δὲ διάστημα<sup>3</sup> τὸ τοῦ μεταξὺ πρὸς τοὺς ἐσχάτους λανθάνει.<sup>4</sup>

431. (D.O.). Aristot. De sensu 6, p. 446a 20: ἀπορήσεις δ' ἂν τις, ἄρ' ἀφικνοῦνται ἢ τὰ αἰσθητὰ ἢ αἰ κινήσεις αἰ ἀπὸ τῶν αἰσθητῶν,<sup>1</sup> ὅποτέρως ποτὲ γίνεται ἢ αἰσθησάντων, ὅταν ἐνεργῶσιν, εἰς τὸ μέσον πρῶτον, οἷον ἢ τε ὄσμη φαίνεται ποιούσα καὶ ὁ φήφος.<sup>2</sup> πρότερον γὰρ ὁ ἐγγὺς αἰσθάνεται τῆς ὄσμης, καὶ ὁ φήφος ὕστερον ἀφικνεῖται τῆς πλῆγης. ἄρ' οὖν οὕτω καὶ τὸ ὁρώμενον καὶ τὸ φῶς; καθάπερ καὶ Ἐμπεδοκλῆς φησὶν ἀφικνεῖσθαι πρότερον τὸ ἀπὸ τοῦ ἡλίου φῶς εἰς τὸ μεταξὺ πρὶν πρὸς τὴν ὄψιν ἢ ἐπὶ τὴν γῆν. δόξεις δ' ἂν εὐλόγως τοῦτο συμβαίνειν· τὸ γὰρ κινούμενον κινεῖται ποθὲν ποι, ὡστ' ἀνάγκη εἶναι τινα καὶ χρόνον ἐν ᾧ κινεῖται ἐκ θατέρου πρὸς θάτερον· ὁ δὲ χρόνος πᾶς διαιρετός, ὡστε ἦν ὅτε οὕτω ἐώρατο ἀλλ' ἔτ' ἐφέρετο ἢ ἀκτίς ἐν τῶι μεταξὺ. καὶ εἰ<sup>3</sup> ἄπαν ἄμα ἀκούει καὶ ἀκῆκος, καὶ ὅλως αἰσθάνεται ἢ ἡσθησάντων, καὶ μὴ ἔστι γενεσίς αὐτῶν, ἀλλ'<sup>4</sup> εἰσὶν ἄνευ τοῦ γίνεσθαι ὅμως οὐδὲν ἦττον, ὡς περ ὁ φήφος ἤδη γεγεννημένης<sup>5</sup> τῆς πλῆγης, <καίπερ><sup>6</sup> οὕτω πρὸς τῆι ἀκοῇ. δηλοῖ δὲ τοῦτο καὶ ἡ τῶν γραμμάτων μετασχημάτισις,<sup>7</sup> ὡς γιγνομένης τῆς φορᾶς ἐν τῶι μεταξὺ· οὐ γὰρ τὸ λεχθὲν φαίνονται ἀκηκοότες διὰ τὸ μετασχηματίζεσθαι φερόμενον τὸν ἀέρα. ἄρ' οὖν οὕτω καὶ τὸ χρῶμα καὶ τὸ φῶς; οὐ γὰρ δὴ τῶι πως ἔχειν τὸ μὲν ὄραν, τὸ δ' ὄραται, ὡς περ <διότι><sup>8</sup> ἴσα ἐστίν.<sup>9</sup> οὐδὲν γὰρ ἂν<sup>10</sup> ἔδει που ἑκάτερον εἶναι· τοῖς γὰρ ἴσοις γιγνομένοις<sup>8</sup> οὐδὲν διαφέρει ἢ ἐγγὺς ἢ πόρρω ἀλλήλων εἶναι.<sup>9</sup> ἢ περὶ μὲν τὸν φῶνον καὶ τὴν ὄσμην τοῦτο συμβαίνειν εὐλογον· ὡς περ γὰρ ὁ ἀήρ καὶ τὸ ὕδωρ, συνεχῆ<sup>10</sup> μὲν, μεμερίσται<sup>11</sup> δ' ἄμφοτέρων ἢ κινήσει, διὸ καὶ ἔστι μὲν ὡς τὸ αὐτὸ ἀκούει ὁ πρῶτος καὶ ὁ ὕστερος καὶ ὁσφραίνεται, ἔστι δ' ὡς οὐ. Alex. ad loc. 123, 15: εἶπε δὲ τὸ ἄρα ἀφικνοῦνται ἢ τὰ αἰσθητὰ ἢ αἰ κινήσεις αἰ ἀπὸ τῶν αἰσθητῶν,<sup>11</sup> ὅτι τοῖς μὲν ἐδόκουν ἀπορροαί τινες ἀπὸ τῶν αἰσθητῶν πρὸς τὰς αἰσθήσεις φέρεσθαι καὶ εἶναι τούτων τὴν αἰσθησάντων (κατὰ δὴ τούτους αὐτὰ τὰ αἰσθητὰ ἀφικνεῖται πρὸς τὰς αἰσθήσεις). Aristot. De anima II, 6, p. 418b 13: ... τί μὲν οὖν τὸ διαφανὲς καὶ τί τὸ φῶς, εἴρηται, ὅτι οὔτε πῦρ οὐδ' ὅλως σῶμα οὐδ' ἀπορροή σῶματος οὐδενός<sup>12</sup> (εἴη γὰρ ἂν σῶμα τι καὶ οὕτως)... (20) καὶ οὐκ ὀρθῶς Ἐμπεδοκλῆς, οὐδ' εἰ τις ἄλλος<sup>13</sup> οὕτως εἴρηκεν, ὡς φερομένου τοῦ φωτός καὶ γιγνομένου ποτὲ μεταξὺ τῆς γῆς καὶ τοῦ περιέχοντος, ἡμᾶς δὲ λανθάνοντος.

432. (D.O.).<sup>1</sup> Aristot. De sensu 6, p. 446b 17: δοκεῖ δὲ τισιν εἶναι ἀπορία καὶ περὶ τούτων· ἀδύνατον γὰρ φασὶ τινες ἄλλον ἄλλωι τὸ αὐτὸ ἀκούειν καὶ ὄραν καὶ ὁσφραίνεσθαι· οὐ γὰρ οἷόν τ' εἶναι πολλοὺς καὶ χωρὶς ὄντας <ἐν><sup>2</sup> ἀκούειν ἢ ὁσφραίνεσθαι. τὸ γὰρ ἐν χωρὶς ἂν αὐτὸ αὐτοῦ εἶναι. ἢ τοῦ μὲν κινήσαντος πρώτου, οἷον τῆς κώδωνος ἢ λιβανωτοῦ ἢ πυρός, τοῦ αὐτοῦ καὶ ἐνός ἀριθμοῦ,<sup>2</sup> <οὐκ><sup>3</sup> αἰσθάνονται πάντες, τοῦ δὲ δὴ ἰδίω, ἐτέρου ἀριθμοῦ εἶδει δὲ τοῦ αὐτοῦ, διὸ ἄμα πολλοὶ ὄρωσι καὶ ὁσμώνται καὶ ἀκούουσιν. ἔστι δ'<sup>3</sup> οὔτε σῶματα ταῦτα, ἀλλὰ πάθος καὶ κινήσις τις (οὐ γὰρ ἂν τοῦτο συνέβαινε) οὐδ' ἄνευ σῶματος· περὶ δὲ τοῦ φωτός ἄλλος λόγος· τῶι εἶναι γὰρ τὸ φῶς ἐστίν, ἀλλ' οὐ κινήσις τις.

433. (D.O.). Philopon. in De gen. et corr. I, 1, p. 314b 15, p. 17, 16: κατὰ δὲ τοὺς περὶ Δημόκριτον εἶδη τῶν στοιχείων ἐστὶ τὰ σχήματα, τῶν δὲ ἄλλων ἐστὶν ἀνεπίδεκτα παθῶν, οἷον θερμότητός τε καὶ ψύξεως, λευκότητός τε καὶ μελανίας, καὶ τῶν ἄλλων τῶν τοιούτων, φαίνεσθαι δὲ μόνον τούτων μετέχοντα τὰ σύνθετα τῆι πρὸς ἡμᾶς σχέσει. τούτων δὲ τῶν παθῶν, τῶν ἡμῖν μὲν φαινομένων, φύσει δὲ μὴ ἐνυπαρχόντων τοῖς σώμασι, τὰ μὲν τῆι ἐκ τῶν τοιῶνδε ἀτόμων συγκρίσει ἔπεται, ὡς περ ἡ θερμότης τῶι πυρὶ ἐκ σφαιρικῶν ἀτόμων συνθεθειῶν φαίνεται διὰ τὸ τῆς σφαιρας ἐκκίνητον (τῶι γὰρ ραυδίως δικνεῖσθαι, διότι κατὰ σημεῖον ἢ κινήσις τῆι σφαιραῖ, τὸ θερμὸν εἶναι δοκεῖν ποιεῖ ὡς περ τοῦναντίον ὁ κύβος τῆι πιλήσει καὶ τῶι δυσκινήτῳ τὸ ψυχρόν), ἐνια δὲ σφαιρομένων τῶν συγκριμάτων τῆι μεταθέσει καὶ τῆι μετατάξει τῶν ἀτόμων τὴν φαντασίαν τῆς μεταβολῆς ἴσχει, ὅπερ ἔφαμεν ἀναλογεῖν τῆι ἀλλοιώσει. τὸ γὰρ αὐτὸ σῶμα ὅτε μὲν λευκὸν ὅτε δὲ μέλαν καὶ ψυχρόν καὶ θερμὸν δοκεῖ, τῶι μετατίθεσθαι καὶ μετατάττεσθαι τὰς ἀτόμους ἐν τῶι συνδέτωι. ἀμέλει τὸ πῦρ αἰεὶ ὡσαύτως ἔχειν δοκεῖ, τῶι εἰ καὶ μετατεθεῖεν τὰ ἐξ ὧν σύγκειται ἄτομα, διὰ τὸ εἶναι σφαιρικά πανταχόθεν τὴν αὐτὴν αἰεὶ ἔχειν σχέσιν πρὸς ἡμᾶς. τὰ γὰρ ἐκ τριγώνων φέρε οὐχ ἔξει ὁμοίως, ἔξω μὲν τῶν βάσεων οὐσῶν ἐντός δὲ τῶν κορυφῶν, ἢ ἔμπαλιν. πάντα δὲ ἀπλῶς τὰ (18, 1) πάθη, τὰ τε φυλαττόμενα αἰεὶ, ὡς ἡ θερμότης ἐν τῶι πυρὶ, καὶ τὰ ἄλλοτε ἄλλως μεταλλαττόμενα, φαίνεσθαι μόνον ἡμῖν ἔφασκον, φύσει δὲ ἐνυπαρχεῖν οὐδαμῶς.

434. (D.O). Philopon. in De gen. et corr. I, 2, p. 315b 9, p. 23, 2: ἐπειδή, φησί, πᾶσαν φαντασίαν ἀληθῆ λέγουσι, καὶ ἕκαστον, ὡς φαίνεται, οὕτως καὶ εἶναι, φαίνεσθαι δὲ πολλάκις τάναντία περὶ τοῦ αὐτοῦ τισι· τὸ ταῦθ' οὕτως περὶ τοῦ αὐτοῦ φαινόμενα ἀληθῶς ἔχειν δύνανται ἐκ τῶν οἰκείων ἀρχῶν σώζειν οἱ περὶ Δημόκριτον, ὑποθέμενοι ἄπειρα εἶναι τῶν στοιχείων τὰ σχήματα. ταῦτα γὰρ τήν τε τάξιν ἀμείβοντα καὶ τὴν θέσιν μεταλλάττοντα, ἐκ τῆς πρὸς τοὺς ὄντως σχέσεως καὶ τοῦ διαστήματος ἄλλοτε ἄλλην καὶ ἐν τῷ αὐτῷ ἄλλω ἄλλην φαντασίαν παρέχεται. οὕτω γοῦν ὁ τῆς περιστερᾶς τράχηλος, προσβαλλούσης αὐτῷ τῆς τοῦ ἡλίου ἀκτίνος, διαφόρων χρωμάτων φαντασίαν παρέχεται· πρὸς ἄλλην γὰρ καὶ ἄλλην τοῦ ὄμματος θέσιν τοῖς μὲν κυανὸς φαίνεται, τοῖς δὲ χρυσαῖων, τοῖς δὲ μέλας, καὶ ἄλλοις ἄλλοις. καὶ τὰ τετράγωνα δὲ τῶν σχημάτων κυκλωτέρῃ πόρρωθεν φαίνεται, καὶ κύκλον δὲ πόρρωθεν κείμενον, εἰ κατὰ τοῦ κροτάφου θεασώμεθα, εὐθεῖαν ὀρώμεν, καὶ τὸ μέλι τῷ μὲν ἱκτεριῶντι πικρὸν φαίνεται, τῷ δὲ ὕγραινοντι γλυκὸν, καὶ τὸ πικρὸν πρὸς ἄλλην καὶ ἄλλην τοῦ ὄρωτος σχέσιν ἢ H, ἢ Γ ὁράται.<sup>a</sup> Cf. Lucr. II, 801:

Pluma columbarum quo pacto in sole videtur,  
Quae sita cervicis circum collumque coronat:  
Namque alias fit uti claro sit rubra pyropo  
Interdum quodam sensu fit uti videatur  
Inter curalium viridis miscere zmaragdus.

(IV, 353) Quadratasque procul turris cum cernimus urbis  
Propterea fit uti videantur saepe rutundae. . .<sup>1</sup>

435. (D.D.A 135). Theophr. De sensu 64, 78 (Dox. 517): οὐ μὴν ἄλλ' ὡσπερ καὶ τὰ ἄλλα καὶ ταῦτα (sc. τὰ πάθη) ἀνατίθησι τοῖς σχήμασι· πλήν οὐχ ἀπάντων ἀποδίδωσι τὰς μορφάς, ἀλλὰ μᾶλλον τῶν χυλῶν καὶ τῶν χρωμάτων, καὶ τούτων ἀκριβέστερον διορίζει τὰ περὶ τοὺς χυλοὺς ἀναφέρων τὴν φαντασίαν πρὸς ἄνθρωπον . . . ἄπειρα δὲ εἶναι καὶ τὰ χρώματα καὶ τοὺς χυλοὺς κατὰ τὰς μίξεις,<sup>1</sup> εἴαν τις τὰ μὲν ἀφαιρῆι, τὰ δὲ προστιθῆι καὶ τῶν μὲν ἔλαττον μίσηι τῶν δὲ πλέον. οὐδὲν γὰρ ὅμοιον εἶσεσθαι<sup>2</sup> θάτερον θατέρωι.

436. (D.L.A 30). Aët. IV, 8, 5 (Dox. 394): Α., Δημόκριτος τὰς αἰσθήσεις καὶ τὰς νοήσεις ἑτεροιώσεις εἶναι τοῦ σώματος. Aët. IV, 8, 10 (Dox. 395): Α., Δ., Ἐπίκουρος τὴν αἰσθησίν καὶ τὴν νόησιν<sup>1</sup> γίνεσθαι εἰδώλων ἔξωθεν προσιόντων· μηδενὶ γὰρ ἐπιβάλλειν<sup>2</sup> μηδετέραν χωρὶς τοῦ προσπίπτοντος εἰδώλου.

437. (D.D.A 115). Aët. IV, 10, 5 (Dox. 399; πόσαι εἰσὶν αἱ αἰσθήσεις): Δ. πλείους μὲν εἶναι τὰς αἰσθήσεις τῶν αἰσθητῶν. τῷ δὲ μὴ ἀναλογίσειν τὰ αἰσθητὰ τῷ πάθει<sup>a</sup> λανθάνειν.<sup>1</sup> (D. 28 A 47). Aët. IV, 9, 6 (Dox. 397b 1): Παρμενίδης, Ἐμπεδοκλῆς, Ἀναξαγόρας, Δ., Ἐπίκουρος, Ἡρακλείδης παρὰ τὰς συμμετρίας τῶν πόρων τὰς κατὰ μέρος αἰσθήσεις γίνεσθαι τοῦ οἰκείου τῶν αἰσθητῶν ἕκαστου ἕκαστη ἐναρμόττοντος.

438. (D.D.A 116). Aët. IV, 10, 4 (Dox. 399): Δ. πλείους<sup>1</sup> εἶναι αἰσθήσεις περὶ<sup>2</sup> τὰ ἄλογα ζῶια καὶ περὶ τοὺς σοφοὺς καὶ περὶ τοὺς θεοὺς.

439. (D.L.A 14). Simpl. in Phys. I, 2, p. 184b 15, p. 36, 1: οἱ δὲ περὶ Α. καὶ Δ. τὰ ἐλάχιστα πρῶτα σώματα ἄτομα καλοῦντες κατὰ τὴν σχημάτων αὐτῶν καὶ τῆς θέσεως καὶ τῆς τάξεως διαφορὰν τὰ μὲν θερμὰ γίνεσθαι καὶ πύρια τῶν σωμάτων, ὅσα ἐξ ὀξυτέρων καὶ λεπτομερεστέρων καὶ κατὰ ὁμοίαν θέσιν κειμένων σύγκειται τῶν πρῶτων σωμάτων, τὰ δὲ ψυχρὰ καὶ ὑδατώδη, ὅσα ἐκ τῶν ἐναντιῶν,<sup>1</sup> καὶ τὰ μὲν λαμπρὰ καὶ φωτεινά, τὰ δὲ ἀμυδρὰ καὶ σκοτεινά.

### III. Democritus quid sensuum ad exteriora quid ad interiora referat Theophrasto interprete

440. (D.D.A 119). Theophr. De caus. pl. VI, 1, 2: αὐτὸ γὰρ τοῦτο πρῶτον ἔχει τινὰ σκέψιν, πότερον γὰρ τοῖς πάθεσιν τοῖς κατὰ τὰς αἰσθήσεις ἀποδοτέον ἢ ὡσπερ Δ. τοῖς σχήμασιν ἐξ ὧν ἕκαστον.

441. (D.D.A 135). Theophr. De sensu 63 sqq. (Dox. 513): οὐδὲ γὰρ τοῦ ψυχροῦ καὶ τοῦ θερμοῦ φύσιν ὑπάρχειν, ἀλλὰ τὸ σχῆμα μεταπίπτον<sup>1</sup> ἐργάζεσθαι καὶ τὴν ἡμετέραν ἀλλοιώσειν· ὅ τι γὰρ ἂν ἄθρον<sup>2</sup> ἦι, τοῦτ' ἐνισχύσειν ἕκαστωι, τὸ δ' εἰς

μακρὰ διανενημένον ἀναίσθητον εἶναι. . . (64) ἐτι δ' αὐτοὺς μεταβάλλειν τῇ κρήσει<sup>3</sup> κατὰ τὰ πάθη καὶ τὰς ἡλικίας· ἦ καὶ φανερόν ὡς ἡ διάθεσις αἰτία τῆς φαντασίας. ἀπλῶς μὲν οὖν περὶ τῶν αἰσθητῶν οὕτω δεῖν ὑπολαμβάνειν. . . (68) ἄτοπον δ' ἂν φανείη<sup>4</sup> πρῶτον μὲν τὸ μὴ πάντων ὁμοίως ἀποδοῦναι τὰς αἰτίας, ἀλλὰ βαρὺ μὲν καὶ κοκκῶι, θερμὸν δὲ καὶ ψυχρὸν καὶ τὰ ἄλλα <διορίσαι> τοῖς σχήμασιν. ἔπειτα βαρέος μὲν καὶ κούφου, καὶ σκληροῦ καὶ μαλακοῦ καθ' αὐτὰ ποιεῖν φύσεις (μέγεθος μὲν γὰρ καὶ σμικρότης καὶ τὸ πικρὸν καὶ τὸ μανὸν οὐ πρὸς ἕτερον ἐστὶ), θερμὸν δὲ καὶ ψυχρὸν καὶ τὰ ἄλλα πρὸς τὴν αἰσθησίν,<sup>5</sup> καὶ ταῦτα πολλάκις λέγοντα διότι τοῦ θερμοῦ τὸ σχῆμα σφαιροειδές. (69) ὅπως δὲ μέγιστον ἐναντίωμα καὶ κοινὸν ἐπὶ πάντων ἅμα μὲν πάθη ποιεῖν τῆς αἰσθήσεως, ἅμα δὲ τοῖς σχήμασι διορίσειν<sup>6</sup> καὶ τὸ αὐτὸ φαίνεσθαι τοῖς μὲν πικρὸν τοῖς δὲ γλυκὸν τοῖς δ' ἄλλως· οὔτε γὰρ οἷόν <τε> τὸ σχῆμα πάθος εἶναι οὔτε ταῦτον τοῖς μὲν σφαιροειδῆς τοῖς δ' ἄλλως (ἀνάγκη δ' εἴπερ) ἴσως, εἴπερ τοῖς μὲν γλυκὸν τοῖς δὲ πικρὸν) οὐδὲ κατὰ τὰς ἡμετέρας ἔξεις μεταβάλλειν τὰς μορφάς,<sup>8</sup> ἀπλῶς δὲ τὸ μὲν σχῆμα καθ' αὐτὸ ἐστὶ, τὸ δὲ γλυκὸν καὶ ὅπως τὸ αἰσθητὸν πρὸς ἄλλο καὶ ἐν ἄλλοις,<sup>7</sup> ὡς φησιν. ἄτοπον δὲ καὶ τὸ πᾶσιν ἀξιοῦν ταῦτο φαίνεσθαι τῶν αὐτῶν αἰσθανομένων καὶ τούτων τὴν ἀλήθειαν ἐλέγχειν, καὶ ταῦτα εἰρηκότα πρότερον τὸ τοῖς ἀνομοίως διακειμένοις ἀνομοία φαίνεσθαι καὶ τὸ μὴτὲν μᾶλλον ἕτερον ἑτέρου τυγχάνειν τῆς ἀληθείας. (70) εἰκὸς γὰρ τὸ βέλτιον τοῦ χείρονος καὶ τὸ ὕγιατον τοῦ κάμνοντος·<sup>8</sup> κατὰ φύσιν γὰρ μᾶλλον. ἐτι δὲ εἴπερ μὴ ἐστὶ φύσις τῶν αἰσθητῶν διὰ τὸ μὴ ταῦτά πᾶσι φαίνεσθαι, ὅθλον ὡς οὐδὲ τῶν ζώων οὐδὲ τῶν ἄλλων σωμάτων· οὐδὲ γὰρ περὶ τούτων ὁμοδοξοῦσι. καίτοι εἰ μὴ καὶ διὰ τῶν αὐτῶν γίνεται πᾶσι τὸ γλυκὸν καὶ τὸ πικρὸν, ἀλλ' ἢ γε φύσις τοῦ πικροῦ καὶ τοῦ γλυκεῖος ἢ αὐτῆ φαίνεται πᾶσιν. ὅπερ καὶ αὐτὸς ἂν δόξειεν ἐπιμαρτυρεῖν. πῶς γὰρ ἂν τὸ ἡμῖν πικρὸν ἄλλοις ἢ γλυκὸν καὶ στρυφνόν, εἰ μὴ τις ἦν ὀρισμένη φύσις αὐτῶν; (71) ἐτι δὲ ποιεῖ σαφέστερον ἐν οἷς φησὶ γίνεσθαι μὲν ἕκαστον<sup>9</sup> καὶ εἶναι κατ' ἀλήθειαν, ἰδίως<sup>10</sup> δὲ ἐπὶ πικροῦ μοῖραν ἔχειν συνέσεως,<sup>11</sup> ὥστε διὰ τε τούτων ἐναντίον ἂν φανείη τὸ μὴ ποιεῖν φύσιν τινὰ τῶν αἰσθητῶν, καὶ πρὸς τούτοις ὅπερ ἐλέγθη καὶ πρότερον,<sup>12</sup> ὅταν σχῆμα μὲν ἀποδίδωι τῆς <πικρᾶς> οὐσίας ὡσπερ καὶ τῶν ἄλλων, μὴ εἶναι δὲ λέγηι φύσιν ἢ γὰρ οὐδενὸς ὅπως ἢ καὶ τούτων ἔσται, τῆς αὐτῆς γε ὑπαρχούσης αἰτίας. ἐτι δὲ τὸ θερμὸν τε καὶ ψυχρὸν, ἄπερ ἀρχὰς τιθέασιν,<sup>13</sup> εἰκὸς ἔχειν τινὰ φύσιν, εἰ δὲ ταῦτα, καὶ τὰ ἄλλα. νῦν δὲ σκληροῦ μὲν καὶ μαλακοῦ, καὶ βαρέος καὶ κούφου ποιεῖ τιν' οὐσίαν, ἄπερ οὐχ ἦττον ἔδοξε λέγεσθαι πρὸς ἡμᾶς, θερμοῦ δὲ καὶ ψυχροῦ καὶ τῶν ἄλλων οὐδενός. καίτοι τὸ γε βαρὺ καὶ κοκκῶν ὅταν διορίζηι τοῖς μεγέθεσιν, ἀνάγκη τὰ ἀπλᾶ πάντα τὴν αὐτὴν ἔχειν ὁρμὴν τῆς φορᾶς, ὥστε μιᾶς τινος ἂν ὄλης εἴη καὶ τῆς αὐτῆς φύσεως.<sup>14</sup>

442. ((D.D.A 133). Theophr. De odore 64: τί δὴ ποτε Δ. τοὺς μὲν χυμοὺς πρὸς τὴν γεῦσιν ἀποδίδωσι, τὰς δ' ὀσμὰς καὶ τὰς χροῖας οὐχ ὁμοίως πρὸς τὰς ὑποκειμένας αἰσθήσεις; εἶδει γὰρ ἐκ τῶν σχημάτων.

## b. DE ANIMA

### I. Animam ex ignis atomis constare. Animam principium motus esse. De mutuis animae et corporis rationibus

443. (D.D.A 33) Diog. IX, 46: τὰ δὲ βιβλία αὐτοῦ (τοῦ Δ.) . . . Φυσικὰ δὲ τάδε. . . Περὶ νοῦ, Περὶ αἰσθησίων· ταῦτά τινες ὁμοῦ γράφοντες Περὶ ψυχῆς ἐπιγράφουσι.

443a. (partim D.L.A 28).<sup>1</sup> Aristot. De anima I, 2, p. 403b 28: φασι γὰρ, ἔνιοι καὶ μάλιστα καὶ πρῶτως ψυχὴν εἶναι τὸ κινεῖν. οἰηθέντες δὲ τὸ μὴ κινούμενον αὐτὸ μὴ ἐνδέχεσθαι κινεῖν ἕτερον, τῶν κινουμένων τι τὴν ψυχὴν ὑπέλαβον εἶναι. ὅθεν Δ. μὲν πῶρ τι καὶ θερμὸν φησιν αὐτὴν<sup>2</sup> εἶναι· ἀπείρων γὰρ ὄντων σχημάτων καὶ ἀτόμων . . . τὴν μὲν πανοπεριμίαν στοιχεῖα λέγει τῆς ὄλης φύσεως (ὁμοίως δὲ καὶ Α.)· ταύτων δὲ τὰ σφαιροειδῆ ψυχὴν, διὰ τὸ μάλιστα διὰ παντός δύνασθαι διαδύνασθαι τοῖς ρυθμοῖς καὶ κινεῖν τὰ λοιπὰ, κινούμενα καὶ αὐτά, ὑπολαμβάνοντες τὴν ψυχὴν εἶναι τὸ παρέχον τοῖς ζώοις τὴν κίνησιν. (D.O). Philopon. ad. loc. 67, 10: ἡγαόμενος οὖν ὁ Δ. τῆς ψυχῆς εἶναι τὴν κίνησιν, πῶρ αὐτὴν εἶπεν διὰ τὸ εὐκίνητον.<sup>3</sup>

ἐκ σφαιρικῶν δὲ ἀτόμων φησὶν εἶναι τὸ πῦρ, διότι ἡ σφαῖρα τῶν σχημάτων εὐκίνη-  
τότατον, ἅτε δὴ κατὰ σημεῖον ἀπτομένη τοῦ ἐπιπέδου,<sup>4</sup> ἐπεὶ οὖν ἡ ψυχὴ κινεῖ, δεῖ  
δὲ τὸ κινεῖσθαι μάλιστα (ὅσῳ γὰρ μᾶλλον κινεῖται, κινεῖ), διὰ τοῦτο ἐκ τῶν  
εὐκίνητοτάτων ἀτόμων τῶν σφαιρικῶν καὶ τὴν ψυχὴν εἶναι φησὶ καὶ τὸ πῦρ. ὥστε  
ταύτη, λέγω δὴ τῷ πῦρ λέγειν τὴν ψυχὴν, εἰς ταῦτόν ἐρχεται ὁ Δ. Ἡρακλείτωι  
διαφέρει δὲ ὅτι ἐκεῖνος συνεχῆς σῶμα ἔλεγε τὸ πῦρ τοῦτο, ὅπερ καὶ ἡμεῖς φαίμεν,  
ὁ δὲ Δ. οὐ.<sup>5</sup> Cf. Philopon. in De gen. et corr. I, 1, p. 314b 15, p. 17, 16.  
(D.O). Simpl. ad loc. 25, 26: πρώτου Δημοκρίτου μέμνηται ὡς σαφῶς σωματικὴν  
κίνησιν (τοπικὴν γὰρ) τῆι ψυχῆι ἀποδιδόντος, εἴπερ τῶν ἀτόμων τι σωμάτων αὐτὴν  
ὑπετίθετο ὅσον σφαιροειδές, ὅπερ καὶ πῦρ εἶναι. τὸ γὰρ εὐκίνητον καὶ διὰ πάντων  
διέναι οὐ κωλύμενον, διὰ τὸ ἀγώνιον ἐν σχήμασι τὸ σφαιροειδές ὄν, προσήκειν τε  
πῦρ καὶ τῆι ψυχῆι.

444. (D.D.A 101). Aristot. De anima I, 2, p. 405a 5 (post № 67): (ἡ ψυχὴ)  
ἔδοξέ τισι πῦρ εἶναι· καὶ γὰρ τοῦτο λεπτομερέστατον τε καὶ μάλιστα τῶν στοιχείων ἀσώ-  
ματον,<sup>1</sup> ἔτι δὲ κινεῖται τε καὶ κινεῖ τὰ ἄλλα πρώτως. Δ. δὲ καὶ γλαφυρωτέρως εἴρη-  
κεν ἀποφηνάμενος, διὰ τί τούτων ἐκάτερον.<sup>2</sup> ψυχὴν μὲν γὰρ εἶναι ταῦτόν καὶ νοῦν.<sup>3</sup>  
τοῦτο<sup>4</sup> δ' εἶναι τῶν πρώτων καὶ ἀδιαιρέτων σωμάτων, κινήτικόν δὲ διὰ μικρομέρειαν<sup>5</sup>  
καὶ τὸ σχῆμα· τῶν δὲ σχημάτων εὐκίνητότατον τὸ σφαιροειδές λέγει· τοιοῦτον δ' εἶναι  
τόν τε νοῦν, καὶ τὸ πῦρ. Philopon. ad loc. 83, 27: ἀσώματον δὲ εἶπε τὸ πῦρ· οὐ  
κυρίως ἀσώματον (οὐδεὶς γὰρ αὐτῶν τοῦτο ἔλεγε), ἀλλ' ὡς ἐν σώμασιν ἀσώματον διὰ  
λεπτομέρειαν. Themist. ad loc. 13, 10: Δ. δὲ τούτων ἐκάτερον καὶ γλαφυρωτέρως  
ἔδεικνυ, τὸ μὲν κινεῖν διὰ τὴν μικρομέρειαν, τὸ δὲ κινεῖσθαι διὰ τὸ σχῆμα· ἄμφω  
γὰρ οἶεται ὑπάρχειν ταῖς σφαιροειδέσιν ἀτόμοις... Philopon. ad loc. 82, 23: εἴη  
δ' ἂν καὶ Δ. ἐν τούτοις, μετὰ τῶν ἀτόμων σωμάτων εἰσαγαγῶν καὶ τὸ κενόν. Sophon.  
ad loc. 14, 15: Δ. δὲ καὶ γλαφυρωτέραν ἀπέδοκεν αἰτίαν ἀποφηνάμενος, διότι τού-  
των ἐκάτερον τῷ πῦρ· τὰ γὰρ πρώτα, καὶ ἀδιαιρέτα τῶν σωμάτων τὰ σφαιρικά,  
ἃ πῦρ ἔθετο καὶ ψυχὴν, κινήτικώτερα<sup>6</sup> τῶν ἄλλων καὶ δραστικὰ διὰ τε τὴν μικρομέ-  
ρειαν καὶ τὸ σχῆμα.

445. (D.D.A 104). Aristot. De anima I, 3, p. 406b 15: ἐνιοι δὲ καὶ κινεῖν  
φασὶ τὴν ψυχὴν τὸ σῶμα ἐν οἷ ἐστίν, ὡς αὐτὴ κινεῖται, οἷον Δ. παραπλησίως λέγων  
Φιλίππῳ τῷ κωμικοδιδασκάλῳ, φησὶ γὰρ τὸν Δαίδαλον κινουμένην ποιῆσαι τὴν  
ξυλίνην Ἀφροδίτην ἐγγέαντ' ἄργυρον χυτὸν ὁμοίως δὲ καὶ Δ. λέγει· κινουμένης γὰρ  
φησὶ τὰς ἀδιαιρέτους σφαῖρας, διὰ τὸ πεφυκέναι μηδέποτε μένειν, συνεφέλκειν καὶ  
κινεῖν τὸ σῶμα πᾶν.<sup>1</sup> Sophon. ad loc. 18, 25: οὕτω γὰρ φησὶ Δ. καὶ οἱ περὶ  
αὐτόν, οἱ τὰς σφαιρικὰς ἀτόμους εἰσήγον, κινεῖσθαι τὴν ψυχὴν· τῷ γὰρ αἰεὶ ταύτας  
κινεῖσθαι διὰ τὸ πεφυκέναι μηδέποτε μένειν συνεφέλκειν τε καὶ κινεῖν τὸ σῶμα πᾶν,  
ψυχὴν οὖσας... Ἰδωμεν δὲ καὶ ἃ ἐν τῷ Τιμαίῳ (8, p. 34 B sqq.) περὶ τῆς τοῦ  
παντός ὁ αὐτός (ὁ Πλάτων) φυσιολογεῖ ψυχῆς· ταῦτά γὰρ τῷ Δ. Δημοκρίτῳ καὶ εἴ τις  
ἄλλος εἴρηκε τῷ κινεῖσθαι κινεῖν κακεῖ φανεῖν διοριζόμενος· πλὴν ὅσον οἱ μὲν ὥσπερ  
ἐν εἰρκτῆι τῷ σώματι κατακλείουσιν, ὁ δὲ περιπλέκει.<sup>2</sup> (D.D.A 106). Aristot.  
De respir. 4, p. 471b 30: Δ. ... λέγει ... ὡς ἡ ψυχὴ καὶ τὸ θερμόν ταῦτόν,  
τὰ πρώτα σχήματα τῶν σφαιροειδῶν ... ἐν γὰρ τῷ ἀέρι πολὺν ἀριθμὸν εἶναι τῶν  
τοιοῦτων ἃ καλεῖ ἐκεῖνος νοῦν καὶ ψυχὴν.<sup>3</sup> Aristot. De part. animal. II, 7,  
p. 652b 7: οἱ μὲν γὰρ τοῦ ζώου τὴν ψυχὴν τιθέασιν πῦρ ἢ τοιαύτην τινὰ δύναμιν  
φορτικῶς τιθέντες.

446. (D.O). Aristot. De anima I, 5, p. 409b 7: συμβαίνει τε κινεῖσθαι τὸ  
ζῶον ὑπὸ τοῦ ἀριθμοῦ,<sup>1</sup> καθάπερ καὶ Δημοκρίτον ἐφαμεν αὐτὸ κινεῖν· τί γὰρ διαφέρει  
σφαῖρας λέγειν μικρὰς ἢ μονάδας μεγάλαις ἢ ὅλως μονάδας φερομένας; ἀμφοτέρως γὰρ  
ἀναγκαῖον κινεῖν τὸ ζῶον τῷ κινεῖσθαι αὐτάς. Simpl. ad loc. 64, 12: καὶ ἐκάστη  
μονάδα καὶ τῶν Δημοκρίτειων σφαιρίων ἕκαστον ἔσται ψυχὴ.

447. (D.L.A 28). Aët. IV, 3, 7 (Dox. 388): Δ. ἐκ πυρός εἶναι τὴν ψυχὴν.  
(D.D.A 102). Aët. IV, 3, 5 (Dox. 388): Δ. (τὴν ψυχὴν) πυρῶδες σύγκριμα ἐκ  
τῶν λόγῳ θεωρητῶν,<sup>1</sup> σφαιρικὰς μὲν ἐχόντων τὰς ἰδέας,<sup>2</sup> πυρίνην δὲ τὴν δύναμιν,  
ὅπερ σῶμα εἶναι.

448. (D. 28 A 45). Aët. IV, 5, 12 (Dox. 392): Παρμενίδης καὶ Ἐμπεδοκλῆς  
καὶ Δ. ταῦτόν νοῦν καὶ ψυχὴν, καθ' ὅς οὐδὲν ἂν εἴη ζῶιον ἄλογον κυρίως. (D.O).

Porphyr. De abst. III, 6, 195, 2 Nauck: Ἀριστοτέλης γε καὶ Πλάτων, Ἐμπε-  
δοκλῆς τε καὶ Πυθαγόρας, Δ. τε καὶ ὅσοι ἐφρόντισαν τὴν ἀλήθειαν περὶ αὐτῶν  
(sc. τῶν ζώων) εἰλεῖν, ἐγνώσαν τὸ μετέχον τοῦ λόγου. (D.D.A 117). Aët. IV, 4, 7  
(Dox. 390): ὁ δὲ Δ. πάντα μετέχειν φησὶ ψυχῆς ποιᾶς,<sup>1</sup> καὶ τὰ νεκρὰ τῶν  
σωμάτων,<sup>2</sup> διότι αἰεὶ διαφανῶς<sup>3</sup> τινος θερμοῦ καὶ αἰσθητικοῦ μετέχει τοῦ πλείονος  
διαπνεομένου. Aët. IV, 9, 20 = Alex. in Top. 21, 21: τὰ νεκρὰ τῶν σωμάτων  
αἰσθάνεται, ὡς ὤιστο Δ. (D. 31 A 70). [Aristot.] De plant. I, 1, p. 815b  
16 = Nicolaus Damasc., p. 6, 17 Meyer: Anaxagoras autem et D. et Ab-  
rucalis (= Empedocles) illas (sc. plantas) intellectum intelligentiamque  
habere dicebant. (D.D.A 164). Albert. Magn. De lapid. I, 1, 4 (II, 213b  
Jammy): D. autem et quidam alii elementa tum dicunt habere animas et  
ipsas esse causas generationis lapidum, propter quod dicit animam esse  
in lapide sicut in quolibet alio semine generandae rei et ipsae movere  
calorem intrinsecus materiae in lapidis generatione eo modo, quo movetur  
malleus a fabro ad securis et serrae generationem (D. 31 A 89). Psell.  
De lapid. 26 (Ideler. Physici I, 247, 24; Mély, Lapidaires, p. 204, 12):  
τούτων δὲ τῶν παρὰ τοῖς λίθοις δυνάμεων αἰτίας πολλοὶ ἐθάρρησαν ἀποδοῦναι, τῶν  
μὲν ἀρχαιοτέρων σοφῶν Ἀναξαγόρας καὶ Ἐμπεδοκλῆς καὶ Δ., τῶν δὲ οὐ πολὺ πρό  
ἡμῶν ὁ ἐκ τῆς Ἀφροδισίας Ἀλέξανδρος.

449. (D. O). Cic. Tusc. disp. I, 11, 22: Democritum enim, magnum qui-  
dem illum virum, sed levibus et rotundis corpusculis efficientem animum  
concurso quodam fortuito, omittamus. Nihil est enim apud istos, quod non  
atomorum turba conficiat. (18, 42) Illam vero funditus eiciamus individuorum  
corporum levium et rotundorum concursione fortuitam: quam talem D.  
concofactam et spirabilem, id est animalem esse vult.

450. (D. D. A 103). Macrob. in Somn. Scip. I, 14, 19 (de anima): D. spi-  
ritum insertum atomis hac facilitate motus, ut corpus illi omne sit pervium.

451. (D.O). Nemes. De natura hominis, cap. 2 (28) Matthaëi: Δ. μὲν γὰρ  
καὶ Ἐπίκουρος καὶ πᾶν τὸ τῶν Στωϊκῶν φιλοσόφων σύστημα σῶμα τὴν ψυχὴν ἀποφαι-  
νονταί... λέγουσιν αὐτὴν... Δ. δὲ πῦρ· τὰ γὰρ σφαιροειδῆ σχήματα τῶν ἀτόμων  
συγκρινόμενα, πῦρ τε καὶ ἀέρα,<sup>1</sup> ψυχὴν ἀποτελεῖν (= Greg. Nyss. De anima I, 188).  
Herm. Irris. 2 (Dox. 651): οἱ μὲν γὰρ φασὶν αὐτῶν ψυχὴν εἶναι τὸ πῦρ (οἷον Δ.).<sup>2</sup>

## II. Anima et intellectus. De eorum situ in corpore. De cogitatione

452. (D.D.A 106). Aristot. De respir. 4, p. 471b 34: Δ. λέγει... ἐν...  
τῷ ἀέρι πολὺν ἀριθμὸν εἶναι τῶν τοιοῦτων ἃ καλεῖ ἐκεῖνος νοῦν καὶ ψυχὴν. Aristot.  
De anima I, 2, p. 404a 27: ἐκεῖνος (Δ.) μὲν γὰρ ἀπλῶς ταῦτόν ψυχὴν καὶ νοῦν.  
τὸ γὰρ ἀληθές εἶναι τὸ φαινόμενον... οὐ δὴ χρῆται τῷ νοῦ ὡς δυνάμει τινὶ περὶ  
τὴν ἀλήθειαν. (405a 8) Δ. δὲ καὶ γλαφυρωτέρως εἴρηκεν ἀποφηνάμενος... ψυχὴν γὰρ εἶναι  
ταῦτό (sc. τὸ πῦρ) καὶ νοῦν.<sup>1</sup> (D.D.A 1). Diog. IX, 44: ἐκ... λείων καὶ περι-  
φερῶν ὄγκων συγκεκρίσθαι... τὴν ψυχὴν... ἦν καὶ νοῦν ταῦτόν εἶναι. V. №№ 68, 69.

453. (D.D.A 104a). Aristot. De anima I, 5, p. 409a 32: Δ. κινεῖσθαι  
φησὶν ὑπὸ τῆς ψυχῆς (sc. τὸ σῶμα)... εἴπερ γὰρ ἔστιν ἡ ψυχὴ ἐν παντὶ τῷ  
αἰσθανομένῳ σώματι,<sup>1</sup> ἀναγκαῖον ἐν τῷ αὐτῷ δύο εἶναι σώματα, εἰ σῶμά τι ἡ  
ψυχὴ.

454. (D.D.A 108). Lucr. III, 370:

Illud in his rebus nequaquam sumere possis,  
Democriti quod sancta viri sententia ponit,  
Corporis atque animi primordia, singula privis<sup>2</sup>  
Apposita, alternis variare ac nectere membra.

455. (D.D.A 105).<sup>1</sup> Aët. IV, 4, 6 (Dox. 390): Δ., Ἐπίκουρος διμερῆ τὴν  
ψυχὴν. τὸ μὲν λογικὸν ἔχουσαν ἐν τῷ θώρακι καθιδρυμένην, τὸ δὲ ἄλογον καθ' ὅλην  
τὴν σύγκρισιν<sup>2</sup> τοῦ σώματος διεσπαρμένην. Aët. IV, 5, 1 (Dox. 391): Πλάτων,  
Δ. ἐν ὅλῃ τῆι κεφαλῆι (τὸ ἡγεμονικόν). Theodoret. V, 22 (Dox. 391): Ἰπποκρά-  
της μὲν γὰρ καὶ Δ., καὶ Πλάτων ἐν ἐγκεφάλῳ τοῦτο (sc. τὸ ἡγεμονικόν) ἰδρῶσθαι.





τέοντες χρόνου. (D.O). Lact. Inst. III, 17, 22: Animae vero, inquit (D.), intereunt. Nam quod cum corpore nascitur, cum corpore intereat necesse est. . . Hanc Epicuri persuasionem, sive illa Democriti, sive Dicaearchi fuit. . . (18, 6) Alii autem contraria his disserunt, superesse animas post mortem. . . Nam D. in alia fuit persuasione. Sed tamen (Lucretius III, 1041)

Sponte sua leto caput obuius obtulit ipse.<sup>2</sup>

Lact. Inst. VII, 7, 9: Immortales esse animas Pherecydes et Plato disputaverunt. . . Ergo Dicaearchus cum Democrito erravit, qui perire cum corpore ac dissolvi argumentatus est.<sup>3</sup> Hieronym. Epist. 60, 334: Immortalem animam et post dissolutionem corporis subsistentem, quod Pythagoras somniavit,<sup>4</sup> D. non credit. Lucian. Philops. 32 (= № 579a): οὐτω βεβαίως ἐπίστευε μηδὲν εἶναι τὰς ψυχὰς ἐτι ἔξω γενομένας τῶν σωμάτων.

## c. DE VISU ET EIS QUAE VISU PERCIPIUNTUR

### I. Εἰδῶλα omnino quid sibi velint

(cf. infra № 483)

467. (D.D.B 123). Etym. Gen., s. v. δεικλον: παρὰ δὲ Δημοκρίτῳ κατ' εἶδος ὁμοία τοῖς πράγμασιν ἀπόρροια.

468. (D.D.A 122).<sup>1</sup> Aristot. De anima II, 7, p. 419a 15: οὐ γὰρ καλῶς τοῦτο λέγει Δ. οἰόμενος εἰ γένοιτο κενὸν τὸ μεταξὺ, ὁρᾶσθαι ἂν ἀκριβῶς, εἰ μύρμηξ ἐν τῷ οὐρανῷ εἴη.

469. (D.L.A 30).<sup>1</sup> Aët. IV, 8, 10 (Dox. 395): Α., Δ., 'Επίκουρος τὴν αἰσθησὶν καὶ τὴν νόησιν γίνεσθαι εἰδῶλων ἔξωθεν προσιόντων (cf. № 436). (D.L.A 29). Aët. IV, 13, 1 (Dox. 403): Α., Δ., 'Επίκουρος κατὰ εἰδῶλων εἰσκρισὶν οἴονται τὸ ὁρατικὸν συμβαίνειν πάθος. (D.D.A 1). Diog. IX, 44: ὁρᾶν δ' ἡμᾶς κατ' εἰδῶλων ἐμπτώσεις.

470. (D.D.A 118). Cic. Epist. ad fam. XV, 16, 1: Fit enim nescio qui, ut quasi coram adesse videre, cum scribo aliquid ad te, neque id κατ' εἰδῶλων φαντασίας, ut dicunt tui amici novi, qui putant etiam διανοητικὰς φαντασίας spectris Catianis excitari (nam, ne te fugiat, Catius Insuber Epicurius, qui nuper est mortuus, quae ille Gargettius et iam ante D. εἰδῶλα, hic «spectra» nominat). His autem spectris etiamsi oculi possint feriri, quod velis «nolis» ipsa incurrunt, animus qui possit, ego non video: doceas tu me oportebit, cum salvus veneris, in meane potestate [ut] sit spectrum tuum, ut simulac mihi conlibitum sit de te cogitare, illud occurrat, neque solum de te, qui mihi haeres in medullis, sed si insulam Britanniam coepero cogitare, eius εἰδῶλον mihi advolabit ad pectus. (D. O). Cic. Acad. priora II, 40, 125: Quem (deligam)? Democritum? Tune putes. . . si nunc, aut si etiam dormientes aliquid animo videre videamur, imagines extrinsecus in animos nostros per corpus irrumpere? Cic. De nat. deor. I, 38, 107: Quae autem istae imagines vestrae (sc. Epicureorum), aut unde? A Democrito omnino haec licentia, sed et ille reprehensus a multis est. Cic. De fin. I, 6, 24: Imagines, quae idola nominant (sc. Epicurei), quorum incursione non solum videamus, sed etiam cogitemus (Democriti sunt).

471. (D. O). August. Ad Diosc. 118, 29 sqq. (P. L. 33, p. 446): Miror non admonuisse D. vel hoc ipso falsa esse quae dicit, quia venientes tam magnae imagines in tam brevem animum nostrum, si corporeus, ut illi volunt, tam parvo corpore includitur, totae illum tangere non possunt. . . Incorporatum D. animum existimat. . . nec fieri posse ut incorporeus animus adventu atque contactu corporearum imaginum

cogitet. De visu certe oculorum ambo (sc. D. et Epicurus) pariter redarguuntur; tam enim breves oculos, tam grandia imaginum corpora tota attingere nullo modo possunt. (30) Cum autem quaeritur ab eis quare una imago videatur corporis alicuius, a quo innumerabiliter imagines fluunt; respondent, eo ipso quod frequenter fluunt et transeunt imagines, quasi quadam earum constipatione et densitate fieri ut ex multis una videatur. . . (31) Ipsi dicunt omnia, quae sint naturae, nihil esse aliud quam corpora et inane, quaeque his accidunt. . . Dicant ergo, in quo genere ponant imagines, quas de corporibus solidioribus affluere putant, ipsas minime solidas, ita ut tactu nisi oculorum cum videmus, et animi cum cogitamus, sentiri non possint, si et ipsa corpora sunt. Nam ita censent, ut exire a corpore et venire ad oculos vel ad animum possint, quem nihilominus dicunt esse corporeum.<sup>1</sup> Quaero utrum etiam ab ipsis atomis affluant imagines? Si affluunt, quomodo iam sunt atomi, a quibus aliqua corpora separantur? Si non affluunt, aut potest aliquid sine imaginibus cogitari, quod vehementer nolunt; aut unde norunt atomos, quas nec cogitare potuerunt? (D. O). Macrob. Saturn. VII, 14, 3 (319 Us.): Ipsam vero videndi naturam non insubide intropexit Epicurus adstipulante praecipue Democrito; qui sicut in ceteris ita et in hoc paria senserunt. Ergo censet Epicurus ab omnibus corporibus iugi fluere quaequam simulacra manare nec umquam tantulam moram intervenire, quin ultra ferantur inani figura cohaerentes corporum exuviae: quarum receptacula in nostris oculis sunt.

### II. Εἰδῶλα fons insomniorum et deorum emanationes

472. (D.O). Aristot. De divinat. in somn. 2, p. 464a 5: . . . τοῖονδ' ἂν εἴη μᾶλλον ἢ ὡς περ λέγει Δ. εἰδῶλα καὶ ἀπορροὰς αἰτιώμενος.<sup>1</sup> ὡς περ γὰρ ὅταν κινήσῃ τις τὸ ὕδωρ ἢ τὸν ἀέρα, τοῦθ' ἕτερον ἐκίνησε, καὶ παυσαμένου ἐκείνου συμβαίνει τὴν τοιαύτην κίνησιν προἰέναι μέχρι τινός, τοῦ κινήσαντος οὐ παρόντος, οὕτως οὐδὲν καλοῦσι κίνησιν τινα καὶ αἰσθησὶν ἀφικνεῖσθαι πρὸς τὰς ψυχὰς τὰς ἐνυπνιαζούσας, ἀφ' ὧν ἐκεῖνος τὰ εἰδῶλα ποιεῖ καὶ τὰς ἀπορροίας, καὶ ὅπῃ δὴ ἔτυχεν ἀφικνουμένης μᾶλλον αἰσθητὰς εἶναι νύκτωρ διὰ τὸ μεθ' ἡμέραν φερομένης διαλύεσθαι μᾶλλον (ἀταραχωδέστερος γὰρ ὁ ἀήρ τῆς νυκτός διὰ τὸ νημερώτερας εἶναι τὰς νύκτας) καὶ ἐν τῷ σώματι ποιεῖν αἰσθησὶν διὰ τὸν ὕπνον, διὰ τὸ καὶ τῶν μικρῶν κινήσεων τῶν ἐντός αἰσθάνεσθαι καθεύδοντας μᾶλλον ἢ ἐγρηγορούσας. αὐτὰ δ' αἰ κινήσεις φαντάσματα ποιοῦσιν, ἐξ ὧν προορᾶσι τὰ μέλλοντα περὶ τῶν τοιούτων, καὶ διὰ ταῦτα συμβαίνει τὸ πάθος τοῦτο τοῖς τυχοῦσι<sup>2</sup> καὶ οὐ τοῖς φρονιμωτάτοις. μεθ' ἡμέραν τε γὰρ ἐγίγνετο<sup>3</sup> ἂν καὶ τοῖς σοφοῖς, εἰ θεὸς ἦν ὁ πέμπων<sup>4</sup> (cf. p. 463b 13: θεόπεμπτα μὲν οὐκ ἂν εἴη τὰ ἐνύπνια). οὕτω δ' εἰκὸς τοῖς τυχόντας προορᾶν ἢ γὰρ διάνοια τῶν τοιούτων οὐ φροντιστικὴ ἀλλ' ὡς περ ἔρημος καὶ κενὴ πάντων, καὶ κινήθεισα κατὰ τὸ κινεῖν ἄγεται. καὶ τοῦ ἐνίου τῶν ἐκστατικῶν προορᾶν αἴτιον ὅτι αἰ οἰκεῖται κινήσεις<sup>5</sup> οὐκ ἐνοχλοῦσιν ἀλλ' ἀπορραπίζονται τῶν ξενικῶν οὖν μάλιστα αἰσθάνονται. τὸ δὲ τινὰς εὐθυνοείρους εἶναι καὶ τὸ τοῖς γνωρίμοις περὶ τῶν γνωρίμων μάλιστα προορᾶν συμβαίνει διὰ τὸ μάλιστα τοῖς γνωρίμοις ὑπὲρ ἀλλήλων φροντίζειν. ὡς περ γὰρ πόρρω ὄντων τάχιστα γνωρίζουσι καὶ αἰσθάνονται, οὕτω καὶ τῶν κινήσεων. αἰ γὰρ τῶν γνωρίμων γνωριμώτεροι κινήσεις. οἱ δὲ μελαγχολικοὶ διὰ τὸ σφόδρα,<sup>6</sup> ὡς περ βάλλοντες πόρρωθεν,<sup>7</sup> εὐστοχοὶ εἰσιν, καὶ διὰ τὸ μεταβλητικὸν ταχὺ τὸ ἐχόμενον φαντάζεται αὐτοῖς.<sup>8</sup> ὡς περ γὰρ<sup>9</sup> τὰ Φιλαγίδου ποιήματα<sup>10</sup> καὶ οἱ ἐμμανεῖς ἐχόμενα τοῦ ὁμοίου λέγουσι καὶ διανοοῦνται,<sup>11</sup> οἷον «Ἀφροδίτην» «φροδίτην»,<sup>12</sup> καὶ οὕτω συνεύρουσιν εἰς τὸ πρόσω. ἐτι δὲ διὰ τὴν σφοδρότητα οὐκ ἐκκρούεται αὐτῶν ἢ κινήσεις ὑφ' ἑτέρας κινήσεως. τεχνικώτατος δ' ἐστὶ κριτικῆς ἐνυπνίων ὅστις δύναται τὰς ὁμοιότητας θεωρεῖν τὰς γὰρ εὐθυνοειρίας κρίνειν παντός ἐστιν. λέγω δὲ τὰς ὁμοιότητας, ὅτι παραπλήσια συμβαίνει τὰ φαντάσματα τοῖς ἐν τοῖς ὕδασι εἰδώλοις,<sup>13</sup> καθάπερ καὶ πρότερον εἶπομεν. ἐκεῖ δὲ, ἂν πολλὴ γίνηται ἢ κινήσεις, οὐδὲν ὁμοία γίνεσθαι ἢ ἐμφασίς καὶ τὰ εἰδῶλα τοῖς ἀληθινοῖς. δεινὸς δὲ τὰς ἐμφάσεις κρίνειν εἴη ἂν ὁ

δυνάμενος ταχὺ διαισθάνεσθαι καὶ συνορᾶν τὰ διαπεφορημένα καὶ διεστραμμένα τῶν εἰδώλων, ὅτι ἐστὶν ἀνθρώπου ἢ ἵππου ἢ οὐραίου ποτε. κακεῖ δὲ ὁμοίως τὴν δύναται τὸ ἐνὸπνιον τοῦτο· ἢ γὰρ κινήσεις ἐκκόπτει τὴν εὐθυνοειρίαν. Mich. Ephes. ad loc. 84, 16: τὸ «αἰ οἰκείαι κινήσεις οὐκ ἐνοχλοῦσιν»<sup>14</sup> ἴσον ἐστὶ τῷ «μὴ ἔχειν οἰκείας κινήσεις». οἱ γὰρ ἐκστατικοὶ (λέγει δὲ ἐκστατικούς οὐ τοὺς τέλεον μαινομένους, ἀλλὰ τοὺς ὄντας μεταξὺ, φέρει γὰρ οὕτως εἰπεῖν, τῶν τε φρονίμων καὶ τῶν τέλεον μαινομένων), οἱ δὲ ἐκστατικοὶ καὶ μὴδὲν ὅλως φροντίζοντες ἢ τι ἀναλογιζόμενοι, ἀλλὰ καὶ ἐπίτηι αὐτοῖς ἀναλογισασθαι, ἀπορρίπτοντες καὶ οὐδὲν ὅλως προσιέμενοι πῶς ἂν ἔχοιεν κινήσεις τινάς; καὶ οἱ μὲν σοφοὶ οὐ προορῶσι διὰ τὸ ἐνοχλεῖσθαι καὶ οἰονεῖ θυροκοπεῖσθαι<sup>15</sup> τὴν διάνοιαν αὐτῶν ὑπὸ τῶν ἐνότων αὐτοῖς εἰδώλων<sup>16</sup> καὶ τύπων,<sup>17</sup> οἱ δ' ἐκστατικοὶ κενὴν ἔχοντες τὴν διάνοιαν καὶ διὰ τοῦτο ἀνενόχλητον εἰκότως αἰσθάνονται τῶν προσπιπτόντων ἔξωθεν, τίνα δὲ τὰ προσπίπτοντα καὶ πῶς, εἴρηται τῷ Ἀφροδισιεῖ ἐν τῷ Περὶ δαιμόνων. (D.D.B 212, 128 N. = № 80J). Stob. III, 6, 27: Δημοκρίτου. ἡμερήσιοι ὕπνοι σώματος ὄχλησιν ἢ ψυχῆς ἀδημοσύνην ἢ ἀργίην ἢ ἀπαιδευσίην σημαίνουσι.<sup>18</sup>

#### De deis

472a. (D.O). Themist. (Sophon.) in De divinat. in somn., p. 464a 5, p. 43, 1: ἐτέρως ἂν ἔχοι μᾶλλον ἢ ὡς λέγει Δ. εἰδῶλα γὰρ<sup>1</sup> ἐκεῖνος καὶ ἀπορροίας αἰτιᾶται, ὡν τὰ μὲν φησὶν ἀγαθοποιά, τὰ δὲ κακοποιά, ὑπερμεγέθη τε εἶναι καὶ δύσφθαρτα, ἐμπελάζειν δὲ τοῖς ἀνθρώποις καὶ προσημῶναι τὰ μέλλοντα θεωρούμενα ἐστὶν οἷς καὶ φωνὰς ἀφιέντα μόνον αἰσθητὰς ἐν ὕπνῳ τοῖς ἐπαύουσιν, ὅθεν καὶ εὐλόγων τυχεῖν εἰδώλων ἐπεύχεται. ἀλλ' ἡμεῖς<sup>2</sup> τὸ μὲν εἰδῶλα λέγειν φέρεσθαι καὶ πάμπαν ἀπαγορεύομεν, κινήσεις δὲ τινὰς μᾶλλον ἀντὶ τούτων εἰσάγομεν ἀπ' ἀρχῶν τῶν μελλόντων γίνεσθαι καὶ λόγων καὶ πράξεων, ὅφ' ὧν σχηματιζόμενον τοῦ ἀέρος καὶ διὰ τῶν ὕπνων ἢ τῶν μυκτήρων προσπιπτουσῶν ἐν τοῖς ὕπνοις τῆι καρδίᾳ προορᾶν τὸ μέλλον. (D.D.B 166). Sext. Adv. math. IX, 19: Δ. δὲ εἰδῶλα τίνα φησὶν ἐμπελάζειν τοῖς ἀνθρώποις καὶ τούτων τὰ μὲν εἶναι ἀγαθοποιά τὰ δὲ κακοποιά.<sup>3</sup> ἔνθεν καὶ εὐχετο<sup>4</sup> εὐλόγων τυχεῖν εἰδώλων. εἶναι δὲ ταῦτα μεγάλα τε καὶ ὑπερφυῆ καὶ δύσφθαρτα μὲν, οὐκ ἀφθαρτα δὲ, προσημῶναι τε τὰ μέλλοντα τοῖς ἀνθρώποις θεωρούμενα καὶ φωνὰς ἀφιέντα, ὅθεν τούτων αὐτῶν φαντασίαν λαβόντες οἱ παλαιοὶ ὑπενόησαν εἶναι θεόν, μὴδὲν ἄλλου παρὰ ταῦτα ὄντος θεοῦ<sup>5</sup> [τοῦ] ἀφθαρτον φύσιν ἔχοντος. (= Mich. Ephes. in De divinat. in somn., p. 464a 3, p. 83, 23). Sext. Adv. math. IX, 42: ὁ δὲ Δ. τὸ ἦτρον ἄπορον διὰ τοῦ μείζονος ἀπόρου διδάσκων ἀπίστος ἐστίν. εἰς μὲν γὰρ τὸ πῶς νόησιν θεῶν ἔσχατον ἀνθρώποι πολλὰς καὶ ποικίλας ἢ φύσεις δίδωσιν ἀφορμὰς. τὸ δὲ εἰδῶλα εἶναι ἐν τῷ περιέχοντι ὑπερφυῆ καὶ ἀνθρωποειδεῖς ἔχοντα μορφὰς καὶ καθόλου τοιαῦτα ὅποια βούλεται αὐτῷ ἀναπλάττειν Δ. παντελῶς ἐστὶ δυσπαράδεκτον. Plut. Aem. I, 4: Δ. μὲν γὰρ εὐχεσθαι φησὶ δεῖν, ὅπως εὐλόγων εἰδώλων τυγχάνομεν, καὶ τὰ σύμφυλα καὶ τὰ χρηστὰ μᾶλλον ἡμῖν ἐκ τοῦ περιέχοντος ἢ τὰ φαῦλα καὶ τὰ σκαιὰ συμφέρηται. Plut. De def. oracul. 17, p. 419 A: φαύλους ... δαίμονας ... ἀπέλιπεν ... ἔτι ... Δ. εὐχόμενος εὐλόγων εἰδώλων τυγχάνειν, ἢ δὴλος ἦν<sup>6</sup> ἕτερα δυστράπελα καὶ μοχθηρὰς γινώσκων ἔχοντα προαιρέσεις τινὰς καὶ ὁρμὰς (= Euseb. Praep. Evang. V, 17). (D.D.A 78). Hermipp. De astrol. (Ioann. Catrares) I, 16, 122, p. 26, 13 Kroll—Viereck: τὸ μέντοι τοῦ Δημοκρίτου οὐ καλῶς ἂν ἔχοι παραλιπεῖν ὅς εἰδῶλα αὐτοῦς (sc. τοῖς δαίμονας) ὀνομάζων μεστόν τε εἶναι τὸν ἀέρα<sup>7</sup> τούτων φησὶ. (D.D.B 10a). Diog. IX, 46: Περὶ εἰδώλων, ἢ Περὶ προνοίας.<sup>8</sup> (Epicur., fr. 352 Us.). August. Ad Diosc. 118, t. II, p. 340b, ed. Ven. 1719 (= P.L. 33, p. 445):<sup>9</sup> Quanto enim melius ne audissem quidem nomen Democriti, quam cum dolore cogitarem nescio quem suis temporibus magnum putatum, qui deos esse arbitraretur imagines quae de solidis corporibus fluerent solidaeque ipsae non essent, easque hac atque hac motu proprio circumeundo atque illabendo in animas hominum facere, ut vis divina cogitetur, cum profecto illud corpus, unde imago fluit, quanto solidius est, tanto praesentius quoque esse iudicetur. Ideoque fluctuavit sicut isti<sup>10</sup> dicunt, nutavitque sententia,

ut aliquando naturam quandam, de qua fluerent imagines, deum esse diceret, qui tamen cogitari non posset, nisi per eas imagines, quas fundit et emittit, id est, quae de illa natura, quam nescio quam corpoream et sempiternam<sup>11</sup> ac etiam per hoc divinam putat, quasi vaporis similitudine<sup>12</sup> continua velut emanatione ferrentur et venirent atque intrarent in animos nostros, ut deum vel deos cogitare possemus. Nullam enim aliam causam cuiuslibet cogitationis nostrae opinantur isti, nisi cum ab his corporibus, quae cogitamus, veniunt atque intrant imagines<sup>13</sup> in animos nostros ... quamquam D. etiam hoc distare in naturalibus quaestionibus ab Epicuro dicitur, quod iste sentit inesse concursioni atomorum vim quandam animalem et spiritalem; qua vi eum credo et imagines ipsas divinitate praeditas dicere, non omnes omnium rerum, sed deorum, et principia mentis esse in universis, quibus divinitatem tribuit, et animantes imagines, quae vel prodesse nobis soleant vel nocere. Cf. Diog. Prooem. 7: ἀσκεῖν τε (τοὺς Μάγους) καὶ μαντικὴν καὶ πρόρρησιν, καὶ αὐτοῖς θεοὺς ἐμφανίζεσθαι λέγοντας. ἀλλὰ καὶ εἰδώλων πλήρη εἶναι τὸν ἀέρα, κατὰ ἀπόρροιαν ὑπὸ ἀναθυμιάσεως εἰσχυρισμένων ταῖς ὄψεσι τῶν ἀεὶδεμένων. [Hippocr.] Epist. 10, 3 (IX, 322 Littré): καὶ εἰδώλων φησὶ (ὁ Δ.) πλήρη τὸν ἥερα εἶναι. [Hippocr.] Epist. 18, 1 (IX, 380 Littré): ἐτυγχάνομεν δὲ (inquit D.) περὶ κόσμου διαθέσις ... ὁκόσα γὰρ ἰνδαλμοῖσι διαλάσσοντα ἀνὰ τὸν ἥερα πλάθει ἡμέρας ... Sext. Adv. math. IX, 45: οἱ δὲ κατὰ πρὸς τοῦτο φασιν, ὅτι ἢ μὲν ἀρχὴ τῆς νοήσεως τοῦ εἶναι θεὸν γέγονεν ἀπὸ τῶν κατὰ τοὺς ὕπνους ἰνδαλλομένων ... Irenaeus. Contra haer. II, 14, 3, p. 133 (P.L. 7, p. 751): D. enim primus ait multas et varias ab universitate figuras expressas<sup>14</sup> descendisse in hunc mundum. Cic. De nat. deor. II, 30, 76: Aut negandum est deos esse, quod et D. simulacra, et Epicurus imagines inducens quodam pacto negat. ...<sup>15</sup> (D.D.A 74). Cic. De nat. deor. I, 12, 29:<sup>16</sup> Quid D., qui tum imagines ... eorumque<sup>a</sup> circumitus in deorum numero refert, tum illam naturam, quae imagines fundat ac mittat, tum sententiam<sup>b</sup> intelligentiamque nostram, nonne in maximo errore versatur? Cum idem omnino, quia nihil semper suo statu maneat, negat esse quicquam sempiternum, nonne deum omnino ita tollit<sup>17</sup> ut nullam opinionem eius reliquam faciat? (43, 120) Mihi quidem etiam D., vir magnus in primis, cuius fontibus Epicurus hortulos suos inrigavit, nutare videtur in natura deorum. Tum enim censet imagines divinitate praeditas inesse in universitate rerum, tum principia mentis, quae sunt in eodem universo, deos esse dicit, tum animantes imagines, quae vel prodesse nobis solent vel nocere, tum ingentis quasdam imagines tantasque, ut universum mundum complectantur extrinsecus: quae quidem omnia sunt patria Democriti<sup>18</sup> quam Democrito digniora. Apul. Apologia XXVII: ... ut partim eorum, qui corporum causas meras et simplices rimantur, irreligiosos putent, eoque aiant deos abnuere: ut Anaxagoram et Leucippum, et Democritum, et Epicurum ceterosque rerum naturae patronos ... (D.D.A 79). Clem. Strom. V, 88 (II, 383, 25 sqq. St.): καθόλου γοῦν τὴν περὶ τοῦ θεοῦ ἐννοίαν Ἐενοκράτης ὁ Καλληρόνιος οὐκ ἀπελιπίσει καὶ ἐν τοῖς ἀλόγοις, Δ. δὲ, καὶ μὴ θέλη, ὁμολογήσει διὰ τὴν ἀκολουθίαν τῶν δογμάτων· τὰ γὰρ αὐτὰ πεποίηκεν εἰδῶλα τοῖς ἀνθρώποις προσπίπτοντα καὶ τοῖς ἀλόγοις ζώοις ἀπὸ τῆς θείας οὐσίας. (D.D.A 33). Diog. IX, 46: φυσικὰ δὲ κάδε ... Περὶ εἰδώλων, ἢ Περὶ προνοίας.

473. (D.D.A 136).<sup>1</sup> Aet. V, 2, 1 (Dox. 416): Δ. τοὺς ὄνειρους γίνεσθαι κατὰ τὰς τῶν εἰδώλων παραστάσεις.

474. (partim D. D. A 137). Cic. De divinat. II, 58, 120: Utrum igitur censem, dormientium animos per sene ipsos in somniando moveri an, ut D. censet, externa et adventicia visione pulsari? (67, 137) Quem enim tu Marium visum a me putas? Speciem, credo, eius et imaginem, ut Democrito videtur. Unde profectam imaginem? A corporibus enim solidis et a certis figuris vult fluere imagines. Quod igitur Marii corpus erat? Ex eo, inquit, quod fuerat. Plena sunt imaginum omnia. ...<sup>1</sup> Nulla enim species cogitari potest, nisi

pulsu imaginum. . . <sup>2</sup> (Ciceronis conclusio) Nullae ergo imagines obrepunt in animos dormientium extrinsecus, nec omnino fluunt illae: nec cognovi quemquam, qui maiore auctoritate nihil diceret.

475. (D.O). Plut. Quaest. conv. VIII, 10, p. 735 C: ἀλλ' ὄρω, εἶπεν, ἡμᾶς οἴους τ' ὄντας ἤδη σκιαμαχεῖν πρὸς τὰ εἰδῶλα, καὶ δόξει παλαιᾷ, καθάπερ γραφῆι, προσφέροντας ἀφῆν οἶεσθαι τι ποιεῖν . . . οὐ γὰρ ἀγνοοῦμεν, ὅτι τὴν Ἀριστοτέλους δόξαν εὐδοκίμησαι βουλόμενος, ὡς περ σιάν<sup>1</sup> αὐτῆι τὴν Δημοκρίτου παραβέβληκας.

476. (D.D.A 77). Plut. Quaest. conv. VIII, 10, p. 734 F (διὰ τί τοῖς φθινοπωρινοῖς ἐνυπνίους ἤμιστα πιστεύομεν); ὁ δὲ Φαβωρίνος . . . λόγον τινὰ τοῦ Δημοκρίτου παλαιὸν ὡς περ ἐκ καπνοῦ καθελὼν ἡμαυρωμένον οἷος ἦν ἐκκαθαίρειν καὶ διαλαμπρόνειν (735 A) ὑποθέμενος τοῦτο δὴ τοῦπιδήμιον ὁ φησι Δ. «ἐγκαταβυσσοῦσθαι τὰ εἰδῶλα διὰ τῶν πόρων εἰς τὰ σώματα καὶ ποιεῖν τὰς κατὰ ὕπνον ὄψεις ἐπαναφερόμενα φοιτῶν δὲ ταῦτα πανταγόθεν ἀπιόντα καὶ σκευῶν καὶ ἱματίων καὶ φυτῶν, μάλιστα δὲ ζώων ὑπὸ σάλου πολλοῦ καὶ θερμότητος<sup>1</sup> οὐ μόνον ἔχοντα μορφουδέεις τοῦ σώματος ἐκμεμαγμένους ὁμοιότητος» (ὡς Ἐπίκουρος (326 Us.) οἰεῖται μέχρι τοῦτου Δημοκρίτου συνεπόμενος, ἐνταῦθα δὲ προλιπὼν τὸν λόγον), «ἀλλὰ καὶ τῶν κατὰ ψυχὴν κινήματων καὶ βουλευμάτων ἐκάστωι<sup>2</sup> καὶ ἡθῶν καὶ παθῶν ἐμφάσεις ἀναλαμβάνοντα συνεφέλεσθαι καὶ προσπίπτοντα μετὰ τούτων ὡς περ ἔμψυχα φράζειν καὶ διαγγέλλειν τοῖς ὑποδεχομένοις τὰς τῶν μεθιέντων αὐτὰ δόξας καὶ διαλογισμούς καὶ ὁμᾶς, ὅταν ἐνάρθρους καὶ ἀσυγχύτους φυλάττοντα προσμῖξῃ τὰς εἰκόνας». τοῦτο δὲ μάλιστα ποιεῖ δι' ἀέρος λεῖου τῆς φορᾶς αὐτοῖς γιγνομένης ἀκωλύτου καὶ ταχέως. ὁ δὲ φθινοπωρινός, ἐν ᾧ φυλλοχοεῖ τὰ δένδρα, πολλὴν ἀνωμαλίαν ἔχων καὶ τραχύτητα διαστρέφει καὶ παρατρέπει πολλαχῆι τὰ εἰδῶλα καὶ τὸ ἐναργές αὐτῶν ἐξίτηλον καὶ ἀσθενές ποιεῖ τῆι βραδυτῆι τῆς πορείας ἡμαυρούμενον, ὡς περ αὖ πάλιν πρὸς ὀργῶντων καὶ διακαομένων<sup>3</sup> ἐκθρόσκοντα πολλὰ καὶ ταχὺ κομιζόμενα τὰς ἐμφάσεις νεαρὰς καὶ σημαντικὰς ἀποδίδωσιν. (V, 7, p. 682 F) τῶν δὲ Δημοκρίτου, ἔφη, εἰδῶλων, ὡς περ Αἰγιῶν ἢ Μεγαρέων,<sup>4</sup> ἀριθμὸς οὐδεὶς οὐδὲ λόγος· ἅ φησιν ἐκεῖνος ἐξίεναι τοὺς φθνοῦντας, οὐτ' αἰσθήσεως ἄμοιρα παντάπασιν οὐθ' ὁρμῆς ἀνάπλεά τε τῆς ἀπὸ τῶν προῖστων μοχθηρίας καὶ βασκανίας, μεθ' ἧς ἐμπλασσομένα καὶ παραμύθοντα καὶ συνοικοῦντα τοῖς βασκαιομένοις ἐπιταράττειν καὶ κακοῦν αὐτῶν τὸ τε σῶμα καὶ τὴν διάνοιαν· οὕτω γὰρ οἶμαι πως τὸν ἄνδρα τῆι δόξει, τῆι δὲ λέξει δαιμονίως λέγειν καὶ μεγαλοπρεπῶς.<sup>5</sup>

### III. Apparentia (ἔμφασις)

477. (D.L.A 29; D.D.A 121). Aristot. De sensu 2, p. 438a 5: Δ. δ' ὅτι μὲν ὕδωρ εἶναι φησι (sc. ᾧ ὄρωμεν), λέγει καλῶς. ὅτι δ' οἰεῖται τὸ ὄρᾶν εἶναι τὴν ἔμφασιν, οὐ καλῶς . . . ἀλλὰ καθόλου περὶ τῶν ἐμφαινόμενων καὶ ἀνακλάσεως οὐδὲ<sup>a</sup> πῶ δῆλον ἦν,<sup>1</sup> ὡς εἰκεν. ἄτοπον δὲ καὶ τὸ μὴ ἐπελθεῖν αὐτῶι ἀπορῆσαι, διὰ τί ὁ ὀφθαλμὸς ὄρᾶι μόνον, τῶν δ' ἄλλων οὐδέν, ἐν οἷς ἐμφαίνεται τὰ εἰδῶλα. Alex. ad loc. 24, 14: λέγει γὰρ Δημοκρίτος τὸ ὄρᾶν εἶναι τὸ τὴν ἔμφασιν τὴν ἀπὸ τῶν ὄρωμένων δέχεσθαι· ἐστὶ δὲ ἔμφασις τὸ ἐμφαινόμενον εἶδος ἐν τῆι κόρῃ ὁμοίως δὲ καὶ ἐν τοῖς ἄλλοις τῶν διαφανῶν, ὅσα οἷα τε τὴν ἔμφασιν φυλάττειν ἐν αὐτοῖς. ἡγεῖται δὲ αὐτὸς τε καὶ πρὸ αὐτοῦ Δ. καὶ ὕστερον δὲ οἱ περὶ τὸν Ἐπίκουρον εἰδῶλά τινα ἀπορρέοντα ὁμοιόμορφα τοῖς ἀφ' ὧν ἀπορρεῖ (ταῦτα δὲ ἐστὶ τὰ ὄρατά) ἐμπίπτειν<sup>2</sup> τοῖς τῶν ὄρωντων ὀφθαλμοῖς καὶ οὕτως τὸ ὄρᾶν γίνεσθαι. (54, 12) εἰδῶλα γὰρ τινα ὁμοιόμορφα ἀπὸ τῶν ὄρωμένων συνεχῶς ἀπορρέοντα καὶ ἐμπίπτοντα τῆι ὄψει τοῦ ὄραν ἡτιτύοντο. τοιοῦτοι δὲ ἦσαν οἱ τε περὶ Λευκιππον καὶ Δημοκρίτον, οἱ καὶ ἐκ τῆς τῶν ἀοράτων διὰ μικρότητα παραδέσεως<sup>3</sup> τὴν τῶν μεταξὺ χρωμάτων φαντασίαν ἐποιουν. (24, 21) οὐ τεκμήριον παρατίθεται τὸ εἶναι τῶν ὄρωντων ἐν τῆι κόρῃ εἶναι τὴν τοῦ ὄρωμένου ἔμφασιν καὶ εἰδῶλον· ὁ δὲ καὶ τὸ ὄρᾶν εἶναι.

478. (D.D.A 135). Theophr. De sensu 49 sqq. (Dox. 513): περὶ ἐκάστης δ' ἡδὴ τούτων ἐν μέρει πειράται λέγειν. (50) ὄρᾶν μὲν οὖν ποιεῖ τῆι ἐμφάσει· ταύτην δὲ ἰδίως λέγει· τὴν γὰρ ἔμφασιν οὐκ εὐθὺς ἐν τῆι κόρῃ γίνεσθαι, ἀλλὰ τὸν ἀέρα

τὸν μεταξὺ τῆς ὄψεως καὶ τοῦ ὄρωμένου τυποῦσθαι συσταλλόμενον ὑπὸ τοῦ ὄρωμένου καὶ τοῦ ὄραντος.<sup>1</sup> ἀπαντος γὰρ εἰ γίνεσθαι τινα ἀπορροήν· ἔπειτα τοῦτον σπερῶν<sup>2</sup> ὄντα καὶ ἀλλόχρων ἐμφαίνεσθαι τοῖς ὄμμασιν ὑγροῖς· καὶ τὸ μὲν πυκνὸν οὐ δέχεσθαι, τὸ δ' ὑγρὸν διέναι. διὸ καὶ τοὺς ὑγροὺς τῶν σκληρῶν ὀφθαλμῶν ἀμείνους εἶναι πρὸς τὸ ὄρᾶν, εἰ ὁ μὲν ἔξω χιτῶν<sup>3</sup> ὡς λεπτότατος καὶ πυκνότατος εἴη, τὰ δ' ἐντὸς <τῆς><sup>a</sup> πυκνῆς καὶ ἰσχυρᾶς σαρκὸς<sup>4</sup> ὡς μάλιστα σφιγνῶ<sup>5</sup> καὶ κενά, ἐστὶ<sup>b</sup> δὲ ἰκμάδος παχεῖας τε καὶ λιπαρᾶς, καὶ αἱ φλέβες <αἱ> κατὰ τοὺς ὀφθαλμοὺς εὐθεῖαι καὶ ἀνικμοὶ καὶ<sup>c</sup> ὁμοιοσημονεῖν<sup>d</sup> <οἰαί τε><sup>e</sup> τοῖς ἀποτυπωμένοις· τὰ γὰρ ὁμόφυλα<sup>6</sup> μάλιστα ἕκαστον γνωρίζειν. (51) πρῶτον μὲν οὖν ἄτοπος ἢ ἀποτύπωσις ἢ ἐν τῶι ἀέρι. δεῖ γὰρ ἔχειν πυκνότητα καὶ μὴ θρόπτεσθαι τὸ τυποῦμενον, ὡς περ καὶ αὐτὸς λέγει παραβάλλων τοιαύτην εἶναι τὴν ἐντύπωσιν οἷον εἰ ἐκμάξιας εἰς κηρὸν.<sup>7</sup> ἔπειτα μᾶλλον ἐν ὕδατι τυποῦσθαι δυνατόν ὅσῳ πυκνότερον· ἦττον δὲ ὄραται, καίτοι προσήκει μᾶλλον. ὅλως δὲ ἀπορροήν ποιοῦντα<sup>8</sup> τῆς μορφῆς ὡς περ ἐν τοῖς Περι τῶν εἰδῶν τί δεῖ τὴν ἀποτύπωσιν ποιεῖν; αὐτὰ γὰρ ἐμφαίνεται τὰ εἰδῶλα. (52) εἰ δὲ δὴ τοῦτο συμβαίνει καὶ ὁ ἀήρ ἀπορᾶται καθάπερ κηρὸς ὠθεούμενος καὶ πυκνούμενος, πῶς καὶ ποῖα τις ἢ ἔμφασις γίνεται; δῆλον γὰρ ὡς ἐπὶ προσώπου <ὁ> τύπος ἐστὶ τῶι ὄρωμένῳ καθάπερ ἐν τοῖς ἄλλοις. τοιοῦτον δ' ὄντος ἀδύνατον<sup>9</sup> εἶναι ἐναντίας ἔμφασιν γίνεσθαι μὴ στραφέντος τοῦ τύπου. τοῦτο δ' ὑπὸ τίνος ἐστὶ καὶ πῶς δεικτέον· οὐχ οἷον τε γὰρ ἄλλως γίνεσθαι τὸ ὄρᾶν. ἔπειτα ὅταν ὄραται πλείονα κατὰ τὸν αὐτὸν τόπον, πῶς ἐν τῶι αὐτῶι ἀέρι πλείους ἐσονται τύποι; καὶ πάλιν πῶς ἀλλήλους ὄρᾶν ἐνδέχεται; τοὺς γὰρ τύπους ἀνάγκη συμβάλλειν ἑαυτοῖς, ἐκότερον ἀντιπρόσωπον ὄντα ἀφ' ὧν ἐστὶν. ὡς περ τοῦτο ζητήσιν ἔχει. (53) καὶ πρὸς τούτῳ διὰ τί ποτε ἕκαστος αὐτὸς αὐτὸν οὐχ ὄρᾶι; καθάπερ γὰρ τοῖς τῶν πέλας ὄμμασιν οἱ τύποι καὶ τὰς ἑαυτῶν ἐμφαίνονται ἄν, ἄλλως τε καὶ εἰ εὐθὺς ἀντιπρόσωποι κείνται καὶ ταῦτο συμβαίνει πάντος ὡς περ ἐπὶ τῆς ἡχοῦς. ἀνακλάσθαι γὰρ φησι καὶ πρὸς αὐτὸν τὸν φθεγγόμενον τὴν φωνήν. ὅλως δὲ ἄτοπος ἢ τοῦ ἀέρος τύπωσις. ἀνάγκη γὰρ εἶναι λέγει πάντα ἐναποτυποῦσθαι τὰ σώματα καὶ πολλὰ ἐναλλάττειν, ὁ καὶ πρὸς τὴν ὄψιν ἐμπόδιον ἂν εἴη καὶ ἄλλως οὐκ εὐλόγον. ἐτι δὲ εἴπερ ἢ τύπωσις διαμένει, καὶ μὴ φανερῶν [ὄντων] μὴδὲ πλησίον ὄντων τῶν σωμάτων ἐχρῆν ὄρᾶν εἰ μὴ νύκτωρ, ἀλλὰ μεθ' ἡμέραν. καίτοι τοὺς γε τύπους οὐχ ἦττον εἰκὸς διαμένειν νυκτός, ὅσῳ ἐμψυχότερος<sup>10</sup> ὁ ἀήρ· (54) ἀλλ' ἴσως τὴν ἔμφασιν ὁ ἥλιος ποιεῖ, τὸ φῶς ὡς περ ἐπιφέρων ἐπὶ τὴν ὄψιν, καθάπερ εἰκοι βούλεσθαι λέγειν. ἐπεὶ τὸ γε τὸν ἥλιον ἀποθροῦντα<sup>11</sup> ἀφ' ἑαυτοῦ καὶ ἀποπληττόμενον πυκνοῦν τὸν ἀέρα, καθάπερ φησὶν, ἄτοπον· διακρίνειν γὰρ πέφυκε μᾶλλον. ἄτοπον δὲ καὶ τὸ μὴ μόνον τοῖς ὄμμασιν, ἀλλὰ καὶ τῶι ἄλλῳ σώματι μεταδιδόναι<sup>12</sup> τῆς αἰσθήσεως. φησὶ γὰρ διὰ τοῦτο κενότητα καὶ ὑγρότητα ἔχειν δεῖν τὸν ὀφθαλμὸν, ἵν' ἐπὶ πλέον δέχηται καὶ τῶι ἄλλῳ σώματι παραδίδῃ. ἄλογον δὲ καὶ τὸ μάλιστα μὲν ὄρᾶν φάναι τὰ ὁμόφυλα, τὴν δὲ ἔμφασιν ποιεῖν τοῖς ἀλλόχρωσι<sup>13</sup> ὡς οὐκ ἐμφαινόμενων τῶν ὁμοίων. τὰ δὲ μεγέθη καὶ τὰ διαστήματα πῶς ἐμφαίνεται καίπερ ἐπιχειρήσας λέγειν <ἐλλί>πῶς<sup>14</sup>,<sup>f</sup> ἀποδίδωσιν. (55) περὶ μὲν οὖν ὄψεως ἰδίως ἐνία βουλόμενος λέγειν πλείω παραδίδωσι ζητήσιν. *Contra disputat* Epicur. Epist. I, 49: δεῖ δὲ καὶ νομίζειν, ἐπεισιόντος τινὸς ἀπὸ τῶν ἔξωθεν τὰς μορφὰς ὄρᾶν ἡμᾶς καὶ διανοεῖσθαι· οὐ γὰρ ἂν ἐναποσφραγίσαιτο τὰ ἔξω τὴν ἑαυτῶν φύσιν τοῦ τε χρώματος καὶ τῆς μορφῆς διὰ τοῦ ἀέρος τοῦ μεταξὺ ἡμῶν τε καὶ κείνων.<sup>15</sup>

479. (D.L.A 31). Aët. IV, 14, 2 (Dox. 405): Δ., Δ., Ἐπίκουρος τὰς κατοπτρῆς ἐμφάσεις γίνεσθαι κατ' εἰδῶλων ἐνοστάσεις, αἵτινα φέρεσθαι μὲν ἀφ' ἡμῶν, συνίστασθαι δὲ ἐπὶ τοῦ κατοπτροῦ κατ' ἀντεπιστροφὴν.<sup>1</sup> Cf. Aristot. De sensu 2, p. 438a 9 (N<sup>o</sup> 477): καθόλου περὶ τῶν ἐμφαινόμενων καὶ ἀνακλάσεως οὐδὲ πῶ δῆλον ἦν, ὡς εἰκεν.

480. (D.D.A 126a). Porph. in Ptolem. Harm., p. 32, 6 D: οὐ . . . καθάπερ ἢ ὄρασις ἐκπέμποσα ἐπὶ τὸ ὑποκείμενον τὴν ὄψιν κατὰ διάδοσιν,<sup>1</sup> ὡς φασι οἱ μαθηματικοί, τὴν ἀντίληψιν ποιεῖται τοῦ ὑποκειμένου, οὕτω πον καὶ ἡ ἀκοή, ἀλλ' ὡς φησιν Δ. . . θάττον ὄρωμεν ἢ ἀκούομεν. ἀστραπῆς γὰρ καὶ βροντῆς ἅμα γενομένης τὴν μὲν ὄρωμεν ἅμα τῶι γενέσθαι, τὴν δ' οὐκ ἀκούομεν ἢ μετὰ πολὺ ἀκούομεν, οὐ παρ' ἄλλο τι συμβαίνειν ἢ παρὰ τὸ τῆι μὲν ὄψει ἡμῶν ἀπαντᾶν τὸ φῶς,<sup>2</sup> τὴν δὲ βροντὴν παραγίνεσθαι ἐπὶ τὴν ἀκοὴν ἐκδεχομένης τῆς ἀκοῆς τὴν βροντὴν<sup>3</sup> (N<sup>o</sup> 489).

#### IV. De coloribus

481. (D.D.A 126).<sup>1</sup> Aristot. De sensu 4, p. 442b 11: Δ. τὸ γὰρ λευκὸν καὶ τὸ μέλαν τὸ μὲν τραχὺ φησὶν εἶναι τὸ δὲ λείον.

482. (D.D.A 123). Aristot. De gen. et corr. I, 2, p. 316a 1: διὸ καὶ χροῖαν οὐ φησὶν (Democritus) εἶναι τροπῆ<sup>1</sup> γὰρ χρωματίζεσθαι.

483. (D.O). Aristot. De sensu 3, p. 440a 15: τὸ μὲν οὖν, ὡσπερ καὶ οἱ ἀρχαῖοι,<sup>1</sup> λέγειν ἀπορροίας εἶναι τὰς χροῖας καὶ ὁρᾶσθαι διὰ τοιαύτην αἰτίαν ἄτοπον· πάντως γὰρ δι' ἀφῆς<sup>2</sup> ἀναγκαῖον αὐταῖς ποιεῖν τὴν αἰσθησὶν ὡστ' εὐθὺς κρεῖττον φάναι<sup>3</sup> τῷ κινεῖσθαι τὸ μεταξὺ τῆς αἰσθήσεως ὑπὸ τοῦ αἰσθητοῦ γίνεσθαι τὴν αἰσθησὶν, ἀφῆ<sup>4</sup> καὶ μὴ ταῖς ἀπορροίας. ἐπὶ μὲν οὖν τῶν παρ' ἄλληλα κειμένων<sup>5</sup> ἀνάγκη ὡσπερ καὶ μέγεθος λαμβάνειν ἄρατον, οὕτω καὶ χρόνον ἀναίσθητον, ἵνα λάθωσιν αἱ κινήσεις ἀφικνούμεναι καὶ ἐν δοκῆ<sup>6</sup> εἶναι διὰ τὸ ἅμα φαίνεσθαι... (30) ... ὅτι γὰρ οὐκ ἔστιν οὐδὲν μέγεθος ἄρατον, ἐν τοῖς ὕστερον<sup>7</sup> ἐπισκεπτέον. εἰ δ' ἔστι μίξις τῶν σωμάτων μὴ μόνον τὸν τρόπον τοῦτον, ὅσπερ οἴονται τινες, παρ' ἄλληλα τῶν ἐλαχίστων τιθεμένων, ἀδήλων δ' ἡμῖν διὰ τὴν αἰσθησὶν... Alex. ad loc. 56, 13: ... τοιοῦτοι δὲ ἦσαν οἱ τε περὶ Δεύκιππον καὶ Δημόκριτον, οἳ καὶ ἐκ τῆς τῶν ἁράτων διὰ μικρότητα παραθέσεως τὴν τῶν μεταξὺ χρωμάτων<sup>8</sup> φαντασίαν ἐποιοῦν (similiter Alex. in De sensu 2, p. 438a 5, p. 24, 14, № 477). (59, 15) ἐξῆς λέγει καὶ τὸ ἐπόμενον ἄτοπον<sup>9</sup> τοῖς ἅμα μὲν τῆς παραθέσεως τῶν ἁράτων διὰ μικρότητα [τῶν χρωμάτων]<sup>a</sup> τὴν μείξιν τῶν παρὰ τὸ λευκὸν τε καὶ μέλαν καὶ ἐρυθρὸν καὶ χλωρὸν<sup>b</sup> χρωμάτων γίνεσθαι λέγουσιν, ἅμα δὲ τὴν ἀπορροίαν τοῦ ὁρᾶν αἰτιωμένοις. (60, 8) πᾶσι μὲν οὖν τοῖς οὕτω τὸ ὁρᾶν λέγουσι γίνεσθαι ἀναίσθητων χρόνων χρῆσι· τοῖς δὲ καὶ τὴν τῶν χρωμάτων διαφορὰν τῆς τῶν ἀναίσθητων σωμάτων παραθέσει ἀνατιθεῖσιν, εἴγε καὶ τῆς ἀπορροίας λέγοιεν τῆς ἀπὸ τῶν ὁρωμένων τὸ ὁρᾶν γίνεσθαι, διπλασιάζεται τὸ ἄτοπον. οὐ γὰρ μόνον ἀναίσθητα μεγέθη τοῖς ἀνάγκη λέγειν, ἀλλὰ καὶ χρόνους ἀναίσθητους. δύναται καὶ ὡς ἰδίως ἐπόμενον<sup>8</sup> τὸ δεῖν λέγειν ἀναίσθητους χρόνους εἶναι τοῖς καὶ τῆς τῶν σωμάτων κατὰ μικρὰ παραθέσει<sup>9</sup> τὴν τῶν χρωμάτων διαφορὰν ἀνατιθεῖσιν εἰρηκέναι. οὕτως δ' ἅμα<sup>a</sup> πολλὰ κτὰ ὁρώμενα ὡς ἐν ὀφθαλμοῖς, εἰ λανθάνοι ἢ ἀφ' ἐκάστου αὐτῶν ἀπορροία καθ' αὐτὴν ἐπιπίπτουσα τοῖς ὀφθαλμοῖς καὶ δοκεῖ ὡς μία ἅπαξ καὶ ἀφ' ἐνός τοῦ ὁρωμένου γίνεσθαι. (61, 3) ὅτι οὐκ ἔστι κατὰ ταύτην ἁράτον τι σῶμα· περὶ μέντοι τοῦ ἀναίσθητους χρόνους μὴ ἔσεσθαι ἐπὶ ταύτης οὐδὲν εἶπεν, ὅτι ἀνάγκη τοῦτο ἐπὶ ταύτης γίνεσθαι εἰ κατὰ ἀπορροίας τῶν ὁρωμένων λέγοι τις γίνεσθαι τὸ ὁρᾶν.

484. (D.D.A 135).<sup>1</sup> Theophr. De sensu 73 sqq. (Dox. 520): τῶν δὲ χρωμάτων ἀπλᾶ μὲν λέγει τέτταρα, λευκὸν μὲν οὖν εἶναι τὸ λείον, ὃ γὰρ ἂν μὴ τραχὺ μὴδ' ἐπισκιάζον ἢ μὴδὲ δυσδίονον, τὸ τοιοῦτο πᾶν λαμπρὸν εἶναι. δεῖ δὲ καὶ εὐθύ-τρυπα καὶ διαυγῆ τὰ λαμπρὰ εἶναι. τὰ μὲν οὖν σκληρὰ τῶν λευκῶν ἐκ τοιοῦτων σχημάτων συγκεῖσθαι οἷον ἢ ἐντός πλάξ τῶν κογγυλίων· οὕτω γὰρ ἂν ἄσκια καὶ εὐαγῆ καὶ εὐθύπορα εἶναι. τὰ δὲ ψαθυρὰ καὶ εὐθύρρυπα ἐκ περιφερῶν μὲν, λοξῶν δὲ τῆς θέσει<sup>2</sup> πρὸς ἄλληλα καὶ κατὰ δύο συζεύξει, τὴν δ' ὅλην τάξιν ἔχειν ὅτι μάλιστα ὁμοίαν. τοιοῦτων δ' ὄντων ψαθυρὰ μὲν εἶναι, διότι κατὰ μικρὸν ἢ σὺναψις· εὐθύρρυπα δὲ, ὅτι ὁμοίως κείνται· ἄσκια δὲ, διότι λεία καὶ πλατέα· λευκότερα δ' ἄλλήλων<sup>3</sup> τῷ τὰ σχήματα τὰ εἰρημένα καὶ ἀκριβέστερα καὶ ἀμιγρέστερα εἶναι καὶ τὴν τάξιν καὶ τὴν θέσιν ἔχειν μᾶλλον τὴν εἰρημένην.

(74) τὸ μὲν οὖν λευκὸν ἐκ τοιοῦτων εἶναι σχημάτων, τὸ δὲ μέλαν<sup>4</sup> ἐκ τῶν ἐναντίων, ἐκ τραχέων καὶ σκαληγῶν καὶ ἀνομοίων· οὕτω γὰρ ἂν σκιάζειν καὶ οὐκ εὐθεῖς εἶναι τοὺς πόρους οὐδ' εὐδίονους. ἔτι δὲ τὰς ἀπορροίας νοθεῖς καὶ παραχώδεις· διαφέρειν γὰρ τι καὶ τὴν ἀπορροὴν τῷ ποιᾶν εἶναι πρὸς τὴν φαντασίαν, ἣν γίνεσθαι διὰ τὴν ἐναπόληψιν τοῦ ἀέρος ἀλλοίαν.

(75) ἐρυθρὸν δ' ἐξ οἰωνπερ καὶ τὸ θερμόν, πλὴν ἐκ μειζόνων. ἐὰν γὰρ αἱ συγκρίσεις<sup>5</sup> ὡς μείζους, ὁμοίων ὄντων τῶν σχημάτων μᾶλλον ἐρυθρὸν εἶναι. σημεῖον δ' ὅτι ἐκ τοιοῦτων τὸ ἐρυθρὸν ἡμᾶς τε γὰρ θερμαινόμενους ἐρυθραίνεσθαι καὶ τὰ ἄλλα τὰ πυρούμενα, μέχρις ἂν οὐ ἔχη τὸ τοῦ πυροσιδοῦς. ἐρυθρότερα δὲ τὰ ἐκ μεγάλων ὄντα σχημάτων οἷον τὴν φλόγα καὶ τὸν ἀνθρακα τῶν χλωρῶν ξύλων<sup>6</sup> ἢ τῶν αὐῶν. καὶ τὸν σίδηρον δὲ καὶ τὰ ἄλλα τὰ πυρούμενα· λαμπρότατα μὲν γὰρ εἶναι

τὰ πλείστον ἔχοντα καὶ λεπτότατον πῦρ, ἐρυθρότερα δὲ τὰ παχύτερα καὶ ἔλαττον. διὸ καὶ ἦτον εἶναι θερμὰ τὰ ἐρυθρότερα· θερμόν [μὲν] γὰρ τὸ λεπτόν, τὸ δὲ χλωρὸν<sup>7</sup> ἐκ τοῦ στερεοῦ καὶ τοῦ κενοῦ συνεστάναι μεικτὸν ἐξ ἀμφοῖν, τῆς θέσει δὲ καὶ τάξει <διαλλάττειν> αὐτῶν τὴν χροῖαν.

(76) τὰ μὲν οὖν ἀπλᾶ χρώματα τοῖς κεχρημένοις τοῖς σχήμασιν· ἕκαστον δὲ καθαρώτερον, ὅσοι ἂν ἐξ ἀμιγρέστερον ἦ. τὰ δὲ ἄλλα κατὰ τὴν τούτων μίξιν. οἷον τὸ μὲν χρυσοειδὲς καὶ τὸ τοῦ χαλκοῦ καὶ πᾶν τὸ τοιοῦτον ἐκ τοῦ λευκοῦ καὶ τοῦ ἐρυθροῦ· τὸ μὲν γὰρ λαμπρὸν ἔχειν ἐκ τοῦ λευκοῦ, τὸ δὲ ὑπέρυθρον ἀπὸ τοῦ ἐρυθροῦ· πίπτειν γὰρ εἰς τὰ κενὰ τοῦ λευκοῦ τῆς μίξεως τὸ ἐρυθρὸν. ἐὰν δὲ προστεθῆ<sup>8</sup> τοῖς τὸ χλωρὸν, γίνεσθαι τὸ κάλλιστον χρῶμα, δεῖν δὲ μικρὰς τοῦ χλωροῦ τὰς συγκρίσεις εἶναι· μεγάλας γὰρ οὐχ οἷον τε συγκειμένων οὕτω τοῦ λευκοῦ καὶ τοῦ ἐρυθροῦ. διαφόρους δ' ἔσεσθαι τὰς χροῖας τῷ πλέον καὶ ἔλαττον λαμβάνειν.

(77) τὸ δὲ πορφυροῦν ἐκ λευκοῦ καὶ μέλανος<sup>8</sup> καὶ ἐρυθροῦ, πλείστην μὲν μοῖραν ἔχοντος τοῦ ἐρυθροῦ, μικρὰν δὲ τοῦ μέλανος, μέσην<sup>9</sup> δὲ τοῦ λευκοῦ· διὸ καὶ ἡδὺ φαίνεσθαι πρὸς τὴν αἰσθησὶν. ὅτι μὲν οὖν τὸ μέλαν καὶ τὸ ἐρυθρὸν ἐνουπάρχει, φανερόν εἶναι τῆς ὀφθῆς, διότι δὲ τὸ λευκὸν, τὸ λαμπρὸν καὶ διαυγὲς σημαίνειν· ταῦτα γὰρ ποιεῖν τὸ λευκὸν. τὴν δ' ἰσάτιν<sup>10</sup> ἐκ μέλανος σφόδρα καὶ χλωροῦ, πλείονα δὲ μοῖραν ἔχειν τοῦ μέλανος· τὸ δὲ πράσινον<sup>11</sup> ἐκ πορφυροῦ καὶ τῆς ἰσάτιδος, ἢ ἐκ χλωροῦ καὶ πορφυροειδοῦς. τὸ γὰρ θεῖον<sup>12, a</sup> εἶναι τοιοῦτον καὶ μετέχειν τοῦ λαμπροῦ, τὸ δὲ κυανῶν ἐξ ἰσάτιδος καὶ πυρώδους, σχημάτων δὲ περιφερῶν καὶ βελονοειδῶν, ὅπως τὸ στίλβον τῷ μέλανι ἐνήη.

(78) τὸ δὲ καρούινον<sup>13</sup> ἐκ χλωροῦ καὶ κυανοειδοῦς· ἐὰν δὲ χλωρὸν <καὶ λευκόν><sup>b</sup> μειχθῆ<sup>14</sup>, φλογοειδὲς γίνεσθαι· τὸ γὰρ δάσκιον<sup>14</sup> καὶ ὁ μελανόχρων ἐξείρησθαι, σχεδὸν δὲ καὶ τὸ ἐρυθρὸν τῷ λευκῷ μειχθὲν χλωρὸν ποιεῖν<sup>15</sup> εὐαγὲς<sup>16</sup> καὶ οὐ μέλαν· διὸ καὶ τὰ φόμενα χλωρὰ τὸ πρῶτον εἶναι πρὸ τοῦ θερμανθῆναι καὶ διαχεῖσθαι.<sup>17</sup> καὶ πλήθει μὲν τοσοῦτων ἐπιμένοντα χρωμάτων...

(79) πρῶτον μὲν οὖν τὸ πλείους ἀποδοῦναι τὰς ἀρχὰς<sup>18</sup> ἔχει τινὰ ἀπορίαν· οἱ γὰρ ἄλλοι τὸ λευκὸν καὶ τὸ μέλαν,<sup>19</sup> ὡς τούτων ἀπλῶν ὄντων μόνων· ἔπειτα τὸ μὴ πᾶσι τοῖς λευκοῖς μίαν ποιῆσαι τὴν μορφήν, ἀλλ' ἑτέραν τοῖς σκληροῖς καὶ τοῖς ψαθυροῖς. οὐ γὰρ εἰκὸς ἄλλην αἰτίαν εἶναι τοῖς διαφοροῖς κατὰ τὴν ἀφήν, οὐδ' ἂν ἔτι τὸ σχῆμα αἰτιον εἴη τῆς διαφορᾶς, ἀλλὰ μᾶλλον ἡ θέσις. ἐνδέχεται γὰρ καὶ τὰ περιφερῆ καὶ ἀπλῶς πάντα ἐπισκιάζειν ἑαυτοῖς. σημεῖον δὲ καὶ γὰρ αὐτὸς ταύτην φέρει τὴν πίστιν, ὅσα τῶν λείων μέλανα φαίνεται. διὰ γὰρ τὴν σύμφυσιν<sup>20</sup> καὶ τὴν τάξιν ὡς τὴν αὐτὴν ἔχοντα τῷ μέλανι φαίνεσθαι τοιαῦτα. καὶ πάλιν ὅσα λευκὰ τῶν τραχέων, ἐκ μεγάλων γὰρ εἶναι ταῦτα καὶ τὰς συνδέσεις οὐ περιφερεῖς, ἀλλὰ προκρόσας,<sup>21</sup> καὶ τῶν σχημάτων τὰς μορφὰς ἀγνυμένας<sup>a</sup> ὡσπερ ἡ ἀνάβασις<sup>22</sup> καὶ τὰ πρὸ τῶν τειχῶν ἔχει χρώματα· τοιοῦτον γὰρ ὃν ἄσκιον εἶναι<sup>23</sup> καὶ οὐ κωλύεσθαι τὸ λαμπρὸν.

(80) πρὸς δὲ τοῖς πῶς λέγει καὶ ἐξ ὧν<sup>24, e</sup> τὸ λευκὸν ἐνίων γίνεσθαι μέλαν, εἰ τεθείησαν οὕτως, ὡστ' ἐπισκιάζειν; ὅπως δὲ τοῦ διαφανοῦς καὶ τοῦ λαμπροῦ μᾶλλον εἰκοι τὴν φύσιν ἢ τοῦ λευκοῦ λέγειν. τὸ γὰρ εὐδίονον εἶναι καὶ μὴ ἐπαλλάττειν τοὺς πόρους τοῦ διαφανοῦς ἔστι, [ἐπὶ] πόσα δὲ λευκὰ τοῦ διαφανοῦς; ἔτι δὲ τὸ μὲν εὐθεῖς εἶναι τῶν λευκῶν τοὺς πόρους, τῶν δὲ μελάνων ἐπαλλάττειν, ὡς εἰσιούσης τῆς φύσεως<sup>25</sup> ὑπολαβεῖν ἔστιν. ὁρᾶν δὲ φησὶ διὰ τὴν ἀπορροὴν καὶ τὴν ἔμφασιν τὴν εἰς τὴν ὀψιν· εἰ δὲ τοῦτ' ἔστι, τί διοίσει τοὺς πόρους κείσθαι κατ' ἀλλήλους ἢ ἐπαλλάττειν; οὐδὲ τὴν ἀπορροὴν ἀπὸ τοῦ κενοῦ πως γίνεσθαι ράδιον ὑπολαβεῖν· ὡστε λεκτέον τοῦτου τὴν αἰτίαν. εἰκοι γὰρ ἀπὸ τοῦ φωτός ἢ ἀπὸ ἄλλου τινός ποιεῖν τὸ λευκόν· διὸ καὶ τὴν παχύτητα τοῦ ἀέρος αἰτιᾶται πρὸς τὸ φαίνεσθαι μέλαν.

(81) ἔτι δὲ πῶς τὸ μέλαν ἀποδίδωσιν, οὐ ράδιον καταμαθεῖν· ἡ σκιά γὰρ μέλαν τι καὶ ἐπιπρόσθησις ἔστι τοῦ λευκοῦ· διὸ πρῶτον τὸ λευκὸν τὴν φύσιν, ἅμα δὲ οὐ μόνον τὸ ἐπισκιάζειν, ἀλλὰ καὶ τὴν παχύτητα τοῦ ἀέρος καὶ τῆς εἰσιούσης ἀπορροῆς αἰτιᾶται καὶ τὴν παραχῆν τοῦ ὀφθαλμοῦ. πότερον δὲ ταῦτα συμβαίνει διὰ τὸ μὴ εὐδίονον ἢ καὶ ἄλλοι γίνονται<sup>26</sup> ἂν καὶ ποιοῖ τὸ μέλαν, οὐ διασαφεί.

(82) ἄτοπον δὲ καὶ τὸ τοῦ<sup>f</sup> χλωροῦ μὴ ἀποδοῦναι μορφήν, ἀλλὰ μόνον ἐκ τοῦ στερεοῦ καὶ τοῦ κενοῦ ποιεῖν. κοινὰ γὰρ ταῦτά γε πάντων καὶ ἐξ ὀπιοιωδῶν ἔσται σχημάτων, χρῆν δ' ὡσπερ κἂν τοῖς ἄλλοις ἰδίον τι ποιῆσαι. καὶ εἰ μὲν ἐναντίον τῷ



έρυθρῶν, καθάπερ τὸ μέλαν τῶν λευκῶν, τὴν ἐναντίαν ἔχειν μορφήν· εἰ δὲ μὴ ἐναντίον, αὐτὸ τοῦτ' ἂν τις θαυμάσειεν, ὅτι τὰς ἀρχὰς οὐκ ἐναντίας ποιεῖ· δοκεῖ γὰρ ἅπασιν οὕτως.<sup>28</sup> μάλιστα δὲ χρῆν τοῦτο διακριβοῦν, πῶς τῶν χρωμάτων ἀπλᾶ καὶ διὰ τί τὰ μὲν σύνθετα τὰ δὲ ἀσύνθετα· πλείστη γὰρ ἀπορία περὶ τῶν ἀρχῶν, ἀλλὰ τοῦτο μὲν ἴσως χαλεπὸν, ἐπεὶ καὶ τῶν χυμῶν εἰ τις δύναίτο τοὺς ἀπλοὺς ἀποδοῦναι, μᾶλλον ἂν ὁδε λέγοι.

485. (D.D.A 33). Diog. IX, 46: τὰ δὲ βιβλία αὐτοῦ (τοῦ Δ.)... Φυσικὰ δὲ τὰδε... Περὶ χροῶν.

486. (D.D.A 124). Aët. I, 15, 11 (Dox. 314): οἱ δὲ τὰ άτομα πάντα συλλήβδην ἄχροα. ἐξ ἀποίων δὲ τῶν λόγων θεωρητῶν τὰς αἰσθητὰς ἀποφαίνονται γίνεσθαι ποιότητος.

487. (D.D.A 125). Aët. I, 15, 8 (Dox. 314): Δ. φύσει μὲν μηδὲν εἶναι χρῶμα· τὰ μὲν γὰρ στοιχεῖα ἅποια, τὰ τε ναστὰ<sup>a</sup> καὶ τὸ κενόν· τὰ δὲ ἐξ αὐτῶν συγκρίματα κεχρῶσθαι διαταγῆ τε καὶ ῥυθμῶν καὶ προτροπῆ,<sup>1, b</sup> ὧν ἡ μὲν ἐστὶ τάξις ὁ δὲ σχῆμα ἢ δὲ θέσις· παρὰ ταῦτα γὰρ αἱ φαντασίαι. τούτων δὲ τῶν πρὸς τὴν φαντασίαν χρωμάτων τέτταρες αἱ διαφοραί, λευκοῦ μέλανος ἐρυθροῦ ὠχροῦ.

#### d. DE CETERIS SENSIBUS

##### I. De auditu

488. (D.D.A 135). Theophr. De sensu 55 sqq. (Dox. 515): τὴν δ' ἀκοὴν παραπλησίως ποιεῖ τοῖς ἄλλοις. εἰς γὰρ τὸ κενόν ἐπιπίπτοντα τὸν ἀέρα κίνησιν ἐμποιεῖν, πλὴν ὅτι κατὰ πᾶν μὲν ὁμοίως τὸ σῶμα εἰσιέναι, μάλιστα δὲ καὶ πλείστον διὰ τῶν ὠτων, ὅτι διὰ πλείστου τε κενοῦ διέρχεται καὶ ἥκιστα διαμύμνει, διὸ καὶ κατὰ μὲν τὸ ἄλλο σῶμα οὐκ αἰσθάνεσθαι, ταύτη δὲ μόνον. ὅταν δὲ ἐντὸς γένηται, σκίδνασθαι διὰ τὸ τάχος· τὴν γὰρ φωνὴν εἶναι πυκνουμένου τοῦ ἀέρος καὶ μετὰ βίας εἰσιόντος. ὡς περὶ οὖν ἐκτὸς ποιεῖ τῆι ἀφῆι τὴν αἰσθησιν, οὕτω καὶ ἐντὸς. (56) ὁξύτατον δ' ἀκοῦειν, εἰ ὁ μὲν ἔξω χιτῶν εἴη πυκνός, τὰ δὲ φλεβία κενὰ καὶ ὡς μάλιστα ἀνίκμα καὶ εὐτρητα κατὰ τε τὸ ἄλλο σῶμα καὶ τὴν κεφαλὴν καὶ τὰς ἀκοάς, ἐτι δὲ τὰ ὅσα πυκνὰ καὶ ὁ ἐγκέφαλος εὐκρατος καὶ τὸ περὶ αὐτὸν ὡς ξηρότατον· ἀθρόον γὰρ ἂν οὕτως εἰσιέναι τὴν φωνὴν ἅτε διὰ πολλοῦ κενοῦ καὶ ἀνίκμου καὶ εὐτρητοῦ εἰσιούσαν, καὶ ταχὺ σκίδνασθαι καὶ ὁμαλῶς κατὰ τὸ σῶμα καὶ οὐ διεκπίπτειν ἔξω. (57) τὸ μὲν οὖν ἀσαφῶς ἀφορίζει ὁμοίως ἔχει τοῖς ἄλλοις, ἀποπον δὲ καὶ ἴδιον <τὸ> κατὰ πᾶν τὸ σῶμα τὸν ψόφον εἰσιέναι, καὶ ὅταν εἰσέλθῃ διὰ τῆς ἀκοῆς διαχεῖσθαι κατὰ πᾶν, ὡς περὶ οὐ ταῖς ἀκοαῖς, ἀλλ' ὅλοι τῶν σώματι τὴν αἰσθησιν οὔσαν. οὐ γὰρ κἄν συμπάσχη τι τῆι ἀκοῆι, διὰ τοῦτο καὶ αἰσθάνεται. πάσαις γὰρ τοῦτο γε ὁμοίως ποιεῖ, καὶ οὐ μόνον ταῖς αἰσθήσεσιν, ἀλλὰ καὶ τῆι ψυχῆι.

489. (D.D.A 126a).<sup>1</sup> Porph. in Ptolem. Harm., p. 32, 6 Düring: οὐ ... καθάπερ ἡ ὄρασις ἐκπέμπουσα ἐπὶ τὸ ὑποκείμενον τὴν ὄψιν, κατὰ διάδοσιν (ὡς φασιν οἱ μαθηματικοὶ) τὴν ἀντίληψιν ποιεῖται τοῦ ὑποκειμένου, οὕτω που καὶ ἡ ἀκοή, ἀλλ', ὡς φησὶν Δ., ἐκδοχέιον μύθων οὔσα μένει τὴν φωνὴν ἀγγελίου δίκην. ἦδε γὰρ εἰσκρίνεται καὶ ἐνρεῖ, παρ' ἣν αἰτίαν καὶ θᾶπτον ὄρωμεν ἢ ἀκούομεν. ἀστραπῆς<sup>2</sup> γὰρ καὶ βροντῆς γενομένης τὴν μὲν ὄρωμεν ἅμα τῶν γενέσθαι, τὴν δ' οὐκ ἀκούομεν ἢ μετὰ πολὺ ἀκούομεν, οὐ παρ' ἄλλο τι συμβαίνον ἢ παρὰ τὸ τῆι μὲν ὄψει ἡμῶν ἀπαντᾶν τὸ φῶς, τὴν δὲ βροντὴν παραγίνεσθαι ἐπὶ τὴν ἀκοὴν ἐκδοχομένης τῆς ἀκοῆς τὴν βροντῆν. [Democritus]. Περὶ φύσιος ἀνθρώπου apud [Hippocr.] Epist. 23, 5, IX, p. 394 Littre: ἐκδοχέα δὲ μύθων ὄτα.

490. (D.O). Plut. Quaest. conv. VIII, 3, 2, p. 720 F (323 Us.): ἔφη (Boethos quidam) νέος μὲν ὧν ἐτι καὶ σοφιστεύων ἀπὸ γεωμετρίας αἰτήμασι χρῆσθαι, καὶ λαμβάνειν ἀναποδείκτους ὑποθέσεις, νυνὶ δὲ χρῆσθαι τισὶ τῶν προαποδειγμένων ὑπ' Ἐπικούρου.<sup>1</sup> Φέρεται τὰ ὄντα ἐν τῶν μὴ ὄντι· πολὺ γὰρ κενὸν ἐνδιδέσπαρται καὶ μέμικται ταῖς τοῦ ἀέρος ἀτόμοις· ὅταν μὲν οὖν ἦι διακεχυμένος, καὶ πλάτος ἔχων καὶ περιδρομὴν ὑπὸ μανότητος, μικρὰ καὶ λεπτὰ τὰ μεταξὺ τῶν μορίων<sup>2</sup> κενὰ λείπεται καὶ πολλὴν αἱ ἀτόμοις<sup>3</sup> κατεσπαρμέναι<sup>b</sup> <κενότητες><sup>o</sup> χώραν ἐπέχουσιν· ὅταν δὲ

συσταλῆι καὶ πύλησις εἰς ὀλίγον αὐτῶν γένηται καὶ συμπέσωσιν ἀποβιασθεῖσαι <αἱ ἀτομοὶ><sup>a</sup> πρὸς ἀλλήλας, πολλὴν εὐρυχωρίαν ἔξω καὶ διασπάσεις<sup>o</sup> μεγάλας ποιοῦσι. τοῦτο δὲ γίνεται νυκτὸς ὑπὸ ψυχρότητος· ἢ γὰρ θερμότης χαλαρὰ καὶ διίστησι καὶ λύσει τὰς πυκνώσεις· διὸ πλείονα τόπον τὰ ζέοντα καὶ μαλασσόμενα καὶ τηρόμενα τῶν σωμάτων ἐπιλαμβάνει· καὶ τοῦναντίον αὐτὰ πάλιν τὰ πηγνύμενα καὶ ψυχόμενα συγχωρεῖ πρὸς ἀλλήλα καὶ συνάγεται, καὶ ἀπολείπει κενότητα ἐν τοῖς περιέχουσιν ἀγγείοις καὶ τόποις, ἐξ ὧν ὑποκεχώρηκε. ἢ δὲ φωνὴ προσφερομένη καὶ προστυγχάνουσα σώμασι πολλοῖς καὶ ἀθροῖσι ἢ τυφλοῦται<sup>3</sup> παντάπασιν ἢ διασπάσματα λαμβάνει μεγάλη καὶ πολλὰς ἀντικρούσεις καὶ διατριβάς· ἐν δὲ κενῶν καὶ σωμάτων ἐρήμῳ διαστήματι λείπον ἄρῳ καὶ συνεχῆ καὶ ἀπταιστον ἐξικνεῖται πρὸς τὴν ἀκοήν, ὑπὸ τάχους ἅμα τῶν λόγων διασώζουσα τὴν σαφήνειαν. ὁραῖς γὰρ ὅτι καὶ τῶν ἀγγείων τὰ κενὰ πληττόμενα μᾶλλον ὑπακούει πληγαῖς καὶ τὸν ἦχον ἀποτείνει μακρὰν, πολλάκις δὲ καὶ κύκλοι περιφερόμενον διαδίδωσι πολὺν. τὸ δ' ἐμπλησθὲν ἢ στερεοῦ σώματος ἢ τινος ὄρου παντάπασιν γίνεται κωφὸν καὶ ἀναυδόν, ὁδὸν οὐκ ἐγούσης οὐδὲ χώραν, ἢ διείσει, τῆς φωνῆς. αὐτῶν δὲ τῶν σωμάτων χρυσὸς μὲν καὶ λίθος ὑπὸ πληρότητος ἰσχνόφωνα καὶ δυσηχητῆ, καὶ ταχὺ κατασβέννυσι τοὺς φθόγγους ἐν αὐτοῖς. εὐφῶνος δὲ καὶ ἄλλος ὁ χαλκός, ἢ πολὺκενος καὶ τὸν ὄγκον ἐλαφρὸς καὶ λεπτός, οὐ πολλοῖς συντεθλιμμένους ἐπαλλήλοισι σώμασιν, ἀλλ' ἀφθονον ἔχων τὸ τῆς ἐπισεικῆς καὶ ἀναφοῆς μεμιγμένον οὐσίας, ἢ ταῖς τ' ἄλλαις κινήσεσιν εὐτοπίαν δίδωσι, τὴν τε φωνὴν εὐμενῶς ὑπολαμβάνουσα παραπέμπει· μέχρις ἂν ἀψάμενός τις ὡς περ ἐν ὁδοῖ καταλάβῃ καὶ τυφλώσῃ τὸ κενόν·<sup>4</sup> ἐνταῦθα δ' ἔστη καὶ ἀπεπαύσατο τοῦ πρόσω χωρεῖν, διὰ τὴν ἀντίφραξιν. ταῦτα, ἔφη, δοκεῖ μοι τὴν νύκτα ποιεῖν ἠχώδη, τὴν δὲ ἡμέραν ἦττον θερμότητι καὶ διαχύσει τοῦ ἀέρος μακρὰ<sup>5</sup> τὰ διαστήματα<sup>6</sup> τῶν ἀτόμων ποιοῦσαν· μόνον, ἔφη, μηδεὶς ἐνίστασθω πρὸς τὰς πρώτας ὑποθέσεις. *Plutarchus haec ratione Anaxagorea nixus refellere conatur, ubi inter alia ita dicit* (VIII, 3, 3, 724 F): οὐδὲν οὖν ἔδει τῆι νυκτὶ παρέχειν πράγματα συσπῶντας αὐτῆς τὸν ἀέρα καὶ συντείνοντας, ἐτέρωθεν δ' αὐτῆς χώρας καὶ κενότητας ἀπολείποντας, ὡς περ ἐμπροσθὼν ὄντα τῆι φωνῆι τὸν ἀέρα καὶ φθείροντα τὴν οὐσίαν, ἢς αὐτὸς οὐσία σῶμα καὶ δύναμις ἐστίν. *Contra dicit Ammonius* (VIII, 3, 4, p. 722 B): γελοῖοι μὲν ἴσως φανόμεθα, καὶ Δημόκριτον ἐλέγχειν οἴομενοι, καὶ Ἀναξαγόραν ἐπανορθοῦσθαι θέλοντες. *Tum Thrasyllus, postquam θεωρητὰ κινήματα τοῦ ἀέρος λανθάνειν ἀτρέμα διακινούμενα τὰ μικρότατα τοῦ ἀέρος et Democritum commemoravit, ita concludit ut utrique rationi satisfaciat* (VIII, 3, 5 p. 722 D): τῆς δὲ νυκτὸς ἀκῶμων τὰ πολλὰ καὶ ἀκλύσιος ὧν ὁ ἀήρ, ἀναπαυομένων ἀπάντων εἰκότως τὴν φωνὴν, ἀθραυστον ἀναπέμπει καὶ ἀκέραιον πρὸς ἡμᾶς.

491. (D.D.A 128). Aët. IV, 19, 13 (Dox. 408; περὶ φωνῆς): Δ. καὶ τὸν ἀέρα φησὶν εἰς ὁμοιοσχῆμονα θρόπτεσθαι σώματα καὶ συγκαλινδεῖσθαι τοῖς ἐκ τῆς φωνῆς θραύσμασι<sup>1</sup> (*cetera № 316*). ἔχει δ' ἂν τις πρὸς τοῦτους εἰπεῖν· πῶς ὀλίγ' ἂν<sup>2</sup> θραύσματα πνεύματος μυριάδρον ἐμπληροῖ θέατρον;

492. (D.O).<sup>a</sup> Gell. Noct. Att. V, 15, 8 (321, p. 353 Us.): D. ac deinde Epicurus ex individuis corporibus vocem constare dicunt eamque ut ipsis eorum verbis utar «φεῦμα ἀτόμων» appellant.

493. (D.D.A 127, 322 Us.). Schol. Dion. Thrac., p. 482, 13 Hilg.: ὁ δὲ Ἐπίκουρος καὶ ὁ Δ., καὶ οἱ Στωϊκοὶ σῶμα φασὶ τὴν φωνήν. Grammaticus Byzantinus cod. Paris. 2555, BAG, p. 1168: ὁ Δ. καὶ ὁ Ἐπίκουρος καὶ οἱ Στωϊκοὶ σῶμα λέγουσι τὴν φωνήν, ὅτι πᾶν ὃ ἔχει ἐνέργειαν καὶ πάθος, ἦχον δύναται δράσαι καὶ παθεῖν, σῶμά ἐστι.

493a. (D.D.B 145; 105 N.).<sup>1</sup> Plut. De puer. ed. 14, p. 9 F: καὶ μέγιστοι καὶ τῆς αἰσχρολογίας ἀπακτέον τοὺς υἱούς. «Λόγος» γὰρ «ἔργου σκιή», κατὰ Δημόκριτον. Diog. IX, 37: τοῦτο (sc. Δημοκρίτου) ἐστὶ καὶ τὸ «λόγος ἔργου σκιή». (D.O). Anon. in Rhet. II, 6, p. 1384b 19—20, p. 107, 6: «(αἰσχύνονται) ... οὐ μόνον ποιοῦντες τὰ αἰσχρὰ, ἀλλὰ καὶ λέγοντες». ἔλεγε γὰρ ὁ Δ. λόγος ἔργου σκιή. (D.D.B 190, 107 N.). Stob. III, 1, 91: Δημοκρίτου φαύλων ἔργων καὶ τοὺς λόγους παραιτητέον. Philo. De mutat. nomin. 243 (III, 198, 23—199, 1 C.—W.): τὸ δὲ καὶ τοῦ λέγειν βαρύτερον ἀμάρτημα ἢ ἄδικος πράξις ἐστὶ· «λόγος» γὰρ «ἔργου», φασί, «σκιά», σκιάς δὲ βλαπτέουσης πῶς οὐ τὸ ἔργον βλαβερώτερον;

## II. De gustatu

494. (D.O). Aristot. De sensu 4, p. 441a 4: ... *ανάγκη δ' ἢ ἐν αὐτῷ τὸ ὕδωρ ἔχειν τὰ γένη τῶν χυμῶν ἀναίσθητα διὰ μικρότητα, καθάπερ Ἐμπεδοκλῆς φησιν, ἢ ὕλην τοιαύτην ἐνεῖναι οἷον πανοπερμία, καὶ ἅπαντα μὲν ἐξ ὕδατος γίνεσθαι, ἄλλα δ' ἐξ ἄλλου μέρους.* Alex. ad loc. 68, 13: *τὸν αὐτὸν δὴ τρόπον καὶ τὸ ὕδωρ φησὶν ὕλην τῶν χυμῶν εἶναι, οὐχ ὡς ἐκ τοῦ τυχόντος τὸν τυχόντα χυμὸν γίνεσθαι, ἀλλ' ὡς ἐκ τοῦδε τόνδε κατ' ἐπιτηδειότητα τοῦ λαμβανομένου ὕδατος πρὸς ἕκαστον τῶν χυμῶν, ὡς ἅπαντας μὲν ἐξ ὕδατος γίνεσθαι, ἄλλον δὲ ἐξ ἄλλου μέρους. καὶ κατὰ τὰς τῶν διαφόρων ὕδατων πέψεις<sup>1</sup> τε καὶ συστάσεις τὴν τῶν χυμῶν διαφορὰν, τῷ εἶναι μὲν ἐν τῷ ὕδατι τὰ πάντων γεννητικὰ τῶν χυμῶν σώματα, οὐ μὴν ἐν πᾶσι ταῦτά, ἀλλ' ἐν μὲν τῷδε τινὶ τὰ τούτων, ἐν δὲ τῷδε πάλιν τὰ ἄλλου τινός, καὶ οὕτως γίνεσθαι μὲν τοὺς χυμοὺς ἐκ τοῦ ὕδατος πάντας <ὡς> ἐξ ὕλης, <ὡς> ἐξ ὧν τὸ ὕδωρ ἐστίν, ἐκ τούτων γίνεσθαι τοὺς χυμοὺς, οὐ μὴν τὸν τυχόντα χυμὸν ἐκ τοῦ τυχόντος ὕδατος τῷ μὴδ' ἔχειν πᾶν μόνον ὕδατος τὰ πάντων τῶν χυμῶν γεννητικὰ σώματα, ἐν αὐτῷ. εἴη δ' ἂν διὰ τούτων μνημονεύσας τῆς δόξης τῶν περὶ Δημόκριτον, οἱ τὰς ἀτόμους στοιχεῖα πάντων ἔθεντο, ὅτι δὲ ἡ δόξα αὕτη ἄλλη τῆς Ἐμπεδοκλέους δηλον' κατὰ μὲν γὰρ τὴν Ἐμπεδοκλέους δόξαν προϋπάρχουσιν ἐνεργεῖαι οἱ χυμοὶ ἐν τῷ ὕδατι, κατὰ δὲ ταύτην γίνονται [καὶ] κατ' ἐπιτηδειότητα τὴν πρὸς αὐτοὺς τοῦ ὕδατος μορίων.<sup>2</sup> Aristot. De sensu 4, p. 441a 18: ... *ὁμοίως δὲ καὶ τὸ πανοπερμίας εἶναι τὸ ὕδωρ ὕλην ἀδύνατον· ἐκ τοῦ αὐτοῦ γὰρ ὁράμεν ὡς ἐκ τῆς αὐτῆς τροφῆς γινομένους ἐτέρους χυμοὺς.*<sup>3</sup>*

495. (D.O). Aristot. De sensu 4, p. 442b 10 (post № 428): *οἱ δὲ τὰ ἴδια εἰς ταῦτα ἀνάγουσιν, ὡς περ Δ. ... εἰς δὲ τὰ σχήματα ἀνάγει τοὺς χυμοὺς.* Alex. ad loc. 85, 4: *οἱ δὲ περὶ Δημόκριτον τοῖς σχήμασι τοὺς χυμοὺς ἀνατιθέασιν· παρὰ γὰρ τὴν τούτων διαφορὰν τὴν τῶν χυμῶν φασὶ διαφορὰν γίνεσθαι, ὁμοίως μὲν χυμοὺς λέγοντες εἶναι τοὺς ἐκ τῶν τοιούτων σχημάτων συγκειμένους, γλυκεῖς δὲ τοὺς ἐκ λείων τε καὶ περιφερῶν. αἱ γὰρ ἄτομοι κατὰ τὰς τῶν σχημάτων ὧν ἔχουσι διαφορὰς<sup>1</sup> διαφέροντας τοὺς χυμοὺς τοὺς<sup>2</sup> ἐκ τῆς συμπλοκῆς αὐτῶν γινομένους ποιοῦσι. γίνεται οὖν πάλιν τὰ σχήματα κοινὰ ὄντα αἰσθητὰ ἴδια<sup>2</sup> τῆς γεύσεως κατ' αὐτοὺς.*

496. (D.D.A 135). Theophr. De sensu 65 sqq. (Dox. 517): (Δ. ... ἀκριβέστερον διορίζει. ...) *τὸν μὲν οὖν ὄξυν εἶναι τῷ σχήματι γωνιοειδῆ<sup>2</sup> τε καὶ πολυκαμπῆ καὶ μικρὸν καὶ λεπτόν. διὰ γὰρ τὴν δριμύτητα ταχὺ καὶ πάντη διαδύεσθαι, τραχὺν δ' ὄντα καὶ γωνιοειδῆ <διαχεῖν μᾶλλον ἢ><sup>3</sup> συνάγειν καὶ συσπᾶν· διὸ καὶ θερμαίνειν τὸ σῶμα κενότητος ἐμποιοῦντα· μάλιστα γὰρ θερμαίνεισθαι τὸ πλείστον ἔχον κενόν. τὸν δὲ γλυκὺν ἐκ περιφερῶν συγκείσθαι σχημάτων οὐκ ἄγαν μικρῶν· διὸ καὶ διαχεῖν ὅλως τὸ σῶμα καὶ οὐ βιαίως καὶ οὐ ταχὺ πάντα περαίνειν· τοὺς <δ'> ἄλλους<sup>1</sup> ταραττειν, ὅτι διαδύων πλανᾷ τὰ ἄλλα καὶ ὑγραίνει· ὑγραίνόμενα δὲ καὶ ἐκ τῆς τάξεως κινούμενα συρρεῖν εἰς τὴν κοιλίαν· ταύτην γὰρ εὐπορώτατον εἶναι διὰ τὸ ταύτην πλείστον εἶναι κενόν. (66) τὸν δὲ στρυφνὸν ἐκ μεγάλων σχημάτων καὶ πολυγωνίων καὶ περιφερῆς ἦμιστ' ἐχόντων· ταῦτα γὰρ ὅταν εἰς τὰ σώματα ἔλθῃ, ἐπιτυφλοῦν ἐμπλάττοντα τὰ φλεβία καὶ κωλύειν συρρεῖν· διὸ καὶ τὰς κοιλίας ἰσθάναι. τὸν δὲ πικρὸν ἐκ μικρῶν καὶ λείων καὶ περιφερῶν τὴν περιφέρειαν εὐληγῶτα καὶ καμπὰς ἔχουσαν<sup>2</sup> διὸ καὶ γλισχρὸν καὶ κολλώδη. ἄλμυρόν δὲ τὸν ἐκ μεγάλων καὶ οὐ περιφερῶν, ἀλλ' ἐπ' ἐνίων μὲν σκαληνῶν, <ἐπὶ δὲ πλείστον οὐ σκαληνῶν>,<sup>3</sup> διὸ οὐδὲ πολυκαμπῶν (βούλεται δὲ σκαληνὰ λέγειν ἅπερ παράλλαξιν<sup>4</sup> ἔχει πρὸς ἄλληλα καὶ συμπλοκῆν) μεγάλων μὲν, ὅτι ἡ ἄλμυρίς ἐπιπολάζει· μικρὰ γὰρ ὄντα καὶ τυπτόμενα τοῖς περιέχουσιν μείγνυσθαι ἂν<sup>3</sup> τῷ παντί· οὐ περιφερῶν δ' ὅτι τὸ μὲν ἄλμυρόν τραχὺ τὸ δὲ περιφερῆς λείον· οὐ σκαληνῶν δὲ διὰ τὸ μὴ περιπλάττεσθαι,<sup>5</sup> διὸ ψαφaron εἶναι. (67) τὸν δὲ δριμύν μικρὸν καὶ περιφερῆ, καὶ γωνιοειδῆ, σκαληνὸν δὲ οὐκ ἔχειν. τὸν μὲν γὰρ δριμύν πολυγωνίον<sup>4</sup> ποιεῖν τῆι τραχύτητι <...><sup>5</sup> θερμαίνειν καὶ διαχεῖν διὰ τὸ μικρὸν εἶναι καὶ περιφερῆ καὶ ἀγωνιοειδῆ<sup>6</sup> καὶ γὰρ τὸ γωνιοειδὲς εἶναι τοιοῦτον.<sup>5</sup> ὡσαύτως<sup>6</sup> δὲ καὶ τὰς ἄλλας ἐκάστου δυνάμεις ἀποδίδωσιν ἀνάγων εἰς τὰ σχήματα. ἀπάντων δὲ τῶν σχημάτων οὐδὲν ἀκέραιον εἶναι καὶ ἀμιγῆς τοῖς ἄλλοις,<sup>7</sup> ἀλλ' ἐν ἐκάστῳ<sup>8</sup> πολλὰ εἶναι καὶ τὸν αὐτὸν μετέχειν λείου καὶ τραχέος καὶ περιφερῆος καὶ ὀξέος καὶ τῶν λοιπῶν. οὐ δ' ἂν ἐνῆι πλείστον, τοῦτο μάλιστα ἐνισχύειν*

πρὸς τὴν αἰσθησιν καὶ τὴν δύναμιν, ἔτι δὲ εἰς ὅποιαν ἔξιν ἂν εἰσέλθῃ· διαφέρειν γὰρ οὐκ ὀλίγον καὶ τοῦτο διὰ τὸ <τὸ αὐτὸ><sup>1</sup> τάναντία καὶ τάναντία τὸ αὐτὸ πάθος ποιεῖν ἐνίοτε. (68) καὶ περὶ μὲν τῶν χυλῶν οὕτως ἀφώρικεν. (72) Δ. ... τῶν δὲ χυλῶν ἐκάστῳ τὸ σχῆμα ἀποδίδωσι πρὸς τὴν δύναμιν ἀφομοιῶν τὴν ἐν τοῖς πάθεσιν· ὅπερ οὐ μόνον ἐξ ἐκείνων, ἀλλὰ καὶ ἐκ τῶν αἰσθητηρίων ἔδει συμβαίνειν ἄλλως τε καὶ εἰ πάθη τούτων ἐστίν. οὐ γὰρ πᾶν τὸ σφαιροειδὲς οὐδὲ τὰ ἄλλα σχήματα τὴν αὐτὴν ἔχει δύναμιν, ὥστε καὶ κατὰ τὸ ὑποκειμενὸν ἔδει διορίζειν, πότερον ἐξ ὁμοίων ἢ ἐξ ἀνομοίων ἐστὶ, καὶ πῶς ἢ τῶν αἰσθήσεων ἀλλοιώσεις γίνεται, καὶ πρὸς τούτοις ὁμοίως ἐπὶ πάντων ἀποδοῦναι τῶν διὰ τῆς ἀφῆς καὶ μὴ μόνον τὰ περὶ γεῦσιν. ἀλλὰ καὶ ταῦτα μὲν ἦτοι διαφορὰν τινα ἔχει πρὸς τοὺς χυλοὺς, ἦν ἔδει διελεῖν, ἢ καὶ παρῆται δυνατόν ὄν ὁμοίως εἰπεῖν.<sup>9</sup>

497. (D.D.A 129). Theophr. De caus. pl. VI, 1, 6: Δ. δὲ σχῆμα περιτθεις ἐκάστῳ (sc. χυμῶν) γλυκὺν μὲν τὸν στρογγύλον καὶ εὐμεγέθη ποιεῖ, στρυφνὸν δὲ τὸν μεγαλόσχημον τραχὺν τε καὶ πολυγωνίον καὶ ἀπεριφερῆ, ὄξυν δὲ κατὰ τὸ νόμα τὸν ὄξυν τῷ ὄγκῳ καὶ γωνιοειδῆ καὶ καμπύλον καὶ ἀπεριφερῆ, δριμύν δὲ τὸν περιφερῆ καὶ λεπτόν καὶ γωνιοειδῆ καὶ καμπύλον, ἄλμυρόν δὲ τὸν γωνιοειδῆ καὶ εὐμεγέθη καὶ σκολιδόν καὶ ἰσοσκελῆ, πικρὸν δὲ τὸν περιφερῆ καὶ λείον ἔχοντα σκολιότητα μέγεθος δὲ μικρὸν, λιπαρὸν δὲ τὸν λεπτόν καὶ στρογγύλον καὶ μικρόν.

497a. Hibe pap. 16 (p. 62 Gr.—Hunt.), col. 2: *ἐπεὶ ποιοῦντι <γε> τοὺς χυλοὺς διὰ τὰ σχήματα, καὶ τὸ ἄλμυρόν ἐγ' μεγάλων καὶ γωνιοειδῶν, οὐκ ἄλογόν πως κτλ. (v. № 318).*

498. (D.D.A 130).<sup>1</sup> Theophr. De caus. pl. VI, 2, 1: *τάχα δ' ἂν δόξειεν, ὡς περ ἐλέχθη, καὶ ταῦτα ἐκείνων εἶναι χάριν· αὐτῶν γὰρ τῶν δυνάμεων οὕτως ἀποδίδουσι <τὰς διαφορὰς> οἶεται τὰς αἰτίας ἀποδίδουσι, δι' ἃς ὁ μὲν στύφει καὶ ξηραίνει καὶ πήγνυσιν ὁ δὲ λαιίνει καὶ ὀμαλύνει καὶ καθίστησιν ὁ δὲ ἐκκρίνει καὶ διαχεῖ καὶ ἄλλο τι τοιοῦτο δρᾷ. πλὴν ἴσως ἐκεῖνα ἂν τις ἐπιζητήσῃ περὶ τούτων, ὥστε καὶ τὸ ὑποκειμενὸν ἀποδίδουσι ποιόν τι. δεῖ γὰρ εἶδέναι μὴ μόνον τὸ ποιοῦν, ἀλλὰ καὶ τὸ πάσχον, ἄλλως τ' «εἰ καὶ μὴ πᾶσιν ὁ αὐτὸς ὁμοίως φαίνεται» καθάπερ φησὶν. οὐδὲν γὰρ κωλύει τὸν ἡμῖν γλυκὺν ἐτέροις τισὶ τῶν ζώων εἶναι πικρὸν καὶ ἐπὶ τῶν ἄλλων δὲ ὁμοίως.*

499. (D.D.A 132). Theophr. De caus. pl. VI, 7, 2: *Δημοκρίτῳ μὲν γε πῶς ποτε ἐξ ἀλλήλων ἢ γένεσις, ἀπορήσειεν ἂν τις. ἀνάγκη γὰρ ἢ τὰ σχήματα μεταρρυθμίζεσθαι καὶ ἐκ σκαληνῶν καὶ ὀξυγωνίων περιφερῆ γίνεσθαι, ἢ πάντων ἐνοπαρχόντων οἷον τῶν τε τοῦ στρυφνοῦ καὶ ὀξέος καὶ γλυκέος τὰ μὲν ἐκκρίνεσθαι (τὰ ἐκάστων πρότερ'<sup>1</sup> ὄντ' αἰεὶ, τὰ δ' οἰκεῖα καθ' ἕκαστον), θάτερα δὲ ὑπομένειν, ἢ τρίτον τὰ μὲν ἐξίεναι τὰ δ' ἐπεισιέναι. ἐπεὶ δ' ἀδύνατον μετασχηματίζεσθαι (τὸ γὰρ ἄτομον ἀπαθές), λοιπὸν τὰ μὲν εἰσιέναι τὰ δ' ἐξίεναι <ἢ τὰ μὲν ὑπομένειν τὰ δ' ἐξίεναι>.<sup>2</sup> ἄμφω δὲ ταῦτα ἄλογα· προσαποδοῦναι γὰρ δεῖ καὶ τί τὸ ἐργαζόμενον ταῦτα<sup>2</sup> καὶ ποιοῦν. Cf. VI, 17, 11.*

## III. De odoratu

500. (D.D.A 133). Theophr. De odor. 64: *τί δὴ ποτε Δ. τοὺς μὲν χυμοὺς πρὸς τὴν γεῦσιν ἀποδίδωσι, τὰς δ' ὀσμᾶς... οὐχ ὁμοίως πρὸς τὰς ὑποκειμένας αἰσθήσεις; ἔδει γὰρ ἐκ τῶν σχημάτων.*

501. (D.O). Aristot. De sensu 5, p. 443a 24: *ἐπεὶ δὲ τὴν ὀσμὴν πάντες ἐπιφέρουσι <ἐπὶ τοῦτο> (sc. ἐπὶ τὸ ἀναθυμίασιν εἶναι) οἱ μὲν ὡς ἀτρίδα, οἱ δ' ὡς ἀναθυμίασιν...<sup>1</sup> ἔτι ἡ ἀναθυμίασις ὁμοίως λέγεται ταῖς ἀπορροαῖς.<sup>2</sup> εἰ οὖν μὴδ' ἐκείνη καλῶς, οὐδ' αὕτη καλῶς. Alex. ad loc. 93, 11: ὅτι μὴ ἐστὶ (sc. ἡ ὀσμὴ) ἀναθυμίασις, δείκνυσιν ἐκ τοῦ τὴν μὲν ἀναθυμίασιν ἀφ' οὗ ἂν γίγνηται ἀπορροαῖαν τινα εἶναι· ὡς οὖν οἱ ἀπορροαῖας εἶναι λέγοντες καὶ ταύτας αἰτιώμενοι ὡς αἰτίας τοῦ ὄσραν οὐ καλῶς ἔλεγον... οὕτως εἰ καὶ ἀπὸ τῶν ὀσφραντῶν ἀναθυμίασις τις καὶ ἀπόρροια γίνεται, ἔδει ταχέως αὐτὰ διαφορεῖσθαι καὶ μὴδὲ πρὸς ὀλίγον αὐτὰ διαμείνειν χρόνον...<sup>3</sup>*

502. (D.D.A 135). Theophr. De sensu 82 sqq. (Dox. 524): περί δὲ ὁσμῆς προσφορίζειν παρήκεν (sc. Δ.) πλὴν τοσοῦτον, ὅτι τὸ λεπτόν ἀπορρέον ἀπὸ τῶν βαρέων ποιεῖ τὴν ὄσμήν· ποῖον δὲ τι τὴν φύσιν ἢν ὑπὸ τίνος πάσχει, οὐκέτι προσέθηκεν, ὅπερ ἴσως ἦν κυριώτατον. (83) Δ. μὲν οὖν οὕτως ἔνια παραλείπει.

#### IV. De tactu (frigus et calor)

503. (D.D.A 106).<sup>1</sup> Aristot. De respir. 4, p. 471b 31: Δ. ... λέγει ... ὡς ... τὸ θερμόν ... τὰ πρῶτα σχήματα τῶν σφαιροειδῶν. ἐκκρυσταλλομένων<sup>2</sup> οὖν αὐτῶν (sc. τῶν σφαιροειδῶν ἐκ τοῦ σώματος) ὑπὸ τοῦ περιέχοντος ἐκθλίβοντος... Philopon. in De anima I, 2, p. 404a 9, p. 68, 20: οἱ περὶ Δ. ... ἔλεγον ... ψυχρὸν εἶναι τὸ περιέχον καὶ διὰ τοῦτο πυκνοῦν τὰ σώματα καὶ πυκνοῦμένων ἐκπυρηνίζεσθαι τὰς σφαιρικούς ἀτόμους... (27) τὰς σφαιρικούς ἀτόμους ... τῷ εὐκίνητῳ θερμαίνουσας τὸ ὑποκείμενον ... εἰποῖεν ἂν ἐκεῖνοι ... ἐκ τῆς φύσεως τῆς πυκνώσει μάλιστα ταύτας ἐκπυρηνίζεσθαι τῷ τε εὐολίσθους εἶναι διὰ τὸ ἀγώνιον καὶ τῷ διὰ τοῦτο φύσει εἶναι εὐκίνητους.

504. (D.D.A 135). Theophr. De sensu 63: οὐδὲ γὰρ τοῦ ψυχροῦ καὶ τοῦ θερμοῦ φύσιν ὑπάρχειν, ἀλλὰ τὸ σχῆμα μεταπίπτει<sup>1</sup> ἐργάζεσθαι καὶ τὴν ἡμετέραν ἀλλοίωσιν... (65) τὸν μὲν οὖν ὄξυν εἶναι τῷ σχήματι γωνιοειδῆ ... διὰ γὰρ τὴν δριμύτητα ταχὺ καὶ πάντῃ διαδύεσθαι, τραχὺν δ' ὄντα καὶ γωνιοειδῆ <διαχεῖν μάλλον ἢ><sup>2</sup> συνάγειν καὶ συσπᾶν. διὸ καὶ θερμαίνειν τὸ σῶμα κενότητος ἐμποιοῦντα· μάλιστα γὰρ θερμαίνεσθαι τὸ πλεῖστον ἔχον κενόν... (67) τὸν δὲ δριμὺν μικρὸν καὶ περιφερῆ, καὶ γωνιοειδῆ ... τὸν μὲν γὰρ δριμὺν ... θερμαίνειν καὶ διαχεῖν διὰ τὸ μικρὸν εἶναι καὶ περιφερῆ καὶ ἀγωνιοειδῆ (v. № 496: καὶ γὰρ τὸ γωνιοειδὲς εἶναι τοιοῦτον).

505 = № 171 (D.D.A 120).

506. (D.O). Plut. De primo frigido 8, p. 948 B: οἱ μὲν οὖν τῶν σκαληνῶν καὶ τριγωνοειδῶν<sup>1</sup> σχηματισμῶν ἐν τοῖς σώμασι κειμένων, τὸ ῥιγῶν καὶ τρέμειν<sup>2</sup> καὶ φρίττειν καὶ ὅσα συγγενῆ τοῖς πάθεσι τοῦτοις ὑπὸ τραχύτητος<sup>3</sup> ἐγγίνεσθαι λέγοντες, εἰ καὶ τοῖς κατὰ μέρος διαμαρτάνουσι, τὴν <γού> ἀρχὴν ὅθεν δεῖ λαμβάνουσι... τῷ δὲ φυσικῷ, θεωρίας ἕνεκα μετιόντι τάληθές, ἢ τῶν ἐσχάτων γνώσεις οὐ τέλος ἐστὶν ἀλλ' ἀρχὴ τῆς ἐπὶ τὰ πρῶτα καὶ ἀνωτάτω πορείας. διὸ καὶ Πλάτων ὁρθῶς καὶ Δημόκριτος αἰτίαν θερμότητος καὶ βαρύτητος ζητοῦντες οὐ κατέπαυσαν ἐν γῆ καὶ πυρὶ τὸν λόγον, ἀλλ' ἐπὶ τὰς νοητὰς ἀναφέροντες ἀρχὰς τὰ αἰσθητά, μέχρι τῶν ἐλαχίστων ὡς περὶ σπερμάτων<sup>4</sup> προῆλθον.

507. (D.O). Plut. Quaest. conv. VIII, 3, 2, p. 720 F (v. № 490): πολὺ γὰρ κενόν ἐνδιέσπαρται καὶ μέμικται ταῖς τοῦ ἀέρος ἀτόμοις, ὅταν μὲν οὖν ἢ διακεχυμένος ... μικρὰ καὶ λεπτὰ τὰ μεταξὺ τῶν μορίων κενὰ λείπεται καὶ πολλὴν αἰ ἀτόμοις<sup>5</sup> κατεσπαρμέναι <κενότητες> χώραν ἐπέχουσιν ... ὅταν δὲ συσταθῆι καὶ πύλησις εἰς ὀλίγον αὐτῶν γένηται καὶ συμπέσωσιν ἀποβιασθεῖσαι πρὸς ἀλλήλας, πολλὴν ἐδρυχώριαν<sup>1</sup> ἔξω καὶ διαστάσεις μεγάλας ποιοῦσι· τοῦτο δὲ γίνεται ... ὑπὸ ψυχρότητος ἢ γὰρ θερμότητος χαλαί καὶ δίστασι καὶ λύει τὰς πυκνώσεις· διὸ πλείονα τόπον τὰ ζέοντα καὶ μαλασσόμενα καὶ τριχόμενα τῶν σωμάτων ἐπιλαμβάνει καὶ τούναντιον αὐτὰ πάλιν τὰ πηγνύμενα καὶ ψυχόμενα συγχωρεῖ πρὸς ἀλλήλα καὶ συνάγεται, καὶ ἀπολείπει κενότητος ἐν τοῖς περιέχουσιν ἀγγείαις καὶ τοῖς ἐξ ὧν ὑποκεχώρηκεν. Cf. Aristot. De caelo III, 7, p. 305b 14: διατριζομένου γὰρ καὶ πνευματουμένου τοῦ ὕγρου ῥήγνεται τὰ περιέχοντα τοὺς ὄγκους ἀγγείαις διὰ τὴν στενοχωρίαν.

508. (D.L.A 14). Simpl. in Phys. I, 2, p. 184b 15, p. 36, 1: οἱ δὲ περὶ Ἀεὺκιππον καὶ Δ. τὰ ἐλάχιστα πρῶτα σώματα ἄτομα καλοῦντες κατὰ τῶν σχημάτων αὐτῶν καὶ τῆς θέσεως καὶ τῆς τάξεως διαφορὰν τὰ μὲν θερμὰ γίνεσθαι καὶ πύρια τῶν σωμάτων, ὅσα ἐξ ὀξυτέρων καὶ λεπτομερεστέρων καὶ κατὰ ὁμοίαν θέσιν κειμένων σύγκειται τῶν πρῶτων σωμάτων, τὰ δὲ ψυχρὰ καὶ ὑδατώδη, ὅσα ἐκ τῶν ἐναντίων.

509. (D.O). Philopon. in De gen. et. corr. I, 1, p. 314a 19, p. 17, 16: κατὰ δὲ τοὺς περὶ Δ. ... ἢ θερμότητος τῷ πυρὶ ἐκ σφαιρικών ἀτόμων συντεθεισῶν φαίνεται διὰ τὸ τῆς σφαίρας εὐκίνητον (τῷ γὰρ βραδίως δικνεῖσθαι, διότι κατὰ σημεῖον

ἢ κίνησις<sup>1</sup> τῆς σφαίρας, τὸ θερμόν εἶναι δοκεῖν ποιεῖ, ὡς περὶ τούναντιον ὁ κύβος τῆς πύλης καὶ τῷ δυσκίνητῳ τὸ ψυχρὸν).

#### e. VARIA

510. (D.L.A 34). Aët. V, 25, 3 (Dox. 437; ποτέρου ἐστὶν ὕπνος καὶ θάνατος, ψυχῆς ἢ σώματος): Δ. ὕπνον σώματος γίνεσθαι, ἀλλ' ἐκκρίσει<sup>2</sup> τοῦ λεπτομεροῦς πλείονι τῆς εἰσπίσεως τοῦ ψυχικοῦ θερμοῦ, τὸν πλεονασμὸν αἰτίον θανάτου· ταῦτα δὲ εἶναι πάθη σώματος, οὐ ψυχῆς.<sup>1</sup>

511. (D.O). Plut. Quaest. conv. III, 6, 4, p. 655 D: ὅθεν εὖ ἔχει τὸ τὴν νόκτα καὶ τὸν ὕπνον ἐν μέσῳ θεμελιώσας, καὶ ποιήσαντας ἱκανὸν διάλειμμα καὶ διάστημα, καθαρὸς αὐθις ὡς περὶ ἐξ ὑπαρχῆς, καὶ νέα ἐφ' ἡμέρη<sup>1</sup> φρονέοντας, κατὰ Δημόκριτον, ἀνίστασθαι. (VIII, 3, 5, p. 722 D) ὁ γὰρ δὴ μέγας ἡγεμὼν ἐν οὐρανῷ Ζεὺς οὗτος οὐ λανθάνων, οὐτ' ἀτρέμα διακινῶν τὰ σμικρότατα τοῦ ἀέρος, ἀλλ' εὐθὺς ἐκφανεῖς ἀνίστησι καὶ κινεῖ πάντα πράγματα,

δεξιὰ σημαίνων, λαοὺς δ' ἐπὶ ἔργον ἐγείρων·

οἱ δὲ ἔπονται, καθάπερ ἐκ παλιγγενεσίας «νέα ἐφ' ἡμέρη φρονέοντες», ὡς φησι Δημόκριτος, οὐτ' ἀφώνοις οὐτ' ἀπράκτοις ἐνεργείαις... (D.D.B 158). Plut. De lat. viv. 5, p. 1129 E: ὁ ἥλιος ἀνασχόν ... συνώρμησε τῷ φωτὶ τὰς πράξεις καὶ τὰς νοήσεις τὰς ἀπάντων, ὡς φησι Δ., νέα ἐφ' ἡμέρη φρονέοντες ἄνθρωποι τῆς πρὸς ἀλλήλους ὁρμῆς καθάπερ ἀρτήματι συντόνωι σπασθέντες ἄλλος ἀλλαχόθεν ἐπὶ πράξεις ἀνίστανται.

512. (D.D.A 136). Tert. De anima 43: D. indigentiam spiritus (sc. somnum esse).

513. (D.D.A 21). Cic. De orat. II, 58, 235: Atque illud primum, quid sit ipse risus, quo pacto concitetur ... viderit D.<sup>1</sup>

#### F. BIOLOGIA

##### a. ZOOGONIA

##### I. Quomodo animalia e terra orta sint

514. (D.D.A 139). Censor. 4, 9: Democrito vero Abderitae ex aqua limoque primum visum esse homines procreatos. Aët. V, 19, 6 (Dox. 431 Adn. = [Galen.] Hist. philos. 123; Dox. 645): Δ. γεγεννημένα εἶναι τὰ ζῶια συστάσει εἶδες <ἐνδε>στ<ἐρ<ω> ><sup>2</sup> (?) πρῶτον, τοῦ ὕγρου ζωογονοῦντος.<sup>1</sup> Lact. Inst. VII, 7, 9: Hominum causa mundum et omnia quae in eo sunt esse facta Stoici loquuntur: idem nos divinae litterae docent; erravit ergo Democritus, qui vermiculorum modo putavit effusos esse de terra nullo auctore nullaque ratione.

515. (D.D.B 5, 1).<sup>1</sup> Diod. I, 7, 3: ἔπειτα διὰ τὴν θερμασίαν ἀναζυμομένης τῆς ἐπιφανείας συνοιδῆσαι τινα τῶν ὕγρων κατὰ πολλοὺς τόπους, καὶ γενέσθαι περὶ αὐτὰ σηπεδῶνας ὁμοίως λεπτοῖς περιεχομένας.<sup>2</sup> ὅπερ ἐν τοῖς ἔλεσι καὶ τοῖς λιμνάζουσι τῶν τόπων ἔτι καὶ νῦν ὁρᾶσθαι γινόμενον, ἐπειδὴν τῆς χώρας κατεψυγμένης ἄφω διάπυρος ὁ ἀῆρ γένηται μὴ λαβὼν τὴν μεταβολὴν ἐκ τοῦ κατ' ὀλίγον. (4) ζωογονοῦμένων δὲ τῶν ὕγρων διὰ τῆς θερμασίας τὸν εἰρημένον τρόπον τὰς μὲν νόκτας λαμβάνειν αὐτίκα τὴν τροφήν ἐκ τῆς πιπτόσης ἀπὸ τοῦ περιέχοντος ὀμίχλης, τὰς δ' ἡμέρας ὑπὸ τοῦ καύματος στερεοῦσθαι· τὸ δ' ἔσχατον τῶν κωφοροῦμένων τὴν τελείαν αὐξήσειν λαμβανόντων καὶ τῶν ὕμένων διακαυθέντων τε καὶ περιρραγόντων ἀναφυῆναι παντοδαποὺς τύπους ζώων.<sup>3</sup> (5) τούτων δὲ τὰ μὲν πλείστης θερμασίας κεκοινωνηκότα

πρός τούς μετεώρους τόπους ἀπελθεῖν γινόμενα πτηνά, τὰ δὲ γεώδους ἀντεχόμενα συγκρίσεως ἐν τῇ τῶν ἐρπετῶν καὶ τῶν ἄλλων<sup>4</sup> τῶν ἐπιγεῖων τάξει καταριθμηθῆναι, τὰ δὲ φύσεως ὑγρᾶς μάλιστα μετεληφῶτα πρὸς τὸν ὁμογενῆ<sup>5</sup> τρόπον συνδραμεῖν, ὀνομασθέντα πλωτά. (6) τὴν δὲ γῆν ἀεὶ μᾶλλον στερεομένην ὑπὸ τε τοῦ περι τὸν ἥλιον πυρός καὶ τῶν πνευμάτων τὸ τελευταῖον μηκέτι δύνασθαι μηδὲν τῶν μειζόνων ζωογονεῖν, ἀλλ' ἐκ τῆς πρὸς ἄλληλα μίξεως ἕκαστα γεννᾶσθαι τῶν ἐμφύγων. Hermipp. De astrol.<sup>6</sup> (Ioann. Catrares) II, I, 6 sqq., p. 33 Kroll: ἀλλ' ἐπεὶ τὸ ὕδωρ ἐπὶ γῆς τὴν οἰκίαν χώραν ἐπέλαβεν, αὐτὴ δὲ διάβροχος οὕσα τὴν οἰκίαν μορφήν ὑπὸ τοῦ ἡλίου προσβάλλοντος καὶ πρὸς τὸ ξηρότερον μεθιστάντος κατὰ μικρὸν ἀπελάμβανε, φέρονται δὴ πρῶτον οὕτω δένδρα τε καὶ φυτὰ καὶ τινες ὑμένες<sup>7</sup> εὐοικότες πομφόλυξιν, αἱ δὴ μεθ' ἡμέραν μὲν ὑπὸ τοῦ ἡλίου διαθερμαινόμεναι, νύκτωρ δὲ ὑπὸ τῆς σελήνης καὶ τῶν ἄλλων ἀστέρων περιθαλάσσονται, χρόνῳ διαρραγεῖσαι τὰ ζῶια ἀπέτεκον. (7) τούτων δὲ τὰ μὲν ἰκανὴν εὐληφῶτα πέψιν<sup>8</sup> ἄρρενά τε καὶ θερμότερα γέγονε, τὰ δὲ τούναντιον ὑποστάντα ἐνδείαι θερμῆς πρὸς τὸ θῆλυ μετεσκεύασται. (8) καὶ οὐδὲν θαυμαστὸν γῆν ὕδατι σύμμικτον συστήσασθαι τὴν ἀρχὴν ζῶια τε καὶ φυτὰ<sup>9</sup> ... ἐν μὲν γὰρ τῷ ὕδατι συνέχεσθαι εἰκὸς πνεῦμα, ἐν δὲ τούτῳ θερμότερα ψυχικὴν,<sup>10</sup> δηλοῦσι δὲ καὶ τὰ γινόμενα ζῶια ἐν τοῖς τῆς γῆς χηραμοῖς καὶ ἐτι τὰ ἀπὸ σήψεως· ἅπαντα καίπερ οὕτω συστάντα θαυμασίαν ἐμφαίνει τὴν σφῶν αὐτῶν καθάπαξ διάπλασιν. (9) ἀλλ' οὐδὲ μὴν οὐδὲ τοῦτ' οἶμαι ἀπορήσαι· τις ἂν, εἰ μὴ καὶ νῦν οὕτω συνίστασθαι δύναίτο· οὔτε γὰρ ἡ γῆ ἐτι ὁμοίως ἂν συνανακραθεῖται τῷ ὕδατι, οὐδ' οἱ ἀστέρες ἐν τοῖς αὐτοῖς συνελθοῖεν σχήμασι. (10) τὸ γὰρ γίνεσθαι πῆ μέχρι τοῦ νῦν, ὡς λόγος αἰρεῖ, παραλείπω· πλὴν ὡσπερ τούνοδοσιμον<sup>11</sup> ἐξ ἐκείνου παραλαβοῦσα ζῶια μὲν μέγεθος ἔχοντα οὐκέτι φθεῖν οἷα τ' ἐστὶ, βοτάνας δὲ καὶ δένδρα καὶ φυτὰ καὶ καρπούς καὶ τὰ ζῶια σχεδὸν νεκρωθέντα καὶ παγέοντα<sup>12</sup> τῷ φύγει θερμῆς τε καὶ ῥύμης ἐμπίπεται.<sup>13</sup> (11) τῶν δὲ ζῶιων, ὡς καὶ πρότερον εἴρηται, οὐχ ὁμοία τις ἡ κρᾶσις ἐγένετο.<sup>13</sup> ἀλλ' ὅσα μὲν πλείστον τοῦ γεώδους μετέσχε, φυτὰ τε καὶ δένδρα<sup>14</sup> γέγονε πρὸς τῇ γῆι κάτω ἐρριζωμένην τὴν κεφαλὴν ἔχοντα, τοσοῦτον τῶν ἀναιμοτέρων<sup>15</sup> καὶ ἀπόδων ζῶιων διαφέροντα, παρ' ὅσον ἐκεῖνα ἐξ ἡ γῆς ταύτην κινούμενα φέρουσιν· ὅσα δὲ τοῦ ὑγροῦ, τὴν καθ' ὕδατος λήξιν ἠσπᾶσαντο, ἐπίσης ἐκεῖνοις σχεδὸν διακείμενα. (12) οἷς δὲ τοῦ γεώδους καὶ θερμοῦ μᾶλλον μέτεστι, ταῦτα χερσαῖα ἂν εἴη· καὶ ὅσα δὲ τοῦ ἀερῶδους καὶ θερμοῦ μετέσχε μᾶλλον, πτηνά, τὰ μὲν εὐθὺς τοῦ ὅλου σώματος, τὰ δ' ὑπὲρ αὐτὸ τὴν κεφαλὴν ἴσχοντα, κατὰ λόγον τῆς αὐτῶν κρᾶσεως. (13) καὶ τούτων μᾶλλον ὁ ἄνθρωπος μετασχὼν θερμοῦ φαίνεται καθαρωτέρας οὐσης τῆς ὕλης, ἀφ' ἧς τὸ σῶμα οἱ συνέστη, καὶ δεκτικῆς «μᾶλλον»<sup>16</sup> τοῦ θερμοῦ· ὥστε δι' αὐτὸ τοῦτο καὶ μόνος τῶν ἄλλων ζῶιων γίνεται τὸ σχῆμα ὀρθὸς καὶ πρὸς ὀλίγον γῆς ἄπτεται· ἐρρῶν δὲ τι καὶ θεϊότερον<sup>16</sup> εἰς αὐτόν, καθ' ὃ νοῦ καὶ λόγου καὶ διανοίας μετέσχε καὶ τὰ ὄντα ἀνηρευνήσατο. Tzetz. Schol. ad Hesiod. (Gaisford. Poet. Gr. min. III, 58):<sup>17</sup> φασὶν Ἕλληνας<sup>18</sup> ὅσοι τὸν κόσμον γεννητὸν εἶναι λέγουσιν, ὅτι μετὰ τὸ διαρραγεῖναι τὸ ἔρθεος καὶ τὸν ἀέρα συστήναι καὶ ὑποστήναι τὴν γῆν· πηλώδη καὶ παντελῶς ἀπαλὴν σηπεδονώδεις καὶ πομφολυγώδεις ὑμένας<sup>19</sup> ἐκ ταύτης ἀναδοθῆναι· ὦν ὑπὸ τοῦ ἡλίου θερμαινόμενων ἡμέρας, νυκτὸς δὲ τρεφομένων ταῖς σεληναῖαις ὑγρότησιν καὶ μετὰ τὴν αὔξησιν ἐκτραγέντων ἀνθρώπους<sup>20</sup> συνέβη γενέσθαι καὶ παντοίων ζῶιων ιδέας πρὸς τὴν στοιχειακὴν ἐπικρατείαν, τὴν ὕδατῶδη φημί καὶ πυρώδη καὶ γεώδη καὶ ἀερῶδη· κατεξιμασθείσης δὲ τῆς γῆς ὑφ' ἡλίου καὶ μηκέτι γένων ἰσχυρῆς ἐξ ἀλληλογονίας φασὶ τὴν γέννησιν γενέσθαι.<sup>21</sup> (D.D.B 27a). Colum. IX, 14, 6: Progenerari posse apes iuvenco perempto D.<sup>22</sup> et Mago nec minus Vergilius prodiderunt.

## II. Mutationes causa an fine determinantur. De instinctu et intellectu

516. (D.O). Aristot. Phys. II, 8, p. 198b 23: τὴν κωλύει οὕτω (v. № 31) καὶ τὰ μέρη ἔχειν ἐν τῇ φύσει, οἷον τοὺς ὀδόντας ἐξ ἀνάγκης ἀνατεῖλαι τοὺς μὲν ἐμπροσθίους ὀξεῖς, ἐπιτηδείους πρὸς τὸ διαιρεῖν, τοὺς δὲ γομφίους πλατεῖς καὶ χρησίμους πρὸς τὸ λεαίνειν τὴν τροφήν, ἐπεὶ οὐ τούτου ἕνεκα γενέσθαι, ἀλλὰ συμπεσεῖν.

ὁμοίως δὲ καὶ περὶ τῶν ἄλλων μερῶν, ἐν ὅσοις δοκεῖ ὑπάρχειν τὸ ἕνεκά του. ὅπου μὲν οὖν ἅπαντα συνέβη ὡσπερ κἂν εἰ ἕνεκά του ἐγένετο, ταῦτα μὲν ἐσώθη ἀπὸ τοῦ αὐτομάτου συστάντα ἐπιτηδείως· ὅσα δὲ μὴ οὕτως, ἀπόλωτο καὶ ἀπόλλυται, καθάπερ Ἐμπειδοκλῆς λέγει<sup>2</sup> τὰ «βουγενῆ ἀνδρόπρωρα». ὁ μὲν οὖν λόγος ὡς ἂν τις ἀπορήσειεν, οὕτως, καὶ εἰ τις ἄλλος τοιοῦτός ἐστιν... ἀλλὰ μὴ φύσει ἐστὶ τὰ τοιαῦτά γε πάντα, ὡς κἂν αὐτοὶ φαῖεν οἱ ταῦτα λέγοντες. Simpl. ad loc. 371, 19: καὶ γὰρ οἱ μὲν ἐμπροσθιοὶ ὀδόντες ὀξεῖς γέγονασιν, οἱ δὲ γομφιοὶ πλατεῖς, οὐ διὰ τὴν χρεῖαν, ἀλλὰ διὰ τὴν φυσικὴν ἀνάγκην. ἡ γὰρ τοῦ γαστρώματος, εἴποι τις ἂν, περιφέρειαι πυκνότερα γέγονε τῶν ἑαυτῆς περάτων διὰ τὴν καμπήν. τὰ γὰρ καμπτόμενα πυκνοῦνται κατὰ τὴν κοίλην καὶ «ἀραιούται»<sup>b</sup> κατὰ τὴν κυρτὴν ἐπιφάνειαν τῆς μὲν τεινομένης τῆς δὲ συμπιλομένης κατ' ἐκείνου, καθ' οὗ τὸ περιφερὲς μάλιστα γίνεται διὰ δὲ τοῦ πυκνότερου τὰ διόντα ὀξύνεται καὶ τὰ ὀξεῖα μᾶλλον δίσσει.<sup>3</sup> τούτων δὲ οὕτω γινομένων διὰ τὴν ἀνάγκην τὴν ὀλικὴν συνέβη ἄλλως εἰς ὀφέλειαν αὐτὰ γενέσθαι τῶν ζῶιων, ὡς εἰ καὶ ταύτης ἕνεκα ἐγένετο. διὰ τί γὰρ ἄλλα μὲν ἀπόλλυται ὑπὸ τῶν οἰκειῶν μορίων, ὡς ἀετοὶ τοῦ ῥάμφους ἐπικαμπτομένου λιμῶντοντες, ἀλλὰ δὲ σώζεται, εἰ μὴ ἐκ ταῦτομάτου ταῦτα οὕτως συνέτρεχε;<sup>4</sup> (post locum Empedocleum supra allatum) (372, 3) καὶ ὅσα μὲν οὕτω συνέστη ἀλλήλοις, ὥστε δύνασθαι τυχεῖν σωτηρίας, ἐγένετο ζῶια καὶ ἔμεινε, διὰ τὸ ἀλλήλοις ἐκπληροῦν τὴν χρεῖαν τοὺς μὲν ὀδόντας τέμνοντάς τε καὶ λεαίνοντας τὴν τροφήν, τὴν δὲ γαστέρα πέττουσαν, τὸ δὲ ἦπαρ ἐξαιματοῦν... ὅσα γὰρ μὴ κατὰ τὸν οἰκεῖον συνῆλθε λόγον ἐφθάρη. τὸν αὐτὸν δὲ τρόπον καὶ νῦν πάντα συμβαίνει.<sup>5</sup> ταύτης δοκοῦσι τῆς δόξης τῶν μὲν ἀρχαίων φυσικῶν ὅσοι τὴν ὀλικὴν ἀνάγκην αἰτίαν εἶναι τῶν γενομένων φασὶ, τῶν δὲ ὑστέρων οἱ Ἐπικούρειοι. V. № 31.

517. (partim D.D.A 147).<sup>1</sup> Aristot. De gen. animal. V, 8, p. 788b 9: εἶρηκε μὲν οὖν περὶ αὐτῶν (sc. τῶν ὀδόντων) καὶ Δ. ... φησὶ γὰρ ἐκπίπτειν μὲν διὰ τὸ πρὸ ὥρας γίνεσθαι τοῖς ζῶιοις· ἀκμαζόντων γὰρ ὡς εἶπειν φύεσθαι κατὰ γε φύσιν. τοῦ δὲ πρὸ ὥρας γίνεσθαι τὸ θηλάζειν αἰτιᾶται... (24) εἰ οὖν συνέβαινε, ὡς ἐκεῖνος λέγει... τὸ τῆς φύσεως ἔργον ἐγένετο· ἂν παρὰ φύσιν... (789a 4) τὸ δὲ θηλάζειν αὐτὸ μὲν οὐδὲν συμβάλλεται, ἡ δὲ τοῦ γάλακτος θερμότης ποιεῖ θάπτον βλαστάνειν τοὺς ὀδόντας. σημείον δ' ὅτι καὶ αὐτῶν τῶν θηλαζόντων τὰ θερμότερα γάλακτι χρώμενα τῶν παιδίων ὀδοντοφρεῖ θάπτον· ἀξίτητον γὰρ τὸ θερμόν. ἐκπίπτουσι δὲ γινόμενοι τοῦ μὲν βελτίονος χάριν, ὅτι (sequitur Aristotelis explicatio causas finales respiciens)... (12) ἐξ ἀνάγκης δ' ἐκπίπτουσι, ὅτι τῶν μὲν ἐν πλατεῖαι τῇ σιαγόνι καὶ ἰσχυρῶι ὀστέω· αἱ ῥίζαι εἰσὶ, τῶν δὲ προσθίων ἐν λεπτῷ διὸ ἀσθενεῖς καὶ εὐκίνητοι· φύονται δὲ πάλιν, ὅτι ἐν φουμένῳ ἐτι τῷ ὀστέω ἡ ἐκβολὴ γίνεται καὶ ἐτι ὥρας οὐσης γίνεσθαι ὀδόντας. τοῦτο δὲ σημείον ὅτι καὶ οἱ πλατεῖς φύονται πολὺν χρόνον· οἱ γὰρ τελευταῖοι ἀνατέλλουσι περὶ τὰ εἰκοσι ἔτη, ἐνίοις δ' ἦδη καὶ γηράσκουσι· γεγέννηται οἱ ἔσχατοι παντελῶς διὰ τὸ πολλὴν εἶναι τροφήν ἐν τῇ εὐρυχωρίαι τοῦ ὀστοῦ. τὸ δὲ πρόσθιον διὰ τὴν λεπτότητα ταχὺ λαμβάνει τέλος, καὶ οὐ γίνεται περιττωμα ἐν αὐτῷ, ἀλλ' εἰς τὴν αὔξησιν ἀναλίσκεται ἡ τροφή τὴν οἰκίαν. Δ. δὲ τὸ οὐ ἕνεκα ἀφείλε λέγειν, πάντα ἀνάγει εἰς ἀνάγκην οἷς χρήται ἡ φύσις, οἷσι μὲν τοιοῦτοις, οὐ μὴν ἄλλ' ἕνεκά τινος οἷσι... ὥστε γίνεσθαι μὲν οὐδὲν κωλύει οὕτω καὶ ἐκπίπτειν, ἀλλ' οὐ διὰ ταῦτα, ἀλλὰ διὰ τὸ τέλος... ἐπεὶ καὶ τὸ τῷ πνεύματι ἐργάζεσθαι τὰ πολλὰ εἰκὸς ὡς ὄργανον... ὡσπερ ἐν τῇ χαλκευτικῇ ἡ σφῆρα καὶ ὁ ἄκμων, οὕτω καὶ τὸ πνεῦμα ἐν τοῖς φύσει συνεστώσιν. ὁμοίον δ' εἶοικε τὸ λέγειν τὰ αἰτία ἐξ ἀνάγκης κἂν εἰ τις διὰ τὸ μαχαίριον οἶαιτο τὸ ὕδωρ ἐξηληλυθέναι μόνον τοῖς ὑδροπιπῶσιν, ἀλλ' οὐ διὰ τὸ ὑγιαίνειν οὐ ἕνεκα τὸ μαχαίριον ἔτεμεν. Philopon. ad loc. 247, 11: ἔλεγεν οὖν ὁ Δ. πίπτειν αὐτοὺς (sc. τοὺς ὀδόντας) διὰ τὸ πρὸ ὥρας καὶ παρὰ φύσιν φύειν τότε καθ' ὃν καιρὸν καὶ φύουσιν... μῆποτε δὲ οὐχὶ ἀπλῶς αὐτὸ τὸ θηλάζειν Δ. ἠτιᾶτο, ἀλλὰ διὰ τοῦ θηλάζειν τὸ γάλα ἠνιττέτο· τὸ γὰρ γάλα θερμόν ὄν, ὡς καὶ Ἀριστοτέλης μετ' ὀλίγον, ποιεῖ βλαστάνειν τοὺς ὀδόντας.

518. (D.O). Aristot. De gen. animal. II, 6, p. 741b 37: διορίζεται δὲ τὰ μέρη τῶν ζῶιων πνεύματι, οὐ μέντοι οὔτε τῷ τῆς γεννώσεως οὔτε τῷ αὐτοῦ,<sup>1</sup> καθάπερ τινὲς τῶν φυσικῶν φασιν. Hunc locum respicit Philopon. in De gen. animal. V, 8, p. 789b 2, p. 249, 6: εἶπε γὰρ καὶ πρότερον, ὅτι Δ. τοῦ ἐσχιζόμενου



είναι τὸν πνεύμονα αἴτιον εἶναι ἀπεφάνητο τὸ ἀναπνεόμενον πνεῦμα, καὶ ὅπως ἀπαντα τὰ ὄντα καὶ γινόμενα ἀνάγει εἰς τὰ ὄργανα. Aristot. De part. animal. I, 1, p. 640b 4 (v. № 171): οἱ μὲν οὖν ἀρχαῖοι καὶ πρῶτοι φιλοσοφήσαντες περὶ φύσεως περὶ τῆς ὀλικῆς ἀρχῆς καὶ τῆς τοιαύτης αἰτίας ἐσκόπων, τίς καὶ ποία τις ... καὶ τίνος κινουόντος, οἷον ... τοῦ αὐτομάτου, τῆς δ' ὑποκειμένης ὕλης τοιάδε τινα φύσιν ἐχούσης ἐξ ἀνάγκης. οὕτως γὰρ καὶ τὸν κόσμον γεννῶσιν. ὁμοίως δὲ καὶ περὶ τῶν ζώων καὶ τῶν φυτῶν γένεσιν λέγουσιν, οἷον ὅτι ἐν τῷ σώματι βέοντος μὲν τοῦ ὕδατος κοιλιάν γενέσθαι καὶ πᾶσαν ὑποδοχὴν τῆς τε τροφῆς καὶ τοῦ περιττώματος, τοῦ δὲ πνεύματος διαπορευθέντος τοὺς μυκτῆρας ἀναρραγῆναι, ὁ δ' ἀήρ καὶ τὸ ὕδωρ ὕλη τῶν σωμάτων ἐστίν· ἐκ τῶν τοιούτων γὰρ σωμάτων συνιστάσι τὴν φύσιν πάντες.

519. (D.D.A 149). Aristot. De gen. animal. II, 8, p. 747a 24: τὸ δὲ τῶν ἡμιόνων γένος ὅλον ἀγονόν ἐστίν. περὶ δὲ τῆς αἰτίας, ὡς μὲν λέγουσιν Ἐμπεδοκλῆς<sup>1</sup> καὶ Δ. λέγων ὁ μὲν οὐ σαφῶς, Δ. δὲ γνωρίμως μᾶλλον, οὐ καλῶς εἰρήχασιν. λέγουσι γὰρ ἐπὶ πάντων ὁμοίως τὴν ἀπόδειξιν τῶν παρὰ τὴν συγγένειαν συνδυαζομένων. Δ. μὲν γὰρ φησὶ διεφθάρθαι τοὺς πόρους<sup>2</sup> τῶν ἡμιόνων ἐν ταῖς ὑστέραις διὰ τὸ μὴ ἐκ συγγενῶν γίνεσθαι τὴν ἀρχὴν τῶν ζώων. Philopon. ad loc. 122, 31: ὁ μὲν οὖν, φησὶ, τῆς τῶν ἡμιόνων ἀτεκνίας τὰς αἰτίας περιώμενος λέγειν, τοιαῦτα ἐξετραγώδησεν· οἱ τῶν ἡμιόνων καὶ τῶν ἀρρένων καὶ τῶν θηλειῶν σπόροι (λέγων σπόρους<sup>3</sup> τὰ ἀμφοτέρων σπέρματα), οἱ δὲ σπόροι, φησὶ, τούτων ἐν τῇ ἐξ ἀρχῆς συστάσει καὶ διαπλάσει τῶν τοιούτων ζώων διὰ τὸ μὴ ἐκ συγγενῶν γενέσθαι, ἀλλ' ἐξ ἀνομοειδῶν τοιαύτης ἔτυχον φύσεως, ὥστε διεφθάρθαι, ταυτέστιν ὥστε τὸ μὲν τοῦ ἀρρένου ἐν τῇ ἂν εἰσέλθῃ θηλείᾳ φθείρειν τὸ καταμήνιον αὐτῆς καὶ ἀγονοὺ ποιεῖν, ὁμοίως καὶ ἡ θήλεια οἷον ἂν ἀρρένου δέξῃται γονὴν, φθείρειν καὶ ἀγονοὺ ἀπεργάζεσθαι. Mich. Glycas. Ann. I, 17, 21. (D.D.A 151). Ael. N. h. XII, p. 16: ἡμιόνους δὲ λέγει μὴ τίκτειν, μὴ γὰρ ἔχειν ὁμοίως μήτρας τοῖς ἄλλοις ζώοις, ἑτερομόρφους<sup>2</sup> δὲ, ἥιστα δυναμένας γονὴν δέξασθαι· μὴ γὰρ εἶναι φύσεως ποίημα τὴν ἡμιόνων.<sup>3</sup>

520. (D.D.A 116; v. № 438).<sup>1</sup> Aët. IV, 10, 4 (Dox. 399): Δ. πλείους εἶναι αἰσθήσεις (τῶν πέντε) περὶ τὰ ἄλογα ζῶια.

521. (D.D.A 152). Ael. N. h. XII, 17: ἐν τοῖς νοτίοις μᾶλλον ἐκπίπτειν τὰ ἔμβρυα Δ. λέγει ἢ ἐν τοῖς βορείοις, καὶ εἰκότως· χαινοδοθῆναι γὰρ ὑπὸ τοῦ νότου τὰ σώματα ταῖς κρύσεσι καὶ δίστασθαι. ἄτε τοῖνον τοῦ σκῆθους διακεχυμένου καὶ οὐκ ἠρμοσμένου πλανᾶσθαι καὶ τὰ κύματα δεῦρο καὶ ἐκεῖσε καὶ θερμαινόμενα διολισθάνειν καὶ ἐκπίπτειν ῥαῖον· εἰ δὲ εἴη πάγος καὶ βορρᾶς καταπνέοι, συμπέπηγε<sup>1</sup> μὲν τὸ ἔμβρυον, δυσκίνητον δὲ ἐστὶ καὶ οὐ ταραττεται ὡς ὑπὸ κλύδωνος, ἄτε δὲ ἀκλυστον καὶ ἐν γαλήνῃ ὄν ἔρωται τε καὶ ἐστὶ σύντονον καὶ διαρκεῖ πρὸς τὸν κατὰ φύσιν χρόνον τῆς ζωιογονίας. οὐκοῦν ἐν κρυμῷ μὲν, φησὶν ὁ Ἀβδηρίτης, συμμένει, ἐν ἀλέαι δὲ ὡς τὰ πολλὰ ἐκπίπτει. ἀνάγκη δὲ εἶναι λέγει τῆς θερμῆς πλεοναζούσης δίστασθαι καὶ τὰς φλέβας καὶ τὰ ἄρθρα.<sup>2</sup>

### III. Embryologia

522. (D.L.A 35). Aët. V, 4, 1 (Dox. 417; εἰ σῶμα τὸ σπέρμα): Δ. καὶ Ζήνων σῶμα· ψυχῆς γὰρ εἶναι ἀπόσπασμα.<sup>1</sup>

523. (D.D.A 140). Aët. V, 4, 2—3 (Dox. 417—418): Πυθαγόρας, Πλάτων, Ἀριστοτέλης ἀσώματον μὲν εἶναι τὴν δύναμιν τοῦ σπέρματος, ὡς περὶ νοῦν τὸν κινουόντα, σωματικὴν δὲ τὴν ὕλην τὴν προχουμένην, Στράτων καὶ Δ. καὶ τὴν δύναμιν σῶμα· πνευματικὴ γάρ.

524. (D.O). Aristot. De gen. animal. IV, 1, p. 764b 10: εἰ δ' ἐστὶ περὶ σπέρματος οὕτως ἔχον, ὡς περὶ τυγχάνομεν εἰρηκότες, καὶ μήτ' ἀπὸ παντός ἀπέρχεται... καὶ πρὸς Δ. καὶ εἰ τις ἄλλος οὕτω τυγχάνει λέγων ὁμοίως ἀπαντητέον. (3, p. 769a 26) τὴν γονὴν μίαν οὖσαν οἷον πανσπερμίαν εἶναι τινα πολλῶν (v. № 533).

525. (D.D.B 124). Galen. De defin. med. 439 (XIX, p. 449 K.): ἐκκρίνεται τὸ σπέρμα, ὡς περὶ Πλάτων φησὶ<sup>1</sup> καὶ Διοκλῆς (fr. 170, p. 196 Wellmann), ἀπὸ ἐγκεφάλου καὶ νοτιαίου. Πραξαγόρας δὲ καὶ Δ. ἐτι τε Ἰπποκράτης ἐξ ὄλου τοῦ σώματος, ὁ μὲν Δ. λέγων «ἄνθρωπος ἐξέσσυται ἐξ ἀνθρώπου παντός». (D.D.A 141). Aët. V, 3, 4 (Dox. 417): Πλάτων (sc. τὸ σπέρμα εἶναι) μυελὸς τοῦ νοτιαίου

ἀπόρροιαν ... Δ. ἀφ' ὄλων τῶν σωμάτων καὶ τῶν κυριωτάτων μερῶν οἷον ὀστέων σαρκῶν καὶ ἰνῶν.

526. (D. 24 A 13). Censor. 5, 2 sqq.: Sed hanc opinionem (sc. e medullis semen profluere) nonnulli refellunt ut Anaxagoras,<sup>1</sup> D. et Alcmaeon Crotoniates;<sup>2</sup> hi enim post gregum contentionem non medullis modo, verum et adipe multaque carne mares exhauriri respondent.

527. (partim D.D.B 32). Clem. Paed. I, 94 (I, 214, 9 St.): «μικρὰν ἐπιληψίαν» τὴν συνουσίαν ὁ Ἀβδηρίτης ἔλεγε σοφιστής, νόσον ἀνάτονον ἡγούμενος. ἢ γὰρ οὐχὶ καὶ ἐκλύσεις παρέπονται τῷ μεγέθει τῆς ἀπουσίας (sc. τοῦ σπέρματος) ἀνατιθέμεναι· ἄνθρωπος γὰρ ἐξ ἀνθρώπου ἐκφέρεται τε καὶ ἀποσπᾶται ... ὅλος ἄνθρωπος ἀποσπᾶται κατὰ συνουσίαν ἀπουσίαν.<sup>1</sup> Hippol. Refut. VIII, 14 (p. 234, 5 W; v. comm.):<sup>2</sup> πάντα γὰρ πληροσόμενα γεννᾶται καὶ καρποφορεῖ, καθάπερ αἱ ἄμπελοι. ἄνθρωπος ἐξ ἀνθρώπου ἐξέσσυται, φησὶν, (ὁ Μονόμιος) καὶ ἀποσπᾶται, πληγῆτινι μεριζόμενος. Galen. in Hippocrat. Epidem. III, liber 1 (XVII, A, p. 521 K.): μικρὰν ἐπιληψίαν εἶναι τὴν συνουσίαν. [Galen.] An animal sit id quod in utero est XIX, p. 176: φησὶ δὲ Δ. ἄνθρωπον ἐξ ἀνθρώπου ἐξέσσυσθαι καὶ κύναν ἐκ κύνος καὶ βοὸν ἐκ βοός. Galen. De defin. med. 439 (XIX, p. 449 K.; № 525): ἐκκρίνεται τὸ σπέρμα ... ἐξ ὄλου τοῦ σώματος, ὁ μὲν Δ. λέγων «ἄνθρωπος ἐξέσσυται ἐξ ἀνθρώπου παντός»...<sup>3</sup> Plin. N. h. XXVIII, 58: Venerem damnavit D., ut in qua homo alius exiliret ex homine. Gell. Noct. Att. XIX, 2: Hippocrates autem ... de coitu venerio ita existimabat partem esse quandam morbi taeterrimi, quem nostri comitiales dixerunt; namque ipsius verba haec traduntur τὴν συνουσίαν εἶναι μικρὰν ἐπιληψίαν. Stob. III, 6, 28: Ἐρωξίμαχος (medicus Asclepiades ex schola, ut videtur Hippocratica, de quo in Symposio et aliis libris Platonis agitur). Ἐρωξίμαχος τὴν συνουσίαν μικρὰν ἐπιληψίαν ἔλεγε καὶ χρόνοι μόνου διαλλάττειν. Plut. Quaest. conv. III, 6, 1, p. 653 B (61 Us.): τὸν ἄνδρα (sc. Ἐπίκουρον) τὰς ἐκ τῆς συνουσίας πληγὰς δεδιέναι διὰ τὸν τῶν σωμάτων πάλιν εἰς παραχρῆν καὶ σαλὸν ἐν τῷ τοιούτῳ βαδίζόντων. Ex his locis omnibus talia fere verba Democriti eliciuntur: συνουσίη ἐπιληψίη μικρὴ<sup>4</sup> ἐξέσσυται γὰρ ἄνθρωπος ἐξ ἀνθρώπου παντός (καὶ κύνων ἐκ κύνος καὶ βοός ἐκ βοός) καὶ ἀποσπᾶται πληγῆτινι μεριζόμενος.<sup>5</sup> πάντα γὰρ πληροσόμενα<sup>6</sup> γεννᾶται καὶ καρποφορεῖ καθάπερ αἱ ἄμπελοι.

528. (D.D.B 127). Herodian. π. καθολ. πρὸς. apud Eustath. in Odys. XIV, 428, p. 1766 (II, 445, 9 L.): καὶ Δ. «Ἐσόμενοι ἄνθρωποι ἦδονται καὶ σφιν γίνεται ἄπερ τοῖς ἀφροδισιάζουσιν». Cf. Aristot. Probl. I, 30, p. 953b 33: ὁ τε γὰρ ἀφροδισιασμός πνευματώδης<sup>1</sup> σημεῖον δὲ τὸ αἰδοῖον ὡς ἐκ μικροῦ ταχέως ποιεῖται τὴν ἀβῆσιν, διὰ τὸ ἐμφυσᾶσθαι. καὶ ἐτι πρὶν δύνασθαι προέσθαι σπέρμα, γίνεται τις ἡδονὴ ἐπὶ παῖσιν οὖσιν, ὅταν ἐγγὺς ὄντες τοῦ ἡβᾶν γίνονται τὰ αἰδοῖα δι' ἀκολασίαν· γίνεται δὲ δῆλον διὰ τὸ πνεῦμα διεξιέναι διὰ τῶν πόρων, δι' ὧν ὕστερον τὸ ὕγρον φέρεται. ἢ τε ἐκχυσις τοῦ σπέρματος ἐν ταῖς ὀμιλίαις καὶ ἡ ῥίψις ὑπὸ τοῦ πνεύματος ὠθοῦντος<sup>2</sup> φανερόν γίνεσθαι.

529. (D.D.A 142).<sup>1</sup> Aët. V, 5, 1 (Dox. 418): Ἐπίκουρος, Δ. καὶ τὸ θῆλυ προέσθαι σπέρμα· ἔχει γὰρ παραστάτας ἀπεστραμμένους· διὰ τοῦτο καὶ ὄρεξιν ἔχει περὶ τὰς χρήσεις. Nemes. De natura hominis 247 Matth.: Ἀριστοτέλης μὲν οὖν καὶ Δ.<sup>2</sup> οὐδὲν βούλονται συντελεῖν τὸ τῆς γυναικὸς σπέρμα πρὸς γένεσιν τέκνων. τὸ γὰρ προέμενον ἐκ τῶν γυναικῶν ἰδρωτὰ τοῦ μορίου μᾶλλον ἢ γονὴν εἶναι βούλονται.

530. (D.D.A 143). Aristot. De gen. animal. IV, 1, p. 764a 6: Δ. δὲ ὁ Ἀβδηρίτης ἐν μὲν τῇ μητρὶ γίνεσθαι φησὶ τὴν διαφορὰν τοῦ θήλεος καὶ τοῦ ἀρρένου. οὐ μέντοι διὰ θερμότητά γε καὶ ψυχρότητα<sup>1</sup> τὸ μὲν γίνεσθαι θῆλυ τὸ δ' ἀρρην, ἀλλ' ὁποτέρου ἂν κρατήσῃ<sup>2</sup> τὸ σπέρμα τὸ ἀπὸ τοῦ μορίου ἐλθόν, οἷ διαφέρουσιν ἀλλήλων τὸ θῆλυ καὶ τὸ ἀρρην. Philopon. ad loc. 167, 33: σπέρμα λέγει τὰ μόρια,<sup>3</sup> καὶ εἶπομεν ἐν τῷ πρώτῳ βιβλίῳ (25, 20), ὅπως αὐτὰ σπέρματα λέγει (sc. ὁ Δ.) ἀπὸ<sup>4</sup> παντός<sup>4</sup> τοῦ σώματος τοῦ τε ἀρρένου καὶ τοῦ θήλεος λέγων ἀπέρχεσθαι τὸ σπέρμα, οὐ τοιοῦτόν τι σπέρμα ἀπέρχεσθαι ἐφασκεν, ὅποιον ἄπαντες ἴσμεν, ἀλλ' ὅτι ἀπὸ μὲν τῆς τοῦ πατρὸς κεφαλῆς ἔξεισι πάνυ μικροτάτη κεφαλὴ καὶ ἀναίσθη-

τος διὰ σμικρότητα, ὁμοίως καὶ ἀπὸ τῶν χειρῶν χεῖρες καὶ τῶν ποδῶν πόδες καὶ τοῦ ἥπατος ἥπαρ καὶ τῶν ἄλλων ὁμοίως, παραπλήσιον δὲ καὶ ἀπὸ τῆς μητρός. Aristot. De gen. animal. IV, 1, p. 764b 20: ὅπως δὲ τὸ γε τὴν τοῦ μέρους ὑπεροχὴν κρατήσασαν ποιεῖν θήλυ<sup>5</sup> βέλτιον μὲν ἢ μὴθὲν φροντίσαντα<sup>6</sup> τὸ θερμὸν αἰτιᾶσθαι μόνον, τὸ μὲντοι συμβαίνειν ἅμα καὶ τὴν τοῦ αἰδοίου μορφήν ἑτέραν δεῖται λόγου πρὸς τὸ συνακολουθεῖν αἰετὰ τῶν ἀλλήλοισι. εἰ γὰρ ὅτι σύνεγγυς, καὶ τῶν λοιπῶν ἕκαστον ἔδει μορίων ἀκολουθεῖν, ἑτέρωι γὰρ ἑτερον ἐγγὺς τῶν νικούντων, ὥστε ἅμα θήλυ τ' ἂν ἦν καὶ τῆι μητρὶ ἐοικός,<sup>7</sup> ἢ ἄρρεν καὶ τῶι πατρὶ. εἰ ἀποπον καὶ τὸ μόνον ταῦτ' οἶσθαι δεῖν γίνεσθαι τὰ μόρια, καὶ μὴ τὸ σύνολον μεταβληθῆναι σῶμα. Philopon. ad loc. 171, 1: καὶ τοῦτο πρὸς Δ. ἀπέριπται. Philopon. ad loc. 167, 13: Δ. δὲ οὐ διὰ θερμότητα καὶ ψυχρότητα ἔλεγε γίνεσθαι ἄρρενα καὶ θήλεα ἀλλ' ἀπλῶς κατ' ἐπικράτειαν τῶν μερῶν. ἔλεγε δὲ οὗτος ἀπὸ πάντων τῶν μερῶν καὶ τοῦ ἄρρενος καὶ τοῦ θήλεος πάντα ἀπέρχεσθαι, ἀλλ' οὐχ ἡμίση, ὡς περ Ἐμπεδοκλῆς, ὀλόκληρα δὲ, κεφαλὴν τέλειον<sup>8</sup> ἀπὸ τοῦ ἄρρενος καὶ κεφαλὴν τέλειον ἀπὸ τοῦ θήλεος, ὁμοίως καρδίαν τέλειον ἀπὸ τοῦ ἄρρενος καὶ καρδίαν τέλειον ἀπὸ τοῦ θήλεος, καὶ ἐπὶ τῶν ἄλλων ὁμοίως. γίνεσθαι δὲ πρώτως τὴν μάχην ἐν τοῖς μορίοις, καθ' ἃ διαφέρει τὸ ἄρρεν καὶ θήλυ, ταῦτα δ' ἐστὶν ἢ τε ὑστέρα καὶ ὁ περινεός· πόρος δὲ οὗτος ὁ περινεός φλεβώδης, ἐν ᾧ τε συνίσταται τὸ τοῦ ἄρρενος σπέρμα καὶ δι' οὗ εἰς τὸ αἰδοῖον ἀποκομίζεται. γίνεσθαι οὖν φησι τὴν μάχην πρώτως ἐν τούτοις τοῖς μορίοις,<sup>9</sup> καὶ εἰ μὲν κρατήσῃ ἢ ὑστέρα τοῦ περινεοῦ,<sup>10</sup> μεταβάλλει αὐτὸν εἰς τὴν ἑαυτοῦ φύσιν, ἐξ οὗ δὴ καὶ αὔξεσθαι αὐτὴν<sup>11</sup> συμβαίνει. ἐπεὶ δὲ πάμπαν σύνεγγυς ἐστὶ τῆι ὑστέρα τὸ τοῦ θήλεος αἰδοῖον, διὰ τὴν ὑστέρας νίκην νικᾷ καὶ τὸ αἰδοῖον τοῦ θήλεος τὸ τοῦ ἄρρενος αἰδοῖον καὶ μεταβάλλει εἰς ἑαυτό. πλησίον δὲ τοῦ αἰδοίου ὄντων τῶν μερῶν καὶ τῆς ἥβης, νικᾷσι καὶ οἱ μηροὶ τοὺς μηροὺς καὶ ἡ ἥβη τὴν ἥβην, καὶ ἡ κοιλία τὴν κοιλίαν, καὶ τὰ ἄλλα ὁμοίως, καὶ γίνεσθαι θήλυ, εἰ δὲ νικήσῃ ὁ περινεός καὶ δι' αὐτὸν τὸ αἰδοῖον, καὶ διὰ τὸ αἰδοῖον μηροὶ καὶ ἥβη, καὶ διὰ τὴν ἥβην κοιλία καὶ τὰ λοιπὰ ὁμοίως, γίνεσθαι ἄρρεν.

531. (D.L.A 36; D.D.A 143).<sup>1</sup> Aët. V, 7, 5a—6 (Dox. 420; πῶς ἄρρενα γεννᾶται καὶ θήλεα;): Δ. διὰ τὴν παραλλαγὴν τῶν μορίων καθ' ἣν ὁ μὲν καυλόν, ἢ δὲ μήτραν ἔχει· τοσοῦτον γὰρ μόνον λέγει· Δ. τὰ μὲν κοινὰ μέρη ἐξ ὁποτέρου ἂν τύχηι, τὰ δ' ἰδιόζοντα [καὶ] κατ' ἐπικράτειαν.

531a. (D. O).<sup>1</sup> Colum. VI, 28: Quae (sc. proles equorum) sive ut femina sive ut masculus concipiatur nostri arbitrii fore D. affirmat, qui praecipit, ut, cum progenerari marem velimus, sinistrum testiculum admissarii lineo funiculo aliove quolibet obligemus; cum feminam, dextrum; idemque in omnibus paene pecudibus faciendum censet (= № 812).

532. (D. D. A 143). Censor. 6, 5: Utrius vero parentis principium sedem prius occupaverit, eius reddi naturam D. rettulit.

533. (D.O).<sup>1</sup> Aristot. De gen. animal. IV, 3, p. 769a 9: ἐνιοὶ μὲν γὰρ φασιν, ἀφ' ὁποτέρου ἂν ἔλθῃ σπέρμα πλέον, τούτωι γίνεσθαι μᾶλλον ἐοικός, ὁμοίως παντὶ τε πᾶν καὶ μέρος ὡς ἀπτόντος ἀφ' ἑκάστου τῶν μορίων σπέρματος· ἂν δ' ἴσον ἔλθῃ ἀφ' ἑκατέρου, τοῦτο δ' οὐδετέρωι γίνεσθαι ὁμοιον... (17) οἱ μὲν γὰρ ὡς περ Ἐμπεδοκλῆς λέγοντες ἢ Δ. περὶ τοῦ θήλεος καὶ ἄρρενος τὴν αἰτίαν ἄλλον τρόπον ἀδόνατα λέγουσιν· οἱ δὲ τῶι πλείον ἢ ἑλαττον ἀπιέναι ἀπὸ τοῦ ἄρρενος ἢ θήλεος... (26) ἀλλὰ μᾶλλον οἱ τὸν λειπόμενον τρόπον λέγοντες περὶ τῆς ὁμοιότητος καὶ τᾶλλα βέλτιον καὶ τοῦτο λέγουσιν. εἰσὶ γὰρ τινες οἱ φασὶ τὴν γονὴν μίαν οὖσαν οἷον πανσπερμίαν εἶναι· τινὰ πολλῶν· ὡς περ οὖν εἰ τις κεράσει πολλοὺς χυμοὺς εἰς ἓν ὕγρον, κάπειτ' ἐντεῦθεν λαμβάνοι, καὶ δύναιτ' ἂν λαμβάνειν μὴ ἴσον αἰετὰ ἀφ' ἑκάστου, ἀλλ' ὅτε μὲν τοῦ τοιοῦδε πλέον, ὅτε δὲ τοῦ τοιοῦδε, ὅτε δὲ τοῦ μὲν λαβεῖν τοῦ δὲ μὴ λαβεῖν, τοῦτο συμβαίνειν καὶ ἐπὶ τῆς γονῆς πολυμιγοῦς οὐσης· ἀφ' οὗ γὰρ ἂν τῶν γεννώντων πλείστον ἐγγένηται τούτωι γίνεσθαι τὴν μορφήν ἐοικός.

534. (D.D.B 5, 2; № 516).<sup>1</sup> Hermipp. De astrol. (Ioann. Catrares) II, 1, 7, p. 33 Kroll: τούτων δὲ τὰ μὲν ἰκανὴν εὐληφότερα πέψιν ἄρρενα τε καὶ θερμότερα γέγονε, τὰ δὲ τούναντίον ὑποστάνα ἐνδείαι θερμῆς πρὸς τὸ θήλυ μετεσκέυασται.

535. (D.D.A 144). Aristot. De gen. animal. II, 4, p. 740a 33: αἰ δὲ φλέβες οἷον ρίζαι πρὸς τὴν ὑστέραν συνάπτουσι δι' ὧν λαμβάνει τὸ κύημα τὴν τροφήν. τούτου γὰρ χάριν ἐν ταῖς ὑστέραις μένει τὸ ζῶιον, ἀλλ' οὐχ ὡς Δ. φησιν, ἵνα διαπλάττηται τὰ μόρια κατὰ τὰ μόρια τῆς ἐχούσης. (7, p. 746a 19) οἱ δὲ λέγοντες τρέφεσθαι τὰ παῖδια ἐν ταῖς ὑστέραις διὰ τοῦ σαρκιδίου τι βδάλλειν οὐκ ὀρθῶς λέγουσιν. Philopon. ad loc. 102, 20: ἐπεὶ γὰρ, φησί, τοιόνδε μὲν ἐστὶν ἡ χεῖρ, τοιόνδε δὲ ἕκαστον τῶν ἄλλων μερῶν τῆς μητρός, μένει ἐν τῆι ὑστέραι, ἵνα ὡς περ εἰς παράδειγμα πρὸς ταῦτα ἀφορῶσα ἢ φύσις καὶ αὐτὰ σχηματίζῃ τε καὶ διαπλάττη καὶ τὰ τοῦ ἐμβρύου μέρη.

536. (D.D.A 144). Aët. V, 16, 1 (Dox. 426): Δ., Ἐπίκουρος τὸ ἐμβρυον ἐν τῆι μήτραι διὰ τοῦ στόματος τρέφεσθαι. ὁδὲν εὐθέως γεννηθὲν ἐπὶ τὸν μαστὸν φέρεσθαι τῶι στόματι· εἶναι γὰρ καὶ ἐν τῆι μήτραι θηλάς τινάς καὶ στόματα, δι' ὧν τρέφεσθαι.

537. (D.D.B 148).<sup>1</sup> Plut. De amore prol. 3, p. 495 E: ὅταν δὲ τὴν γονὴν ἀναλάβῃ προσπεσοῦσαν ἢ ὑστέρα καὶ περιστείλῃ ριζώσεως γενομένης (ὁ γὰρ ὀμφαλὸς πρῶτον ἐν μήτραισι, ὡς φησὶ Δ., ἀγκυρηθῆναι σάλου καὶ πλάνης ἐμφύεται, πείσμα καὶ κλῆμα τῶι γεννωμένωι καρπῶι καὶ μέλλοντι), τοὺς μὲν ἐμμήνηους καὶ καθαρσίους ἔκλεισεν ὀχετοῦς ἢ φύσις, τοῦ δ' αἵματος ἀντιλαμβάνομένη φερόμενου τροφῆι χρῆται καὶ κατάρθει τὸ βρέφος ἤδη συνιστάμενον καὶ διαπλάττομενον· ἀκρι οὐ τοὺς προσήκοντας ἀριθμοὺς τῆι ἐντός αὐξήσει κυθῆν ἑτέρας ἀνατροφῆς καὶ χώρας δέηται. Plut. De fortuna Rom. 2, p. 317 A: «ἀγκυρηθῆναι σάλου καὶ πλάνης», ὡς φησὶ Δ. Plut. De amore prol. 1, p. 493 D: (τὰ δὲ θηρία) ὡς «ἐπ' ἀγκύρας» τῆς φύσεως «σαλεύει».

538. (D.D.A 145). Aristot. De gen. animal. II, 4, p. 740a 13: ὅσοι λέγουσιν, ὡς περ Δ., τὰ ἔξω πρῶτον διακρίνεσθαι τῶν ζῴων, ὑστερον δὲ τὰ ἐντός, οὐκ ὀρθῶς λέγουσιν.

539. (D.D.A 145). Censor. 6, 1 (Dox. 190; *quid primum in infante formetur*): D. alvum cum capite, quae plurimum habent ex inani.

## b. DE CORPORIS ORGANIS

### I. Organorum origo naturalis et officia

540. (D.D.B 135). Hesych., s. v. δεξαμεναί: ὑδάτων δοχεῖα, καὶ ἐν τῶι σώματι φλέβες. Δημοκρίτου. (D.D.B 420). Erotian 90, 18 N.: φλέβας δὲ οὐ τὰς συνήθως λεγομένας,<sup>1</sup> ἀλλὰ τὰς ἀρτηρίας ἀνόμασε. καὶ ὁ Δ. δὲ φλεβοπαλίην καλεῖ τὴν τῶν ἀρτηριῶν κίνησιν. Cf. Boethius. De musica I, 1: <sup>2</sup> Ut sese corporis habet affectus, ita etiam pulsus cordis motibus incitatur: quod scilicet D. Hippocrati medico tradidisse fertur, cum eum quasi insanum cunctis Democriti civibus id opinantibus in custodia<sup>3</sup> medendi causa invideret.

541. (D.D.A 153). Ael. N. h. XII, 18: αἰτίαν δὲ ὁ αὐτὸς λέγει τοῖς ἐλάφοις τῆς τῶν κεράτων ἀναφύσεως ἐκείνην εἶναι. ἡ γαστήρ αὐτοῖς ὡς ἐστὶ θερμωτάτη ὁμολογεῖ, καὶ τὰς φλέβας δὲ αὐτῶν τὰς διὰ τοῦ σώματος πεφυκυίας παντός ἀραιότατας λέγει καὶ τὸ ὀστέον τὸ κατελιηφὸς τὸν ἐγκέφαλον λεπτότατον εἶναι καὶ ὑμενώδες καὶ ἀραιόν, φλέβας τε ἐντεῦθεν καὶ ἐς ἄκραν τὴν κεφαλὴν ὑπανίσχειν παχυτάτας.<sup>1</sup> τὴν γοῦν τροφήν καὶ ταύτης γε<sup>2</sup> τὸ γονιμώτατον ὠκίστα ἀναδιδόσθαι καὶ ἡ μὲν πιμελή αὐτοῖς ἐξωθεν,<sup>3</sup> φησί, περιχεῖται, ἢ δὲ ἰσχύς<sup>4</sup> τῆς τροφῆς ἐς τὴν κεφαλὴν διὰ τῶν φλεβῶν ἀναθρόνεται.<sup>5</sup> ἐνθεν οὖν τὰ κέρατα ἐκφύεσθαι διὰ πολλῆς ἐπαρδόμενα τῆς ἰκμάδος. συνεχῆς οὖν οὖσα ἐπιρρέουσα τε ἐξωθεῖ τὰ πρότερα, καὶ τὸ μὲν ὑπερίσχον ὕγρον ἔξω τοῦ σώματος σκληρόν γίνεται, πηγνόντος αὐτὸ καρατοῦντος τοῦ ἄερος, τὸ δὲ ἐνδον ἐτι μεμικὸς ἀπαλόν ἐστὶ καὶ τὸ μὲν σκληρόνεται ὑπὸ τῆς ἐξωθεν φύσεως, τὸ δὲ ἀπαλόν μένει ὑπὸ τῆς ἐνδον ἀλέας. οὐκοῦν ἢ ἐπίφυσις τοῦ νέου κέρατος τὸ πρῶτον ὡς ἀλλότριον ἐξωθεῖ θλίβοντος τοῦ ἐνδοθεν καὶ ἀναθεῖν τοῦτο ἐθέλοντος καὶ ὀδυνώντος<sup>6</sup> καὶ σφύζοντος ὡς περ οὖν ἐπειγομένου τεχνῆθαι<sup>7</sup> καὶ προελθεῖν. ἢ γὰρ

ποι ικμάς πηγνυμένη<sup>ο</sup> και ύπανατέλλουσα άτρεμειν αδύνατός έστι· γίνεται γάρ και αύτή σκληρά και έπωθεΐται τοίς προτέροις, και τὰ μὲν πλείω<sup>θ</sup> εκθλίβεται υπό τῆς Ιαχύος τῆς ένδον, ἤδη δέ τινα και κλάδοις περισχεθέντα και εμποδίζοντα ές τόν ώκύν δρόμον υπό ρύμης τὸ θηρίον ώθούμενον άπήραξε, και τὰ μὲν εξώλισθε,<sup>7</sup> τὰ δέ έτοιμα εκκύπτειν ἢ φύσις προάγει.

542. (D.D.A 155). Ael. N. a. XII, 20: οί δέ άκρωι ταδροι τὸ τενηρηγιώδες (ούτω δέ ονομάζει Δ.) επί τοῦ βρέγματος ούκ έχοντες (εΐη δ' αν τὸ σηραγγώδες λέγων) άντιτύπου τοῦ παντός όντος ύστέου και τὰς συρροίας τῶν χυμῶν οὔ δεχομένου γυμνοί<sup>1</sup> τε και άμοιροι γίνονται τῶν άμυνηριών, και αΐ φλέβες δέ αΐ κατά τοῦ ύστέου τοῦδε άτρωφώτεροι οὔσαι λεπτότεροι τε και άσθενέστεροι<sup>2</sup> γίνονται, άνάγκη δέ και ερηότερον τόν αύχένα τῶν άκράτων<sup>3</sup> είναι, λεπτότεροι γάρ και αΐ τούτου φλέβες, ταύτηι τοι και έρωμέναι ἤττον, οὔσαι δέ 'Αράβιοι βόες θήλειαι μὲν εΐσι τὸ γένος, εύφεις δέ τὰ κέρατα, και ταύταις ἢ γε πολλή έπίρροια τῶν χυμῶν, φησί, τροφή τῆς εύγενούς βλάστης τοίς κέρασιν έστιν, άκρωι δέ και αύται οὔσαι τὸ δεκτικόν τῆς Ικμάδος όστέον στερεώτερόν τε έχουσι και δεχεσθαι τοῦς χυμοῦς ἤκιστον, και συνελόντι εΐπειν αύξης ἢ έπίρροή αίτία τοίς κέρασι· ταύτην δέ άρα έποχετεύουσι φλέβες πλείσται τε και παχύταται και ύγρὸν κύουσαι, όσον και δύνανται στέγειν.

543. (D.D.A 154). Ael. N. a. XII, 19 (οί τομίαι βόες): Δ. λέγει, σκολιά και λεπτά και μακρὰ φύεται τὰ κέρατα αύτοις, τοίς δέ ένόρχοις παχέα τὰ πρὸς τῆι ρίζηι και όρθά και πρὸς μήκος προήκοντα ἤττον, και πλατυμετώπους είναι λέγει τούτως τῶν έτέρων πολὺ μάλλον· τῶν γάρ φλεβῶν πολλῶν ένταῦθα οὔσῶν, εύρόνεσθαι τὰ όσά υπ' αύτῶν, και ἢ εκφυσις<sup>1</sup> δέ τῶν κεράτων παχυτέρα οὔσα ές πλάτος τὸ αύτὸ τῶι ζώωι μέρας προάγει<sup>2</sup> και εκείνη· οί δέ τομίαι μικρὸν έχοντες τόν κύκλον τῆς έδρας τῆς τῶν κεράτων πλατόνεται ἤττον, φησίν.

544. (D.D.A 150). Aristot. Hist. animal. IX, 39, p. 623a 30: δύνανται<sup>1</sup> δ' άφιέναι οί άράχλαι τὸ άράχνιον εύθὺς γενόμενοι, ούκ έσωθεν ώς δν περιττωμα,<sup>2</sup> καθάπερ φησὶ Δ., άλλ' από τοῦ σώματος οίον φλοιδόν<sup>3</sup> ἢ τὰ βάλλοντα [ταίς θριξίν]<sup>4</sup> οίον αΐ ύες τρίχας,<sup>4</sup> Plin. N. h. XI, 80: Tertium eorundem (sc. araneorum) genus erudita operatione conspicuum. Orditur telas tantique operis materiae uterus ipsius sufficit, sive ita corrupta alvi natura stato tempore, ut Democrito placet, sive est quaedam in cute lanigera fertilitas.<sup>5</sup>

## II. De multiplici fecunditate. De monstis

545. (D.D.A 151). Ael. N. a. XII, 16: λέγει Δ. πολύγονα είναι ύν και κόνα και τῆν αίτιάν προστίθησι λέγων, ότι πολλὰς έχει τὰς μήτρας και τοῦς τόπους τοῦς δεκτικούς τοῦ σπέρματος, ό τοίνυν θωρός ούκ εκ μιᾶς όρμης άπάσας άπτάς εκπληροῖ, άλλὰ δις τε και τρις ταῦτα τὰ ζῶια επιθόρνυται, ίνα ἢ συνέχεται πληρώσῃ τὰ τοῦ γόνου δεκτικά. (Cf. D.D.B 300, 7). Theophylact. Quaest. phys., p. 20 Boissonade: <sup>1</sup> γονιμοτάτη τίς έστιν ἢ τῶν λαγῶν φύσις... ούκοῦν α μὲν τέτοκεν ό λαγῶς, α δέ ώδίνει, α δέ ἡμιτελῆ έτι περιφέρει τῆι γαστρί... Αίγυπτον και Δαναόν πολυτεκνοτάτους αιδουσι ποιηταί, άλλ' εκείνων ύπερτερος ό λαγῶς, καθά που έφησεν ό 'Αβδηρίτης· τὸ δέ πιστεύειν αζήμιον. Hippocr. De nat. inf. 31 (VII, 540 Littré): ότι δέ άφ' ενός λαγνεύματος διδῶμα γίνεται, Ιστορίον τὸδε έστι, κύων και ύς και άλλα ζῶια, οὔσα άφ' ενός λαγνεύματος τίχτει και δύο και πλείονα, και εκαστον τῶν ζῶιων εν τῆισι μήτρησιν<sup>2</sup> εν κόλπαι και ύμένι έστι, και ταῦτα αύτοί όρέομεν γινόμενα, και ταῦτα τίχτει τῆι αύτῆι ἡμέρηι πάντα ώς επί τὸ πλείστον. Aristot. Probl. X, 14, p. 892a 38: δια τί τὰ μὲν πολύτεκνα τῶν ζῶιων οίον ύς, κύων, λαγῶς, τὰ δέ οὔ, οίον άνθρωπος, λέων,<sup>3</sup> ἢ ότι τὰ μὲν πολλὰς μήτρας και τόπους έχει οὐς και πίμπλασθαι επιθυμεΐ και εΐς α σχιζεται ἢ γονή, τὰ δέ τούναντίον.<sup>4</sup>

546. (D.D.A 146). Aristot. De gen. animal. IV, 4, p. 769b 30: Δ. μὲν οὖν έφησε γίνεσθαι τὰ τέρατα<sup>1</sup> δια τὸ δύο γονὰς συμπίπτειν, τῆν μὲν πρότερον όρμησασαν τῆν δ' ύστερον, και ταύτην εξελθοῦσαν έλθεΐν εΐς τῆν ύστεραν, ώστε συμφέσθαι και επαλλάττειν τὰ μόρια, ταίς δ' όρνισιν έπει συμβαίνει ταχέαν<sup>2</sup> γίνεσθαι τῆν όχειαν, αΐ τὰ τ' ώια και τῆν χράαν αύτῶν επαλλάττειν<sup>3</sup> φησίν. Philopon. ad

loc. 185, 33: έλεγεν οὖν ό Δ., ότι εν τῆι σῆμερον φέρε εΐπειν γεγονῶια όχειαι εΐσήλθεν εν τῆι ύστεραι από τοῦ άρρενος γονῆ, εΐσέρχεται δέ και εν τῆι εΐς αύριον γενησομένηι, και άλλως άλλη μὲν εΐσέρχεται εν τῆι προτέραι όχειαι, άλλη δέ εν τῆι ύστερον γεγονῶια. εΐταν οὖν δις όχειθῆι τὸ θῆλυ, και δύο εΐσέλθωσιν εν τῆι ύστεραι αύτοῦ γοναί, ώσπερ ἢ πρότερον εΐσελθοῦσα πλάττει και ποιεΐ χεΐρας και πόδας και τὰ λοιπά, οὔτω και ἢ ύστερον εΐσελθοῦσα τὰ αύτὰ ποιεΐ· άλλὰ δια τὸ είναι τὸ καταμήνιον εν και συνεχές, γίνονται και τὰ εξ άμοφοῖν ταῖν γοναῖν συνεχῆ άλλήλοισ και επαλλάττοντα, τουτέστι κοινονοῦντα και όμοια όντα άλλήλοισ, και δια ταύτην τῆν αίτιάν γίνεται εΐς άνθρωπος, έχων δύο μὲν κεφαλὰς, τέσσαρας δέ πόδας, έλεγε δέ ό Δ. και τὰ ώια τῶν όρνιθῶν τέρατα είναι· ταχέας γάρ, φησί, και εν μιᾶι ώραιι πολλάκις επί τούτων γινομένης τῆς όχειας πολλὰι εΐσέρχονται γοναί, και δια τούτο τοῦ ώιοῦ τὸ μὲν έστι λευκόν, τὸ δέ ώχρόν· εΐ δέ εΐσήρχετο μία γονή, ἢ ώχρόν αν ἦν τὸ πᾶν ἢ λευκόν, εΐσιν οὖν, φησί, και τὰ ώια τέρατα, άλλὰ δια τὸ αΐι οὔτως γίνεσθαι τῆι ταχυτήτι τῆς όχειας οὔ δοκοῦσιν είναι τέρατα, επαλλάττειν δέ και κοινωνεΐν λέγει τῆν τῶν ώιῶν χράαν, διότι παντός όρνιθειού ώιοῦ τὸ μὲν έστι λευκόν τὸ δ' ώχρόν, ἢ μὲν οὖν Δημοκρίτειος περι τῆς τῶν τεράτων γενέσεως δόξα αύτη, τῆν από τοῦ άρρενος γονῆν αίτιωμένη.

## c. DE CAUSIS ANIMALIUM (ΑΙΤΙΑΙ ΠΕΡΙ ΖΩΙΩΝ)

### ANIMALIUM GENERA

547. (D.O).<sup>1</sup> Aet. V, 20, 1 (Dox. 432): Πλάτων και 'Αριστοτέλης τέσσαρα γένη ζῶιων φασί, χερσατα ευδρα πτηνὰ ούράνια·<sup>2</sup> και γάρ τὰ άστρα ζῶια λέγεσθαι και τόν κόσμον ένθεον<sup>3</sup> ζῶιον λογικόν άθάνατον, Δ., 'Επίκουρος τὰ ούράνια οὔκ αποδέχονται ζῶια είναι.<sup>4</sup>

548. (D.D.A 148). Aristot. De part. animal. III, 4, p. 665a 30: τῶν δ' αναίμων οὔδεν έχει σπλάγγον. Δ. δέ εοικεν οὔ καλῶς διαλαβεΐν περι αύτῶν...<sup>1</sup> V. № 465.

### SINGULA GENERA

#### I. Mammalia

549. (D.D.A 156) Schol. T in Hom. II. XI, 554: έπειδή δέ πολὺ έχει τὸ θερμόν (sc. Ieo), δέδτε τὸ πῦρ· οὔδεν οὔδε μύει κοιμώμενος οὔδ', ώς ό Δ. φησι, τικτόμενος. Eusth. ad loc. 862: ... δεταί δέ δεσμοί δάιδων, τουτέστιν λαμπάδων, ας ό λέων πτωΐται, τοῦ δέ τοιούτου φόβου φασίν αίτιον τὸ ένθερμον<sup>1</sup> αύτοῦ και οίον πυρῶδες, διὸ και δέδτε τὸ πῦρ, δια τούτο δέ, φασίν, οὔδε μύει κοιμώμενος, ώς δέ Δ. φησιν, οὔδε τικτόμενος, μόνος γάρ, φασί, γεννᾶται όρῶν. Ael. N. a. V, 39: λέγει Δ. τῶν ζῶιων μόνον τόν λέοντα εκπεπταμένους τίχτεσθαι τοίς όφθαλμοῖς ἤδη τρῶπον τινα τεθυμωμένον<sup>1</sup> και εξ ώδιῶν δρασειόντά τι γεννικόν.

#### II. Aves

550. (D.D.A 157) Etym. Gen., s. v. γλαυέ: ... έστι γάρ οξυωπέστατον τὸ ζῶιον εν νυκτι όρᾶν δυνάμενον. Δ. δέ Ιστορεΐ, ότι μόνον τῶν γαμφωνύχων και σαρχοφάγων<sup>1</sup> μῆ τυφλά τίχτει, ότι πολὺ τὸ πυρῶδες και θερμόν περι τοῦς όφθαλμοῦς έχει, ό σφοδρῶς οξὺ και τμητικόν ύπάρχον διαιρεΐ<sup>2</sup> και αναμίγνυσι τῆν όρασιν· διὸ και εν ταίς σκοτομήνησιν όρᾶι δια τὸ πυρῶδες τῶν όψεων. Cf. Schol. II. XX, 172 (γλαυκιδῶν).





καὶ εὐρεῖν ταύτην ἢ τῶν χρώμεθα. Diog. Oenoand., fr. 10 Chilton, col. II, l. 4: εἰς οὐδὲμίαν τέχνην [ὡς οἱδὲ] ταύτας, οὐτ' ἄλλο[ν] τινὰ θεῶν οὔτε τὴν Ἀθηναίων παραλημπτόν· πάσας γὰρ ἐγέννησαν αἱ χρεῖαι καὶ περιπτώσεις μετὰ τοῦ χρόνου. Tzetz. Schol. ad Hesiod. (Gaisford. Poet. Gr. min. III, 58): οἱ τότε δὲ τῶν ἀνθρώπων ἀπλότῃς ὄντες καὶ ἀπειρίας ἀνάμεστοι οὐδεμίαν οὔτε τέχνην οὔτε γεωργίαν ἐπίστατον οὐτ' ἄλλο οὐδὲν, οὔτε ὅ τι ἐστὶ νόσος ἢ θάνατος ἐπεγίνωσκον, ἀλλ' ὡς ἐπὶ κοῖτον ἐπὶ τὴν γῆν πίπτοντες ἀπέφυγον οὐκ εἰδότες ὁ πάσχουσι· φιλαλληλίαν δὲ μόνον ἀσχοῦντες ἀγελαῖον διέζων τὸν βίον δίκην ποιμνίων ἐπὶ νομάς ἐξιώντες καὶ τοῖς ἀκροδρόοις κοινῶς καὶ τοῖς λαχάνοις τρεφόμενοι. καὶ ἀλλήλοισι κατὰ θηρίων προσεβοήθουν καὶ συνεμάχοντο γυμνοὶ γυμναῖς ταῖς χερσὶ· γυμνοὶ δὲ οὕτω τυγχάνοντες καὶ σκέπης καὶ χρημάτων ὄντες ἐπίθεσις καὶ μηδὲ καρπούς καὶ ἀκρόδρουα πρὸς ἀποθήκας συναγαγεῖν εἰδότες, ἀλλὰ μόνην ἐσθίοντες τροφήν τὴν ἐφήμερον χειμῶνος γεγονότος πολλοὶ διεφθέροντο. λοιπὸν κατὰ μικρὸν τὴν ἀνάγκην σχόντες διδάσκαλον τὰ κοῖλα τῶν δένδρων καὶ τὰ δασέα καὶ τὰς σχισμάς τῶν πετρῶν καὶ τὰ σπήλαια ὑπεδύοντο καὶ τοὺς καρπῶν δυναμένους φυλάττεσθαι μόλις γνωρίζαντες καὶ ἀπαξ αὐτοὺς συναγείραντες ἐν τοῖς σπηλαίοις ἐναπετίθεντο, καὶ τούτοις ἐτρέφοντο δι' ὄλου ἐνιαυτοῦ. τοιαύτη συζῶντες τῇ εἰμαρμένῃ βίον ἀπλοῦν καὶ ἀπέριττον καὶ φιλάλληλον εἶχον δίχα πυρὸς ἐπιγνώσεως, οὐ βασιλείας, οὐκ ἄρχοντας, οὐ δεσπότας κεκτημένοι, οὐ στρατείας, οὐ βίας, οὐκ ἀρπαγὰς, ἀλλὰ φιλαλληλίαν μόνον καὶ τὸν ἐλεύθερον καὶ ἀπέριττον τοῦτον βίον ζῆν εἰδότες. ἐπεὶ δὲ προμηθέστεροι γεγονότες καὶ προβουλευτικώτεροι τὸ πῦρ ἐφεύρον, καὶ θερμότερον, ἤγουν πανουργότερον, πραγμάτων ἄρχεσθαι. . .<sup>11</sup>

## II. Animalium mores hominibus exemplo propositi

559. (D.D.B 154).<sup>1</sup> Plut. De sollert. animal. 20, p. 974 A: γελοῖοι δ' ἴσως ἐσμέν ἐπὶ τῷ μανθάνειν τὰ ζῶια σεμνόνοντες, ὧν ὁ Δ. ἀποφαίνει μαθητὰς<sup>2</sup> ἐν τοῖς μεγίστοις γεγονότας ἡμᾶς· ἀράχνης ἐν ὑφαντικῇ καὶ ἀκροτικῇ, χελιδόνος ἐν οἰκοδομῇ, καὶ τῶν λιγυρῶν, κόκκου καὶ ἀηδόνας, ἐν ὠιδῇ κατὰ μίμησιν.

560. (D.D.A 150a).<sup>1</sup> Ael. N. a. VI, 60: Μασσαγέται μὲν, ὡς Ἡρόδοτος λέγει (I, 216),<sup>2</sup> τὸν φαρετρεῶνα πρὸ γε ἐαυτῶν κρεμάσαντες, εἶτα μέντοι ὀμιλεῖ τῇ θηλείᾳ ὁ ἄρρηγ ἐμφανῶς, εἰ καὶ ὀραῖεν αὐτοὺς οἱ πάντες, πεφροντικότες οὐδὲν ἐκεῖνοί.<sup>3</sup> γε. καμῆλων δὲ ὀμιλία οὐκ ἂν ποτε ἐμφανῆς γένοιτο οὐδὲ ὀρώντων οἰοεῖ μαρτύρων. ἀλλὰ εἴτε αἰδῶ φαμεν εἴτε φύσεως δῶρον ἀπόρρητον, ταῦτα Δημοκρίτωι τε καὶ τοῖς ἄλλοις καταλείπωμεν ἐλέγχειν τε καὶ τὰς αἰτίας λέγειν οἶσθαι ἱκανοὺς ὑπὲρ τῶν ἀτεκμάρτων τε καὶ οὐ συμβλητῶν· ἤδη δὲ καὶ ὁ νομῆος ἀπαλλάττεται ποι, ὅταν αἰσθηταὶ τῆς συμφοιτήσεως αὐτοῖς τῆς πρὸς ἀλλήλους τὴν ὁρμήν, ὡς περ οὖν ἀριστάμενος παριοῦσιν ἐς θάλαμον νόμφηι τε καὶ νυμφίωι.<sup>3</sup>

561. (D.D.A 151). Ael. N. a. XII, 16: ἡμίονους δὲ λέγει μὴ τίκτειν· μὴ γὰρ ἔχειν ὁμοίαν μήτρας τοῖς ἄλλοις ζώοις, ἑτερομόρφους δὲ, ἥμιστι δυναμένης γονὴν δέξασθαι· μὴ γὰρ εἶναι φύσεως ποίημα τὴν ἡμίονον, ἀλλὰ ἐπινοίας ἀνθρωπίνης καὶ τόλμης ὡς ἂν εἰποῖς μοιχιδίου<sup>4</sup> ἐπιτέχνημα<sup>1</sup> τοῦτο καὶ κλέμμα. δοκεῖ δὲ μοι, ἢ δ' ὅς, ὄνου ἵππον βιασαμένου<sup>5</sup> κατὰ τύχην κῆσαι, μαθητὰς<sup>2</sup> δὲ ἀνθρώπους τῆς βίας ταύτης γεγενημένους εἶτα μέντοι προσελθεῖν ἐπὶ τὴν τῆς γονῆς αὐτῶν συνήθειαν. καὶ μάλιστα γὰρ τοὺς τῶν Λιβύων ὄνους μεγίστους ὄντας ἐπιβαίνειν ταῖς ἵπποις οὐ κομῶσαις ἀλλὰ κεκαρμέναις· ἔχουσα γὰρ τὴν ἐαυτῆς ἀγλαίαν τὴν διὰ τῆς κόμης οὐκ ἂν ὑπομείνειε<sup>6</sup> τὸν τοῖονδε γαμέτην, οἱ σφοῖ τοὺς τοῦτων γάμους φασίν.

561a. (D.D.B 198, 20 N. = № 761). Stob. III, 4, 72: τὸ (sc. ζῶιον) χρῆζον οἶδεν ὁκόσον χρῆζει, ὁ δὲ (sc. ἄνθρωπος) χρῆζων οὐ γινώσκει.

562. (D.D.B 278).<sup>1</sup> Stob. IV, 24, 33: τοῦ αὐτοῦ. (sc. D.) ἀνθρώποισι τῶν ἀναγκαίων δοκεῖ εἶναι παιδᾶς κτήσασθαι ἀπὸ φύσιος καὶ καταστάσιος τινας ἀρχαίης.<sup>2</sup> δῆλον δὲ καὶ τοῖς ἄλλοις ζώοις.<sup>3</sup> πάντα γὰρ ἔκγονα κτάται κατὰ φύσιν ἐπιφελείης<sup>4</sup> γε οὐδεμιᾶς εἵνεκα· ἀλλ' ὅταν γένηται, τάλαιπωρεῖ καὶ τρέφει ἕκαστον ὡς δύναιται καὶ ὑπερδέδοικε, μέχρι μικρὰ ἦν,<sup>5</sup> καὶ ἦν τι πάθῃ, ἀνιάται. ἢ μὲν φύσις τοιαύτη πάντων ἐστὶν ὅσα<sup>6</sup> ψυχὴν ἔχει· τῷ δὲ δὴ ἀνθρώποι νομίζον<sup>7</sup> ἤδη πεποιτῆται,<sup>8</sup> ὡστε καὶ ἐπαύρεσιν τινα γίγνεσθαι ἀπὸ τοῦ ἐκγόνου.

## III. Loquela quomodo provenierit

563. (D.D.B 26).<sup>1</sup> Procl. in Grat. 16, p. 5, 25 Pasquali: ὅτι τῆς Κρατύλου δόξης γέγονε Πυθαγόρας τε καὶ Ἐπίκουρος, Δ. δὲ καὶ Ἀριστοτέλης τῆς Ἑρμαγέου. . . (p. 6, 10) διὰ δὲ τοῦ θεμένου τὰ ὀνόματα τὴν ψυχὴν ἠνίττετο (Pythagoras), ἥτις ἀπὸ νοῦ μὲν ὑπέστη· καὶ αὐτὰ μὲν τὰ πράγματα οὐκ ἐστὶν ὡς περ ὁ νοῦς πρώτως, ἔχει δ' αὐτῶν εἰκόνας καὶ λόγους οὐσιώδεις διεξοδικούς οἷον ἀγάλματα<sup>2</sup> τῶν ὄντων ὡς περ τὰ ὀνόματα ἀπομιμούμενα τὰ νοερά εἶδη, τοὺς ἀριθμούς· τὸ μὲν οὖν εἶναι πᾶσιν ἀπὸ νοῦ τοῦ ἐαυτὸν γινώσκοντος καὶ σοφοῦ, τὸ δ' ὀνομάζεσθαι ἀπὸ ψυχῆς τῆς νοῦν μιμούμενης. οὐκ ἄρα, φησὶ Πυθαγόρας, τοῦ τυχόντος ἐστὶ τὸ ὀνοματοῦργεῖν, ἀλλὰ τοῦ τὸν νοῦν ὀρώντος καὶ τὴν φύσιν τῶν ὄντων· φύσει ἄρα τὰ ὀνόματα, ὁ δὲ Δ. θέσει λέγων τὰ ὀνόματα διὰ τεσσάρων ἐπιχειρημάτων τοῦτο κατεσκευάσεν· ἐκ τῆς ὁμωνυμίας<sup>3</sup> τὰ γὰρ διάφορα πράγματα τῷ αὐτῷ καλοῦνται ὀνόματι· οὐκ ἄρα φύσει τὸ ὄνομα· καὶ ἐκ τῆς πολυωνυμίας· εἰ γὰρ τὰ διάφορα ὀνόματα ἐπὶ τὸ αὐτὸ καὶ ἐν πρᾶγμα ἐφαρμόσουσιν, καὶ ἐπάλληλα, ὡς περ ἀδύνατον· τρίτον ἐκ τῆς τῶν ὀνομάτων μεταθέσεως. διὰ τί γὰρ τὸν Ἀριστοκλέα μὲν Πλάτωνα, τὸν δὲ Τύρταμον Θεόφραστον μετωνομάσαμεν, εἰ φύσει τὰ ὀνόματα; ἐκ δὲ τῆς τῶν ὁμοίων ἐλλείψεως· διὰ τί ἀπὸ μὲν τῆς φρονήσεως λέγομεν φρονεῖν, ἀπὸ δὲ τῆς δικαιοσύνης οὐκέτι παρονομάζομεν; τόχηι ἄρα καὶ οὐ φύσει τὰ ὀνόματα. καλεῖ δὲ ὁ αὐτὸς τὸ μὲν πρῶτον ἐπιχειρήματα πολύσημον, τὸ δὲ δεῦτερον ἰσότροπον, τὸ δὲ τρίτον μετώνομον,<sup>4</sup> τὸ δὲ τέταρτον νόνομον.

564. (D.D.B 142). Olympiod. in Phileb., p. 242 Stallb.: τί τὸ τοσοῦτον σέβας περὶ τὰ θεῶν ὀνόματα τοῦ Σωκράτους; ἢ ὅτι πάλαι καθιέρωται τοῖς οἰκείοις τὰ οἰκεία καὶ ἄτοπον κινεῖν τὰ ἀκίνητα ἢ ὅτι φύσει αὐτοῖς οἰκείωται κατὰ τὸν ἐν Κρατύλῳ λόγον ἢ ὅτι ἀγάλματα φωνήεντα<sup>1</sup> καὶ ταῦτά ἐστι τῶν θεῶν, ὡς Δ.; (cf. № 563). Hieroc. in Pyth. Carmen aur. 25: τὸ τοῦ Διὸς ὄνομα σύμβολόν ἐστι καὶ εἰκὼν ἐν φωνῇ δημιουργικῆς οὐσίας τῷ τοῦ πρώτους θεμένου τοῖς πράγμασι τὰ ὀνόματα διὰ σοφίας ὑπερβολῆν ὡς περ τινας ἀγαματοποιούς ἀρίστους διὰ τῶν ὀνομάτων ὡς δι' εἰκόνων ἐμφανίσαι αὐτῶν τὰς δυνάμεις.

565. Gell. Noct. Att. V, 15 (= № 492).<sup>1</sup> Democritus ac deinde Epicurus ex individuis corporibus vocem constare dicunt eamque, ut ipsis eorum verbis utar βεῦμα ἀτόμων<sup>2</sup> appellant. (D.D.A 128). Aet. IV, 19, 3 (= № 493) (Dox. 408; περὶ φωνῆς): Δ. καὶ τὸν ἀέρα εἰς ὁμοιοσχῆμονα θρύπτεσθαι σώματα καὶ συγκαλινδεῖσθαι τοῖς ἐκ τῆς φωνῆς θραύσμασι. (D.D.B 145). Plut. De puer. ed. 14, p. 9 F: λόγος γὰρ ἔργου σκίη, κατὰ Δ. (v. № 493a). Lact. Div. inst. III, 17, 23 (p. 232, 14 Brandt):<sup>2</sup> A quo (sc. Leucippo) D. eruditus. . . Vario, inquit, ordine ac positione (sc. atomi) conveniunt, sicut litterae: quae cum sint paucae, varie tamen collocatae innumerabilia verba conficiunt. At litterae varias formas habent. Ita, inquit, et haec ipsa primordia (v. № 241) Isidor. Hisp. Etym. XIII, 2 (de atomis), 4, 108 (P.L. 82, p. 473):<sup>2</sup> Atomus est quia inseparabilis est. Sic et in littera: nam orationem dividis in verba, verba autem in syllabas, syllabam autem in litteras. Littera, pars minima, atomus est nec dividi potest. Beda Venerabilis I, 2 (P.L. 90, p. 1132):<sup>3</sup> Unde litterae per simile dicuntur elementa, quia sunt partes simillimae, ita quod nihil est pars illarum. (D.D.A 127). Schol. Dionys. Thrac. 482, p. 13 Hilg.: ὁ δὲ Ἐπίκουρος καὶ ὁ Δ. καὶ οἱ Στωϊκοὶ σώμα φασὶ τὴν φωνήν (v. № 493).

566. (D.D.B 5). Diod. I, 8, 3: τῆς φωνῆς δ' ἀσῆμου καὶ συγκεχυμένης οὐσης<sup>1</sup> ἐκ τοῦ κατ' ὀλίγον διαρθροῦν<sup>2</sup> τὰς λέξεις, καὶ πρὸς ἀλλήλους τιθέντας σύμβολα περὶ ἐκάστου τῶν ὑποκειμένων γνώριμον σφίσις αὐτοῖς ποιῆσαι τὴν περὶ πάντων ἐρμηνείαν. (4) τοιοῦτων δὲ συστημάτων γινόμενων καθ' ἅπασαν τὴν οἰκουμένην, οὐκ ὁμόφωνον πάντας ἔχειν τὴν διάλεκτον, ἐκάστων ὡς ἔτυχε συνταξάντων τὰς λέξεις· διὸ καὶ παντοῖους τε ὑπάρχει χαρακτῆρας διαλέκτων καὶ τὰ πρῶτα γενόμενα συστήματα τῶν πάντων ἐθνῶν ἀρχέγονα<sup>3</sup> γενέσθαι.

567. (D.D.B 122a).<sup>1</sup> Etym. Gen., s. v. γονή; Etym. Gud., ed. Stefani 2, p. 326, 25; Etym. Orion. p. 39, 19: . . . ἢ, ὡς Δ., γονή τις οὐσα, ἢ γονῆς δεκτικῆ.

567a. (D.D.A 159).<sup>1</sup> Soran. Gynaec. III, 17, p. 105, 1 Ilberg: ἡ φλεγμὴ κέκληται μὲν ἀπὸ τοῦ φλέγειν καὶ οὐχ, ὡς ὁ Δ.<sup>2</sup> εἶρηκεν, ἀπὸ τοῦ αἵτιον εἶναι τὸ φλέγμα. Cf. № 805a.

#### IV. Musicam sicuti omnem cultum politioem non ex inopia sed ex rerum abundantia provenisse

568. (D.D.B 144).<sup>1</sup> Philod. De musica IV, 31, p. 108, 29 Kemke: Δ. μὲν τοῖνον, ἀνὴρ οὐ φυσιολογώτατος μόνον τῶν ἀρχαίων, ἀλλὰ καὶ τῶν ἰσοπορευμένων οὐδενὸς ἤττον πολυπράγμων, μουσικὴν φησι νεωτέραν<sup>2</sup> εἶναι καὶ τὴν αἰτίαν ἀποδιδάσκει λέγων μὴ ἀποκρίναι ἀναγκαῖον,<sup>3</sup> ἀλλὰ ἐκ τοῦ περιεόντος ἤδη γενέσθαι.

568a. (D.D.B 16). Theodor. Mallius. De metr. VI, 589, 20 Keil: Metrum dactylicum hexametrum inventum primitus ... asserit D. a Musaeo.<sup>1</sup>

#### V. Lex quomodo provenerit

569. (D.D.A 1). Diog. IX, 45: ποιητὰ δὲ <τὰ> νόμιμα<sup>a</sup> εἶναι, φύσει δὲ ἄτομα καὶ κενόν.<sup>1</sup>

570. (D.D.B 245, 140 N.).<sup>1</sup> Stob. III, 38, 53; Maxim. L. c. 54, p. 658 (P.G. 91, p. 961 A); Ant. Melissa I, 62, p. 109 (P.G. 136, p. 969 A): Δημοκρίτου. οὐκ ἂν ἐκόλυον οἱ νόμοι ζῆν ἕκαστον κατ' ἰδίην ἐξουσίην, εἰ μὴ ἕτερος ἕτερον ἐλυμαίνετο· φθόνος γὰρ στάσιος ἀρχὴν ἀπεργάζεται.

571. (D.D.A 166, 3 N.). Epiphan. Adv. haer. III, 2, 9 (Dox. 590): Δ. ... ἔφη ... τὸ δοκοῦν δίκαιον οὐκ εἶναι δίκαιον, ἀδικον δὲ τὸ ἐναντίον τῆς φύσεως. ἐπίνοιαν γὰρ κακὴν τοὺς νόμους ἔλεγε. (Cf. № 608: ὁ νόμος βούλεται μὲν εὐεργετεῖν βίον ἀνθρώπων· δύναται δὲ, ὅταν αὐτοὶ βούλωνται πάσχειν εὔ...).

#### b. DE CULTU DEORUM

#### I. Deorum natura explicatur

#### II. De vi divina, quae hominibus aliisque animalibus nonnullis, aliis maior aliis minor, insit

572. (D.D.A 116).<sup>1</sup> Aët. IV, 10, 4 (№№ 86, 438): Δ. πλείους εἶναι αἰσθησεις (sc. τῶν πέντε) περὶ τὰ ἄλογα ζῶια καὶ περὶ τοὺς σοφοὺς καὶ περὶ τοὺς θεοὺς. Cf. Simpl. in De anima III, 1, p. 424b 22 (οὐκ ἔστιν αἰσθησις ἕτερα παρὰ τὰς πέντε), p. 173, 8: πλείω γὰρ τῶν ἡμῶν φανερῶν ζῶιων τὰ ἀφανῆ,<sup>2</sup> τὰ μὲν καὶ θνητὰ, τὰ δὲ ὅσα δαιμόνια. (D.D.A 79; № 472a). Clem. Strom. V, 88 (II, 383, 25 St.): καθόλου γοῦν τὴν περὶ τοῦ θεοῦ ἐνοιαν Ξενοκράτης ὁ Καλχηδόνιος οὐκ ἀπελπίζει καὶ ἐν τοῖς ἀλόγοις. Δ. δὲ, κὰν μὴ θέλη, ὁμολογήσει διὰ τὴν ἀκολουθίαν τῶν δογμάτων· τὰ γὰρ αὐτὰ πεποιήμεν εἶδωλα τοῖς ἀνθρώποις προσπίπτοντα καὶ τοῖς ἀλόγοις ζῶιοις ἀπὸ τῆς θείας οὐσίας.<sup>3</sup>

572a. (D.D.B 5, 2).<sup>1</sup> Hermipp. De astrol. (Ioann. Catrares) II, 1, 13, p. 33 Kroll: ... μᾶλλον ὁ ἀνθρώπος μετασχὼν θερμοῦ ... ὥστε δι' αὐτὸ τοῦτο καὶ μόνος τῶν ἄλλων ζῶιων γίνεται τὸ σχῆμα ὀρθὸς καὶ πρὸς ὀλίγον γῆς ἄπτεται· ἐρρηγὴ δὲ τι καὶ θεϊότερον εἰς αὐτόν, καθ' ὃ νοῦ καὶ λόγου καὶ διανοίας μετέσχε καὶ τὰ ὄντα ἀνηρευνήσατο (v. № 515). Aristot. De. part. animal. II, 10, p. 656a 3: τὰ δὲ πρὸς τῷ ζῆν αἰσθησιν ἔχοντα πολυμορφότεραν ἔχει τὴν ἰδέαν, καὶ τούτων ἕτερα πρὸ ἑτέρων μᾶλλον, καὶ πολυχουστέραν, ὅσων μὴ μόνον τοῦ ζῆν,

ἀλλὰ καὶ τοῦ εὔ ζῆν<sup>2</sup> ἢ φύσει μετείληφεν. τοιοῦτο δ' ἐστὶ τὸ τῶν ἀνθρώπων γένος· ἢ γὰρ μόνον μετέχει τοῦ θεοῦ τῶν ἡμῶν γνωρίμων ζῶιων, ἢ μάλιστα πάντων<sup>3</sup> ... μόνον γὰρ ὀρθὸν ἐστὶ τῶν ζῶιων ἀνθρώπος... (IV, 10, p. 686a 28) ὁ ... ἀνθρώπος ... ἔχει χεῖρας, ὀρθὸν γὰρ ἐστὶ μόνον τῶν ζῶιων διὰ τὴν φύσιν αὐτοῦ καὶ τὴν οὐσίαν εἶναι θεῖαν· ἔργον δὲ τοῦ θεοῦ τῆς οὐσίας τὸ νοεῖν καὶ φρονεῖν.

572b. (D.O; № 472).<sup>1</sup> Aristot. De divinat. in somn. 2, p. 464a 24: καὶ τοῦ ἐνίου τῶν ἑκστατικῶν προσορῶν αἰτίον, ὅτι αἱ οἰκίσται κινήσεις οὐκ ἐνοχλοῦσι ... τῶν ξενικῶν οὖν μάλιστα αἰσθάνονται... (32) οἱ δὲ μελαγχολικοὶ διὰ τὸ σφόδρα, ὡσπερ βάλλοντες πόρρωθεν, εὐστοχοὶ εἰσιν, καὶ διὰ τὸ μεταβλητικὸν ταχὺ τὸ ἐχόμενον φαντάζεται αὐτοῖς.

573. (D.D.B 37, 8 N.).<sup>1</sup> Democrat. 3 (Gnom. Barocc., ed. Bywater. Oxoniae, 1878, 17): ὁ τὰ ψυχῆς ἀγαθὰ αἰρέμενος<sup>a</sup> τὰ θεϊότερα αἰρέεται.<sup>b</sup> ὁ δὲ τὰ σκῆνεος τὰ ἀνθρωπῆια.

573a. (D.D.B 112, 37 N.).<sup>1</sup> Democrat. 79: θεοῦ νοῦ τὸ αἰεὶ τι διαλογίζεσθαι καλόν.

574. (D.D.B 18). Clem. Strom. VI, 168 (II, 518, 20 St.): καὶ ὁ Δ. ὁμοίως (ut Plato. Ion 534b)· «ποιητῆς δὲ ἄσσα μὲν ἂν γράφῃ μετ' ἐνθουσιασμοῦ καὶ ἱεροῦ πνεύματος, καλὰ κάρτα ἐστίν». (D.D.B 17). Cic. De orat. II, 46, 194: Poëtam bonum neminem (id quod a Democrito et Platone in scriptis relictum esse dicunt) sine inflammatione animorum existere posse et sine quodam adflatu quasi furoris. Cic. De divinat. I, 38, 80: Negat enim sine furore D. quemquam poetam magnum esse posse. Horat. De arte poët. 295: Excludit sanos Helicone poetas D.

575. (D.D.B 21). Dio 36, 1 (II, 109, 21 Arnim): ὁ μὲν Δ. περὶ Ὀμήρου φησὶν οὕτως· Ὀμηρος φύσεως λαχὼν θαυμάσιος ... ὡς οὐκ ἐνὸν ἄνευ θείας καὶ δαιμονίας φύσεως οὕτως καλὰ καὶ σοφὰ ἔπη ἐργάσασθαι (= № 816).

576. (D.D.B 129). Herodian. De affect., s. v. νένοται (II, 253 L.): Δ. φρενὶ θεῖα<sup>a</sup> νοῦνται.<sup>1</sup>

#### III. De religione populari

577. (D.D.B 161). Schol. in Apoll. Rhod. III, 533: τὸ παλαιὸν οἶοντο αἱ φαρμακίδες<sup>1,2</sup> τὴν σελήνην καὶ τὸν ἥλιον καθαιρεῖν. διὸ καὶ μέχρι τῶν Δημοκρίτου χρόνων πολλοὶ τὰς ἐκλείψεις καθαιρέσεις ἐκάλουν.

578. (D.D.A 138). Cic. De divinat. I, 3, 5 (Dox. 224):<sup>1</sup> Gum ... plurimisque locis gravis auctor D. praesensionem rerum futurarum comprobaret, Dicaearchus peripateticus cetera divinationis genera sustulit, somniorum et furoris reliquit. (57, 131): D. autem censet sapienter instituisse veteres, ut hostiarum inspicerentur exta, quorum ex habitu atque ex colore tum salubritatis tum pestilentiae signa percipi, nonnunquam etiam, quae sit sterilitas agrorum vel fertilitas futura. (II, 13, 30): D. tamen non inscite nugatur, ut physicus: quo genere nil arrogantius ... Verum is tamen habitu extorum et colore declarari censet haec dumtaxat, pabuli genus, et earum rerum, quas terra procreat, vel ubertatem vel tenuitatem, salubritatem etiam aut pestilentiam extis significari putat.<sup>2</sup> O mortalem beatum! Cui certo scio ludum nunquam defuisse. Huncine hominem tantis delectatum esse nugis, ut non videret tum futurum id verisimile, si omnium pecudum exta eodem tempore in eundem habitum se coloremque converterent? Sed si eadem hora aliae pecudis iecur nitidum atque plenum est, aliae horridum et exile: quid est quod declarari possit habitu extorum et colore?... Verum sint sane ista Democritea vera... (D.D.B 166; № 472a). Sext. Adv. math. IX, 19: Δ. δὲ εἶδωλά τινά φησιν ἐμπελάζειν τοῖς ἀνθρώποις ... προσημαίνειν τε τὰ μέλλοντα τοῖς ἀνθρώποις θεωρούμενα καὶ φωνὰς ἀφιέντα. (D.D.B 10a). Diog. IX, 47: (Δημοκρίτου) φυσικὰ δὲ τάδε... Περὶ εἰδῶλων, ἢ Περὶ προνοίας.<sup>3</sup> Cf. Stob. III, 6, 27 (№ 472, in fine).

579. (D.D.A 77). Plut. Quaest. conv. V, 7, 6, p. 682 F sqq.: ... φησιν εκείνος (ὁ Δ.) ἐξίεναι (sc. τὰ εἰδωλα) τοὺς φθονοῦντας, οὐτ' αἰσθήσεως ἄμοιρα παντάπασιν οὐδ' ὀρμῆς, ἀνάπλεά τε τῆς ἀπὸ τῶν προἰεμένων μοχθηρίας καὶ βασκανίας, μεθ' ἧς ἐμπλασσύμενα καὶ παραμένοντα καὶ συνοικοῦντα τοῖς βασκαλινομένοις ἐπιταράττειν καὶ κακοῦν αὐτῶν τό τε σῶμα καὶ τὴν διάνοιαν· οὕτω γὰρ οἶμαι πῶς τὸν ἄνδρα τῆι δόξει, τῆι δὲ λέξει δαιμονίως λέγειν καὶ μεγαλοπρεπῶς. V. № 476.

579a. (D.O).<sup>1</sup> Lucian. Philops. 32 (59): φέρε εἰπεῖ τίνα περὶ τῶν τοιούτων (sc. τῶν θαυμασιῶν γοητικῶν) ἀξιοπιστότερον ἦγγι. . . ; νῆ Δί', ἦν δ' ἐγώ, μάλα θαυμαστόν ἄνδρα τὸν Ἀβδηράδην ἐκεῖνον Δημόκριτον, ὃς οὕτως ἄρα ἐπέπειστο μῆδὲν οἷόν τε εἶναι συστῆναι τοιοῦτον, ὥστε, ἐπειδὴ καθείρξας ἑαυτὸν ἐς μνήμα ἔξω πυλῶν ἐνταῦθα διετέλει γράφων καὶ συντάττων καὶ νόκτωρ καὶ μεθ' ἡμέραν, καὶ τινες τῶν νεανίσκων ἐρεσσηλεῖν βουλόμενοι αὐτὸν καὶ δειματοῦν, στείλαμενοι νεκρικῶς ἐσθῆτι μελαίνῃ καὶ προσωπίστῃ ἐς τὰ κρανία μεμιμημένους περιστάντες αὐτὸν περιεχόρευον ὑπὸ πυκνῆι τῆι βάσει ἀναπηδῶντες, ὃ δὲ οὕτε ἔδεισε τὴν προσποίησιν αὐτῶν οὐτε ὄλωσ ἀνέβλεψε πρὸς αὐτούς, ἀλλὰ μεταξὺ γράφων· παύσασθε, ἔφη, παίζοντες· οὕτω βεβαίως ἐπίστευε μῆδὲν εἶναι τὰς ψυχὰς ἐτι ἔξω γενομένας τῶν σωμάτων.

#### IV. De origine cultus deorum

(cf. № 472a)

580. (D.D.B 30). Clem. Protr. 68 (I, 52, 16 St.); Strom. V, 103 (II, 394, 21); Euseb. Praep. Evang. XIII, 13, 27, p. 204, 20 Dind.:<sup>2</sup> τῶν λογίων<sup>1</sup> ἀνθρώπων ὀλίγοι<sup>b</sup> ἀνατείναντες<sup>c</sup> τὰς χεῖρας ἐνταῦθα, ὃν<sup>d</sup> ὡς ἡέρα καλέομεν οἱ Ἕλληνες, «πάντα, εἶπαν», Ζεὺς μυθέσται<sup>e</sup>·<sup>2</sup>· καὶ πάνθ' οὕτως οἶδε καὶ διδοῖ καὶ ἀφαιρέσται<sup>f</sup> καὶ βασιλεὺς οὕτως τῶν πάντων». Cum his λογίσις cf. locum Philod. Pap. 1428 a Philippson, Hermes 55, 1920, p. 368 citatum: κεκλήσθαι δ' ... αἰδία καὶ θεῖα ταῦτα πάντα ὅπ' ἀνθρώπων ἀσυνέτων.

581. (D.D.A 75).<sup>1</sup> Sext. Adv. math. IX, 24: εἰσὶ δὲ οἱ ἀπὸ τῶν γιγνομένων κατὰ τὸν κόσμον παραδόξων ὑπονοήσαντες εἰς ἐννοίαν ἡμᾶς ἐληλυθέναι θεῶν, ἀφ' ἧς φαίνεται εἶναι δόξης καὶ ὁ Δ. ὁρῶντες γάρ, φησί, τὰ ἐν τοῖς μετέωροις παθήματα οἱ παλαιοὶ τῶν ἀνθρώπων καθάπερ βροντὰς καὶ ἀστραπὰς κεραυνοὺς τε καὶ ἀστρῶν συνόδους<sup>2</sup> ἡλίου τε καὶ σελήνης ἐκλείψεις ἐδειματοῦντο θεοὺς οἰόμενοι τούτων αἰτίους εἶναι. Philod. De piet. 5a, p. 69 Gomp. (Crönert. Kolotes und Menedemos, S. 130): θέρος <ἐν τῆι γῆι καὶ> χειμῶν καὶ ἔκαρ καὶ> μεθόπωρον καὶ πάντα ταῦτα ἄνωθεν διεπισπῆται· διὸ δὴ καὶ τὸ ἐξεργαζόμενον γνόντας σέβασθαι. ὃ φαίνεται δ' ἐμοὶ Δ. ὡς περ ἐνιοι τον... Cf. Lucr. V, 1186 sqq.:

Ergo perfugium sibi habebant omnia divis  
Tradere et illorum nutu facere omnia flecti  
In caeloque deum sedes et templa locarunt,  
Per caelum volvi quia sol<sup>a</sup> et luna videtur,  
Luna dies et nox et noctis signa severa,  
Noctivagaeque faces caeli, flammaeque volantes,  
Nubila ros<sup>b</sup> imbres nix venti fulmina grando,  
Et rapidi fremitus et murmura magna minarum.

581a. (D.D.B 147). Plut. De sanit. 14, p. 129 A: ἄτοπον γάρ ἐστι κοράκων μὲν λαρυγγισμοῖς καὶ κλωσμοῖς ἀλεκτοριδῶν καὶ σοῖν ἐπὶ φορυτῶι μαργαίνουσαι,<sup>1</sup> ὡς ἔφη Δ., ἐπιμελῶς προσέχειν σημεῖα ποιουμένους πνευμάτων καὶ ἄμβρων, τὰ δὲ τοῦ σώματος κινήματα καὶ σάλους καὶ προπαθείας μὴ προλαμβάνειν μῆδὲ προφυλάττειν μῆδὲ ἔχειν σημεῖα χειμῶνος ἐν ἑαυτῶι γενησομένου καὶ μέλλοντος. Clem. Protr. 92, 4 (I, 68, 7 St.): οἱ δὲ σκωλήκων δίκην περὶ τέλματα καὶ βορβόρους, τὰ ἥδονῆς βεύματα, καλινδοῦμενοι ἀνονήτους καὶ ἀνοήτους ἐμβόσκονται τρυφάς, ὡδεῖς τινὲς ἄνθρωποι. ὅς γάρ, φησὶν, ἦδονται βορβόρωι μᾶλλον ἢ καθαρῶι ὕδατι καὶ ἐπὶ φορυτῶι μαργαίνουσι κατὰ Δημόκριτον. Clem. Strom. I, 2 (II, 4, 3, St.): ὅς βορβόρωι ἦδονται μᾶλλον ἢ καθαρῶι ὕδατι. Cf. Orig. Contra Cels. IV, 23, p. 292, 18 Koetschau: ὁ Κέλσος ... (sc. τοὺς Ἰουδαίους καὶ Χριστιανούς πάντας) παραβέβληκε ... μύρμηξιν ἐκ

καλιᾶς προσληθοῦσιν ἢ βατράχοις περὶ τέλμα συνεδρεύουσιν ἢ σκώληξιν ἐν βορβόρω γωνίαι ἐκκλησιάζουσι ... καὶ φάσκουσιν ὅτι πάντα ἡμῖν ὁ θεὸς προδηλοῖ καὶ προκαταγγέλλει (cf. № 580): καὶ τὸν πάντα κόσμον καὶ τὴν οὐράνιον φορὰν ἀπολιπῶν ... ἡμῖν μόνοις πολιτεύεται<sup>a</sup> ... καὶ πέμπων οὐ διαλείπει ... γῆ καὶ ὕδωρ καὶ ἀήρ καὶ ἀστρα ... ἡμῶν ἕνεκα πάντα... (25) Κέλσος καὶ Ἀντιφῶν ... τὴν πρόνοιαν ἀναιρῶν ... σκώληκες ἐν βορβόρω γωνίαι τοῦ τῆς ἀμαθίας καὶ ἀγνοίας καλινδοῦμενοι. August. Enarrat. psalm. 73, 25, t. IV, p. 781e Ven. 1719 (= 336 Us.): Hunc philosophum (sc. Epicurum) porcum nominaverunt (ipsi etiam philosophi ethnici) volutantem se in caeno carnali. Plat. Phaedo 109 B: καὶ ἡμᾶς οἰκεῖν τοὺς μέχρι Ἑρακλείων στηλῶν ἀπὸ Φάσιδος ἐν σμικρῶι τιμὴ μορῶι, ὡς περ περὶ τέλμα μύρμηκας ἢ βατράχους περὶ τὴν θάλατταν οἰκόντας, καὶ ἄλλους ἄλλοθι πολλοὺς ἐν πολλοῖσι τοιοῦτοις τόποις οἰκεῖν.<sup>2</sup>

#### V. An vera sint quae de Orco narrentur

582. (D.D.A 33). Diog. IX, 46; Suda, s. v. τριτογένεια: Ἔστι δὲ Ἡθικά μὲν τάδε... Περὶ τῶν ἐν Ἀΐδου... [Hippocr.] Epist. 10, 3 (IX, 322 Littré): ζητεῖ δὲ ὁ ἀνὴρ (sc. D.) καὶ περὶ τῶν ἐν Ἀΐδου. (D.D.B Oc). Athen. IV, p. 168 B: Δημόκριτον δ' Ἀβδηράται δημοσίαι κρίνοντες ὡς κατεσθαρκότα τὰ πατρώια, ἐπειδὴ ἀναγνοὺς αὐτοῖς τὸν Μέγαν διάκοσμον καὶ τὰ Περὶ τῶν ἐν Ἀΐδου εἶπεν εἰς ταῦτα ἀνηλωκένας, ἀφείδη.

583. (D.D.B 297, 92 N.). Stob. IV, 52, 40; IV, 34, 62; Apostol. VII, 16c; Arsen. XXIII, 47: Δημοκρίτου. ἐνιοὶ<sup>1</sup> θνητῆς<sup>a</sup> φύσεως<sup>b</sup> διάλυσιν οὐκ εἰδότες<sup>c</sup> ἄνθρωποι, συνειδήσει δὲ τῆς ἐν τῶι βίωι κακοπραγμοσύνης,<sup>2</sup> τὸν τῆς βιοτῆς χρόνον ἐν ταραχαῖς καὶ φόβοις τάλαιπωροῦσι, ψεῦδα περὶ τοῦ μετὰ τὴν τελευταίην<sup>3</sup> μυθοπλαστούντες<sup>d</sup> χρόνου.

584. (D.D.B 199, 96 N.). Stob. III, 4, 73: ἀνοήμονες τὸ ζῆν ὡς<sup>a</sup> <αἰδῆν><sup>1</sup>,<sup>b</sup> συγγέοντες ζῆν ἐθέλουσι δείματι αἰδεῖν.

585. (D.D.B 1). Procl. in Plat. Rem. publ. II, p. 113, 6 Kroll:<sup>1</sup> τὴν μὲν περὶ τῶν ἀποθανεῖν δοξάντων ἔπειτα ἀναβιούτων ἱστορίαν ἄλλοι τε πολλοὶ τῶν παλαιῶν ἠθροῖσαν καὶ Δ. ὁ φυσικὸς ἐν τοῖς Περὶ τοῦ Ἀΐδου γράμμασιν. καὶ τὸν θαυμαστόν ἐκεῖνον Κωλώτην, τὸν Πλάτωνος ἐχθρόν, Ἐπικούρειον ὄντα πάντως ἔδει <τὰ τοῦ><sup>a</sup> καθηγεμόνος τῶν Ἐπικούρου<sup>b</sup> δχογμάτων<sup>c</sup>· μὴ ἀγνοῆσαι μῆδὲ ἀγνοῆσαντα ζητεῖν, πῶς τὸν ἀποθανόντα πάλιν ἀναβιῶναι δυνατόν. οὐδὲ γὰρ ὁ θάνατος ἦν ἀπόσβεσις, ὡς εἰκεν, τῆς συμπάσης ζωῆς τοῦ σώματος, ἀλλ' ὑπὸ μὲν πληγῆς τινος ἰσῆς καὶ τραύματος παρείτη, τῆς δὲ ψυχῆς οἱ περὶ τὸν μυσλὸν ἕμενον ἐτι δεσμοὶ κατερριζωμένοι καὶ ἡ καρδία τὸ ἐμπόρευμα τῆς ζωῆς εἶχεν ἐγκείμενον τῶι βάθει· καὶ τούτων μενόντων αὐτῆς ἀνεκτέσαστο τὴν ἀπεσθηκυῖαν ζωὴν ἐπιτήδειον<sup>d</sup> πρὸς τὴν φύχωσιν γενομένην.<sup>e</sup>

586. (D.D.A 160).<sup>1</sup> Cic. Tusc. disp. I, 34, 82: Fac enim sic animum interire ut corpus: num igitur aliquis dolor aut omnino post mortem sensus in corpore est? Nemo id quidem dicit, etsi Democritum insimulat Epicurus (17 Us.), Democriti<sup>2</sup> negant. Tert. De anima 51: Plato ... in Politia<sup>2</sup> tamen cuiusdam insepulti cadaver opponit longo tempore sine ulla labe prae animae scilicet individuitate servatum. Ad hoc et D. crementa unguum et comarum in sepulturis aliquanti temporis denotat. Celsus II, 6: Quin etiam vir iure magni nominis D. ne finitae quidem vitae satis certas notas esse proposuit, quibus medici credidissent: adeo illud non reliquit, ut certa aliqua signa futurae mortis essent. (D.D.A 117). Aët. IV, 4, 7 (Dox. 390): ὁ δὲ Δ. πάντα μετέχειν φησὶ ψυχῆς ποιᾶς, καὶ τὰ νεκρὰ τῶν σωμάτων... (v. № 448). (partim D.D.A 117). Alex. in Top. I, 1, p. 100b 23, p. 21, 19; Aët. IV, 9, 20 (Dox. 398): ὁμοίως καὶ εἰ λάβοι τις τὰ νεκρὰ τῶν σωμάτων κινεῖσθαι καὶ ἀλλοιοῦσθαι, ἀλλὰ καὶ τὰ αἰσθανόμενα κινεῖσθαι, καὶ ἐκ τούτου οἷοιτο δεικνύναι, ὅτι τὰ νεκρὰ τῶν σωμάτων αἰσθάνεται ὡς ὦιτο Δημόκριτος.<sup>b</sup>

587. (D.D.B 1a).<sup>a</sup> Philod. De morte 29, 27 Mekler: τῆς δ' αὖ σηπεδόνος ἔχεται κατὰ Δημόκριτον <καί> τὸ δυσωπεῖσθαι διὰ τὴν ὀσφραγκτικῶν τούτων φαντασίαν καὶ δυσμορφίας.<sup>b</sup> καταφέρονται γὰρ ἐπὶ τοιοῦτο πάθος σκιά<sup>c</sup> τῶν μετὰ τῆς εὐσαρκίας καὶ τοῦ κάλλους ἀποθνησκόντων... (30, 1) καὶ παραπέμπουσιν, ὅτι πάντες ἅμα τοῖς ὡς Μίλων εὐσαρκίαις ὀλίγου μὲν χρόνου σκελετοὶ γίνονται, τὸ δὲ πέρασ εἰς τὰς πρώτας ἀναλύονται φύσεις· ὑπακουστέον δὲ δηλονότι τὰ τοῖς εἰρημένους ἀνάλογα καὶ περὶ τῆς κακοχροίας καὶ συνόλων τῆς δυσμορφίας. κενότατον τοίνυν ἐστὶν τὸ λυπεῖσθαι προορωμένους τὴν οὐ πολυτελεῖ ταφὴν καὶ περιβλεπτον, ἀλλὰ λιτὴν καὶ προσωχοῦσαν. (39, 9) εἶθ' ὅταν ἐναργῆς αὐτοῦ (sc. τοῦ θανάτου) γένηται θεωρία, παράδοξος αὐτοῖς ὑποπίπτει· παρ' ἣν αἰτίαν οὐδὲ διαθήκας ὑπομένοντες γράφεσθαι περικατάληπτοι γίνονται καὶ δίσσ' ἔμφορσιν<sup>d</sup> ἀναγκάζονται<sup>e</sup> κατὰ Δημόκριτον.

588. (D. D. A 161). Varro. Sat. Cynus περὶ ταφῆς, fr. 81 Buech.: Quare Heraclides Ponticus plus sapit, qui praecepit, ut comburerent, quam Democritus, qui ut in melle servarent.<sup>1</sup> Quem si vulgus secutus esset, peream si centum denariis calicem mulsi emere possemus.

588a. (D. O).<sup>1</sup> Plin. N. h. VII, 55, 189—190: Similis et de asservandis corporibus hominum ac reviviscendi promissa a Democrito<sup>a</sup> vanitas, qui non revixit ipse.

## VI. De providentia et omnipotentia divina

589. (D.D.A 33; D. 28 A 32). Diog. IX, 47: φυσικά δὲ τάδε... Περὶ εἰδῶλων, ἢ Περὶ προνοίας...<sup>1</sup> Aët. I, 25, 3 (Dox. 321): Παρμενίδης καὶ Δ. πάντα κατ' ἀνάγκην· τὴν αὐτὴν δὲ εἶναι εἰμαρμένην καὶ δίκην καὶ πρόνοιαν καὶ κοσμοποιόν. (D.L.A 22). Aët. II, 3, 2 (Dox. 330): Δεύκιππος δὲ καὶ Δημόκριτος καὶ Ἐπικούρουσ οὗτ' ἔμφυχον οὗτε προνοίαι διοικεῖσθαι, φύσει δὲ τινι ἀλόγῳ, ἐκ τῶν ἀτόμων συνεστῶτα (sc. τὸν κόσμον).

590. (D. L. A 11) Cic. De nat. deor. I, 24, 66, post № 225: (Leucippus) ... effectum esse caelum atque terram nulla cogente natura, sed concursu quodam fortuito; hanc tu opinionem, C. Vellei, usque ad hanc aetatem perduxisti.

591. (D. D. A 70). Lact. Inst. I, 2: Ab illa quaestione principium sumere, quae videtur prima esse natura, sitne providentia, quae rebus omnibus consulat an fortuito vel facta sint omnia vel regantur.<sup>a</sup> Cuius sententiae auctor est Democritus, confirmator Epicurus. (III, 17, 2) Cum haec igitur cogitaret Epicurus, earum rerum velut iniquitate inductus... existimavit nullam esse providentiam... Nulla, inquit, dispositio est; multa enim facta sunt aliter quam fieri debuerant... Nihil, inquit, in procreandis animalibus providentiae ratio molita est... omnia sua sponte fieri necesse est... sic eum, quia in principio falsum susceperat, exsequentium rerum necessitas ad deliramenta perduxit. Ubi enim sunt, aut unde ista corpuscula, cur illa nemo praeter unum Leucippum somniavit? A quo Democritus eruditus hereditatem stultitiae reliquit Epicuro... Lact. De ira dei 10: Qui nolunt divina providentia factum esse mundum, aut principiis inter se temere coeuntibus dicunt esse concretum, aut repente natura extitisse; naturam vero (ut Straton) habere in se vim gignendi et minuendi: sed eam nec sensum habere ullum, nec figuras, ut intelligamus, omnia quasi sua sponte esse generata, nullo artifice nec auctore... Primum minima illa semina, quorum concursu fortuito<sup>b</sup> totum coisse<sup>c</sup> mundum loquuntur, ubi aut unde sint, quaero. Quis illa vidit unquam? Quis sentit? Quis audivit? An solus Leucippus oculos habuit?.. Divina providentia mundum regit... nec sit quisquam, qui... Leucippi inane commentum, vel Democriti Epicurique levitatem praeferre audeat...

592. (D.O). Nemes. De natura hominis 44, p. 347 Matth.: Δημόκριτος δὲ καὶ Ἡράκλειτος οὗτε τῶν καθόλου οὗτε τῶν καθ' ἕκαστα πρόνοιαν εἶναι βούλονται.

οὔτοι μὲν οὖν ἀκολουθοῦσι ταῖς ἰδίαις ἀρχαῖς, ἐξ αὐτομάτου γὰρ ἡγούμενοι τὸ πᾶν τοῦτο συστῆναι, εἰκότως ἀπρονόητα φάσκουσιν εἶναι τὰ πάντα... δῆλον γάρ, ὡς αὐτομάτως ἀνάγκη φέρεσθαι τὰ τὴν ἀρχὴν αὐτομάτως γεγόμενα.

593. (D.D.B 234, 21 N.). Stob. III, 18, 30; Maxim. L. c. 27, 612 (P.G. 91, p. 875 A); Ant. Melissa I, p. 39, 79 (P.G. 136, p. 913 D); CPP, № 691: Δημόκριτος, ὑγείην εὐχῆσαι<sup>a</sup> παρὰ θεῶν αἰτέονται ἄνθρωποι,<sup>1, b</sup> τὴν δὲ ταύτης δυνάμιν ἐν ἑαυτοῖς<sup>c</sup> ἔχοντες οὐκ ἴσασιν· ἀκρασίη δὲ τάναντία πρήσσοντες αὐτοὶ προδύται τῆς ὑγείης τῆσιν ἐπιθυμίησιν γίνονται.

## VII. Cultus deorum. Mythologia. Oracula

594. (D.O, 390 Us.).<sup>1</sup> Origen. Contra Gels. VII, 66: καὶ οὐ μόνον τὸ εἶχεσθαι τοῖς ἀγάλμασιν ἡλίθιον ἐστίν, ἀλλὰ γὰρ καὶ τὸ συμπεριφερόμενον τοῖς πολλοῖς προσποιεῖσθαι τοῖς ἀγάλμασιν εἶχεσθαι· ὅποιον ποιῶσιν... οἱ τὰ Ἐπικούρου ἢ Δημόκριτου ἀσπαζόμενοι. (391 Us.) I, 43: φήσομεν οὖν πρῶτον, ὅτι εἰ μὲν ὁ ἀπιστῶν τῷ περὶ τοῦ εἶδους τῆς περιστερᾶς φάσματι τοῦ ἁγίου πνεύματος ἀνεγέγραπτο<sup>a</sup> Ἐπικούρειος εἶναι ἢ Δημόκριτειος... χώραν ἂν εἶχεν ἀκόλουθον τῷ προσκωποποιουμένῳ<sup>b</sup> τὸ λεγόμενον. (VIII, 45) ὅσα ἐκ χρηστηρίων... προφήται... πρεσβίτων, οὐχὶ... ἀναπλάσματα μυθικά; οἷς οὐδ' Ἑλλήνων φιλόσοφοι αἰρέσεις πεπιστεύκασιν, ὡς περὶ ἢ Δημόκριτος καὶ ἢ Ἐπικούρου...

## VIII. Quomodo Stoici et Christiani aliique inimici doctrinae atomisticae Democriti opiniones de rebus divinis interpretati sint

*Quae ab auctoribus Democritum rejellere conantibus pro placitis eius falso afferuntur, in commentarios relata invenies sub titulo «Ἐγκυρη».*

## H. CIVITAS ET PHILOSOPHUS

### a. CIVITAS DEMOCRATICA

#### I. Civis officia et iura

595. (D.D.B 252, 134 N.). Stob. IV, 1, 43: τὰ κατὰ τὴν πόλιν [χρεῶν]<sup>a</sup> τῶν λοιπῶν μέγιστα ἡγεῖσθαι, ὅπως ἄξεται<sup>b</sup> εὖ, μήτε φιλονικέοντα παρὰ τὸ ἐπισεικῆς μήτε ἰσχυρὸν ἑαυτῷ περιτιθέμενον παρὰ τὸ χρηστόν τὸ ταῦ ξυνοῦ.<sup>1, c</sup> πόλις γὰρ εὖ ἀγομένη μέγιστη ὀρθωσίς ἐστι, καὶ ἐν τούτῳ πάντα ἐνι, καὶ τούτου σωζομένου πάντα σώζεται καὶ τούτου διαφθειρομένου τὰ πάντα διαφθείρεται (cf. № 647).

596. (D.D.B 51, 137 N.). Stob. IV, 1, 42: Δημόκριτος, ἢ ἐν δημοκρατίῃ πενή τῆς παρὰ τοῖς δυνάστησι καλεομένης εὐδαιμονίης τοσοῦτόν ἐστι αἰρετωτέρη, ὁκόσον ἐλευθερίῃ δουλείης.<sup>1</sup>

597. (D.D.B 226, 111 N.). Stob. III, 13, 47: Δημόκριτος, οἰκίησιν ἐλευθερίας παρησίῃ, κίνδυνος δὲ ἢ τοῦ καιροῦ διάγνωσις.

598. (D.D.B 44, 225 N.). Stob. III, 12, 13; Democrat. 10: ἀληθομυθεῖν [χρεῶν], ὅκου λόγιον.<sup>1, a</sup>

599. (D.D.B 47, 141 N.).<sup>1</sup> Stob. III, 1, 45; Democrat. 13; Maxim. L. c. 58, p. 667 (P.G. 91, p. 977 B); Ant. Melissa 67, 113 (P.G. 136, p. 977 B); AED, sent. 39; Δημόκριτος γινῶμαι in CPP. νόμοι καὶ ἀρχοντι καὶ τῷ σοφωτέρῳ εἰκειν κόσμιον.<sup>2</sup>

600. (D.O). Ant. Melissa II, 8, p. 146 (P.G. 136, p. 1037 B): όταν αιτιάζεται  
δικαστής κρινόμενος, ανάγκη σιωπῶν.<sup>1</sup>  
601. (D.D.B 256, 156 N.). Stob. IV, 2, 14: δίκη μὲν ἔστιν ἔρδειν τὰ χρῆ  
έόντα, ἀδικία δὲ μὴ ἔρδειν τὰ χρῆ έόντα, ἀλλὰ παρατρέπεσθαι.<sup>1</sup>

## II. Quid civem deceat

602. (D.D.B 215, 46 N.). Stob. III, 7, 31 (CPP, № 595): Δημοκρίτου.  
δίκης κῶδος γνώμης θάρσος καὶ ἀθαμβία, ἀδικίας δὲ δειμα συμφορῆς τέρμα.<sup>1</sup>

603. (D.D.B 62, 38 N.). Stob. III, 9, 29; Democrat. 27: ἀγαθὸν οὐ τὸ  
μὴ ἀδικεῖν, ἀλλὰ τὸ μὴδὲ ἐθέλειν.<sup>1</sup>

604. (D.D.B 244, 42 N.).<sup>1</sup> Stob. III, 31, 7: Δημοκρίτου. φαῦλον, κἂν μόνος  
ἦς, μήτε λέξης μήτ' ἐργασίη, μάθε δὲ πολὺ μᾶλλον τῶν ἄλλων σεαυτὸν αἰσχύνεσθαι.  
(D.D.B 84, 43 N.). Democrat. 50: ἐσωτὸν πρῶτον αἰσχύνεσθαι [χρεῶν]<sup>a</sup> τὸν αἰσχρὰ  
ἔρδοντα. (D.D.B 264, 43 N.). Stob. IV, 5, 46: τοῦ αὐτοῦ. μὴδὲν τι μᾶλλον τοὺς  
ἀνθρώπους αἰδεῖσθαι ἐσωτοῦ μὴδὲ τι μᾶλλον ἐξεργάζεσθαι κακόν, εἰ μέλλει μὴδεις  
εἰδῆσειν<sup>2</sup> ἢ οἱ πάντες ἄνθρωποι· ἀλλ' ἐσωτὸν μάλιστα αἰδεῖσθαι, καὶ τοῦτον νόμον  
τῆι ψυχῆι καθεστάναι,<sup>3</sup> ὥστε μὴδὲν ποιεῖν ἀνεπιτήθειον.

605. (D.D.B 41, 45 N.). Stob. III, 1, 95; Democrat. 7; Maxim. L. c. 24,  
p. 606 (P.G. 91, p. 864 C); CPP, №№ 493, 563: Δημοκράτους. μὴ διὰ φόβον,  
ἀλλὰ διὰ τὸ δέον ἀπέχεσθαι ἀμαρτημάτων.<sup>1</sup>

606. (D.D.B 67—68, 224, 40 N.).<sup>1</sup> Democrat. 32, 33: μὴ πᾶσιν, ἀλλὰ  
τοῖς δοκίμοις πιστεύειν· τὸ μὲν γὰρ εὐθεῖς, τὸ δὲ σωφρονέοντας. δόκιμος ἀνὴρ καὶ  
ἀδόκιμος οὐκ ἐξ ὧν πράσσει μόνον, ἀλλὰ καὶ ἐξ ὧν βούλεται. (D.D.B 89, 39 N.).  
Democrat. 55:<sup>2</sup> ἐχθρὸς οὐχ ὁ ἀδικέων, ἀλλὰ ὁ βουλόμενος.

607. (D.D.B 181, 44 N.).<sup>1</sup> Stob. II, 31, 59: τοῦ αὐτοῦ. κρείσσων ἐπ' ἀρετὴν  
φανεῖται προτροπῆι χρώμενος καὶ λόγου πειθοῖ ἤπερ νόμοι καὶ ἀνάγκη.<sup>2</sup> λάθρη μὲν  
γὰρ ἀμαρτέειν εἰκὸς τὸν εἰρημένον ἀδικίας ὑπὸ νόμου, τὸν δὲ ἐξ τὸ δέον<sup>3</sup> ἡγμένον  
πειθοῖ οὐκ εἰκὸς οὔτε λάθρη οὔτε φανερώς ἔρδειν τι πλημμελές. διόπερ συνέσει τε  
καὶ ἐπιστήμηι<sup>4</sup> ὀρθοπραγέων τις ἀνδρείος ἅμα καὶ εὐθύγνωμος γίγνεται.

608. (D.D.B 248, 139 N.). Stob. IV, 1, 33; Maxim. L. c. 58, 667  
(P.G. 91, p. 977 B); Ant. Melissa 67, p. 113 (P.G. 136, p. 977 A); CPP:  
Δημοκρίτου.<sup>a</sup> ὁ νόμος βούλεται μὲν εὐεργετεῖν βίον ἀνθρώπων· δύνάται δὲ, ὅταν αὐτοὶ  
βούλωνται πάσχειν εἰς τοῖσι γὰρ πειθομένοις τὴν ἰδίην ἀρετὴν<sup>1</sup> ἐνδείκνυται  
(cf. № 571).

609. (D.D.B 193, 153 N.).<sup>1</sup> Stob. III, 3, 43 (Δημοκρίτου); Maxim. L. c. 2,  
p. 535 (P.G. 91, p. 733 B—C): Δημοκράτου. φρονήσιος ἔργον· μέλλουσαν ἀδι-  
κίην φυλάξασθαι, ἀναληγίσις δὲ γενομένην μὴ ἀμύνασθαι.

610. (D.D.B 268, 222 N.).<sup>1</sup> Stob. IV, 7, 13: Δημοκρίτου. φόβος κολακείην  
μὲν ἐργάζεται, εὐνοίαν δὲ οὐκ ἔχει.

## III. Magistratum officia et iura

611. (D.D.B 153, 150 N.).<sup>1</sup> Plut. Rei publ. ger. praec. 28, p. 821 A:  
τὴν γ' ἀληθινὴν τιμὴν καὶ χάριν ἰδρυμένην ἐν εὐνοίαι καὶ διαθέσει τῶν μεμνημένων  
οὐχ ὑπερόψεται πολιτικὸς ἀνὴρ, οὐδὲ γε δόξαν ἀτιμᾶσει φεθῶν τὸ τοῖς πέλας ἀνδά-  
νειν, ὡς ἤξειο Δ. Philod. De adulat., pap. 1457, cap. 10 (Grönert. Kolotes  
und Menedemos, S. 130): μᾶλλον δὲ καὶ τοῖς ἰδιώταις ἄνευ τῆς τοιαύτης ἀρε-  
κείας ὀρθῶς κατακτώμενα. Δημοκρίτον μέντοι Νικασικράτης<sup>2</sup> ἐπαίνων κακίζοντα ἐπὶ<sup>a</sup>  
τῶι τοῖς πέ[λ]α[ς] ἀνδάνειν· ὡς ζ[η]μιώδη(?) τὴν ἀρέσκειαν οὐκ οἶδ' ὅπως θρολογεῖ  
τοῖς περὶ τὸν Ἐπίκουρον.

612. (D.D.B 253, 165 N.). Stob. IV, 1, 44: τοῖς χρηστοῖσιν οὐ συμφέρον  
ἀμελέοντας τῶν ἐσωτῶν ἄλλα πρήσσειν· τὰ γὰρ ἴδια κακῶς ἔσχεν.<sup>1, a</sup> εἰ δὲ ἀμελέοι<sup>b</sup>  
τις τῶν δημοσίων, κακῶς ἀκούειν γίγνεται, καὶ ἦν μὴδὲν μήτε κλέπτει μήτε ἀδικεῖ

ἐπεὶ καὶ <μῆ> ἀμελέοντι ἢ ἀδικέοντι κίνδυνος κακῶς ἀκούειν καὶ δὴ καὶ παθεῖν τι·  
ἀνάγκη δὲ ἀμαρτάνειν, συγγινώσκεσθαι<sup>2</sup> δὲ τοὺς ἀνθρώπους οὐκ εὐπετές.

613. (D.D.B 266, 167 N.).<sup>1</sup> Stob. IV, 5, 48: τοῦ αὐτοῦ. οὐδεμία μηχανὴ  
τῶι νῦν καθεστῶτι ρυθμῶι<sup>2</sup> μὴ οὐκ ἀδικεῖν τοὺς ἀρχοντας, ἦν καὶ πάνυ ἀγαθοὶ ἔωσιν.  
οὐδενὶ γὰρ ἄλλωι εἰσικεν ἢ τῶι τὸν αἰετὸν ἐφ' ἔρπετοῖσι<sup>3</sup> γίγνεσθαι.<sup>a</sup> δεῖ δὲ κως  
οὕτω καὶ ταῦτα κοσμηθῆναι, ὅκως ὁ μὴδὲν ἀδικέων,<sup>b</sup> ἦν καὶ πάνυ ἐτάζηι τοὺς ἀδι-  
κέοντας, μὴ ὅπ' ἐκείνους γενήσεται, ἀλλὰ τις ἢ θεομὸς ἢ τι ἄλλο ἀμυνεῖ τῶι τὰ  
δίκαια ποιεῖντι.

614. (D.D.B 254, 151 N.). Stob. IV, 1, 45: οἱ κακοὶ ἰόντες ἐς τὰς τιμὰς<sup>1</sup>  
ὀκόσωι ἂν μᾶλλον ἀνάξιοι ἔόντες ἴωσι, τοσοῦτοι μᾶλλον ἀνακηδέες<sup>2, a</sup> γίγνονται καὶ  
ἀφροσύνης καὶ θράσος πίμπλονται. (D.D.B 49, 143 N.). Stob. IV, 4, 27;  
Democrat. 15: χαλεπὸν ἀρχεσθαι ὑπὸ χερσίνος. Maxim. L. c. 9, 561 (P.G. 91,  
p. 781 D): ἐπισηφάλης μαινομένωι δοῦναι μάχαιραν καὶ μοχθηρῶι δόναμιν.<sup>3</sup>  
(D.D.B 267, 142 N.). Stob. IV, 6, 19: Δημοκρίτου. φύσει τὸ ἀρχεῖν οἰκίηιον τῶι  
κρέσσονι (v. № 688 cum comm.).

615. (D.D.B 262, 157 N.).<sup>1</sup> Stob. IV, 5, 44: Δημοκρίτου. καὶ οἱ φυγῆς ἀξία  
ἔρδουσιν ἢ δεσμῶν, ἢ θωίης<sup>a</sup> ἀξιοί, καταφθιστέον καὶ μὴ ἀπολύειν· ὅς δ' ἂν παρὰ  
νόμον<sup>b</sup> ἀπολύηι<sup>1</sup> κέρδει ὀρίζων ἢ ἡδονῆι,<sup>2</sup> ἀδικεῖ, καὶ οἱ τοῦτο ἐγκάρδιον ἀνάγκη  
εἶναι<sup>3</sup> (v. № 625).

616. (D.D.B 265, 166 N.). Stob. IV, 5, 47: τοῦ αὐτοῦ. τῶν ἡμαρτημένων  
ἀνθρώποι μεμνέεται<sup>1</sup> μᾶλλον ἢ τῶν εἰς πεποιτημένων. καὶ γὰρ δίκαιον οὕτως ὥσπερ<sup>a</sup>  
τὰς παρακαταθήκας ἀποδιδόντα οὐ χρῆ ἐπαινέσθαι,<sup>2</sup> τὸν δὲ μὴ ἀποδιδόντα κακῶς  
ἀκούειν καὶ πάσχειν. οὕτω καὶ τὸν ἀρχοντα· οὐ γὰρ ἐπὶ τοῦτοι ἡμέρηι ὡς κακῶς  
ποιήσων, ἀλλ' ὡς εἰς.

617. (D.D.B 302, 177 N.).<sup>1</sup> Maxim. L. c. 9, p. 560 (P.G. 91, p. 779 B);  
Ant. Melissa II, 1, p. 128 (P.G. 136, p. 1005 B—C); Δημοκρίτου γνώμαι  
in CPP: τὸν ἀρχοντα δεῖ ἔχειν πρὸς τοὺς καιροὺς λογισμὸν, πρὸς δὲ τοὺς ἐναντίους  
τόλμαν, πρὸς δὲ τοὺς ὑποτεταγμένους εὐνοίαν.

618. (D.D.B 302, 178 N.). Maxim. L. c. 9, p. 560; Δημοκρίτου γνώμαι  
in CPP: δεῖ δὲ τὸν ἐτέρων μέλλοντα ἀρχειν αὐτὸν ἑαυτοῦ πρῶτον ἀρχεῖν.<sup>1</sup>

619. (D.D.B 263, 148 N.). Stob. IV, 5, 45: τοῦ αὐτοῦ. δίκης καὶ ἀρετῆς  
μεγίστην μετέχει μοῖραν<sup>1</sup> ὁ τιμὰς ἀξίας [τὰς μεγίστας]<sup>a</sup> τάμων.<sup>b</sup>

## IV. Ius poenale

620. (D.D.B 257, 158 N.).<sup>1</sup> Stob. IV, 2, 15: τοῦ αὐτοῦ. κατὰ δὲ ζῶιων  
ἔστιν ὦν φόνου καὶ μὴ φόνου ὡδε ἔχει· τὰ ἀδικέοντα καὶ θέλοντα ἀδικεῖν<sup>2</sup> ἀδῶιος  
ὁ κτείνων,<sup>3</sup> καὶ πρὸς εὐεστοῦν<sup>4</sup> τοῦτο ἔρδειν μᾶλλον ἢ μὴ.

621. (D.D.B 258, 160 N.). Stob. IV, 2, 16: κτείνειν χρῆ τὰ πημαίνοντα  
παρὰ δίκην πάντα περὶ παντός· καὶ ταῦτα ὁ ποιῶν εὐθύμης<sup>1, a</sup> καὶ δίκης καὶ θάρ-  
σος καὶ ἐκτάσεως<sup>2, b</sup> ἐν παντὶ κόσμωι<sup>3</sup> μέζω μοῖραν μεθέξει.

622. (D.D.B 259, 159 N.).<sup>1</sup> Stob. IV, 2, 17: ὅκωςπερ περὶ κιναδέων τε καὶ  
ἔρπετέων γεγράφεται<sup>2, a</sup> τῶν πολεμίων, οὕτω καὶ κατὰ ἀνθρώπων δοκεῖ μοι χρεῶν  
εἶναι ποιεῖν· κατὰ νόμους τοὺς πατρίους κτείνειν πολέμιον ἐν παντὶ κόσμωι,<sup>3</sup> ἐν ᾧ  
μὴ νόμος ἀπείργει· ἀπείργει δὲ ἱερὰ ἐκάστοισι ἐπιχώρια καὶ σπονδαὶ καὶ ὅροι.

623. (D.D.B 260, 161 N.).<sup>1</sup> Stob. IV, 4, 18: κτείνων καὶ ληιστὴν πάντα  
κτείνων ἀδῶιος ἂν εἴη<sup>2</sup> καὶ αὐτοχειρὶ καὶ κελῶν καὶ ψήφωι.

624. (D.D.B 261, 155 N.).<sup>1</sup> Stob. IV, 5, 43: ἀδικουμένοις τιμωρεῖν κατὰ  
δόναμιν χρῆ καὶ μὴ παριέναι (cf. № 601: ἀδικία... μὴ ἔρδειν τὰ χρῆ έόντα,  
ἀλλὰ παρατρέπεσθαι)· τὸ μὲν γὰρ τοιοῦτον δίκαιον καὶ ἀγαθόν, τὸ δὲ μὴ τοιοῦτον  
ἀδικον καὶ κακόν.

625. V. № 615.



## V. Divites et pauperi

### 1. Divites neque avaros neque avidos neque prodigos, immo probos iustos liberales esse oportere

626. (D.D.B 222, 200 N.). Stob. III, 10, 64: Δημοκρίτου. ἡ τέχνους ἄγαν χρημάτων συναγωγή πρόφασις ἐστὶ φιλαργυρίας τρόπον ἴδιον ἐλέγχουσα.

627. (D.D.B 227, 80 N.). Stob. III, 16, 17: Δημοκρίτου. οἱ φειδωλοὶ τὸν τῆς μελίσης οἶτον ἔχουσιν ἐργαζόμενοι ὡς αἰεὶ βιωσόμενοι.<sup>1</sup>

628. (D.D.B 160). Porphy. De abst. IV, 21: τὸ γὰρ κακῶς ζῆν καὶ μὴ φρονίμως καὶ σωφρόνως καὶ ὁσίως Δ.<sup>a</sup> ἔλεγεν οὐ κακῶς ζῆν εἶναι, ἀλλὰ πολὺν χρόνον ἀποδνήσκειν. (D.O). Maxim. L. c. 29, 616 (P.G. 91, p. 881 B): Δημοκρίτου. ἄγρυπνος ἔσο κατὰ τὸν νοῦν· συγγενῆς γὰρ τοῦ ἀληθινοῦ θανάτου ὁ περὶ τοῦτον ὕπνος.

629. (D.D.B 228, 202 N.).<sup>1</sup> Stob. III, 16, 18: τοῦ αὐτοῦ. οἱ τῶν φειδωλῶν παῖδες ἀμαθῆες γινόμενοι ὡσπερ οἱ ὀρχησθῆναι οἱ ἐς τὰς μαχαίρας ὀρούοντες, ἦν ἐνός μούνου<sup>2</sup> κμῆ<sup>3</sup> τὸ χωσι καταφερόμενοι, ἔνθα δεῖ τοὺς πόδας ἐρεῖσαι, ἀπόλλυνται· χαλεπὸν δὲ τυχεῖν ἐνός· τὸ γὰρ ἔχθιον μόνον λείλειπται τῶν ποδῶν· οὕτω δὲ καὶ οὗτοι, ἦν ἀμάρτωσι τοῦ πατρικοῦ τύπου τοῦ ἐπιμελῆος καὶ φειδωλοῦ, φιλέουσι<sup>3</sup> διαφθεῖσθαι.<sup>4</sup>

630. (D.O). Maxim. L. c. 12, p. 573 (P.G. 91, p. 801 C): Δημοκρίτου. ἄλλ. Θεοκρίτου· τοὺς πολλοὺς τῶν πλουσίων ἔλεγεν ἐπιτρόπους εἶναι, ἀλλὰ μὴ δεσπότης τῶν χρημάτων.<sup>1</sup>

631. (D.D.B 219, 70 N.). Stob. III, 10, 43: τοῦ αὐτοῦ. χρημάτων ὄρεξις, ἦν μὴ ὀρίζηται κόρῳι, πενήτης ἐσχάτης πολλὸν χαλεπωτέρη· μέζονες γὰρ ὄρεξις μέζονας ἐνδείας ποιεῖσιν.

632. (D.D.B 281, 72 N.).<sup>1</sup> Stob. IV, 31, 49: Δημοκρίτου. ὡσπερ [μ]ῆν<sup>a</sup> τοῖς ἔλκεσι φαγέδαινα κάκιστον νόσημα, οὕτως ἐν τοῖς χρήμασι τὸ καίει<sup>b</sup> προσαρμόσαν <ἀν><sup>c</sup> καὶ τὸ συνεχές. *Sequentibus adde №№ 680—681 de mutuo auxilio.*

633.<sup>1</sup> (D.D.B 255, 146 N.). Stob. IV, 1, 46: ὅταν οἱ δυνάμενοι τοῖς μὴ ἔχουσι καὶ προτελεῖν τολμέωσι καὶ ὑπουργεῖν καὶ χαρίζεσθαι, ἐν τούτοις ἦδη καὶ τὸ οἰκτιρεῖν ἐνεσσι καὶ μὴ ἐρήμους εἶναι καὶ τὸ ἐταίρους γίνεσθαι, καὶ τὸ ἀμύνειν ἀλλήλοισι καὶ τοὺς πολιήτας ὁμονόους εἶναι καὶ ἄλλα ἀγαθὰ, ἄσσα οὐδεὶς ἂν δόνατο καταλέξει.

634. (Mull. 156).<sup>1</sup> CPP, f. 59 v; Apostol. VI, 38b (Corp. Paroem. Gr. II, p. 373); Ant. Melissa I, 29, p. 59 (P.G. 136, p. 877 B): Δημοκρίτου. δυνάμενος χαρίζεσθαι μὴ βράδυνε, ἀλλὰ δίδου, ἐπιστάμενος μὴ εἶναι τὰ πράγματα μόνιμα.

635. (Mull. 243).<sup>1</sup> Maxim. L. c. 7, p. 555 (P.G. 91, p. 769 D); Ant. Melissa. I, 27, p. 56 (P.G. 136, p. 871 D); Floril. Monac. 56; Apostol. XII, 21b (Corp. Paroem. Gr. II, p. 548): Δημοκρίτου. (Maxim. L. c.: Δημοκρίτου καὶ Ἰσοκράτους καὶ Ἐπιπλήτου). εἰ θέλεις λαμβάνειν, δίδου καὶ τοῖς δεομένοις ἐκ τῶν ἐόντων· ὁ γὰρ μὴ δίδους δεομένῳ οὐδὲ αὐτὸς λήψεται δεόμενος.

636. (D.D.B 282, 79 N.).<sup>1</sup> Stob. IV, 31, 120: Δημοκρίτου. χρημάτων χρήσις ἐν νόμῳ μὲν χρήσιμον εἰς τὸ ἐλευθέριον εἶναι καὶ δημοφελέα, ἐν ἀνοίῃ δὲ χορηγίῃ ἐσθλή.<sup>a</sup> *Ad interpretandum cf. arophthegma, quod alii* (Maxim. L. c. 8, p. 556 = P.G. 91, p. 773 B *et vetus versio rossica*) *Democrito, alii* (Stob. 15, 8) *Socrati tribuunt*: ὁ αὐτὸς ἰδὼν τινα προχείρως πᾶσι χαρίζομενον καὶ ἀνεξετάστως ὑπηρετούμενον «κακῶς» εἶπεν, «ἀπόλοιο, ὅτι τὰς χάριτας παρθένους οὐσας πόρνας ἐπόησάς».

637. (D.D.B 77, 78 N.).<sup>1</sup> Stob. III, 4, 82; Democrat. 42: δόξα καὶ πλοῦτος ἄνευ ξυνέσιος οὐκ ἀσφαλέα κτήματα.

638. (D.D.B 78, 74 N.).<sup>1</sup> Stob. IV, 31, 121; Democrat. 43; Maxim. L. c. 22, p. 602 (P.G. 91, p. 855 C); Ant. Melissa I, 35, p. 71 (P.G. 136, p. 900 C), 29, p. 59 (P.G. 136, p. 878 D); CPP, № 202: χρήματα πορίζειν μὲν<sup>a</sup> οὐκ ἀχρεῖον, ἐξ ἀδικίης δὲ πάντων κάκιον.

639. (D.D.B 50, 73 N.). Democrat. 16.: ὁ χρημάτων παντελῶς ἦσων οὐκ ἂν ποτε εἶη δίκαιος.

640. (D.D.B 220, 76 N.).<sup>1</sup> Stob. III, 10, 44: Δημοκρίτου. κακὰ κέρδεα ζημίαν ἀρετῆς φέρει.

641. (D.D.B 221, 77 N.). Stob. III, 10, 58: Δημοκρίτου. ἐλπίς κακοῦ κέρδεος ἀρχὴ ζημίας.<sup>1</sup>

642. (D.D.B 218, 75 N.).<sup>1</sup> Stob. III, 10, 36; Maxim. L. c. 22, p. 602 (P.G. 91, p. 855 C); Ant. Melissa I, 36, p. 71 (P.G. 136, p. 899 C); CPP, № 194: Δημοκρίτου. πλοῦτος ἀπὸ κακῆς ἐργασίης περιγινόμενος ἐπιφανέστερον<sup>a</sup> τὸ δυνεῖδος κέκτηται.

643. (D.D.B 302).<sup>1</sup> Corpus sententiarum Frobenianum, p. 208; Ant. Melissa I, 31, p. 62 (P.G. 136, p. 883 C); CPP, № 184; DEI 193: Δημοκρίτου. διηνεκῆς ἐπὶ πᾶσιν ἀνθρώποις ἡ τοῦ πλοῦτου ἐπιθυμία· μὴ κτηθεῖσα μὲν γὰρ τρύχει· κτηθεῖσα δὲ βασανίζει ταῖς φροντίσιν· ἀποκτηθεῖσα δὲ ταῖς λύπαις.

643a. (D.D.B 302).<sup>1</sup> Maxim. L. c. 12, p. 569 (P.G. 91, p. 795 D); CPP, № 745: μηδέποτε μακαρίστως ἀνθρωπον ἐπὶ πλοῦτου καὶ δόξῃ· πάντα γὰρ τὰ τοιαῦτα τῶν ἀγαθῶν ἐλάττονι πίσει τῶν ἀνέμων<sup>b</sup> δεδεται.

643b. (D.O).<sup>1</sup> Maxim. L. c. 12, p. 569 (P.G. 91, p. 795 D); AED; CPP, f. 84 r: οὐχ ὁ πλοῦτων, ἀλλ' ὁ μὴ χρήζων [πλοῦτου]<sup>a</sup> μακάριος.

643c.<sup>a</sup> (D.O).<sup>1</sup> Maxim. L. c. 12, p. 569 (P.G. 91, p. 797 A): ὁ αὐτὸς ἐρωτηθεὶς, πῶς ἂν τις γένηται πλούσιος· «ἐὰν τῶν ἐπιθυμιῶν ἔσται πένης» φησί.

643d. (D.O).<sup>1</sup> Maxim. L. c. 12, p. 570 (P.G. 91, p. 797 B): ὁ τῷ κατὰ φύσιν ἀρκοῦμενος πλοῦτος τοῦ πολλὰ κεκτημένου πλείονα δὲ ἐπιθυμοῦντος πολὺ ἐστὶ πλουσιώτερος· τῷ μὲν γὰρ οὐδὲν ἐλλείπει, τῷ δὲ καὶ ὧν κέκτηται πολλῶι πλείονα.

### 2. Non oportere pauperes divitibus invidere, sed paulo contentos esse

644. (D.D.B 231, 61 N.). Stob. III, 17, 25; Maxim. L. c. 28, p. 614 (P.G. 91, p. 879 A); Exc. Vindob.: Δημοκρίτου. εὐγνώμων ὁ μὴ λυπεόμενος ἐφ' οἷσιν οὐκ ἔχει, ἀλλὰ χαίρων ἐφ' οἷσιν ἔχει.

645. (D.D.B 224, 59 N.). Stob. III, 10, 68: Δημοκρίτου. ἡ τοῦ πλέονος ἐπιθυμία τὸ παρεὸν ἀπόλλυσι τῇ Δίωπητῃ κυνὶ ἐκέλη γινομένη.

645a. (D.D.B 238, 145 N.).<sup>1</sup> Stob. III, 22, 42: Δημοκρίτου. τελευτᾷ γὰρ ἐς κακοδοξίην [κακῆν]<sup>a</sup> ὁ παρεκτεινόμενος τῷ κρέσσονι.

646. (D.D.B 285, 84 N.).<sup>1</sup> Stob. IV, 34, 65: Δημοκρίτου. γινώσκειν χρεῶν ἀνθρωπίνην βιοτήν ἀφαιρῆν τε εὐδοῖαν καὶ ὀλιγοχρόνιον πολλῆσιν τε κηρσί συμπεφυρμένην καὶ ἀμηχανίησιν, ὅπως ἂν<sup>2</sup> τις μετρίως τε κτήσιος ἐπιμέληται καὶ μετρήται ἐπὶ τοῖς ἀναγκαίοις ἢ ταλαιπωρή.<sup>a</sup>

647. (D.D.B 287, 135 N.).<sup>1</sup> Stob. IV, 40, 20: Δημοκρίτου. ἀπορίη ξυνη τῆς ἐκάστου χαλεπωτέρη· οὐ γὰρ ὑπολείπεται ἐλπίς ἐπικουρίας.

648. (D.D.B 80, 164 N.).<sup>1</sup> Democrat. 45: αἰσχρὸν τὰ ὀθνεῖα πολυπραγμονέοντα<sup>2</sup> ἀγνοεῖν τὰ οἰκήτῃα. (D.D.B 253). Stob. IV, 1, 44 (v. № 614): τοῖς χρηστοῖσιν οὐ συμφέρον<sup>3</sup> ἀμελέοντας τῶν ἐσωτῶν ἄλλα πρήσσειν· τὰ γὰρ ἴδια κακῶς ἔσχειν.<sup>4</sup>

### 3. Siquidem hominibus ex plebe vires ad res egregias perpetrandas deficient, imitanda saltem ab iis facta honorum virorum esse, nam non veritatem, sed communem opinionem spectare soleant

649. (D.D.B 39, 196 N.).<sup>1</sup> Stob. III, 37, 25; Democrat. 5: ἀγαθὸν ἢ εἶναι [χρεῶν]<sup>a</sup> ἢ μιμεῖσθαι.

650. (D.D.B 79, 195 N.). Democrat. 44: χαλεπὸν μιμεῖσθαι μὲν τοὺς κακοῦς, μηδὲ ἐθέλειν δὲ τοὺς ἀγαθοῦς.



650a. (D.O). Ant. Melissa II, 69, p. 221 (P.G. 136, p. 1165 C): εὐλαβοῦ τὰς διαβολὰς κἄν ψευδεῖς ὦσιν. οἱ γὰρ πολλοὶ τὴν μὲν ἀλήθειαν ἀγνοοῦσι, πρὸς δὲ τὴν δόξαν ἀποβλέπουσι.

#### 4. Eὐθυμίας doctrinam pauperibus maxime prodesse

651. (D.D.B 286, 71 N.). Stob. IV, 39, 17: Δημοκρίτου. εὐτυχῆς ὁ ἐπὶ μετρίοις χρήμασι εὐθυμώμενος, δυστυχῆς δὲ ὁ ἐπὶ πολλοῖσι δυσθυμώμενος.

652. (D.D.B 283, 68 N.). Stob. IV, 33, 23: Δημοκρίτου. πενίη πλοῦτος ὀνόματα ἐνδείης καὶ κόρου· οὔτε οὖν πλοῦσιος ἐνδέων οὔτε πένης ὁ μὴ ἐνδέων.

653. (D.D.B 284, 69 N.). Stob. IV, 24, 25; Maxim. L. c. 12, p. 569 (P.G. 91, p. 797 A); Ant. Melissa I, 33, p. 67 (P.G. 136, p. 891 D); CPP, № 748: τοῦ αὐτοῦ. ἦν μὴ πολλῶν ἐπιθυμητῆς, τὰ ὀλίγα τοὶ πολλὰ δόξει· σμικρὰ γὰρ ὄρεξις πενίην ἰσοσθενέα πλοῦτι ποιέει.

654. (D.D.B 291, 83 N.).<sup>1</sup> Stob. IV, 44, 70: τοῦ αὐτοῦ. πενίην ἐπιεικῶς φέρειν σωφρονέοντος. (D.D.B 46, 218 N.). Democrat. 12; Stob. IV, 34, 69: μεγαλοψυχίῃ τὸ φέρειν πρᾶως πλημμελείαν.

655. (D.D.B 45, 48 N.).<sup>1</sup> Democrat. 11; CPP, № 203: ὁ ἀδικῶν τοῦ ἀδικουμένου κακοδαιμονέστερος. (D.D.B 75, 144 N.). Democrat. 40; Stob. IV, 2, 13: κρέσσον ἄρχεσθαι τοῖς ἀνοήτοις ἢ ἀρχεῖν. Cf. № 599.

656. (D.D.B 38, 154 N.). Democrat. 4: καλὸν μὲν τὸν ἀδικέοντα κολούειν· εἰ δὲ μὴ, μὴ ξυναδικέειν.

657. (D.D.B 191, 52 N.).<sup>1</sup> Stob. III, 1, 210: Δημοκρίτου. ἀνθρώποισι γὰρ εὐθυμία γίνεται μετρίοις τέρψιος καὶ βίου συμμετρίῃ·<sup>2</sup> τὰ δ' ἑλλείποντα<sup>3</sup> καὶ ὑπερβάλλοντα μεταπίπτειν τε φιλεῖ καὶ μεγάλας κινήσεις ἐμποιεῖν τῇ ψυχῇ. αἱ δ' ἐκ μεγάλων διαστημάτων κινούμεναι τῶν ψυχῶν οὔτε εὐσταθεῖς εἰσὶν οὔτε εὐθυμοί. ἐπὶ τοῖς δυνατοῖς οὖν δεῖ<sup>4</sup> ἔχειν τὴν γνώμην καὶ τοῖς παροῦσιν ἀρκέσθαι<sup>5</sup> τῶν μὲν ζηλουμένων καὶ θαυμαζομένων ὀλίγην μνήμην ἔχοντα καὶ τῇ διανοίᾳ μὴ προσεδρεῶντα, τῶν δὲ ταλαιπωρούντων τοὺς βίους θεωρεῖν, ἐννοοῦμενον ἂ πάσχουσι κάρτα,<sup>6</sup> ὅπως ἂν<sup>7</sup> τὰ παρῶντα σοὶ καὶ ὑπάρχοντα μεγάλα καὶ ζηλωτὰ φαίνηται, καὶ μηκέτι<sup>8</sup> πλείονων ἐπιθυμῶντι συμβαίνει<sup>9</sup> κακοπαθεῖν τῇ ψυχῇ. ὁ γὰρ θαυμάζων τοὺς ἔχοντας καὶ μακαριζομένους ὑπὸ τῶν ἄλλων ἀνθρώπων καὶ τῇ μνήμῃ πᾶσαν ὥραν προσεδρεῶν ἀεὶ ἐπικαινουργεῖν ἀναγκάζεται καὶ ἐπιβάλλεσθαι δι' ἐπιθυμίην τοῦ τι πρήσειν ἀνήκεστον ὧν νόμοι κολούουσιν· διόπερ τὰ μὲν<sup>10</sup> μὴ διζήσθαι<sup>11</sup> χρεῶν, ἐπὶ δὲ τοῖς εὐθυμώμενοις χρεῶν, παραβάλλοντα τὸν ἑαυτοῦ βίον πρὸς τὸν τῶν φαυλότερον πρησσόντων, καὶ μακαρίζειν ἐωυτὸν ἐνθυμώμενον ἂ πάσχουσι, ὁκόσω<sup>12</sup> αὐτέων βέλτιον πρήσει τε καὶ διάγει.<sup>13</sup> ταύτης γὰρ ἐχόμενος τῆς γνώμης<sup>14</sup> εὐθυμότερόν τε διάξει καὶ οὐκ ὀλίγας κήρας<sup>15</sup> ἐν τῷ βίῳ διώσει, φθόνον καὶ ζῆλον καὶ δυσμενίην.

657a. (Mull. 40).<sup>1</sup> CPP, № 752; DEI 200; Maxim. L. c. 12, p. 570 (P.G. 91, p. 798 B); Ant. Melissa 33, p. 67 (P.G. 136, p. 893 A); Apostol. 16, 10e: Δ. τὰ μέγιστα τῶν κακῶν οἱ πένητες ἐκπεφεύγασιν· ἐπιβουλήν, φθόνον καὶ μῖσος, οἷς οἱ πλοῦσοι καθ' ἡμέραν συνοικοῦσιν.

#### VI. De amicis veris et falsis; de assimilatione

658. (D.O).<sup>1</sup> Ant. Melissa I, 24, p. 46 (P.G. 136, p. 849 D); CPP, № 169; DEI 165: Δημοκρίτου. τὸν σπουδαῖον φίλον πρὸς μὲν τὰς εὐφροσύνας κληθέντα δεῖ παρεῖναι, πρὸς δὲ τὰς περιστάσεις ἀτόκλητον δεῖ συμπαρεῖναι.

659. (D.O).<sup>1</sup> Ant. Melissa I, 24, p. 46; CPP, № 171: οἱ ἀληθινοὶ φίλοι καὶ τὰς εὐφροσύνας ἠδύνας<sup>2</sup> (?) καὶ τὰς συμφοράς ἐλαφροτέρας ποιοῦσιν, τῶν μὲν συναπολαύοντες, τῶν δὲ μεταλαμβάνοντες.<sup>3</sup>

660. (D.D.B 98, 211 N.).<sup>1</sup> Democrat. 64: ἐνός φιλήν ξυνετοῦ κρέσσον ἀξυνέτων πάντων.

661. (D.D.B 97, 210 N.). Democrat. 63; Excerpta Vindobonensia 20 (Stob. Floril. IV, p. 291 Meineke); AED, sent. 70; Maxim. L. c. 6, p. 548 (P.G. 91, p. 760 A): πολλοὶ δοκέοντες εἶναι φίλοι οὐκ εἰσὶ, καὶ οὐ δοκέοντες εἰσὶ· σοφοῦ οὖν γινώσκειν ἕκαστον.<sup>1</sup>

662. (D.D.B 99, 209 N.). Democrat. 65: ζῆν οὐκ ἄξιος, ὅτωι μὴδὲ εἰς ἐστὶ χρηστὸς φίλος. (D.D.B 103, 208 N.). Democrat. 69; Ant. Melissa I, 24, p. 46 (P.G. 136, p. 852 B); AED, sent. 74: οὐδ' ὕφ' ἐνός φιλέεσθαι δοκεῖ μοι ὁ φίλων μὴδένα.

663. (D.D.B 100, 216 N.). Democrat. 66: ὅτωι μὴ διαμένουσιν ἐπὶ πολλῶν οἱ πειραθέντες φίλοι, δύστροπος.<sup>1</sup>

664. (D.D.B 115, 118 N.). Democrat. 83: ἦν μὴ γνωρίζης τοὺς ἐπαίνους, κολακεύεσθαι ἤγέα.

665. (D.D.B 101, 215 N.). Democrat. 67; AED, sent. 71: ἐκτρέπονται πολλοὶ τοὺς φίλους, ἐπὴν ἐξ εὐπορίας εἰς πενίην μεταπέσωσιν· οἱ γὰρ πλείστοι τῶν χρημάτων, οὐ τῶν ἐχόντων εἰσὶ φίλοι. (D.D.B 106, 214 N.). Democrat. 72; Ant. Melissa I, 25, p. 46 (P.G. 136, p. 852 A): ἐν εὐτυχίῃ φίλον εὐρεῖν εὐπορον, ἐν δὲ δυστυχίῃ πάντων ἀπορώτατον.<sup>1</sup>

666. (D.O).<sup>1</sup> Maxim. L. c. 6, p. 549 (P.G. 91, p. 760 D); Ant. Melissa I, 25, p. 47 (P.G. 136, p. 853 B); CPP, № 170: Δημοκρίτου. τὸ μὴ δύνασθαι βοηθεῖν τοῖς φίλοις ἀπορίας, τὸ δὲ μὴ βούλεσθαι κακίας τεκμήριον.

666a. (D.D.B 302).<sup>1</sup> Ant. Melissa 48, p. 87 (P.G. 136, p. 929 B); CPP, № 181; AED, sent. 22; Homoeomata, № 19a: ἐν μὲν τοῖς ἐσόπτροις ὁ τῆς ὄψεως, ἐν δὲ ταῖς ὁμιλίαις ὁ τῆς ψυχῆς χαρακτήρ βλέπεται.

666b. (D.D.B 302; Mull. 154).<sup>1</sup> Maxim. L. c. 10, p. 563 (P.G. 91, p. 785 A); CPP, № 189; Homoeomata I, p. 41: Δημοκρίτου. ἡ μὲν μάχαιρα τέμνει, ἡ δὲ διαβολὴ χωρίζει φίλους.

667. (D.D.B 82, 123 N.). Democrat. 47: κίβδηλοι καὶ ἀγαθοφανέες οἱ λόγοι μὲν ἅπαντα, ἔργωι δὲ οὐδὲν ἔρδοντες.

668. (D.D.B 177, 124 N.). Stob. II, 15, 40: Δημοκρίτου. οὔτε λόγος ἐσθλὸς φαύλην πρήξιν ἀμαυρῶσκει οὔτε πρήξις ἀγαθὴ λόγου βλασφημίῃ<sup>1</sup> λυμαινεται.

669. (D.D.B 55, 121 N.).<sup>1</sup> Stob. II, 15, 36; Democrat. 21: ἔργα καὶ πρήξις ἀρετῆς, οὐ λόγους, ζηλέειν<sup>2</sup> χρεῶν.

670. (D.D.B 63, 106 N.). Stob. III, 14, 8; Democrat. 28: εὐλογεῖν ἐπὶ καλοῖς ἔργοις καλόν· τὸ γὰρ ἐπὶ φλαύροις κίβδηλου καὶ ἀπατεῶντος ἔργον.

671. (D.D.B 192, 115 N.). Stob. III, 2, 36: Δημοκρίτου. ἐστὶ ράιδιον μὲν ἐπαίνεσθαι ἂ μὴ χρῆ καὶ φέγειν, ἐκάτερον δὲ πονηροῦ τινος ἠθους.

672. (D.D.B 87, 152 N.). Democrat. 53: τὸν φαῦλον παραφυλάπτειν δεῖ, μὴ καιροῦ λάβηται.

672a. (D.D.B 53a, 122b N.). Democrat. 19; Stob. II, 15, 33: πολλοὶ ὀρώντες τὰ αἰσχίστα λόγους ἀρίστους ἀσκεῦσιν.

#### VII. De recte vivendo cum amicis et propinquis

673. (D.D.B 186, 212 N.). Stob. II, 33, 9: Δημοκρίτου. ὁμοφροσύνη φιλήν ποιεῖ.

674. (D.D.B 302).<sup>1</sup> CPP, № 174; Ant. Melissa II, 1, p. 128 (P.G. 136, p. 1005 B); Maxim. L. c. 9, p. 560 (P.G. 91, p. 779 A): Δημοκρίτου. ποθητὸς εἶναι μᾶλλον ἢ φοβερὸς κατὰ τὸν βίον προαιροῦ. ὃν γὰρ πάντες φοβοῦνται, πάντας φοβεῖται.

675. (D.D.B 66, 101 N.).<sup>1</sup> Democrat. 31: προβουλεύεσθαι κρεῖσσον πρὸ τῶν πράξεων ἢ μετανοεῖν. (D.D.B 43, 99 N.). Democrat. 9: μεταμέλεια ἐπ' αἰσχροῖσιν ἔργοις βίου σωτηρίη.

676. (D.D.B 91, 223 N.). Democrat. 57: μὴ ὑποπτος πρὸς ἅπαντας, ἀλλ' εὐλαβῆς γενεῦ καὶ ἀσφαλῆς.

### VIII. De invidis obrectatoribus

677. (D.D.B 60, 114 N.). Stob. III, 13, 46; Democrat. 25; CPP, № 195: κρέσσον τὰ οἰκίηια ἐλέγχειν ἀμαρτήματα ἢ τὰ ὀνόματα. (D.D.B 109, 217 N.). Democrat. 76: οἱ φιλομεμφεῖς εἰς φιλήν οὐκ εὐφρέες.

678. (D.D.B 293, 220 N.).<sup>1</sup> Stob. IV, 48, 10: Δημοκρίτου. οἷσιν ἡδονὴν ἔχουσιν αἱ τῶν πέλας συμφοραί, οὐ ξυνηῖσι μὲν ὡς τὰ τῆς τύχης κοινὰ πᾶσιν, ἀπορέουσι δὲ οἰκίηις χαρᾶς. (D.D.B 107a, 219 N.). Democrat. 74: ἄξιον ἀνθρώπου ὄντας ἐπ' ἀνθρώπων συμφοραῖς μὴ γελᾶν, ἀλλ' ὀλοφύρεσθαι.

679. (D.D.B 237, 221 N.). Stob. III, 20, 62: Δημοκρίτου. φιλονικίη<sup>1</sup> πᾶσα ἀνόητος· τὸ γὰρ κατὰ τοῦ δυσμενέος βλαβερὸν θεωρεῖσα τὸ ἴδιον συμφέρον οὐ βλέπει. (D.D.B 88, 82 N.). Stob. III, 38, 47; Democrat. 54: ὁ φθονέων ἐωυτὸν ὡς ἐχθρὸν λυπέει.

679a. (D.D.B. 302). CPP, № 710; Gnom. Barocc. 190; Maxim. L. c. 54, p. 658 (P.G. 91, p. 961 A); Ant. Melissa I, 62, p. 109 (P.G. 136, p. 969 A); cf. Stob. III, 38, 52 (?); Δ. τὸν φθόνον εἶπεν ἔλκος εἶναι τῆς ἀληθείας. Stob. III, 38, 53; Maxim. L. c. 54, p. 658; Ant. Melissa I, 62, p. 109 (= № 570): φθόνος... στάσις ἀρχὴν ἀπεργάζεται.

### IX. De mutuo auxilio

(adde №№ 633—636)

680. (D.D.B 92, 228 N.).<sup>1</sup> Democrat. 58: χάριτας δέχεσθαι χρεῶν προσκοπεύομενον κρέσσονας ἀπὸ τῶν ἀμοιβᾶς ἀποδοῦναι. (D.D.B 93, 227 N.). Democrat. 59: χαρίζομενος προσκίπτει τὸν λαμβάνοντα, μὴ κακὸν ἀντ' ἀγαθοῦ κίβδηλος εἶναι ἀποδοῦναι. (D.D.B 94, 225 N.). Democrat. 60; Exc. Vindobon., p. 291; Ant. Melissa I, 29, p. 59 (P.G. 136, p. 877 B); Cod. Paris. 1169, f. 59 r; CPP, № 179: μικραὶ χάριτες ἐν καιρῷ μέγισται τοῖς λαμβάνουσι ταύτας.<sup>2, \*</sup>

681. (D.D.B 96, 226 N.). Democrat. 62: χαριστικός οὐχ ὁ βλέπων πρὸς τὴν ἀμοιβήν, ἀλλ' ὁ εὖ θρᾶν προηρημένος.<sup>1</sup>

681a. (D.O, Mull. 155).<sup>1</sup> Ant. Melissa I, 29, p. 59 (P.G. 136, p. 877 B); Cod. Paris. 1169, f. 59: ὅστις τὴν χάριν καταθήσει, ἴσχυον τὴν χάριν δίδου· ἢ γὰρ βραδυτῆς λυαίνεται τὴν δόσιν. (D.D.B 302; Mull. 157).<sup>2</sup> Ant. Melissa I, 29, p. 59 (P.G. 136, p. 877 B); CPP, № 192: μικρὰ δίδοναι μᾶλλον βούλου ἢ μεγάλα ἐγγυᾶν.<sup>3</sup> ὁ τὸ γὰρ κίνδυνος ἀπεισι, καὶ ὁ λαβῶν ἔργου, οὐ λόγου χρεῖαν ἔχει.

### X. Origo nobilis et educatio

(cf. etiam №№ 771—774)

682. (partim D.D.B 33, 187 N.).<sup>1</sup> Clem. Strom. IV, 151 (II, 314, 12 St.); Stob. II, 31, 65; Theodoret. IV, 1, p. 100 Räder: ἡ φύσις καὶ ἡ διδασχὴ παραπλήσιόν ἐστι.<sup>2</sup> καὶ γὰρ ἡ διδασχὴ μεταρρομοῖ<sup>2</sup> τὸν ἀνθρώπον, μεταρρομοῦσα δὲ φυσιοποιεῖ καὶ τοὺς παλαιούς ἀνανεοῦται χαρακτῆρας, οὗς ἐξ ἀρχῆς ἡ φύσις ἐγένεκε.<sup>3</sup> Cf. Maxim. L. c. 17, p. 586 (P.G. 91, p. 828 A): τοῦ αὐτοῦ (post № 682b: sc. Δημοκρίτου, al. Δημάδης).<sup>3</sup> ὁ αὐτὸς ἔλεγεν, ὅτι ὁ παιδευόμενος τριῶν τούτων χρῆται: φύσεως, μελέτης, χρόνου.

682a. (D.D.B 59, 188 N.).<sup>1</sup> Stob. IV, 46, 8; Democrat. 24: οὔτε τέχνη, οὔτε σοφίη ἐφικτόν, ἢν μὴ μάθῃ τις.

682b. (D.O, Mull. 229). Maxim. L. c. 16, p. 586 (P.G. 91, p. 827 A); Ant. Melissa I, 50, p. 91 (P.G. 136, p. 935 C): ὁ αὐτὸς (Δ.) ἔφη, οὐ καλὸν πεπαιδευμένον ἀπαιδευτοῖς διαλέγεσθαι, ὡσπερ οὐδὲ νήφοντα μεθύουσιν.

683. (D.D.B 183, 185 N.).<sup>1</sup> Stob. II, 31, 72: τοῦ αὐτοῦ. ἔστι που νέων ἔθνησις καὶ γερόντων ἀξυνεσίη· χρόνος γὰρ οὐ διδάσκει φρονεῖν, ἀλλ' ὠραίη τροφή· καὶ φύσις.

684. (D.D.B 242, 193 N.). Stob. III, 29, 66: Δημοκρίτου. πλέονες ἐξ ἀσκήσιος ἀγαθοὶ γίνονται ἢ ἀπὸ φύσιος.

685. (D.D.B 53, 122a N.).<sup>1</sup> Democrat. 19: πολλοὶ λόγον μὴ μαθόντες ᾤσι κατὰ λόγον.

686. (D.D.B 56, 186 N.).<sup>1</sup> Democrat. 22: τὰ καλὰ γνωρίζουσι καὶ ζηλοῦσιν οἱ εὐφρέες πρὸς αὐτά.

687. (D.D.B 208, 199 N.).<sup>1</sup> Stob. III, 5, 24; Cod. Paris. 1169, f. 25 v; Ant. Melissa I, 14, p. 25 (P.G. 136, p. 811 D): πατὴρ σφροσύνη μέγιστον τέχνους παράγγελμα.

688. (D.D.B 267, 142 N.).<sup>1</sup> Stob. IV, 6, 19: Δημοκρίτου. φύσει τὸ ἀρχεῖν οἰκίηιον τῷ κρέσσονι.

689. (D.D.B 254, 151 N.).<sup>1</sup> Stob. IV, 1, 45: οἱ κακοὶ ἰόντες ἐς τὰς τιμὰς δόξωσι ἂν μᾶλλον ἀνάξιοι εἶναι, τοσοῦτοι μᾶλλον ἀνακηδέες<sup>2</sup> γίνονται καὶ ἀφροσύνης καὶ θράσεος πίμπλονται (= № 614). (D.D.B 95, 149 N.). Democrat. 61: τιμὰ παρά τοῖς εὖ φρονέουσιν μέγα δύνανται, οἱ ξυνηῖσι<sup>2</sup> τιμώμενοι.

690. (D.D.B 113, 116 N.). Democrat. 81: μεγάλα βλάπτουσι τοὺς ἀξυνετούς οἱ ἐπαινέοντες.

691. (D.D.B 280, 184 N.).<sup>1</sup> Stob. IV, 26, 26: τοῦ αὐτοῦ. ἔξεστιν οὐ πολλὰ τῶν σφετέρων ἀναλώσαντας παιδεύσαι τε τοὺς παῖδας καὶ τεῖχος τε καὶ σωτηρίην περιβαλέσθαι τοῖς τε γήμασι καὶ τοῖς σώμασιν αὐτῶν.

692. (D.D.B 179, 197 N.).<sup>1</sup> Stob. II, 31, 57: τοῦ αὐτοῦ. ἔξω τί κως ἦ<sup>1, \*</sup> πονεῖν κείθισμένοι<sup>1</sup> παῖδες ἀνέντες<sup>2</sup> οὔτε γράμματ' ἂν μάθοιεν οὔτε μουσικὴν οὔτε ἀγωνίην οὐδ' ὅπερ μάλιστα τὴν ἀρετὴν συνέχει, τὸ αἰδέσθαι· μάλα γὰρ ἐκ τούτων φιλεῖ γίνεσθαι ἢ αἰδῶς.<sup>2</sup> (D.D.B 181, 44 N.). Stob. II, 31, 59: κρείσσων ἐπ' ἀρετὴν φανεῖται προτροπῆι χρώμενος καὶ λόγου πειθοῖ ἢπερ νόμοι καὶ ἀνάγκη. *Sequentia supra sub № 607, cf. № 35.*

693. (D.D.B 180, 183 N.).<sup>1</sup> Stob. II, 31, 58; Maxim. L. c. 16, p. 585 (P.G. 91, p. 823 C); Ant. Melissa I, 50, p. 90 (P.G. 136, p. 935 A); CPP, № 180: Δημοκρίτου (sive τοῦ αὐτοῦ). ἡ παιδεία εὐτυχοῦσι μὲν ἐστὶ κόσμος, ἀτυχοῦσι δὲ καταφύγιον. Cf. Stob. II, 31, 35: Ἀριστοτέλης ἔφη τὴν παιδείαν εὐτυχοῦσι μὲν κόσμον εἶναι, πταίσαι δὲ καταφυγὴν ἐλευθέριον. Diog. V, 11, 19: τὴν παιδείαν ἔλεγεν (ὁ Ἀριστοτέλης) ἐν μὲν ταῖς εὐτυχίαις εἶναι κόσμον, ἐν δὲ ταῖς ἀτυχίαις καταφυγὴν. . . (21) κάλλιστον ἐφόδιον τῷ γήρῳ τὴν παιδείαν ἔλεγε. *Unde Cic. Pro Archia VII, 16: Haec studia adolescentiam agunt, senectutem oblectant, secundas res ornant, adversis perfrugium ac solacium praebent, delectant domi, non impediunt foris, pernoctant nobiscum, peregrinantur rusti-cantur.*

*Ex omnibus his locis (v. comm.) talis fere contextus Democriti elici potest: ἡ παιδείη νεότητι μὲν ἡγεμών, γήρῳ δὲ ἐφόδιον, εὐτυχέουσι μὲν κόσμος, ἀτυχεῶσι δὲ καταφύγιον, κενδὸν μὲν εὐφραίνουσα, ἔξω δ' οὐ καλύουσα, μεθ' ἡμέων νυκτερεύουσα ἡμερεύουσα, ἀποδημέουσα ἐπιδημέουσα.*

694. (D.D.B 51, 114 N.). Stob. II, 4, 12; Democrat. 17: ἰσχυρότερος ἐς πειθᾶ λόγος πολλαχῆ γίνεται χρυσοῦ.

695. (D.D.B 178, 198 N.). Stob. II, 31, 56: Δημοκρίτου. πάντων κακίστον ἢ εὐπετεῖη<sup>1</sup> παιδεύσαι<sup>2</sup> τὴν νεότητα· αὐτὴ γὰρ ἐστὶν ἡ τίττει τὰς ἡδονὰς ταύτας,<sup>3</sup> ἐξ ὧν ἡ κακότης γίνεται.

696. (D.D.B 83, 28 N.). Democrat. 49: ἀμαρτίης αἰτίη ἢ ἀμαθίη τοῦ κρέσσονος.<sup>1</sup>

697. (D.D.B 185, 201 N.).<sup>1</sup> Stob. II, 31, 94; CPP, № 190; AED, sent. 9 (cf. № 799): Δημοκρίτου. κρέσσονες εἰσιν αἱ τῶν πεπαιδευμένων ἐλπίδες ἢ ὁ τῶν ἀμαθῶν πλοῦτος.

698. (D.D.B 184, 194 N.). Stob. II, 31, 90: Δημοκρίτου. φαύλων ὀμιλίη συνεχῆς ἔξιν κακίης συναύξει.

## XI. Iuvenes et senes

699. (D.D.B 183, 185 N.).<sup>1</sup> Stob. II, 31, 72 (= № 683): τοῦ αὐτοῦ. ἔστι που νέων ξύσεις καὶ γερόντων ἀξυνεσίη· χρόνος γὰρ οὐ διδάσκει φρονεῖν, ἀλλ' ὠραίη τροφή καὶ φύσις.

700. (D.D.B 294, 205 N.). Stob. IV, 50, 20; CPP, № 875; Maxim. L. c. 41, p. 636 (P.G. 91, p. 920 B); Gnom. Barocc. 190: Δημοκρίτου. ἰσχύς καὶ εὐμορφίη νεότητος ἀγαθὰ, γῆρας<sup>2</sup> δὲ σωφροσύνης ἀνθος.<sup>1</sup> (D.D.B 295, 204 N.).<sup>2</sup> Stob. IV, 50, 22; Cod. Mosquens. 309, f. 248: Δημοκρίτου. ὁ γέρον νέος ἐγένετο, ὁ δὲ νέος ἀδελφὸν εἰ ἐς γῆρας ἀφίξεται· τὸ τέλειον οὖν ἀγαθὸν τοῦ μέλλοντος<sup>3</sup> ἔστι καὶ ἀδελφῷ κρέσσον.

701. (D.D.B 104, 206 N.). Democrat. 70: γέρον εὐχαρις ὁ αἰμύλος καὶ σπουδαίωμος.

702. (D.D.B 296, 207 N.).<sup>1</sup> Stob. IV, 50, 76: Δημοκρίτου. γῆρας ὀλόκληρὸς ἔστι πῆρωσις· πάντ' ἔχει καὶ πᾶσιν ἐνδεῖ. (D.O). Stob. IV, 50, 80—81 (*Democedes apud Democritum?*): Δημοκρίτου· ἀξαναμένωι τῷ σώματι συναδέχονται καὶ αἱ φρένες, γηράσκοντι δὲ συγγηράσκουσι καὶ ἐς τὰ πρήγματα πάντα ἀπαμβλύνονται. (= Herodot. III, 134: διδασχθεῖσα ὑπὸ τοῦ Δημοκλήδεος ἡ Ἄτοσσα προσέφερε ἐν τῇ κοίτῃ Δαρείωι λόγον τοιόνδε... «ἀξαναμένωι... ἀπαμβλύνονται»). (D.O).<sup>2</sup> Maxim. L. c. 41, p. 636 (P.G. 91, p. 920 B); Ant. Melissa II, 17, p. 155 (P.G. 136, p. 1056 A); AED, sent. 63: Δημοκρίτου· γῆρας καὶ πενία δύο τραύματα δυσθεράπευτα.

## XII. Mulieres, conubium, propinqui

703. (D.D.B 274, 171 N.). Stob. IV, 23, 38: Δημοκρίτου. κόσμος ὀλιγομοθίη γυναικί· καλὸν δὲ καὶ κόσμου λιτότης. (D.D.B 110, 173 N.). Democrat. 77: γυνὴ μὴ ἀσκείτω λόγον· δεινὸν γάρ.

704. (D.D.B 111, 170 N.).<sup>1</sup> Democrat. 78; Stob. IV, 23, 39; CPP, № 204; Maxim. L. c. 39, p. 631 (P.G. 91, p. 912 B); Ant. Melissa II, 34, p. 175 (P.G. 136, p. 1089 D): ὑπὸ γυναικὸς ἀργεσθαι ὕβρις εἶη ἂν ἀνδρὶ<sup>2</sup> ἐσχάτη.

705. (D.D.B 273, 174 N.). Stob. IV, 22, 199: Δημοκρίτου. γυνὴ πολλὰ ἀνδρὸς ὀξυτέρη πρὸς κακοφραδυσίην.

706. (D.D.B 214; 63, 169 N.).<sup>1</sup> Stob. III, 7, 25; CPP, №№ 200 + 594; Maxim. L. c. 3, p. 539 (P.G. 91, p. 744 A): Δημοκρίτου. ἀνδρεῖος οὐχ ὁ τῶν πολέμων μόνον, ἀλλὰ καὶ ὁ τῶν ἡδονῶν κρέσσον. ἐνιοὶ δὲ πολίων<sup>2</sup> μὲν δεσπόζουσι, γυναίξει δὲ δουλεύουσιν. Cf. Ant. Melissa II, 35, p. 176 (P.G. 136, p. 1092 A): Δημοκρίτωι ἔφη τις· Διὰ τί, μέγας ὢν, μικρὰν ἔγημας γυναίκα; κάκεινος εἶπε· Τοῦ κακοῦ ἐκλογὴν ποιούμενος τὸ ἐλάχιστον ἐξελεξάμην.<sup>2</sup>

707. (D.D.B 271, 175 N.). Stob. IV, 20, 33: Δημοκρίτου. ἐρωτικὴν μέμφιν ἢ ἀγαπῶ<sup>1</sup> μόνη<sup>2</sup> (?) λύει.

708. (D.D.B 272). Stob. IV, 22, 108; CPP, № 183; Maxim. L. c. 18, 589 (P.G. 91, p. 831 D); Ant. Melissa II, 11; 15, pp. 152, 154 (P.G. 136, pp. 1049 B, 1053 A): Δημοκρίτου. Δ. ἔφη, ὡς γαμβροῦ ὁ μὲν ἐπιτυχῶν εὖρεν υἱόν, ὁ δὲ ἀποτυχῶν ἠπώλεσε καὶ θυγατέρα.

709. (D.D.B 90, 137 N.). Democrat. 56: ἡ τῶν συγγενῶν ἔχθρη τῆς τῶν ὀθνεῖων χαλεπωτέρη μάλα. Cf. № 712.

## XIII. Servi

710. (D.D.B 270, 177 N.). Stob. IV, 19, 45: Δημοκρίτου. οἰκέταισιν ὡς μέρεσι τοῦ σκήνεος χρῶ ἄλλωι πρὸς ἄλλο.

## XIV. Factiones

711. (D.D.B 107, 213 N.). Democrat. 73: φίλοι οὐ πάντες οἱ συγγενέες, ἀλλ' οἱ συμφωνέοντες περὶ τοῦ συμφέροντος.<sup>1</sup> (D.D.B 186, 212 N.). Stob. II, 33, 9: Δημοκρίτου. ὁμοφροσύνη φιλίην ποιεῖ (№ 673).

712. (D.D.B 249, 138 N.). Stob. IV, 1, 34: τοῦ αὐτοῦ. στάσις ἐμφύλιος ἐς ἑκάτερα κακόν· καὶ γὰρ νικέουσι καὶ ἡσσωμένοις ὁμοίη φθορὴ.

713. (D.D.B 250, 136 N.). Stob. IV, 1, 40: Δημοκρίτου. ἀπὸ ὁμοιότης τὰ μεγάλα ἔργα καὶ ταῖς πόλεσι τοὺς πολέμους δυνατὸν κατεργάζεσθαι, ἄλλως δ' οὐ.

714. (D.O, Mull. 148).<sup>1</sup> CPP, № 191; Maxim. L. c. 54, p. 658 (P.G. 91, p. 961 A): Δημοκρίτου. ἡ τῶν ἀγαθῶν ἔρις ὠφελεῖ τὸν ζηλοῦντα, μὴ βλάπτουσα τὸν ζηλούμενον.

## XV. De re familiari dividenda aut non dividenda

715. (D.D.B 279, 203 N.).<sup>1</sup> Stob. IV, 26, 25: Δημοκρίτου. τοῖς παισὶ μάλιστα χρῆ τῶν ἀνυστῶν δατεῖσθαι τὰ χρήματα, καὶ ἅμα ἐπιμέλεισθαι αὐτῶν, μὴ τι ἀτηρὸν ποιέωσι διὰ χειρὸς ἔχοντες· ἅμα μὲν γὰρ πολλὸν φειδότεροι γίνονται ἐς τὰ χρήματα καὶ προθυμότεροι κτᾶσθαι, καὶ ἀγωνίζονται ἀλλήλοισιν. ἐν γὰρ τῷ ξυνοῦ τὰ τελεούμενα οὐκ ἀνίστι ὡσπερ ἰδίηι οὐδ' εὐθυμεῖ τὰ ἐπικτώμενα, ἀλλὰ πολλῶι ἥσσαν. Cf. Epicur., fr. 543 Us. (Diog. X, 11): τὸν τε Ἐπίκουρον μὴ ἀξιοῦν εἰς κοινὸν κατατίθεσθαι τὰς οὐσίας, καθάπερ τὸν Πυθαγόραν «κοινὰ τὰ φίλων» λέγοντα.

716. (D.D.B 151, 230 N.). Plut. Quaest. conv. II, 10, p. 643 E: ... ξένον τι πεπονθέναι πάθος Ἀγίαν, εἰ τὴν ἴσην μερίδα λαμβάνων δυσκοιναίνει... ἐν γὰρ ξυνοῦι ἰχθῦι ἀκάνθαι οὐκ ἐνεῖσιν, ὡς φησὶν ὁ Δ.<sup>1</sup> Cf. Zenob. V, 23 (Corp. Paroem. Gr. I, p. 125): μερίς οὐ πνίγει. *Pleniorum contextum horum locorum in commentariis afferimus.*

## b. PHILOSOPHUS IN RE PUBLICA

### I. De ascetismo repudiando

717. (D.D.B 289, 91 N.). Stob. IV, 44, 64: Δημοκρίτου. ἀλογιστή μὴ συγχωρέειν ταῖσι κατὰ τὸν βίον ἀνάγκαις.

718. (D.D.B 230, 229 N.). Stob. III, 16, 22: Δημοκρίτου. βίος ἀνεόρταστος μακρὴ ὁδὸς ἀπανδόμευτος.

### II. Philosophus et familia

719. V. № 804a.

720. V. № 804.

721. (D.D.B 275, 182 N.).<sup>1</sup> Stob. IV, 24, 29: Δημοκρίτου. τεκνοτροφίη σφαιρόν· τὴν μὲν γὰρ ἐπιτυχίην ἀγῶνος μεστήν καὶ φροντίδος κέκτηται, τὴν δὲ ἀποτυχίην ἀνωπέρθετον ἐτέρηι ὀδύνηι.

722. (D.D.B 276, 180 N.). Stob. IV, 24, 31: Δημοκρίτου. οὐ δοκεῖ μοι χρῆναι παῖδας κτᾶσθαι.<sup>1</sup> ἐνορῶ γὰρ ἐν παῖδων κτήσει πολλοὺς μὲν καὶ μεγάλους κινδύνους, πολλὰς δὲ λύπας, ὀλίγα δὲ τὰ εὐδηλέοντα καὶ ταῦτα λεπτά τε καὶ ἀσθενέα.

723. (D.D.A 170). Clem. Strom. II, 138 (II, 189, 15 St., 17 N.): Δ. δὲ γάμον καὶ παιδοποιίαν παραιτεῖται διὰ τὰς πολλὰς ἐξ αὐτῶν ἀγῶνας τε καὶ ἀφολλκὰς ἀπὸ τῶν ἀναγκαιοτέρων. συγκατατάσσεται δὲ αὐτῷ καὶ Ἐπίκουρος. (D.O). Theodoret. XII, 74, p. 317 Räder: Δημοκρίτωι δὲ καὶ Ἐπίκουρῳ λίαν μεμφόμεθα, παραιτεῖσθαι καὶ τὸν γάμον καὶ τὴν παιδογονίαν κελεύουσι· τὴν γὰρ τοι

ἡδονὴν ὀρισάμενοι τέλος, τὰ φροντίδας ἔχοντα καὶ τινὰς ὑτείας παντελῶς ἀπεκήρυξαν (= 526 Us.).

724. (D.D.B 277, 181 N.). Stob. IV, 24, 32: τοῦ αὐτοῦ. ὅτεαι χρήμη τεὰ ἐστὶ παῖδα ποιήσασθαι, ἐκ τῶν φίλων τεῦ μοι δοκεῖ ἀμεινον εἶναι. καὶ τῷ μὲν παῖς ἐστὶ τοιοῦτος, οἷον ἂν βούληται· ἐστὶ γὰρ ἐκλέξασθαι οἷον ἐθέλει· καὶ ὅς ἂν δοκῆ ἐπιτήδειος εἶναι, κἂν μάλιστα κατὰ φύσιν ἔποιτο. καὶ τοῦτο τοσοῦτον διαφέρει, ὅσον ἐνταῦθα μὲν ἐστὶ τὸν παῖδα λαβεῖν· καταθύμιον ἐκ πολλῶν, οἷον ἂν δέμη. ἦν δὲ τις ποιῆται ἀπὸ ἐωυτοῦ, πολλοὶ ἐνεῖσι κίνδυνοι· ἀνάγκη γάρ, ὅς ἂν γένηται, τούτωι χρῆσθαι.

### III. Philosophus et res publica

725. (D.D.A 166, 3 N.).<sup>1</sup> Epiphan. Adv. haer. III, 2, 9 (Dox. 590): Δ. ... ἔφη ... καὶ τὸ δοκοῦν δίκαιον οὐκ εἶναι δίκαιον, ἄδικον δὲ τὸ ἐναντίον τῆς φύσεως. ἐπίνοιαν γὰρ κακὴν τοὺς νόμους ἔλεγε καὶ «οὐδὲν χρὴ νόμοις πειθαρχεῖν τὸν σοφόν, ἀλλὰ ἐλευθερίως ζῆν».<sup>2</sup> Cf. Diog. IX, 46: ποιητὰ δὲ νόμιμα εἶναι (N<sup>o</sup> 569). V. Epicuri fr. 196 Us. in comm.

726. (D.D.B 0b). *Titulus operis ethici*: Diog. IX, 46 (Thrasyll. I, 2): Περὶ τῆς τοῦ σοφοῦ διαθέσεως. Cf. [Hippocr.] Epist. 17, p. 330, 15—16 Littré: ἀπανθρωπέονται ... ὑπὸ μίτης τῆς ἐν τῇ σοφίᾳ διαθέσεως.

727. (D.D.B 302a).<sup>1</sup> Seneca. Epist. 7, 10: D. ait: unus mihi pro populo est et populus pro uno. Cf. Democrat. 64. (D.D.B 98): ἐνὸς φιλίη ξυνετοῦ κρέσσων ἀξυνέτων πάντων (N<sup>o</sup> 660).

728. (D.D.B 157, 133 N.).<sup>1</sup> Plut. Adv. Colot. 32, p. 1126 A; Ant. Melissa II, 45, p. 194 (P.G. 136, p. 1124 B); CPP, f. 164 r: ἐμοὶ δὲ περὶ τούτων οἱ οἰκονομικῶς καὶ πολιτικῶς βεβιωκότεες ἐγκαλεῖσθαι; εἰσὶ δ' οὗτοι πάντες οἱς Κολώτης ληλοιδόρηκεν. ὦν<sup>2</sup> Δ. μὲν παραινέει τὴν τε πολιτικὴν<sup>3</sup>, ἂ τέχνην μεγίστην οὖσαν ἐκδιδάσκεισθαι καὶ τοὺς πόνους διώκειν, ἀφ' ὧν τὰ μεγάλα καὶ λαμπρὰ γίνονται τοῖς ἀνθρώποις. Cf. Plut. Non posse suaviter vivi... 19, p. 1100 B: ἀλλ' οἱ γὰρ πρὸς ἔπαινον καὶ δόξαν οὕτως ἔγοντες, ἄρ' οὐχ ὁμολογοῦσι μεγάλας ἡδονὰς προῖσθαι δι' ἀσθένειαν ἢ μαλακίαν φεύγοντες ἀρχὰς ἢ πολιτείας καὶ φιλίας βασιλέων, ἀφ' ὧν<sup>4</sup> τὰ μεγάλα καὶ λαμπρὰ<sup>5</sup> εἰς τὸν βίον γίνεσθαι ἔφη Δ.;

729. (D.D.A 16). Ael. V.h. IV, 20: Δ. τὸν Ἀβδηρίτην λόγος ἔχει τὰ τε ἄλλα γενέσθαι σοφόν καὶ δὴ καὶ ἐπιθυμῆσαι λαθεῖν, καὶ ἐν ἔργῳ θέσθαι σφόδρα πᾶν τοῦτο. (D.O). Macar. V, 47 (Corp. Paroem. Gr. II, p. 183): λάθε βιώσας· παρεγγυᾷ ἰδιοπραγμονεῖν. ἐστὶ δὲ Δημοκρίτου.<sup>1</sup> Cf. Diog. IX, 36: ἦλθον ... εἰς Ἀθήνας καὶ οὗτις με ἔγνωκεν. Dion. apud Euseb. Praep. Evang. XIV, 27, 4: Δ. γοῶν αὐτός, ὡς φασιν, ἔλεγε βούλεσθαι μᾶλλον μίαν εὐρεῖν αἰτιολογίαν ἢ τὸν Περσῶν οἱ βασιλείαν γενέσθαι (N<sup>o</sup> 29). Cic. De orat. III, 15, 56: Eadem autem alii prudentia sed consilio ad vitae studia dispari quietem atque otium secuti, ut Pythagoras Democritus Anaxagoras, a regendis civitatibus totos se ad cognitionem rerum transtulerunt; quae vita propter tranquillitatem et propter ipsius scientiae suavitatem, qua nihil est hominibus iucundius, pluris, quam utile fuit rebus publicis, delectavit.

### IV. Philosophus civis mundi

730. (D.D.B 247, 168 N.).<sup>1</sup> Stob. III, 40, 7; Arsen. 55, 19; Apostol. 18, 55a (C. Par. Gr. II, p. 722): τοῦ αὐτοῦ (sc. Δημοκρίτου). ἀνδρὶ σοφῷ πᾶσα γῆ βατή· ψυχῆς γὰρ ἀγαθῆς πατρὶς ὁ ἔομπος κόσμος.

731. (D. D. B 303). Graeco-Syr. dicta, Ryssel interprete (Rhein. Mus. 51, 1896, 539), N<sup>o</sup> 33: D. dixisse: Weise Leute müssen, wenn sie in ein fremdes Land gehen, das nicht das ihre ist, unter Stillschweigen und in Ruhe die Kundschafter machen, indem sie zusehen und nach dem Rufe hinhorchen, den die Sache der Weisen, die dort sind, hat: wie sie sind und ob sie ihnen gegenüber bestehen können, indem sie ihre Worte mit den ihren in

hrem Sinne heimlich abwägen. Und wenn sie es abgewogen und gesehen haben, welche Partei der anderen überlegen ist, alsdann sollen sie den Reichtum ihrer Weisheit kundtun, damit sie um des Schatzes willen, der ihr Eigentum ist, gepriesen werden, indem sie andere aus ihm bereichern. Und wenn der ihre zu klein ist, als daß sie davon spenden könnten, so nehmen sie von dem anderen und so gehen sie fort.

732. (D.D.B 246, 66 N.). Stob. III, 40, 6; CPP, N<sup>o</sup> 201: Δημοκρίτου. ξενιτεῖη βίου ἀνάρκειαν διδάσκει· μᾶζα γὰρ καὶ στυβὰς λιμοῦ καὶ κόπου γλυκύτατα ἰάματα. V. comm. ad N<sup>o</sup> 750a.

### I. INSTITUTIONES MORALES SIVE DE TRANQUILLITATE ANIMI IMPETRANDA

#### a. QUID VERBA ΕΥΕΣΤΩ, ΕΥΘΥΜΙΑ, ΑΘΑΜΒΙΑ VALEANT ET QUO SENSU USURPENTUR A DEMOCRITO

##### I. Definitiones ipsius Democriti

733. (D.D.B 2 G). Diog. IX, 46: Ἔστι δὲ Ἠθικὰ μὲν τάδε... Περὶ εὐθυμίας... ἢ γὰρ Εὐεστόν οὐχ εὐρίσκειται.

734. (D.D.B 4, 3 N.).<sup>1</sup> Clem. Strom. II, 130 (II, 184, 10 St.): ἀλλὰ καὶ οἱ Ἀβδηρίται τέλος ὑπάρχειν διδάσκουσιν· Δ. μὲν ἐν τῷ Περὶ τέλους<sup>2</sup> τὴν εὐθυμίαν, ἦν καὶ εὐεστόν προσηγόρευεν. καὶ πολλάκις ἐπιλέγει· «τέρψις γὰρ καὶ ἀτερπία οὖρος τῶν <περιηρημακῶτων<sup>3</sup> καὶ τῶν οὐ> περιηρημακῶτων».<sup>3</sup> Ἐκαταῖος δὲ ἀνάρκειαν (D. 73 A 4), καὶ δὴ Ἀπολλόδοτος ὁ Κυζικηνὸς τὴν φυγαγωγίαν (D. 74 A 1), καθάπερ Ναυσίφάνης τὴν ἀκαταπληξίαν (D. 75 B 3). ταύτην γὰρ ἔφη ὑπὸ Δημοκρίτου ἀθαμβίην λέγεσθαι. (D.D.B 188, 2 N.). Stob. III, 1, 46: ὅρος συμφόρων καὶ ἀσυμφόρων τέρψις καὶ ἀτερπία. (D.D.A 111). Sext. Adv. math. VII, 140: κατ' αὐτόν (Δημόκριτον) ... εἶναι κριτήρια ... αἰρέσεως δὲ καὶ φυγῆς τὰ πάθη· τὸ μὲν γὰρ ὡς προσοικειούμεθα, τοῦτο αἰρετόν ἐστιν, τὸ δὲ ὡς προσαλλοτριούμεθα, τοῦτο φευκτόν ἐστιν (v. N<sup>o</sup> 81). (D.D.B 107). Democrat. 73: φίλοι ... οἱ ἑμφωνέοντες περὶ τοῦ ἑμφέροντος (N<sup>o</sup> 712).

735. (D.D.A 1). Diog. IX, 45 = Suda, s.v. εὐεστόν: τέλος δ' εἶναι τὴν εὐθυμίαν, οὐ τὴν αὐτὴν οὖσαν τῇ ἡδονῇ, ὡς ἐνιοὶ παρακούσαντες ἐξεδέξαντο, ἀλλὰ καθ' ἣν γαλήνως καὶ ἐσταθῶς ἢ ψυχῇ διάγει, ὑπὸ μηδενὸς ταραττομένη φόβου ἢ δεισιδαιμονίας ἢ ἄλλου τινὸς πάθους. καλεῖ (sc. ὁ Δ.) δ' αὐτὴν καὶ εὐεστόν καὶ πολλοῖς ἄλλοις ὀνόμασι. ποιητὰ δὲ νόμιμα<sup>1,2</sup> εἶναι, φύσει δ' ἄτομα καὶ κενόν.

736. (D.O). Suda, s.v. εὐεστόν· εὐθυμία, καταστάσει. (D.D.B 140). Hesych., s.v. εὐεστόν: ... εὐδαιμονία ἀπὸ τοῦ εὐ εἶσθαι τὸν οἶκον.<sup>1</sup>

737. (D.D.B 3, 163 N.). Plut. De tranqu. animi 2, p. 465 C: ὁ μὲν οὖν εἰπὼν ὅτι δεῖ τὸν εὐθυμεῖσθαι μέλλοντα μήτε πολλὰ πρήσσειν μήτε ἰδίῃ μήτε ξυνη, πρῶτον μὲν ἡμῖν πολυτελῆ τὴν εὐθυμίαν καθίστησι, γινομένην ὡς ἀπραξίας... Stob. IV, 39, 25: τὸν εὐθυμεῖσθαι μέλλοντα χρὴ μὴ πολλὰ πρήσσειν,<sup>1</sup> μήτε ἰδίῃ μήτε ξυνη,<sup>2</sup> μηδὲ ἄσσο<sup>3</sup> ἂν πρήσσει, ὑπὲρ τε δύνανται αἰρεῖσθαι τὴν ἐωυτοῦ καὶ φύσιν· ἀλλὰ τοσαύτην ἔχειν φυλακὴν, ὥστε καὶ τῆς τύχης ἐπιβαλλούσης καὶ ἐς τὸ πλέον<sup>3</sup> ὑπηρεσομένης τῷ δοκεῖν,<sup>3</sup> κατατίθεσθαι, καὶ μὴ πλέω προσάπτεσθαι τῶν δυνατῶν. ἢ γὰρ εδογκίη ἀσφαλέστερον τῆς μεγαλογκίης. Paraphr. apud Diog. Oenoand., fr. 40 Chilton: οὐδὲν οὕτως εὐθυμίας ποιητικόν, ὡς τὸ μὴ πολλὰ πράσσειν μηδὲ δυσκόλοις ἐπιχειρεῖν πράγμασιν μηδὲ παρὰ δύνανται [τ]ε βιάεσθαι τὴν ἐωυτοῦ πάντα γὰρ ταῦτα ταραχὰς ἐνποιεῖ τῇ φύσει]. Latine apud Senecam (De tranqu. animi 13, 1): Hoc secutum puto Democritum ita coepisse: «Qui tranquille volet vivere nec privatim agat multa nec publice». Seneca. De ira 3, 6, 3: Proderit nobis illud Democriti salutare praeceptum quo monstratur tran-

quillitas, si neque privatim neque publice multa aut maiora viribus nostris egerimus. Cf. etiam №№ 614, 648.

738. (D.D.A 166, 3 N.). Epiphani. Adv. haer. III, 2, 9 (Dox. 590): Δ. ... ἔφη δὲ καὶ ἐν τέλος εἶναι τῶν πάντων καὶ εὐθυμίαν τὸ κράτιστον εἶναι, τὰς δὲ λύπας ὄρους κακίας.

739. (D.D.B 191, 52 N.). Stob. III, 1, 210: Δημοκρίτου. ἀνθρώποισι γὰρ εὐθυμία γίνεται μετρίωτι τέρψιος καὶ βίου συμμετρίη.<sup>1</sup> τὰ δ' ἄλλοις ἀποκρίνεται καὶ ὑπερβάλλοντα μεταπίπτειν τε φιλεῖ καὶ μεγάλας κινήσεις ἐμποιεῖν τῆι ψυχῆι. αἱ δὲ ἐκ μεγάλων διαστημάτων κινούμεναι τῶν ψυχῶν οὕτε εὐσταθῆες εἰσὶν οὕτε εὐθυμοί. Cetera v. № 651. (D.D.B 286, 71 N.). Stob. IV, 39, 17: εὐτυχῆς ὁ ἐπὶ μετρίοις χρήμασι εὐθυμεύμενος, δυστυχῆς δὲ ὁ ἐπὶ πολλοῖσι δυσθυμεύμενος. (D.D.B 102, 51 N.). Democrat. 68: καλὸν ἐν παντί τὸ ἴσον.<sup>2</sup> ὑπερβολὴ δὲ καὶ ἔλλειψις οὐ μοι δοκέει. Cf. № 739.

740. (D.D.B 174, 47 N.). Stob. II, 9, 3: ὁ μὲν εὐθυμος εἰς ἔργα ἐπιφερόμενος δίκαια καὶ νόμιμα καὶ ὑπάρ καὶ ἄναρ χαίρει τε καὶ ἔρρωται καὶ ἀνακῆδης<sup>1</sup>, ἔστιν ὅς δ' ἂν καὶ δίκης ἀλογῆι καὶ τὰ χρή ἐόντα<sup>2</sup> μὴ ἔρδηι, τούτωι πάντα τὰ τοιαῦτα ἀτερπείη, ὅταν τευ ἀνάμνησθῆι, καὶ δέδοικε καὶ ἐωυτὸν κακίσει.

741. (D.D.A 169, 4 N.). Cic. De fin. V, 8, 23 (ex Antiocho): Democriti autem securitas, quae est animi tamquam tranquillitas, quam appellant εὐθυμίαν eo separanda fuit ab hac disputatione, quia ista animi tranquillitas ea est ipsa beata vita. (29, 87) D. ... (vere falsone quaerere <nolu>mus) dicitur se oculis privasse; certe ut quam minime animus a cogitationibus abduceretur, patrimonium neglexit, agros deseruit incultos, quid quaerens aliud nisi vitam beatam? Quam si etiam in rerum cognitione ponebat,<sup>1</sup> tamen ex illa investigatione naturae consequi volebat, bono ut esset animo, ideo enim ille summum bonum εὐθυμίαν et saepe ἀδαμβίαν appellat, id est animum terrore liberum. (88) Sed haec etsi praeclare, nondum tamen perpolitā; pauca enim neque ea ipsa enucleate ab hoc de virtute quidem dicta.<sup>2</sup>

742. (D.D.A 167, 2 N.). Stob. II, 7, 31, p. 52, 13 W. (e Didymo Areio): Δ. καὶ Πλάτων κοινῶς ἐν τῆι ψυχῆι τὴν εὐδαιμονίαν τίθενται. γέγραφε δ' ὁ μὲν οὕτως: «εὐδαιμονίη ... κακοδαιμονίη» (№ 777) «εὐδαιμονίη ... δαίμονος» (№ 780). τὴν δ' εὐδαιμονίαν καὶ εὐθυμίαν καὶ εὐσεψίαν καὶ ἁρμονίαν, συμμετρίαν τε καὶ ἀταραξίαν καλεῖ. συνίστασθαι δ' αὐτὴν ἐκ τοῦ διορισμοῦ καὶ τῆς διακρίσεως τῶν ἡδονῶν, καὶ τοῦτ' εἶναι τὸ κάλλιστόν τε καὶ συμφορώτατον ἀνθρώποις.

743. (D.D.B 216, 34 N.). Stob. III, 7, 74: Δημοκρίτου. σοφίη ἀδαμβος ἀταραξίη,<sup>a</sup> πάντων τιμιωτάτη ἔοβσα. (D.D.B 215, 46 N.). Stob. III, 7, 31: δίκης κῶδος γνώμη θάρσος καὶ ἀδαμβίη...<sup>1</sup> (= № 602). (D.D.B 4, 3 N.). Clem. Strom. II, 130: εὐθυμίη ... ταύτην γὰρ ἔφη (Ναυσιφάνης) ὑπὸ Δημοκρίτου ἀδαμβίην λέγεσθαι (= № 734). (D.D.A 169, 4 N.). Cic. De fin. V, 29, 87: Ille summum bonum ... saepe ἀδαμβίαν appellat, id est animum terrore liberum (= № 741). Cf. № 735.

744. (D.D.A 168, 4 N.). Strabo I, 3, 21: προστιθέασι δὲ καὶ τὰς ἐκ τῶν μεταστάσεων μεταβολὰς ἐπὶ πλέον τὴν ἀδαμβαστίαν ἡμῖν κατασκευάζειν ἐθέλοντες, ἣν ὕμνεϊ Δ. καὶ οἱ ἄλλοι φιλόσοφοι πάντες.

745. (= №№ 620, 621). Stob. IV, 2, 15—16: τὰ ἀδικέοντα καὶ θέλοντα ἀδικεῖν ἀδίκιος ὁ κτείνων, καὶ πρὸς εἰσεστοῦν τοῦτο μᾶλλον ἔρδειν ἢ μὴ. κτείνειν γὰρ τὰ πημνίζοντα παρὰ δίκην πάντα περὶ παντός· καὶ ταῦτα ὁ ποιῶν εὐθυμῆς ... μέζω μοῖραν μετέξει.

## II. Quomodo doctrinam atomisticam inimici interpretati sint

De hac re vide etiam commentarios, ubi sententiae Democriti, ab illis inimicis doctrinae eius fictae seu depravatae, collectae sunt.

746. (D. O). Cic. De fin. II, 22, 74: Quid merearis igitur, ut te dicas in eo magistratu omnia voluptatis causa facturum esse, teque nihil fecisse in vita, nisi voluptatis causa? .. (23, 75) Hoc ... identidem dicitis,

non intellegere nos, quam dicatis voluptatem. Rem vides difficilem et obscuram. Individua cum dicitis, et intermundia, quae nec sunt ulla nec possunt esse, intellegimus: voluptas, quae passeribus nota est omnibus, a nobis intellegi non potest? Cic. Acad. post. I, 2, 5—6: Iam vero physica, si Epicurum, id est, si Democritum probarem, possem scribere ita plane, ut Amalfinius. Quid est enim magnum, cum causas rerum efficientium sustuleris, de corpusculorum (ita enim appellat atomos) concursione fortuita loqui? Illi enim simpliciter pecudis et hominis idem bonum esse censent.

747. (D.O). Theodoret. XI, 6, p. 273 Räder: ὁ μὲν οὖν Ἐπίκουρος τὸ ἥδιστα ζῆν ὠρίσατο τέλος· τέλειον γὰρ ἀγαθὸν μόνην ἠγεῖτο τὴν ἡδονήν, Δημόκριτος δὲ ὁ Ἀβδηρήτης, ὁ τῶν τούτων δογμάτων πατήρ, ἀντὶ τῆς ἡδονῆς τὴν εὐθυμίαν<sup>a</sup> τέθεικεν, ὀνομάτων, οὐ δογμάτων ἐναλλαγὴν ποιησάμενος...

## B. QUOMODO EVEΣΤΩ IMPETRANDA SIT

(v. etiam №№ 33—35)

### I. Necessarium solum optando, omne superfluum vitando

(cf. etiam №№ 651—657a)

748. (D.D.B 189, 7 N.).<sup>1</sup> Stob. III, 1, 47: ἄριστον ἀνθρώποι· τὸν βίον διαγεῖν ὡς πλεῖστα εὐθυμηθέντι καὶ ἐλάχιστα ἀνηθέντι. τοῦτο δ' ἂν εἴη, εἴ τις μὴ ἐπιτοῖς θνητοῖσι<sup>a</sup> τὰς ἡδονὰς ποιεῖτο.

749. (D.D.B 102, 151 N.).<sup>1</sup> Democrat. 68: καλὸν ἐν παντί τὸ ἴσον· ὑπερβολὴ δὲ καὶ ἔλλειψις οὐ μοι δοκέει (= № 740).

750. (D.D.B 235, 53 N.). Stob. III, 18, 35; III, 6, 65: Δημοκρίτου. ὅσοι ἀπὸ γαστρὸς τὰς ἡδονὰς ποιεῖντι ὑπερβεβληκότες τὸν καιρὸν ἐπὶ βρώσειν ἢ πόσειν,<sup>1</sup> ἢ ἀφροδισίοισιν,<sup>a</sup> τοῖσι πᾶσιν αἱ μὲν ἡδοναὶ βραχεῖαι τε καὶ δι' ὀλίγου γίνονται, ὀκῶσον ἂν χρόνον ἐσθίωσιν ἢ πίνωσιν, αἱ δὲ λύπαι πολλαί.<sup>b</sup> τοῦτο μὲν γὰρ τὸ ἐπιθυμεῖν αἰ τῶν αὐτῶν πάρεστι καὶ ὀκῶταν γένηται ὀκῶτων ἐπιθυμέουσι, διὰ ταχέως τε ἡ ἡδονὴ παροίχεται, καὶ οὐδὲν ἐν αὐτοῖσι χρηστόν ἐστιν ἀλλ' ἡ τέρψις βραχεῖα, καὶ αὐτὸς τῶν αὐτῶν δεῖ. (D.D.B 223, 19 N.).<sup>2</sup> Stob. III, 10, 65: τοῦ αὐτοῦ ὦν τὸ σκῆνος χρῆζει, πᾶσι πάρεστι εὐμαρῶς ἄτερ μόχθου καὶ τάλαιπωρίας· ὀκῶσα δὲ μόχθου καὶ τάλαιπωρίας χρῆζει καὶ βίον ἀλγόνει, τούτων οὐκ ἰμείρεται τὸ σκῆνος ἀλλ' ἡ τῆς γνώμης κακοθηγίη.<sup>3, c</sup>

750a. (D.D.B 246, 66 N.). Stob. III, 40, 6; CPP, № 201: Δημοκρίτου (v. № 733). μᾶλα γὰρ καὶ στιβάς λιμοῦ καὶ κόπου γλυκύτατα ἰάματα. (D.O).<sup>1</sup> Maxim. L. c. 12, p. 569 (P.G. 91, p. 797 A); Ant. Melissa I, 31, p. 62 (P.G. 136, p. 884 C); Cod. Paris. 1169, f. 84 r; AED, sent. 81: Δημοκρίτου.<sup>a</sup> ὁ κατὰ φύσιν πλοῦτος ἄρτωι καὶ ὕδατι καὶ τῆι τυχοῦσι τοῦ σώματος σκέπη συμπληρῶται· ὁ δὲ περισσὸς κατὰ ψυχὴν ἀπέραντον ἔχει κου<sup>b</sup> τὴν τῆς ἐπιθυμῆς βᾶσανον.

751. (D.D.B 211, 56 N.). Stob. III, 5, 27: Δημοκρίτου. σωφροσύνη τὰ τερπνὰ ἀεξεῖ καὶ ἡδονὴν ἐπιμείζονα ποιεῖ.

752. (D.D.B 61, 14 N.).<sup>1</sup> Stob. III, 37, 25; Democrat. 26; Maxim. L. c. 57, p. 665 (P.G. 91, p. 973 A); CPP, f. 21 v: οἷσιν ὁ τρόπος ἐστὶν εὐτακτος, τοῦτοισι καὶ ὁ βίος συντέτακται.

753. (D.D.B 233, 55 N.).<sup>1</sup> Stob. III, 17, 38; III, 6, 60: τοῦ αὐτοῦ. εἴ τις ὑπερβάλλοι τὸ μέτριον, τὰ ἐπιτερπέστατα ἀτερπέστατα ἂν γίγνοιτο.

754. (D.D.B 70, 62 N.). Democrat. 35: παιδός, οὐκ ἀνδρός τὸ ἀμέτρως ἐπιθυμεῖν.

755. (D.D.B 71, 54 N.). Democrat. 36: ἡδοναὶ ἄκαιροι τίκτουσιν ἀηδίας.

756. (D.D.B 74, 5 N.). Democrat. 39: ἡδὺ μὴδὲν ἀποδέχεσθαι, ἣν μὴ συμφέρει.<sup>1</sup>



757. (D.D.B 232, 57 N.). Stob. III, 10, 37; III, 6, 59: Δημοκρίτου. τῶν ἡδέων τὰ σπανιώτατα γινόμενα μάλιστα τέρπει.

758. (D.D.B 209, 67 N.). Stob. III, 5, 25; Ant. Melissa I, 36, p. 72 (P.G. 136, p. 901 A); Maxim. L. c. 13, p. 574 (P.G. 91, p. 805 A); CPP, № 164: Δημοκρίτου. ἀταρξείη<sup>1</sup> τροφῆς μακρῆ<sup>2</sup> νῦξ οὐδέποτε γίνεται.

759. (D.D.B 210, 65 N.).<sup>1</sup> Stob. III, 5, 26; CPP, № 588; Maxim. L. c. 13, p. 575 (P.G. 91, p. 805 C); Ant. Melissa I, 14, p. 25 (P.G. 136, p. 812 D): Δημοκρίτου. τράπεζαν πολυτελέα μὲν τύχη παρατίθησιν, ἀταρξεία δὲ σωφροσύνη.

759a. (D.O.) CPP, № 197; Maxim. L. c. 27, p. 612 (P.G. 91, p. 875 A):<sup>1</sup> ὡσπερ ἄλειμμα οὐ τὸ ἡδὺ καλὸν οὐδὲ τὸ μακρὸν,<sup>2</sup> ἀλλὰ τὸ ὑγιεινόν, οὕτω καὶ τροφή οὐχ ἡ ἡδέια καλὴ οὐδὲ ἡ πολλὴ ἀλλ' ἡ ὑγιεινὴ.

760. (D.D.B 229, 81 N.).<sup>1</sup> Stob. III, 16, 19: τοῦ αὐτοῦ. φειδώ τοι καὶ λιμὸς <ἐν καιρῶι><sup>2</sup> χρηστή· ἐν καιρῶι δὲ καὶ δαπάνη· γινώσκειν<sup>2</sup> δὲ ἀγαθοῦ.

761. (D.D.B 198, 20 N.). Stob. III, 4, 72: τὸ (sc. ζῶιον) χρήζον οἶδεν, δόξον χρήζει, ὁ δὲ (sc. ἄνθρωπος) χρήζων οὐ γινώσκει.<sup>1</sup>

## II. Nimia studia (iram, desperationem, aegritudinem, libidinem etc.) cohibendo

762. (D.D.B 236, 88 N.). Stob. III, 20, 56; Maxim. L. c. 19, p. 594 (P.G. p. 811 C): Δημοκρίτου. θυμῶι μάχεσθαι μὲν χαλεπὸν· ἀνδρὸς δὲ τὸ κρατέειν εὐλογίστου.<sup>1</sup>

763. (D.D.B 290, 89 N.). Stob. IV, 44, 67: Δημοκρίτου. λύπην ἀδέσποτον<sup>1</sup> ψυχῆς ναρκώσης λογισμῶι ἔκρουε.

764. (D.D.B 213, 127 N.). Stob. III, 7, 21: Δημοκρίτου. ἀνδρείη τὰς ἄτας μικρὰς ἔρδει.

765. (D.D.B 196, 100 N.).<sup>1</sup> Stob. III, 4, 70: λήθη τῶν ἰδίων κακῶν δρασύνητα γενναί.

766. (D.D.B 42, 90 N.). Democrat. 8; Stob. IV, 34, 68: Δημοκρίτου. μέγα τὸ ἐν ξυμφορῆσι φρονεῖν ἂ δει.

767. (D.D.B 72, 58 N.).<sup>1</sup> Democrat. 37: αἱ περί τι σφοδραὶ ὀρέξεις τυφλοῦσιν εἰς τὰλλα τὴν ψυχὴν.

768. (D.D.B 46, 218 N.). Stob. IV, 34, 69; Democrat. 12: μεγαλοψυχίη τὸ φέρειν πραέως πλημμέλειαν.

769. (D.D.B 48, 119 N.). Stob. III, 38, 46; Democrat. 14: μωμεομένων φλαύρων ὁ ἀγαθὸς οὐ ποιεῖται λόγον.

770. (D.O, Mull. 244).<sup>1</sup> Maxim. L. c. 27, p. 612 (P.G. 91, p. 876 B); Ant. Melissa I, 39, p. 79 (P.G. 136, p. 913 D); CP, P№ 196: τάχος καὶ ἐπειεῖς ἀπέστω τοῦ ἐσθίειν· κινῶδες γὰρ τοῦτο καὶ θηρίω μᾶλλον ἢ ἀνθρώπῳ πρέπον.

770a. (D.O).<sup>1</sup> CPP, f. 25 v: μὴ ταχὺ ἐπὶ σεαυτῶι μέγα φρονήσεις, ὅταν τινὰ ἡδονὴν προϊούσαν παραιτήσῃ· πολλὰ γὰρ λανθάνομεν ἑαυτοῦς οὐ δεδαμακότες τὴν ἐπιθυμίαν, ἀλλ' ὑπ' αὐτῆς μᾶλλον ἐνοχλούμενοι.

## III. Laborem assidue ferendo, cuius fellicis eventus fiduciam habemus

771. (D.D.B 243, 130 N.). Stob. III, 29, 88: Δημοκρίτου. τῆς ἡσυχίης πάντες οἱ πόνοι ἡδέιονες, ὅταν ὧν εἵνεκεν πονέουσι τυγχάνουσιν ἢ εἰδῶσι κύρσαντες, ἐν δὲ ἄκος τῆι<sup>2</sup> ἀποτυχίη<sup>1</sup> τὸ πᾶν<sup>2</sup> ὁμοίως ἀνηρόν καὶ ταλαίπωρον <ἐνδυμέσθαι>.<sup>2</sup>

772. (D.D.B 240, 131 N.).<sup>1</sup> Stob. III, 29, 63; 83a; Maxim. L. c. 32, p. 621 (P.G. 91, p. 892 B); Δημοκρίτου. οἱ ἐκούσιοι πόνοι τὴν τῶν ἀκουσίων ὑπομονὴν ἐλαφροτέρην παρασκευάζουσι.

773. (D.D.B 241, 132 N.). Stob. III, 29, 64: τοῦ αὐτοῦ. πόνος συνεχῆς ἐλαφρότερος ἑαυτοῦ συνηθείη γίνεται.

774. (D.D.B 182). Stob. II, 31, 66: τοῦ αὐτοῦ. τὰ μὲν καλὰ χρήματα<sup>1</sup> τοῖς πόνοις ἢ μάθησις ἐξεργάζεται, τὰ δ' αἰσχροῦ ἀνευ πόνων ἀτόματα καρποῦται (= № 35).

775. (D.D.B 81, 125 N.). Stob. III, 29, 67; Democrat. 46: τὸ αἰεὶ μέλειν ἀτελέας ποιεῖ τὰς πράξεις.

## IV. Voluptates animi corpori praeferendo

776. (D.D.B 159, 22 N.).<sup>1</sup> Plut. Fr. De libid. et aegr. 2, 1: εἶκοι παλαιὰ τις αὕτη τοῖ σώματι διαδικασία πρὸς τὴν ψυχὴν περὶ τῶν παθῶν εἶναι. καὶ Δ. μὲν ἐπὶ τὴν ψυχὴν ἀναφέρων <τὸ> κακοδαίμον<sup>2</sup> φησιν· εἰ τοῦ σώματος αὐτῆι δίκην λαχόντος, παρὰ πάντα τὸν βίον ὧν ὠδύνηται <καὶ> κακῶς πέπονθεν, αὐτὸς γένοιτο τοῦ ἐγκλήματος δικαιτητής,<sup>3</sup> ἡδέως ἂν καταψηφίσασθαι τῆς ψυχῆς, ἐφ' οἷς τὰ μὲν ἀπόλεσε τοῦ σώματος ταῖς ἀμελείαις καὶ ἐξέλυσε ταῖς μέθαις, τὰ δὲ κατέφθειρε καὶ διέσπασε ταῖς φιληδονίαις, ὡσπερ ὄργανου τινὸς ἢ σκεύους κακῶς ἔχοντος τὸν χρώμενον ἀφειδῶς αἰτιασάμενος.<sup>2</sup> Plut. De sanit. 24, p. 135 E: ... ἐπιηραζόντες ἑτέροις ἢ φθονοῦντες ἢ φιλονικούντες ἢ δόξας ἀκάρπους καὶ κενὰς διώκοντες. πρὸς τοῦτους γὰρ οἶμαι μάλιστα τὸν Δημοκρίτον εἰπεῖν, ὡς εἰ τὸ σῶμα δικάσαιτο τῆι ψυχῆι κακώσεως, οὐκ ἂν αὐτὴν ἀποφυγεῖν.

776a. (D.D.B 149, 49 N.). Plut. Animine an corp. aff. 2, p. 500 D: λέγομεν οὖν ἐν ἡμῖν, ὅτι πολλὰ μὲν, ὡ ἄνθρωπε, σοῦ καὶ τὸ σῶμα νοσήματα καὶ πάθη φύσει τε ἀνίησιν ἐξ ἑαυτοῦ καὶ προσπίπτοντα δέχεται θύραθεν· ἂν δὲ σαυτὸν ἀνοίξῃς ἐνόσθεν, ποικίλον τι καὶ πολυπαθὲς κακῶν ταμείων εὐρήσεις καὶ θησαύρισμα,<sup>1</sup> ὡς φησι Δ., οὐκ ἐξώθεν ἐπιρρεόντων, ἀλλ' ὡσπερ ἐγγείους καὶ αὐτόχθονας πηγὰς ἔχόντων, ἃς ἀνίησιν ἢ κακία πολύχυτος καὶ θαφιλῆς οὖσα τοῖς πάθεσιν. Cf. Diog. Oenoand. I, col. I—II Chilton (suppl. ex. gr.): ἡ παρὰ Δημοκρίτου διαδικασία ... τοῦ σώματος αἰτίας εἰς τὸ ἀντιλέγειν | τῆι ψ[υ]χ[ῆ]ι οὐκ ἐδο[σ]το<sup>2</sup> ἐπιφέρωντος καὶ δικαίας, ὅτι μὴ δεόντως ὑπ' αὐτῆς σκύλλεται καὶ καταπονεῖται | καὶ εἰς οὐκ ἀναγκαῖα | δόρεται πράγματα·<sup>2</sup> τὰ μὲν γὰρ ὑπ' αὐτοῦ ζητούμενα μικρὰ εἶναι καὶ εὐπόριστα, ὧν δύναται καὶ ἡ ψυχὴ | συναπολαύουσα | καλῶς διάγειν, τὰ δ' ὑπὸ τῆς ψυχῆς μεγάλα τε | καὶ δυσπόριστα, πρὸς δὲ | τῶι μηδὲν ὠφελεῖν τὴν | φύσιν καὶ κινδύνους | ἐπιφέροντα.

777. (D.D.B 170, 9 N.). Stob. II, 7, 3 (v. № 780): εὐδαιμονίη ψυχῆς (sc. ἐστὶ)<sup>1</sup> καὶ κακοδαιμονίη.

778. (D.D.B 105, 16 N.). Democrat. 71: σώματος κάλλος ζωϊῶδες, ἦν μὴ νοῦς ὑπῆι.

779. (D.D.B 31, 50 N.).<sup>1</sup> Clem. Paed. I, 6 (I, 93, 15 Stähli.): ἰατρικὴ μὲν γὰρ κατὰ Δημοκρίτον σώματος νόσους ἀκέσται, σοφίη δὲ ψυχὴν παθῶν ἀφαιρεῖται.<sup>2</sup> Cf. CPP, f. 95 r: Δημοκρίτου. αἱ μὲν χελιδόνες εὐδίαν ἡμῖν προσημαινοῦσιν, οἱ δὲ ἐκ φιλοσοφίας<sup>3</sup> λόγοι ἀλυπίαν (depravatum).

780. (D.D.B 171, 10 N.).<sup>1</sup> Stob. II, 7, 3 (post № 777): εὐδαιμονίη οὐκ ἐν βροσκήμασιν οἰκεῖ οὐδὲ ἐν χρυσῶι· ψυχὴ οἰκητήριον δαίμονος.

781. (D.D.B 40, 15 N.). Democrat. 6: οὔτε σώμασιν οὔτε χρήμασιν εὐδαιμονοῦσιν ἄνθρωποι, ἀλλ' ὀρθοσύνη καὶ πολυφροσύνη.

782. (D.D.B 37, 8 N.). Democrat. 3; Gnom. Barocc. 17: ὁ τὰ ψυχῆς ἀγαθὰ αἰρέμενος τὰ θεϊότερα<sup>1</sup> αἰρέεται· ὁ δὲ τὰ σκήνεος τὰ ἀνθρωπῆα.

783. (D.D.B 57, 17 N.).<sup>1</sup> Stob. IV, 29, 18; Democrat. 23: κτηνῶν μὲν εὐγένεια ἢ τοῦ σκήνεος εὐσθένεια, ἀνθρώπων δὲ ἢ τοῦ ἡθεος εὐτροπή.<sup>2</sup>

784. (D.D.B 36, 187; 18 N.).<sup>1</sup> Stob. III, 1, 27; Democrat. 2; Maxim. L. c. 53, 656 (P.G. 91, p. 957 A); Ant. Melissa I, 55, p. 99 (P.G. 136, p. 951 b); Apostol. XVIII, 54a; Arsen. LV, 21: Δημοκρίτου· ἀνθρώποις ἀρμόδιον ψυχῆς μᾶλλον ἢ σώματος λόγον ποιεῖσθαι· ψυχῆς μὲν γὰρ τελεότης σκήνεος μοχθηρίην ὀρθοῖ,<sup>2</sup> σκήνεος δὲ ἰσχύος ἀνευ λογισμοῦ ψυχὴν οὐδὲν τι ἀμείνω τίθησιν.

785. (D.L.A 37). Clem. Strom. II, 129 (II, 183, 19 St.): καὶ μὴν Λύκος ὁ Περιπατητικὸς τὴν ἀληθινὴν χαρὰν τῆς ψυχῆς τέλος ἔλεγεν εἶναι, ὡς Δεύκιππος<sup>1,2</sup> τὴν ἐπὶ καλοῖς.



786. (D.D.B 207, 4 N.).<sup>1</sup> Stob. III, 5, 22; Apostol. VIII, 42a; Arsen. XXVIII, 36 (*cum lemm.* Ἰσοκράτους); Ant. Melissa I, 14, p. 26 (P.G. 136, p. 812 D, *sine lemmate post lemma* Ἐπικτήτου = Epictet., fr. 100 Schweigh.); AED, sent. 79 (*sine lemmate*); CPP, f. 27 r (*cum lemm.* ἐκ τῶν Ἰσοκράτους καὶ Δημοκρίτου): Δημοκρίτου. ἦδον ἢ οὐ πᾶσαν, ἀλλὰ τὴν ἐπὶ τῷ καλῷ αἰρεῖσθαι χρείων.

787. (D.D.B 73, 87 N.).<sup>1</sup> Stob. III, 5, 23; Democrat. 38: δίκαιος ἔρω ἀνοβρίτως ἐφίεσθαι τῶν καλῶν.

788. (D.D.B 194, 36 N.). Stob. III, 2, 46: Δημοκρίτου. αἱ μεγάλοι τέρψεις, ἀπὸ τοῦ θεᾶσθαι τὰ καλὰ τῶν ἔργων γίνονται.

#### V. Nulla re cogente sed libero animo iustitiam iniuriae praeferendo et summam voluptatem ex se ipso petendo

789. (D.D.B 41, 45 N.). Stob. III, 1, 95; Democrat. 7; Maxim. L. c. 24 p. 606 (P.G. 91, p. 864 C); CPP, №№ 493, 563: μὴ διὰ φόβον, ἀλλὰ διὰ τὸ δέον ἀπέχεσθαι ἀμαρτημάτων (v. № 605).

790. (D.D.B 146, 13 N.). Plut. De prof. in virt. 10, p. 81 A: τὸ γὰρ αὐτὸν εὐδοκιμοῦντα παρ' ἑαυτῷ μὴ καταφρονεῖν ἀλλὰ χαίρειν καὶ ἀγαπᾶν ὡς ἱκανὸν ὄντα μάρτυν ἅμα τῶν καλῶν καὶ θεατὴν δεικνύει τὸν λόγον<sup>1</sup> ἐντὸς ἤδη τρεφόμενον καὶ ριζοῦμενον ἐν ἑαυτῷ καὶ κατὰ Δημοκρίτον αὐτὸν ἐξ ἑαυτοῦ τὰς τέρψεις ἐδιζόμενον λαμβάνειν.

#### c. ΦΑΛΥΡΟΙ ET ANOIHMONES, QUI KAKESTO SIBI ASSUMPSE- RUNT (de doctriis falsis philosophis, v. №№ CVII—CXIV)

791. (D.D.B 239, 162 N.). Stob. III, 28, 13: Δημοκρίτου. ὄρκους οὐκ ποιέον-  
ται ἐν ἀνάγκῃσιν ἐόντες οὐ τηρέουσιν οἱ φαῦδοι, ἐπὶν διαφύγωσιν.

792. (D.D.B 302).<sup>1</sup> CPP, № 166; Maxim. L. c. 67, p. 684 (P.G. 91, p. 1007 C); Ant. Melissa I, 72, p. 118 (P.G. 136, p. 985 D): ταῖς τῶν καιρῶν μεταβολαῖς καὶ οἱ σφόδρα δυνατοὶ τῶν ἀσθενεστέρων ἐνδεεῖς γίνονται.

793. (D.D.B 200, 93 N.).<sup>1</sup> Stob. III, 4, 74: ἀνοήμονες βιοῦσιν οὐ τερπόμενοι βιοτῆι. (D.D.B 201, 94 N.). Stob. III, 4, 75: ἀνοήμονες δηλαιότητος ὀρέγονται οὐ τερπόμενοι δηλαιότητι.<sup>2</sup>

794. (D.D.B 202, 60 N.). Stob. III, 4, 76: ἀνοήμονες τῶν ἀπεόντων ὀρέγον-  
ται, τὰ δὲ παρόντα, καὶ<sup>1</sup> παρωχημένων κερδαλεώτερα ἔοντα ἀμαλδόνουσιν.

795. (D.D.B 204, 98 N.). Stob. III, 4, 78: ἀνοήμονες οὐδέν<sup>1</sup> ἀνδάνουσιν ἐν ὄλῃ τῆι βιοτῆι. (D.D.B 98, 211 N.). Democrat. 64: ἐνός φιλή ξυνοτοῦ κρέσ-  
σων ἀξυνέτων πάντων (= № 660). (D.D.B 99, 209 N.). Democrat. 65: ζῆν οὐκ ἄξιός, ὅτι μὴδὲ εἰς ἐστὶ χρηστός φίλος (= № 662).

796. (D.D.B 199, 96 N.).<sup>a</sup> Stob. III, 4, 73: ἀνοήμονες τὸ ζῆν ὡς ἀίδην<sup>a</sup>  
στυγέοντες ζῆν ἐθέλουσι δέματι αἰδέω (= № 584).

797. (D.D.B 205, 95 N.). Stob. III, 4, 79: ἀνοήμονες ζωῆς <ὀρεγόμενοι><sup>a</sup>  
ὀρέγονται <γῆρας> θάνατον δεδοκότες. (D.D.B 206, 95 N.). Stob. III, 4, 80:  
ἀνοήμονες θάνατον δεδοκότες γῆραςκεῖν ἐθέλουσιν. (D.D.B 203, 97 N.). Stob. III,  
4, 77: ἄνθρωποι τὸν θάνατον φεύγοντες διώκουσιν.

798. (D.D.B 197, 33 N.). Stob. III, 4, 71: ἀνοήμονες ρυσοῦνται τοῖς τῆς  
τύχης κέρδεσιν, οἱ δὲ τῶν τοιῶνδε δαήμονες τοῖς τῆς σοφίης. (D.D.B 119, 29, 30 N.).  
Euseb. Praep. Evang. XIV, 27, 5; Stob. II, 8, 16: Δημοκρίτου. ἄνθρωποι<sup>1</sup>  
τύχης εἰδωλον ἐπλάσαντο πρόφασιν ἰδίης ἀβουλίας (= № 32).

799. (D.O). Pers. I, 1 et schol. ad loc.: τῶν ἀνθρώπων αἱ ἐλπίδες ὅσον τὸ  
κενόν<sup>1</sup> (D.D.B 58, 102 N.). Democrat. 23a; Stob. IV, 46, 18: ἐλπίδες αἱ τῶν  
ὀρθῶ φρονούντων ἐφικταί, αἱ δὲ τῶν ἀξυνέτων ἀδύνατοι. (D.D.B 292, 103 N.).  
Stob. IV, 46, 19: ἀλογοὶ τῶν ἀξυνέτων αἱ ἐλπίδες. (D.D.B 185, 201 N.). Stob. II,

31, 94: Δημοκρίτου κρέσσονές εἰσιν αἱ τῶν πεπαιδευμένων ἐλπίδες, ἢ ὁ τῶν ἀμαθῶν  
πλοῦτος (= № 697).

800. (D.D.B 54, 31 N.). Democrat. 20: οἱ ἀξύνετοι δυστυχεόντες σωφρονέουσι.  
(D.D.B 76, 32 N.). Democrat. 41: νηπίοισι οὐ λόγος, ἀλλὰ εὐμφορὴ γίνεται δι-  
δάσκαλος. Cod. Paris 1169, f. 155 v; AED, sent. 89:<sup>1</sup> τοὺς μὲν ἀφρονες ὁ χρόνος,  
τοὺς δὲ φρονίμους ὁ λόγος τῆς λύτης ἀπαλλάττει.

#### K. ARTES

##### a. MEDICINA

801. (D.D. B 300, 10). Cels. I. prooem., p. 2, 11 Dar. (CML I, 18):  
Multos ex sapientiae professoribus peritos eius (sc. medicinae) fuisse acce-  
pimus: clarissimos vero ex is Pythagoram et Empedoclem et Democritum.

801a. (D.D.A 159). Soran. Gynaec. III, 17, p. 105, 1 Ilberg; v. №567a.  
Articulus ulterior quisque initium capit a denominatione libri e Thra-  
sili catalogo (Diog. IX, 48: Τεχνικὰ δὲ τὰδε...).

801b. Πρόγνωσις. (D.D.B 212, 128 N.). Stob. III, 6, 27: Δημοκρίτου. ἡμερῆ-  
σιν ἴπνοι σώματος ἔχλησιν ἢ ψυχῆς ἀδημοσύνην, ἢ ἀργίην, ἢ ἀπαιδεύσιν σημαίνουσι.

802. Περί διαίτης ἢ Διαιτητικόν.

803. Ἱητρικὴ γνώμη.<sup>a</sup>

804. Αἰτίαι περὶ ἀκαιριῶν καὶ ἐπικαιριῶν. Cf. Plut. Quaest. conv. III,  
6, 1, p. 653 B: Ἐπίκουρον... περὶ καιροῦ συνουσίας. (III, 6, 3, p. 654 B)  
ἕτερον καιρὸν (συνουσίας) ἄλλας ἀκαιρίας ἔχοντα ο. q. s. Oribas. Coll. med. VI, 38.

804a. (D.D.B 32, 86 N.).<sup>a</sup> Clem. Paed. I, 94 (I, 214, 9 St.); Hippol.  
Refut. VIII, 14 (p. 234, 5 W.); Stob. III, 6, 28: ξυνουσίη ἀποπληξίη σμικρῆ...  
Utteriora v. sub № 527.

804b. (D.O, Epicur. 62 Us.).<sup>a</sup> Diog. X, 118; Metrodor. in Gnom. Vatic.  
Epie. 51, p. 114, 7 Bailey = Pap. Berol. 16369 (v. St. Ital. di Filolog.  
Class. N.S. 13, 1936, 267; Arch. f. Pap. 13, 1938, 110); Clem. Paed. II  
101; Porphy. De abst. I, 52; Galen. De arte med. 24 (I, 371 K., cf.  
V, 911 K.); Galen. in Hippocr. epidem. comm. III, 1, 4 (XVII, p. 521):  
ξυνουσίη ὤνησε μὲν οὐδέποτε, ἀγαπητὸν δ' εἰ μὴ ἐβλαψε.

805. (D.D.B 120 = № 828) Erotian., p. 90, 18 N.: Δ. δὲ φλεβοπαλίην  
καλεῖ τὴν τῶν ἀρτηριῶν κίνησιν.

805a. (D.D.A 33). Diog. IX, 48: τάττουσι δὲ τινες κατ' ἰδίαν ἐκ τῶν Ὑπο-  
μνημάτων καὶ... Περί πυρετοῦ καὶ τῶν ἀπὸ νόσου βηρσόντων.

##### b. RES RUSTICA

806. (D.D.A 33). Diog. IX, 48 (Thrasili catalogus): Τεχνικὰ δὲ τὰδε  
Περί γεωργίας, ἢ Γεωμετρικόν.

806a. (D. 47 B 8). Varro. De re rustica I, 1, 8: Qui graece scripserunt  
(sc. de re rustica)... de philosophis D. physicus, Xenophon Socraticus,  
Aristoteles et Theophrastus peripatetici... (cf. Colum. I, 1, 7). (D. O).  
Isidor. Hisp. Etym. XVII, 1, 1, p. 308: Rerum rusticarum scribendi sollert-  
tiam apud Graecos primus Hesioidus Boeotius humanis studiis contulit;  
deinde D. (D. D. B 26f). Colum. I, praef. 32: Accedit huc quod illi, quem  
nos perfectum esse volumus agricolam, si quidem artis consummatae sit  
et in universa rerum natura sagacitatem Democriti vel Pythagorae fuerit  
consecutus... profecerit, si...

807. (D. D. B 27). Colum. III, 12, 5: Status caeli, cuius regionem quam  
spectare debeant vineae vetus est dissensio... Democrito et Magone laudan-  
tibus caeli plagam septentrionalem, quia existiment ei subiectas feracissi-  
mas fieri vineas, quae tamen bonitate vini superentur.

808. (D. D. B 27a). Colum. IX, 14, 6: Ceterum hoc eodem tempore (i. e. peracto solstitio usque ad ortum caniculae) progenerari posse apes iuvenco perempto Democritus et Mago nec minus Vergilius prodiderunt.

809. (D. D. B 28). Colum. XI, 3, 2: Democritus in eo libro, quem Georgicon appellavit, parum prudenter censet eos facere, qui hortis exstruant munimenta, quod neque latere fabricata maceries perennare possit pluviis ac tempestatibus plerumque infestata, eque lapide supra rei dignitatem poscat impensam; si vero amplum modum saepire quis velit, patrimonio esse opus. (D. O). Colum. XI, 3, 3: Vetustissimi auctores vivam saepem structili praetulerunt, quia non solum minorem impensam desideraret, verum etiam diuturnior immensis temporibus permaneret.

810. (D. O). Colum. XI, 3, 61: Veteres quidam auctores, ut D., praecipiant semina omnia succo herbae, quae sedum appellatur medicare eodemque remedio adversus bestiolas uti, quod verum esse nos experimentis docuit.

811. (D. O). Colum. VIII, 8, 7: Id ne fiat (sc. ne columbae sedes suas relinquunt) vetus est Democriti praeceptum: genus accipitris infestum tinnuculum vocant rustici, qui fere in aedificiis nidos facit. Eius pulli singuli fictilibus ollis conduntur spirantibusque opercula superponuntur et gypso lita vasa in angulis columbarii suspenduntur. Quae res avibus amorem loci sic conciliat, ne unquam deserant.

812. (D. O). Colum VI, 2, 8: Quae (sc. proles equorum) sive ut femina sive ut masculus concipiatur nostri arbitrii fore D. affirmat, qui praecipit ut, cum progenerari marem velimus, sinistrum testiculum admisarii lineo funiculo aliove quolibet obligemus; cum feminam, dextrum. Idemque in omnibus paene pecudibus faciendum censet (= № 531a).

813. (D.D.B 122). Etym. Gen., s. v. ἀλαπάξαι: ἐκπορθῆσαι παρά τὴν λάπαθον τὴν βοτάνην ἢ ἐστὶ κενωτικὴ γαστρός. καὶ Δ. τοὺς βόθρους τοὺς παρά τῶν κνηγετῶν γινόμενους λαπάθους καλεῖ διὰ τὸ κενεῖσθαι. Anecd. Bekk., Lex. VI, 374, 14: ἀμέλει Δ. τοὺς βόθρους τοὺς πρὸς τῶν κνηγῶν σκαπτομένους οἷς ὑπεράνω κόνις λεπτὴ ἐπιχεῖται καὶ φρύγανα ἐπιβάλλεται, ἵνα οἱ λαγωὶ ἐμπίπτωσιν εἰς αὐτοὺς, λαπάθους φησὶ καλεῖσθαι. Eustath. in Odys. IV, 176, p. 1490, 61: Δημόκριτος τοὺς βόθρους οὓς οἱ κνηγοὶ σκάπτοντες, φρύγανα καὶ κόνιν ἐπ' αὐτοῖς ἐπιβάλλουσιν, ἵνα τὰ θηρία ἐμπίπτωσι, λαπάθους καλεῖ. διὰ τὸ κενεῖσθαι ὀρυχθέντας...

### c. ARCHITECTURA

814. (D. D. B 300, 14). Seneca. Epist. ad Lucil. 90, 32: D., inquit (sc. Posidonius), invenisse dicitur fornicem, ut lapidum curvatura paulatim inclinorum medio saxo alligaretur. Hoc dicam falsum esse. Necesse est enim ante Democritum et pontes et portas fuisse, quarum fere summa curvantur...

### L. DE POESI ET ARTIBUS LIBERALIBUS

#### a. DE ORIGINE LOQUELAE ET MUSICAE ET OMNIS CULTUS POLITIORIS

(v. №№ 563—568a)

#### b. DE INFLAMMATIONE ANIMI POETARUM

(v. №№ 573a—576)

#### c. DE HOMERO

815. (D.D.A 33). Diog. IX, 48 (catalogus scriptorum Democriti): Μουσικά δὲ τὰδε· Περὶ Ὀμήρου, ἢ Ὀρθοσπεΐης καὶ γλωσσέων. Περὶ αἰοιδῆς.

816. (D.D.B 21). Dio 36, 1 (II, 109, 21 Arnim.): ὁ μὲν Δ. περὶ Ὀμήρου φησὶν οὕτως: «Ὀμηρος φύσεως λαχὼν θεαζούσης ἐπέων κόσμον ἐτεκτῆνατο παντοίων», ὡς οὐκ ἐνὸν ἄνευ θείας καὶ δαιμονίας φύσεως οὕτως καλὰ καὶ σοφὰ ἐπι ἐργάσασθαι. V. № 575.

817. (D.D.B 22). Porphyr. Quaest. Hom. I, 274, 9 Schrad. (in II. XXI, 252): οἱ δὲ κατεφύσαντο τοῦ ποιητοῦ ὡς «μελανόστου» (pro μέλανος τοῦ) ὅφ' ἐν ὧς Ὀρέστου εἰρηκότος διὰ τὸ καὶ Δημόκριτον ἱστορεῖν ἐπὶ τοῦ ἀετοῦ τὰ ὁσᾶ μέλανα εἶναι καταφειδόμενοι τῆς ἀληθείας.

818. (D.D.B 23) Schol. Hom. A in II. VII, 390: τὸ «ὡς πρὶν ὄφελ' ἀπολέσθαι» εἶτε καὶ τοῖς Ἑλλήσιν εἰς ἐπήκοον λέγει ὁ κῆρυξ πρὸς τὸ συγγνωμονεῖν τοῖς ἄλλοις Τρωσὶν ὡς καὶ αὐτοῖς ὀργισμένοις, εἶτε καθ' ἑαυτὸν καὶ ἡμέρα, ὡς Δ. ἀξιοῖ ἀπρεπὲς ἠγησάμενος τὸ φανερῶς λέγεσθαι, ἀμφοτέρω προστικτέον.

819. (D.D.B 24). Eustath. in Odys. XV, 376, p. 1784: ἰστέον δὲ ὅτι ἐς τοσοῦτον ἠξιώθη λόγου τοῖς παλαιοῖς ὁ εὐνοϊκὸς οὗτος δούλος Εὐμαιος, ὥστε καὶ μητέρα αὐτοῦ ἐξευρίσκουσι. Δ. μὲν Πενίαν, Εὐφορίαν δὲ Πάνθειαν, Φιλόθενος δὲ ὁ Εὐδώνιος Δανάην.

820. (D.D.A 101). Aristot. De anima I, 2, p. 404a 27: ὡς περ Δ. ... καλῶς ποιῆσαι τὸν Ὀμηρον ὡς Ἐκτωρ «κεῖτ' ἄλλοφρονέων» οὐ δὴ χρῆται τῷ νῶι ὡς δυνάμει τινὶ περὶ τὴν ἀλήθειαν, ἀλλὰ ταῦτό λέγει ψυχὴν καὶ νοῦν. Theophr. De sensu 58 (Dox. 513): (Δ. δὲ ... φησὶ) τοὺς παλαιοὺς καλῶς τοῦθ' ὀπολαβεῖν, ὅτι ἔστιν «ἄλλοφρονεῖν» (v. № 444).

821. (D.D.B 25). Eustath. in Odys. XII, 62, p. 1713: ἄλλοι δὲ Δία μὲν νοοῦσι τὸν ἥλιον ... ἀμβροσίαν δὲ τὰς ἀτμίδας αἷς ὁ ἥλιος τρέφεται, καθὰ δοξάζει καὶ Δ. (Non pertinet ad Homeri interpretationem Democriteam, v. № 397a).

### d. DE RATIONE BENE DICENDI ET SCRIBENDI

822. (D.D.B 2). Etym. Orion., p. 153, 5: Τριτογένεια ἢ Ἀθηνᾶ κατὰ Δημόκριτον φρόνησις νομίζεται. γίνεται δὲ ἐκ τοῦ φρονεῖν τρία ταῦτα· βουλευέσθαι καλῶς, λέγειν ἀναμαρτήτως καὶ πράττειν ἃ δεῖ. Schol. Genov. I, 111 Nic.: Δ. δὲ ἐτομολογῶν τὸ ὄνομα (sc. Τριτογένεια) φησὶν, ὅτι ἀπὸ τῆς φρονήσεως τρία ταῦτα συμβαίνει· τὸ εὖ λογίζεσθαι, τὸ εὖ λέγειν καὶ τὸ πράττειν ἃ δεῖ. Schol. Hom. BT in II. VIII, 39; Diog. IX, 46: ἔστι δὲ Ἠθικά μὲν (sc. βιβλία Δημοκρίτου) τὰδε... Τριτογένεια· τοῦτο δὲ ἐστὶν, ὅτι τρία γίνεται ἐξ αὐτῆς, ἃ πάντα ἀνθρώπινα συνέχει.

823. (D.D.A 33). Diog. IX, 48 (catalogus scriptorum Democriti): Μουσικά δὲ τὰδε· Περὶ ῥυθμῶν καὶ ἁρμονίης. Περὶ ποιήσεως. Περὶ καλλοσύνης ἐπέων. Περὶ εὐφώνων καὶ δυσφώνων γραμμάτων... Περὶ αἰοιδῆς. Περὶ ῥημάτων. Ὀνομαστικῶν.

824. (D.D.B 19). Eustath. in II. III, 1, p. 370, 15: τὸ γάμμα στοιχεῖον γέμμα φασὶν Ἴλιον καὶ μάλιστα Δ., ὅς καὶ τὸ μῦ μῶ λέγει. Photius, s. v. μῶ: τὸ μῦ στοιχεῖον Δ.

825. (D.D.B 20). Schol. Dion. Thrac., p. 184, 3 sqq. Hilg.: τὰ ὀνόματα τῶν στοιχείων ἀκλιτὰ εἰσιν... παρὰ Δημοκρίτῳ δὲ κλίνονται· λέγει γὰρ δέλτατος καὶ θήτατος.

### M. DE IPSIUS DEMOCRITI GENERE DICENDI

#### a. ARS DICENDI («STILUS»)

826. (partim D.D.A 34). Cic. De orat. I, 11, 49: Si ornate locutus est, sicut et fertur et mihi videtur, physicus ille D., materies illa fuit physici de qua dixit, ornatus vero ipse verborum oratoris putandus est. Cic. Orat. 20, 67: Quicquid est enim, quod sub aurium mensuram aliquam cadat, etiamsi abest a versu (nam id quidem orationis est vitium), numerus vocatur,

qui graece ῥυθμός dicitur. Itaque video visum esse nonnullis Platonis et Democriti locutionem etsi absit a versu, tamen quod incitatius feratur et clarissimis verborum luminibus utatur, potius poëma putandum quam comicorum poetarum. Cic. De divinat. II, 64, 133: Valde Heraclitus obscurus, minime D. Cic. Acad. priora II, 23, 73: Quid loquar de Democrito? Quem cum eo conferre possumus non modo ingenii magnitudine, sed etiam animi? Timon apud Diog. IX, 40: (Δημόκριτόν γε καὶ Τίμων τοῦτον ἐπαινέσας τὸν τρόπον ἔχει·)

οἷον Δημόκριτόν τε περίφρονα, ποιμένα μύθων,  
ἀμφίσοον λισχήνα μετὰ πρόποισιν ἀνέγνων.

827. (D.D.A 34). Dion. De compos. verb. 24: (*maxime excellunt*) φιλοσόφων δὲ κατ' ἐμὴν δόξαν Δ. τε καὶ Πλάτων καὶ Ἀριστοτέλης· τούτων γὰρ ἐτέρους εὐρεῖν ἀμήχανον ἄμεινον κεράσαντας τοὺς λόγους.

#### b. DIALECTISMI IN GLOSSEMATIS ET VERBORUM COMPOSITIONE

828. Glossae Democriteae ordine alphabetico dispositae. (D.D.B 29). Apollon. Cit. in Hippocr., p. 6, 29 Schöne: ταύτης δὲ τῆς ἐμβολῆς τὴν ἰσχυροτάτην ἀνάγκην περιεχούσης ὁ Βακχεῖος τὴν ἐπὶ τοῦ μοχλοειδοῦς ξύλου λεγομένην ἄμβην· ἐν ταῖς Περὶ τῶν Ἱπποκρατείων λέξεων ἐξηγείται, ὅτι «ἐν ταῖς λέξεσιν ἀναγράφεται, ὡς Ῥόδιοι ἄμβωνας καλοῦσι τοὺς τῶν ὀρῶν λόφους καὶ καθόλου τὰς προσαναβάσεις». καὶ διὰ τούτων φησὶν πάλιν· «ἀναγράφεται δὲ καὶ ὡς ὁ Δ. εἴη καλῶν τῆς ἴτους τὴν τῶι κοίλωι περικειμένην ὀφρὺν ἄμβην». Cf. Erotian., p. 23, 8 Nachmanson. (D.D.B 138). Hesych., s. v. ἀμειψικασμῆ: μετακόσμησις (v. № 325). (D.D.B 139). Hesych., s. v. ἀμειψιρυσμῆν: ἀλλάσσειν τὴν σύγκρισιν ἢ μεταμορφοῦσθαι (v. № 326).

(D.D.A 33). Diog. IX, 47: Περὶ ἀμειψιρυσμῶν.

(D.D.C 5). [Hippocr.] Epist. 18, 1 (IX, 380 Littré): ἀμειψιρυσμῆς.

(D.D.B 139a). Hesych., s. v. ἀμειψίχρονον· μεταβάλλον τὰ χράματα (v. № 327).

(D.D.B 130). Hesych., s. v. ἀμφιδήτιοι· ὡς κρίκοι διάκενοι παρὰ Δημοκρίτωι.

(D.D.B 144a). Photius. Lex., s. v. ἀναβήσομαι (p. 106, 23 Reitz.): Δ.: ἐπανεξελούσομαι <ἐπὶ τὰ> ἐξ ἀρχῆς. (Cf. Hesych., s. v. ἀναβήσομαι).

(D.D.B 131). Hesych., s. v. ἀπάτητον: τὸ ἀνωμάλως συγκείμενον παρὰ Δημοκρίτωι.

(D.D.B 132). Hesych., s. v. ἀσαλῆρες: ἰσόπλευρον παρὰ Δημοκρίτωι (v. № 136).

(D.D.B 133). Hesych., s. v. βροχμώδης: ἢ νοτερά καὶ ἀπαλή. Δημόκριτος.

(D.D.B 134). Hesych., s. v. βρόχος: ἀγκύλη Δημόκριτος.

(D.D.B 123). Etym. Gen., s. v. δείκελον: παρὰ δὲ Δημοκρίτωι κατ' εἶδος ὁμοία τοῖς πράγμασιν ἀπόρροια (v. № 467).

(D.D.B 135). Hesych., s. v. δεξαμεναί: ὕδατων δοχεῖα, καὶ ἐν τῶι σώματι φλέβες. Δημόκριτου.

(D.D.B 136). Hesych., s. v. δυοχοί: ποματίζει. παρὰ Δημοκρίτωι. Cf. δυοχῶσαι· πομάσαι.

(D.D.C 4). [Hippocr.] Epist. 17, 40 (IX, 368 Littré): ἐμπελάζονται. Cf. № 472a.

(D.D.C 3). [Hippocr.] Epist. 17, 11 (IX, 352 Littré): ἐνθουσιωδῶς.

(D.D.B 140). Hesych., s. v. εὐδαιμόνια: ... εὐδαιμονία (v. № 736).

(D.D.B 141). Hesych., s. v. ἰδέα: ἢ ὁμοιότης, μορφή, εἶδος. καὶ τὸ ἐλάχιστον σῶμα (v. № 198).

(D.D.B 128). Herodian. π. καθολ. προσ. apud Theogn., p. 79 (I, 355, 19 L.): εἰς ὧν οὐδέτερον μονογενὲς ἢ εἰς ἠν, ἢ εἰς αν, ἢ εἰς εν, ἢ εἰς ιν, ἢ εἰς υν, οὐκ ἔστιν εὐρεῖν. τὸ γὰρ ἰδιότην παρὰ Δημοκρίτωι βεβίασται.

(D.D.C 5). [Hippocr.] Epist. 18, 1 (IX, 380 Littré): ὀκία γὰρ ἰνδαλμοῖσι διαλλάσσοντα ἀνὰ τὸν ἥερα πλάζει ἡμέας (ubi ἰνδαλμοῖσι pro voce Democritea assumitur).

(D. O). Hesych., s. v. καχεστοῦν: ἢ κακὴν κατάστασιν. ἢ ἀπραγίαν.

(D.D.C 3). [Hippocr.] Epist. 17, 25 (IX, 360 Littré): νηπιάζοντα.

(D.D.B 137). Hesych., s. v. συγγονή: σύστασις ° Δημόκριτος (= № 324).

(D.D.B 120). Erotian., p. 90, 18 N.: φλέβας δὲ οὐ τὰς συνήθως λεγομένας, ἀλλὰ τὰς ἀρτηρίας ὠνόμασε. καὶ ὁ Δ. δὲ φλεβοπαλίην καλεῖ τὴν τῶν ἀρτηριῶν κίνησιν (v. № 805 c. comm.).

(D.O). Erotian., s. v. φλενοδόδη (p. 52, 10 Klein. et praef.).

Proprie dicta apud Democritum.

829. (D.D.B 129a). Herodian. in Epimer. Hom. 396, 11 (II, 224 L.):

καὶ παρὰ τὸ «κλίνω» «κέλνται» παρὰ τῶι Δημοκρίτωι χωρὶς τοῦ ν.

(D.D.B 121). Eustath. in Odys. II, 190, p. 1441 (e Philoxeno Περὶ συγκριτικῶν): Δ. δὲ «ἐπιτηδεύεστατόν» φησι.

(D.D.B 13). Apollon. Dyscol. De pronom., p. 65, 15 Schneid.: καὶ Φερικύδης ἐν τῇ Θεολογίᾳ καὶ ἐτι Δ. ἐν ταῖς Περὶ ἀστρονομίας καὶ ἐν ταῖς ὑπολειπομέναις συντάγμασι συνεχέστερον χρῶνται τῇ ἐμεῦ καὶ ἐτι τῇ ἐμέο.

(D.D.B 29a). Apollon. Dyscol. De pronom., p. 92, 20 Schneid.: αἱ πληθυντικαὶ <ει> ἢ καὶ κοινολεκτοῦνται κατ' εὐθείαν πρὸς τὸ Ἴωνον καὶ Ἀπτικῶν ἡμεῖς, ὁμεῖς, σφεῖς, ἔστιν ἢ πιστώσασθαι καὶ τὸ διαιρετὸν ° τῆς εὐθείας παρ' Ἴωσιν ἐκ τῶν περὶ Δημοκρίτον.

(D.D.B 298). Suda, s. v. α: βραχέως δὲ καὶ δασέως (itaque α) τὸ ἄτινα ὡς παρ' Ἱπποκράτει, παρὰ δὲ Δημοκρίτωι ἴδια, παρ' Ὀμηρῶι τὰ ἑαυτοῦ.

(D.D.B 129). Herodian. De affect. (II, 253 L.): νένοται καὶ πάλιν ὡς χρυσοῦνται — χρυσοῦνται, οὕτω καὶ νέονται — νοῦνται. Δ. (v. № 576).

VARIAE LECTIONES

I

<sup>a</sup> διαβεβαιουμένων F: διαβεβοημένων *cett.*

II

<sup>a</sup> et iam ante Davts: et veluti amantes *codd.*

V

<sup>a</sup> OII: OΘ Reinestus (*cf. Diels ad loc.*).

XI

<sup>a</sup> ἀποδημήσαι BP: καὶ ἀποδημήσαι F: <διὰ τὸ> ἀποδημήσαι τούτου Reiske et Diels,

XIV

<sup>a</sup> λόγους ἡθικῶδες *codd.*: λόγους ἰδίους Cobet: λόγους οἰκίους Diels: λόγους ἡθικῶδες ἰδίους (*per haplographiam*) *coni. Luria.*

<sup>b</sup> δὴ Schwartz: ἦ *codd.*, quod delet Stählin, servat notans: «nämlich γράφει» Diels.

<sup>c</sup> καὶ περὶ αὐτοῦ... πολυμαθία Clem.: καὶ περὶ σεμνονόμενος περὶ αὐτοῦ φησιν Euseb.:

<sup>d</sup> αὐτὸς που περὶ αὐτοῦ φησιν Sozom. (N<sup>o</sup> XV).

<sup>e</sup> ἀνέρας *supp. Ten-Brink (fortasse recte, v. comm.):* ἀέρας Clem., Euseb.: ἀέρα Sozom. (N<sup>o</sup> XV).

<sup>f</sup> ἀνθρώπων Clem. (*v. λογίων ἀνθρώπων N (B 30):* ἀνδρῶν Euseb., quem Diels se-

quitur.

<sup>g</sup> ὅτι ὡς *coni. Luria subdubitans:* ὁγδώκοντα *codd. omnes (Clem., Euseb., So-*

*zom.), quod impossibile est, πέντε Diels (v. comm.).*

<sup>h</sup> τοῖς τε Αἰγυπτίοις καὶ τοῖς μάγοις *coni. Luria:* τοῖς τε μάγοις Clem.: τοῖς τε Αἰγυπτίοις Euseb.

XV

<sup>a</sup> Verba ἀέρα τε *in versione Masculi absunt, qua de causa Valisius apud Migne*

(P. G.) *ea delenda esse censet.*

XVI

<sup>a</sup> κατὰ τὴν Vogel: κατ' *codd. Diod.:* κατὰ Euseb.

XXIII

<sup>a</sup> τελευτῆς LC: τελετῆς r.

XXVI

<sup>a</sup> ἀπὸ *codd.:* ὑπὸ Steph.

XXIXa

<sup>a</sup> ἐταίροις Wil.: ἐτέροις A.

XXXIV

<sup>a</sup> futura ex Pintiani: ex futuro *codd.*

<sup>b</sup> cursus *codd.:* concursus *coni. Mayhoff.*

XXXVIII

<sup>a</sup> Δημοκρίτ. sic Maxim. l. c., versio rossica (*v. comm.*) τοῦ αὐτοῦ (*i. e. Aristotelis!*)

*apud Gesnerum; post sententiam cum lemmate Δημοκρίτου sine lemmate Ant. Melissa.*

XLII

<sup>a</sup> notione: notatione *Us. sine necessitate.*

XLIII

<sup>a</sup> quaerere <notu>mus *coni. Mueller:* quereremus *BE:* queremus *V.*

XLIV

<sup>a</sup> filii *vulg.:* viri *codd.:* vivide plorantis (*pro viri deplorantis*) *Bothe.*

XLV

<sup>a</sup> ἔσοπτρα πυρωθέντα GIV, ἔσοπτρον πυρωθέντα X<sup>1</sup> u: ἔσοπτρον πυρωθέν O, ἔσοπτρον πυρὶ τ' ἀντιτεθέν Diels, *v. comm.*

XLIX

<sup>a</sup> Crönert *supplet post* δὲ [διά] *et infra* [ἐκλήθη], *in quo mihi proprio arbitrio indul-*  
*sisse videtur; non video enim cur* [ἦ ante ὑπὸ cum Φιλόπολις *contingendum sit.*

LIII

<sup>a</sup> ἦνυσε *coni. Opsopoeus:* μήνυσε *codd.*

LIV

<sup>a</sup> Textum valde corruptum hoc modo sanavit Diels: Θε<αμοφ>ρία λελ>υμένα, l. 5,  
<κ>ατα<πνεῖν ἀτρών>, l. 6, ἰπνοῦ ἀτρών, l. 7.

LVI

<sup>a</sup> διάγοι *coni. Musurus:* διάγει *codd.*

<sup>b</sup> βρέχοι *coni. Musurus:* βρέχει *codd.*

LVIII

<sup>a</sup> Post βούλεσθαι lacunam esse suspicio, in qua olim τὸν σοφόν sive Δημοκρίτην lege-  
*batur, v. comm.*

<sup>b</sup> τὴν I: τῶν O.

LXIV

<sup>a</sup> incerare *codd.:* incerate *Madvig, Jahn.*

LXV

<sup>a</sup> δ' ἂν Hercher: δὲ *codd.*

LXIX

<sup>a</sup> πρὸς Δημοκρίτου Diels, *coll. LXX, l. 4,* ἀναληφθῆναι ὑπ' αὐτοῦ: πρὸς Δημόκριτον *codd.*

LXX

<sup>a</sup> <in>scripsit Hertz: scripsit *codd.*

<sup>b</sup> mercede<m> Hertz: mercede *codd.*

LXXI

<sup>a</sup> [καὶ] delet Friedländer.

LXXX

<sup>a</sup> <ῶτι> *suppl. Reiske.*

<sup>b</sup> <ὁ ἀγών> Reiske.

LXXXI

<sup>a</sup> Μητροδώρου *em. Cobet:* Μητρόδωρος *codd.*

LXXXVII

<sup>a</sup> καὶ Ναυκίδης F: delet Diels: καὶ Λακίδης Φ: <ὁ> inserui, qua de causa et ὧν in  
*οὔ muto.*

LXXXVIII

<sup>a</sup> ὁ praetermisit Crönert, vidit Diels in Neapol. Oxon.

<sup>b</sup> συ<α>τήσας Vogliano, συ<α>τήσας κατὰ Δημόκριτον Diels, cetera *suppl. Diels.*

XCI

<sup>a</sup> Δημοκρίτ<ει>ος Diels, *v. comm.*

XCVIII

<sup>a</sup> <ἐν τῷ> *suppl. Menage.*

C

<sup>a</sup> Democritea dicit *Us.:* Democrito addicit *codd.*

## CVI

<sup>a</sup> ὑπαιρούμενος *Wytttenb.*: ὑπαιρούμενοι *codd.*

## CVII

<sup>a</sup> ἔριν διατῶντων *codd.*, sic tam in fonte *Strabonis legebatur, v. comm.*  
<sup>b</sup> ἐριδαντές καὶ ἱμαντελικτές: false formavit *Clemens (aut fons eius) hunc casum nominativum e genetivo vocabuli ἐριδάνται καὶ ἱμαντελικταί, v. comm.*

## CXV

<sup>a</sup> ἄμιλλα κλεψύδραι (κλεψύδραι) *codd.*: ἄμιλλα κλεψύδρας *Froben, certamen clepsydrae Ambros., v. comm.*

<sup>b</sup> Χεῖρ νικῆι tempto dubitanter: χέρνικα *BP?*: χέρνικα *PF?*: ἡ *PF, deest B*: χερφόκητα προβλήματα *Salmasius, v. comm.*

1

<sup>a</sup> ἦ: τοῦ *AST.*

3

<sup>a</sup> οὔτε γὰρ οἶόν <τε> *Diels*: οἶον οὔτε γὰρ *PF.*

<sup>b</sup> del. *Stephanus. Cf. Natorp, Forschungen zur Geschichte des Erkenntnisproblems, p. 188; Brieger progr. Hal. 1884, p. 6; Hart. Berl. Phil. Wochenschr., 1887, p. 173.*

6

<sup>a</sup> et eos quidem innumerabiles: corr. et del. *Manutius.*

7

<sup>a</sup> αὐτῶι *LF*: αὐτὸ *A*: *Democrito S.*

14

<sup>a</sup> διὰ τοῦτον: διὰ τοῦτο *FIK Bekk.*

15a

<sup>a</sup> *Epicurus Turneb.*: securus et secutus *codd.*

<sup>b</sup> quod *August.*: om. *codd.*

17

<sup>a</sup> οὐδ', εἰ ᾧδι ἢ ᾧδι *Diels sec. Al. 690, 35, v. infra*: οὐδὲ ᾧδι οὐδὲ *codd.*

18

<sup>a</sup> τὸ σχῆμα: τὰ σχήματα *L.*

<sup>b</sup> δίνην *Mi*, δινὴν *K*, διαφορὰν *L*, fortasse ex δινὴν καὶ περιφορὰν (*Bekk.*).

19

<sup>a</sup> ἰδεῶν *H. Gomperz*: εἰδέων *Simpl.*

23

<sup>a</sup> δίκην *codd.*: δινὴν olim dubitanter proposueram nisus *Themist. 49, 12 (N° 18), ubi δίκην pro δινὴν legitur. Theodoretus addit etiam καὶ δαίμονα, sec. Diels ex Aët. II, 7, 1, unde fortasse etiam lectio δίκην oriri potuit (Παρμενίδης [αἰτίαν] κινήσεως... δαίμονα... ἐπονομάζει Δίκην τε καὶ Ἀνάγκην).*

<sup>b</sup> τὴν *codd.*: τινὰ *Roepert.*

24

<sup>a</sup> *Anaxagoras Karsten*: *Aristoteles codd.*

28

<sup>a</sup> Ἀναξαγόρας καὶ *Δ. Theodoret., Suda*: Ἀναξαγόρας [*Plut.*]. *V. Dox. 46.*

32

<sup>a</sup> ἀβουλῆς *Stob.*: ἀνοτῆς *Dion.*, «der im folgenden frei paraphrasiert» (*Diels*).

<sup>b</sup> βαιᾶ (*adv.*) *Heeren*: βαιᾶ *Stob.*: βαιῆι *Meineke*: φύσει *Dion.*

<sup>c</sup> ὀξυδερκεῖν *codd.*: ὀξυδερκίη *Meineke.*

33

<sup>a</sup> ἐπαυρισκοίμεθα τῶν *codd.*: em. *Meineke.*

<sup>b</sup> τε *Langerbeck*: δὲ *codd.*

<sup>c</sup> εἴημεν: ἄκος εἴη μὲν <ταγαθὰ> *Langerbeck (itidem Alfieri).*

35

<sup>a</sup> οὔτω μεγάλα τὰ τῆς φυσικῆς κάκῆς ἐστὶ *conl. Luria sec. Natorpium (v. infra)*: οὔτω μεγάλης τε τῆς φυσικῆς ἐστὶ *codd.*: οὔτω μέγα τὸ τῆς φυσικῆς κάκῆς ἐστὶ *Natorp.*

36a

<sup>a</sup> μεγάλοι *Gomp.*: μεγάλα *Pap.*

<sup>b</sup> τῶι *Gomp.*: τὸ *Pap.*

37

<sup>a</sup> ἀκνάγκην *Gassendi, dubitanter Mühl, Philippson, Sittensprüche, 413, coll. N° 29*: Δ. . . τὴν τύχην τῶν μὲν καθόλου . . . δέσποιναν ἐπιστάς καὶ βασιλίδα.

<sup>b</sup> ἀβέβαιον *codd.*: βέβαιον *H. Lamy, Goedeckemeyer non recte, v. N° 33a*: τύχη . . . ἀβέβαιος.

<sup>c</sup> οἶεται *codd.*: μὴ οἶεται sive οὐκ οἶεται *Gassend., Us., Mühl alii, perperam, ut puto, nam haec enuntiatio mihi scholium marginale per errorem in textum intrusum, ut pluries alibi, esse videtur.*

39

<sup>a</sup> προ[λεχθὲν μὴ οὔτως *William*: προ[ρηθὲν οὔτως *suppl. Us., postea idem πρό[τερον] conl.*

<sup>b</sup> ΤΟΙΤΗΝΑΕ *FD*: [ὡς φασιν αὐ]τοῖ *suppl. HK.*

<sup>c</sup> δ]ιαφεύγειν *suppl. iam HK.*

<sup>d</sup> τοῦτ' ἀπιστοίη] *Luria*: τοῦτο πιστεῖται] *William.*

<sup>e</sup> ΕΤΑΙ *F*: ΟΝΤΑΙ *D*: τίτι γὰρ [ἄλλη χρῆσ]εται *William*: τίτι γὰρ [τοῦτου χρῆσ]ονται *Us.*

<sup>f</sup> ἀνηρημέ]νης *suppl. iam Us.* τίτι γὰρ [οὔτος χρῆσ]εται πιστεῖται [τοῦτων λεγο]μένων [καὶ τίτι λ]έξει; [ἀνηρημέ]νης οὐν κτλ. *HK* οὐκ ἀνηρημέ]νης temptabat olim *William.*

<sup>g</sup> <τὴν δὲ κεινῶν εἶναι> per haplographiam omissum esse putat *Luria, cf. Philopon. in De anima, p. 167, 20, N° 294.*

<sup>h</sup> ΕΝΕ ΝΑΕ *F*: ἐνθεν δὲ *William*: ἐνε[ρθε]ν δὲ *HK, Diels, Kranz, Alfieri, quod tamen nullum sensum praebet, quoniam ἐνερθεν nullo modo «e loco superiori deorsum» («verso il basso», Alfieri), quam significationem contextus postulat, sed solum contrarium «e loco inferiori sursum» significare possit.*

<sup>i</sup> οὐκ οὐν *suppl. HK*: οὐκ *C*: οὐκ οὐκ *Us.*

<sup>k</sup> [ἐξέσται κολάζειν] *suppl. Us.*

42

<sup>a</sup> ἀπαθῶν *Xylander*: in codice lacuna 5 litterarum.

49

<sup>a</sup> ἴμμεν *correat coll. N° N° 51 et 9*: ἴσμεν *codd. omnes.*

55

<sup>a</sup> [καὶ] *Brieger.*

<sup>b</sup> <ἐστὶ> *Bekk.*

<sup>c</sup> <ἦ> *add. ed. princ.*

57

<sup>a</sup> φησι: fortasse φύσει (ut *VIII, 6, v. infra. N° 92*): scriptura recentior.

<sup>b</sup> ἦν: εἶναι? *Bekk.*

58

<sup>a</sup> sensusque idem *Davis*: sensus quidem *codd.*

<sup>b</sup> sed *Guiet*: nec *codd.*

<sup>c</sup> et vel delet *Reid*: vel ut delet *Davis* ut glossema vocis et.

61

<sup>a</sup> <έτετι δὲ τὸ κενὸν καὶ> *suppl. Wytttenbach* nisus schollio in *Diog. IX, 44, 72.*

<sup>b</sup> <μάχεσθαι> *suppl. Reiske.*

<sup>c</sup> <λέγει, πότερον τεθνηκώς> *suppl. Luria*: ὡς τεθνηκώς *suppl. Xylander.*

<sup>d</sup> <τε> *suppl. Cousin.*

62

<sup>a</sup> εἰμαρμένη <ἦ> πεπρωμένη *Saarmann.*

<sup>b</sup> τύχης, τῶι δὲ ἐξ *suppl. Luria.*

63

<sup>a</sup> ὁ *om. cod.*

<sup>a</sup> κατά Bucheler: κατά pap.

<sup>a</sup> μετ' αισθήσεως: μετ' αισθήσεως ὄντα LS, Alex. Aphr. et omnes editiones (ὄντα omittunt etiam veteres latinae versiones).

<sup>a</sup> ὅμως Kranz: ὅλως E: ὁμοίως Ab (est haec coniectura necessaria, ne contradictio cum antecedentibus: ἢ τοι οὐδὲν εἶναι ἀληθές ἢ ἡμῖν γ' ἀδελον fiat).

<sup>a</sup> <ἀν> suppl. Bekk.

<sup>a</sup> ἢ addit Brandis.

<sup>a</sup> εἰπὼν Xylander: ἐπιπὼν codd.

<sup>a</sup> App. crit. v. ad № 73.

<sup>a</sup> ἀποκεκρυμμένα δὲ <τὰ> ταύτης Langerbeck: ἀποκεκρυμμένη δὲ ταύτης codd. praeter UR, ubi ἀποκεκριμένη δὲ ταύτης.  
<sup>b</sup> <τὶ δέηι καταφεύγειν> (sec. Hervetum: confugiendum) Kochalsky: <δέηι ζητεῖν> Diels: <τότε ἐπιγίνεται ἢ γνήσιον> v. g. sec. Diels.

<sup>a</sup> ἔτεγι δὲ μόνα (Rhein, Mus. 47, 437): ἔτι εἰ δαίμονα codd.

<sup>a</sup> καὶ τοί γε οὐκ AB: καὶ τ . . . Medic.: καὶ τὰς αἰσθήσεις perperam coni. Diels, v. comm.

<sup>a</sup> <ἦ> suppl. Diels. Cf. comm. ad № CVI.

<sup>a</sup> Quae uncis angulatis < > circumscripta sunt, apud solum Alexandrum leguntur. V. comm.

<sup>a</sup> καὶ τοῦτο δυνατόν om. E, quod rectum esse suspicor.  
<sup>b</sup> ἀν EH Kranz: ἐάν Φ c: κᾶν FL Bekk.  
<sup>c</sup> <γάρ> Luria: τε codd.  
<sup>d</sup> ἄλλο I. Hammer-Jensen: ἄλλα codd.  
<sup>e</sup> μέρος suppl. Luria: μέρος Vitelli.  
<sup>f</sup> του Aristot., p. 316b 32: τοῦτου Philopon.

<sup>a</sup> περὶ τὰ ἀμερῆ Diels: ἢ τὰ ἀμερῆ (A) BC (H pro H lectum).  
<sup>b</sup> τὰμερῆ Heeren: τὰ μέρη A.

<sup>a</sup> τὸ Heib.: τότε ABD: καὶ E: δηλονότι E<sup>2</sup> c: scilicet b.  
<sup>b</sup> <δίχα> supplevi: v. Philopon. et meos comm.

<sup>a</sup> τὰ <ελάχιστα> μεγέθη suppl. Luria: ἀμεγέθη Hayduck: τὰ μεγέθη codd.

<sup>a</sup> ἀν λαμβάνεσθαι Bonitz: ἀναλαμβάνεσθαι codd.  
<sup>b</sup> μήκους LNH<sup>a</sup>W<sup>a</sup>.

<sup>a</sup> Aristoteles Schulze: A reys codd.

<sup>a</sup> μένη Hayduck: μένει codd.  
<sup>b</sup> ἐνὶ Hayduck: ἐνός codd.

<sup>a</sup> Affero versionem latinam versionis hebraicae e versione arabica archetypi graeci olim factae.

<sup>a</sup> «μετονομάσαντες, recte CDFG, vulgati codd. μὲν ὀνομάσαντες unde effecerat Zeller II 3 8863 οὐκ ὀνομάσαντες» Diels, Dox. 252, A. 2.

<sup>a</sup> τοῦτου suppl. Reinach.  
<sup>b</sup> <ὦν> suppl. Heib.  
<sup>c</sup> περὶ Heib.: .e. cod.: ἐπὶ Diels.  
<sup>d</sup> <ἄν> suppl. Heib.  
<sup>e</sup> τοι suppl. Torelli.  
<sup>f</sup> οὖν suppl. Heib.  
<sup>g</sup> ὄλοκ(ι)τρόχου (i. e. cylindri) Luria: ὄλου τοῦ κώνου codd., rectum sensum iam Heib. (Arch. I<sup>2</sup>, p. 263) divinatus est. V. comm.  
<sup>h</sup> <δὲ ὅπ' εὐθείας> Torelli, deest A.  
<sup>i</sup> ἐννοεῖν Heib.: νοεῖν F, vulgo.

<sup>a</sup> ἐπιανευόμενος codd.: νεανειόμενος Rasmus.  
<sup>b</sup> ἐγκεκλιμένος Bernardakis: ἐκκεκλιμένος codd.  
<sup>c</sup> ἐπιπέδοι codd.: ἐπιπέδοις Diels.  
<sup>d</sup> κενότηρας Leon.: κοινότηρας codd.  
<sup>e</sup> ἄνισα Dübner: οὐκ ἄνισα codd.  
<sup>f</sup> <δίχα> Luria, v. ad № 108.

<sup>a</sup> καὶ κόβοι καὶ F: κόβοι καὶ H.  
<sup>b</sup> καὶ om. Ac.

<sup>a</sup> ἐνός καὶ i (fortasse melius).  
<sup>b</sup> ἐγγότερα Diels: ἐγγὸς γὰρ codd.

<sup>a</sup> περὶ διαφορῆς codd.: περὶ διαφόρης coni. E. Fran.

<sup>a</sup> ἀσαλευρές exstat apud Hesychium post ἀσαροφόρον: ἀσαληγές Diels.

<sup>a</sup> καὶ <περὶ> Schwartz.

<sup>a</sup> <ἐλλ>πῶς suppl. Luria: πῶς codd.: <φάδως> πῶς sive ἀσαφῶς Diels: οὐκ Schneider, quem perperam sequitur Kranz.

<sup>a</sup> App. crit. v. ad № 1.

<sup>a</sup> ἐν τῷ σωρῷ fortasse glossema ad ἐν τῇ πανσπερμῷ.  
<sup>b</sup> ἑταῖρος γὰρ ἦν Δημοκρίτου OR: om. t.

<sup>a</sup> infinita Landauer: finita codd. Themistii.

<sup>a</sup> ἔτι EFNL, Diels: ἐπεὶ Bekk.  
<sup>b</sup> τὸ τε: ποιεῖν E.  
<sup>c</sup> μείον Heidel (v. comm.): μὴ ὄν codd.  
<sup>d</sup> γε corr. Luria: γὰρ FHL, deest E.



<sup>a</sup> Μήλιος *codd.*: fortasse cum Dielsio Μήλιος legendum collato № 150; sed verisimilius est confusum esse L. cum alio quodam atheo (an Diagora?), v. ad №№ VIII, LXXVI.

171

<sup>a</sup> καὶ P: ἡ *codd. cett.*, Bekk.

172

<sup>a</sup> δὲν Diels: δὲ A, lacuna DE: δὲν Heib.

173

<sup>a</sup> τοῦ κενού τοῦ σώμα Luria: τὸ κενὸν τοῦ σώματος *codd.*: τὸ κενὸν <ἐλάττον> τοῦ σώματος Zeller, Diels: τὸ σώμα τοῦ κενού Casaubonus.

<sup>b</sup> καὶ ὡς περ τῶν μαθηματικῶν: *om. codd.*, restituitur e scholio Alexandri infra allato.

<sup>c</sup> <τινες> tentaminis iure supplevi.

178

<sup>a</sup> <δὲ> *suppl.* Hayduck.

<sup>b</sup> <παρεσπαρμένας> *suppl.* dubitanter Hayduck: in libris lacuna 7—8 litterarum.

179

<sup>a</sup> ἀδιαφόρους Diels: καὶ διαφόρους *codd.*: καὶ ἀδιαφόρους Emperius.

185

<sup>a</sup> δὲν Mullach: ἐν *codd.*

193

<sup>a</sup> τὸ *del. Us.*, cf. *comm.*

197

<sup>a</sup> δὲν Mullach: ἐν *codd.*

<sup>b</sup> δὲν Diels: δὲ A: lacuna 7—8 litterarum DE: pleno b: πλήρη C.

<sup>c</sup> δὲν Mullach: ἐν *codd.*

199

<sup>a</sup> τῶν ναστῶν: τῶν μεστῶν καὶ μὴ ἐχόντων ὑπόκουφόν τι B (in margine).

201

<sup>a</sup> Ἐκφαντος Diels: ἐκφαντος B: διόφαντος *cett.*

203

<sup>a</sup> minutias: micas B.

204

<sup>a</sup> ἐκφυγεῖν: ἐκφεύγειν C.

214

<sup>a</sup> ἄποια Heeren: ποία *codd.*

<sup>b</sup> ναστά Diels: μεστά *codd.*

<sup>c</sup> ἀσώματον Us. (cf. Plut. Adv. Colot. 13, p. 1114a: ὀνομάζεται δ' ὄψ' ὁμῶν ἀναφες καὶ κενὸν καὶ ἀσώματον, ubi respicitur inter alia Epicur. Epist. 67): τὸ ἀσώματον *codd.*

<sup>d</sup> ἐξῆς δὲ τὴν Δευκίππου τε καὶ Δημοκρίτου περὶ στοιχείων δόξαν ιστορεῖ: προσιστορεῖ ταῖς τῶν ἄλλων δόξαις καὶ τὴν Δευκίππου τε καὶ Δημοκρίτου σαφῶς αὐτὴν ἐπιθέμενος LF.

216

<sup>a</sup> οἷα Ἐπίκουρον Us.: ὁ Ἐπίκουρος K.

<sup>b</sup> οἷα *suppl.* Bernardakis.

<sup>c</sup> αἱ Us.: ἄν *codd.*: εἰ Bernardakis.

217

<sup>a</sup> Δημοκρίτος ... ἀρχὰς Euseb.: Ἐπίκουρος Νεοκλέους Ἀθηναῖος κατὰ Δημοκρίτον φιλοσοφίας ἐφη τὰς ἀρχὰς Plut., quod Diels (Dox., prol. 8) pro genutinis Aëtii verbis habet.

<sup>b</sup> τις Bernardakis.

<sup>a</sup> αὐτῶι IP: αὐτῶν E, Simpl. 462, 12: αὐτὸ *rell. codd.*

224

<sup>a</sup> <ἐκάστης> *suppl.* Luria.

225

<sup>a</sup> τῶι μὲν Bruns: μὲν ARA: ὅτι μὲν BDS: ἐπεὶ μὲν Ideler.

226

<sup>a</sup> quaedam et alia quaedam Plasberg.

<sup>b</sup> vel hamata Diels (vel ex nota *elicitur*): firamata AP (unde φοράματα H. Gomperz): foramata C: ipiramata N: piramata O: forma hamata Madvig: figura hamata Forchhammer: et hamata Plasberg.

227

<sup>a</sup> τὰ δὲ κοῖλα, τὰ δὲ κυρτά *om. codd.*: e versione latina Guilelmi de Morbeka.

232

<sup>a</sup> αὐτῶν: αὐτῆς (sc. τῆς φλογός) Münzel.

233

<sup>a</sup> εἶναι Luria: ἐναντία εἶναι L: ἐναντίων εἶναι *cett.*

234

<sup>a</sup> ἀπερίληπτα Dübner: περίληπτα Euseb. Cf. Epicuri locum infra allatum.

236

<sup>a</sup> <τὸ> *suppl.* Aldina.

241

<sup>a</sup> καὶ ὡς περ τῶν μαθηματικῶν varia lectio apud Alexandrum: *om. codd.*

<sup>b</sup> <τινες> *suppl.* Luria.

<sup>c</sup> H. Wilamowitz. *Comm. gr. IV Gott. 1890, p. 27: N codd.; v. comm.*

243

<sup>a</sup> App. crit. v. ad № 214.

261

<sup>a</sup> μὴ ὄν Bonitz sec. S: μὴδὲν ALF.

263

<sup>a</sup> φθάνει δὲ καὶ προσηρημένα Alex.: εἴρηκε γὰρ περὶ τούτων ἀνωτέρω Asclep.

275

<sup>a</sup> terra *codd.*: aqua Landauer.

<sup>b</sup> <non> ante modum posuit Luria, ante quod *codd. exhibent.*

<sup>c</sup> <sed quo> Luria: ac praeterea *codd.*, ubi sensus non perspicitur.

<sup>d</sup> ratione Landauer: non *codd.*: non ex eo Ab.

<sup>e</sup> <individua> *suppl. ad sensum* Luria.

278

<sup>a</sup> ταῦτο Sylburg: τοῦτο LK. Comma post ῥοθρῶι Luria transposuit.

281

<sup>a</sup> <τὰ δὲ> vel τὸ δὲ πῦρ τὸ Luria: lacunam 5 circiter litterarum exhibent *codd.*: οἷον μὴ τὸ Bernardakis. <sup>b</sup> <εὐαγές> Kranz, qui Theophr. De sensu 73 et 78 (№ 484) confert, ubi vox Democritea εὐαγές bis occurrit.

284

<sup>a</sup> <καίπερ> Luria.

285

<sup>a</sup> ἐνὶ τῶν Luria: ἐν τῶι ΠS<sup>o</sup>, vulg.: ἐνὶ [τῶι] Diels. «The vulgate reading καὶ ἐν τῶι νῦν does not give the right sense. The reading νῦν simpliciter derives some support from Philopon. 705, 9; 708, 16, Simpl. 699, 27, 30, 33. But Themist. 141, 32 εἰ ταῦτόν καὶ ἐν διαμένει τὸ νῦν (cf. ib. 29) supports our (i. e. Diels') reading, which accounts better for the corruptions in the Mss; cf. a 10, b 27. Simplicius' citation in 796, 23 has the vulgate reading» (Ross, p. 596).

<sup>b</sup> γενησόμενα ἢ γενόμενα Diels: γενόμενα ΠPSPT, γενησόμενα S<sup>o</sup> 796, 25.

286

<sup>a</sup> τοῦ ὑστερου Ross: τὸ ὑστερον codd.

<sup>b</sup> <ὲ> Luria.

Propter textum pessime corruptum quae hic proponuntur lectiones certam fidem sibi arrogare non possunt.

287b

<sup>a</sup> πῶι μείζονι Luria: τὸ μείζον codd.: ἐλάττονι del. Luria utpote ex sequentibus intrusum.

<sup>b</sup> μήτε Luria: μὲν W<sup>a</sup>: μὴ cett.

287c

<sup>a</sup> κινούμενα, εἴτα τὸ θάπτον κινούμενον Luria: κινούμενα εἴτα τὸ κινούμενον UGB1 SH: κινούμενα εἰ τὸ τάχιον (θάπτον Vict.) κινούμενον B<sup>2</sup>S<sup>2</sup>a.

<sup>b</sup> πλείονι ἀνάγκη <κε>κινῆσθαι Luria: πλείονι ἀνάγκη κινεῖσθαι B<sup>2</sup> Vict. Sp.: πλείονι <δοκεῖ κε>κινῆσθαι Bruns: πλείονι κινεῖσθαι cett. codd.

<sup>c</sup> λεγόμενον Luria: λεπτόν ἡμῶν VHGB<sup>1</sup>FS<sup>1</sup>: λεπτόν cett.: λέγειν vulgo: λέγειν <τὸ κινούμενον> suppr. Bruns.

<sup>d</sup> δοκεῖν Luria: δοκεῖ codd.

<sup>e</sup> <οὐχ ἑμαλωῶς κινεῖσθαι: οὐ γάρ> Bruns (lacunam primus Schwarz indicavit).

<sup>f</sup> add. Bruns.

291

<sup>a</sup> <μετακομηθῆναι καὶ ἕτερα> Luria: Diels corr. εἰς ἕτερα in ἄστρα: περιπλεχθέντων <ἐτέρων> εἰς ἕτερα ἄστρα γίνεσθαι Kochalsky.

292

<sup>a</sup> ἐπαλλάξει FHM, περιπλέξει ELG, quod Diels (Hermes 40, 1905, 307) corrigit in περιπαλάξει nisi lectione codicis C Simplicii (v. infra). At περιπαλάσσεσθαι significat τὸ διὰ τοῦ κενοῦ εἰκάντος καὶ ἀντιτυποῦντος κατὰ τόπον κινεῖσθαι (Simpl. in Phys., p. 1318, 33), id est inordinatam oscillationem, non coniunctionem. Lectioni ἐπαλλάξει autem suffragatur vox Simplicii τὰς ἐπαλλαγὰς (p. 295, 15, v. N<sup>o</sup> 293). Etiam περιπάλαξιν Theophr. De sensu 66 est arbitraria correctio Dielsi, nam codices habent παράλλαξιν (ἐπάλλαξιν et παράλλαξιν autem synonyma esse apparet); itidem περιπαλάττεσθαι pro codicum lectione περιπλάττεσθαι (ibidem).

295

<sup>a</sup> συμμένειν Diels secundum N<sup>o</sup> 293: συμβαίνειν codd.

300

<sup>a</sup> οἷον ζωὴ: hoc optime quadrat ad Democriti rationem, qua omnibus quae moventur animam tribuebat. V. ad N<sup>o</sup> 321.

306

<sup>a</sup> ἀκίνητα codd.: an ἀεικίνητα? Cf. Balme, Classical Quarterly 35, 1929, 1—2, 137 sqq.

<sup>b</sup> <κε> κινῆσθαι Luria: κινῆσθαι a: κινεῖσθαι cett.

<sup>c</sup> ἀεικίνητα corr. Gale, Diels: ἀκίνητα codd.

313

<sup>a</sup> περιπαλάσσεσθαι corr. Diels: περιπαλάσσειν codd. (cf. Hermes 40, 1905, 307).

315

<sup>a</sup> add. Luria.

316

<sup>a</sup> add. Th. Gomperz.

317

<sup>a</sup> <οἶαί τε> Luria.

318

<sup>a</sup> ἀπο, λ. λιπομένης: ἀπάντη λιπομένης coni. Diels. ἀποκρίνεσθαι suspicatur Diels: ἀπ. δ... ποσθαί pap. (<ἀγελάζεσθαι ist nach Hunt nicht möglich> Diels).

176

319

<sup>a</sup> ἕμοια, ἀλλὰ cod.: ἕμοια ἄλλα Luria.

324

<sup>a</sup> V. app. crit. ad N<sup>o</sup> 828.

327

<sup>a</sup> suppl. Friedländer.

330

<sup>a</sup> κατὰ: καὶ κατὰ E<sup>2</sup>.

331

<sup>a</sup> [ἐστίν] delet Ross.

337

<sup>a</sup> εἰ δὲ Luria: εἴτε codd.

<sup>b</sup> ἔσται Luria: ἔστι codd.

342

<sup>a</sup> οὐδὲ Luria.

360

<sup>a</sup> Anaxarcho: Anacharsi codd. Apertissimum mendum, v. comm.

363

<sup>a</sup> διορίσαι Schneider.

364

<sup>a</sup> περιπαλάσσεσθαι Diels: περιπαλάσσειν codd. V. ad N<sup>o</sup> 313.

368

<sup>a</sup> εἰπεῖν aut simile quid supplendum esse censet Diels, ut sententia elici possit.

369

<sup>a</sup> κα<θορίζει> Luria: καὶ PF.

<sup>b</sup> μάλιστα PF: τὰ λοιπὰ Diels.

373

<sup>a</sup> ἀεικίνητα Gale: ἀκίνητα codd. V. ad N<sup>o</sup> 306.

375

<sup>a</sup> <Democritus enim> coni. Landauer: quaeritur enim hoc tempore Al.

<sup>b</sup> accidat Landauer: in profundum non feratur Al.

382

<sup>a</sup> ἰσορρόπως Roesper: ἰσορρόπων codd.

<sup>b</sup> διαττόμενα codd.: διαττόμενα manus prior in BP et Diels testatus N<sup>o</sup> 316. At ibi non agitur de seminibus per cribrum transilientibus, sed in ipso cribro inter se discernentibus. Cf. Plut. Quaest. conv. VIII, 3, 3, p. 722 B: τοῖς διὰ φωτὸς ἀεὶ διάττουσι ψήγμασι μικροῖς.

<sup>c</sup> <ἐκλειπτικὸν δέ, δι' οὗ> ἐκλείπειν Luria haplographiam corrigens; Diels post σελήνην maiorem lacunam suspicatur quam ita supplet: <τὴν δὲ λόξωσιν τοῦ ζωδιακοῦ κύκλου> praeter necessitatem mea quidem sententia, ἐκλειπτικῶν autem nomen saeculo III, quo Diogenes scripsit, usitatissimum erat. Cf. Maaß. Comm. in Arat. rel. Anon. II, p. 130, 25: ἐκλειπτικὸς δέ, ὅτι δι' αὐτοῦ ἐκλείπουσιν ὁ τε ἥλιος καὶ ἡ σελήνη. V. Rehm, Ekliptik apud P.—W., p. 2208.

<sup>d</sup> κόσμου: κόσμων Rohde, quod sensu commendatur neque tamen videtur necessarium.

<sup>e</sup> <οὐ> διασαφεῖ Stephanus, Diels.

395

<sup>a</sup> <οὐ> Aldobrandinus.

407

<sup>a</sup> Σιγείως Creuzer: κητιεὺς codd.

409

<sup>a</sup> [ὁ πεπεισμένος οὕτως] post ἐκείνος codd., del. Diels.

<sup>b</sup> <ἀν> tentavit Luria.

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177

- <sup>a</sup> *De tactu papyri restituendo consule commentarium.*  
<sup>b</sup> ἀλκυώντα Diels. «Das Wort bei Theophrast öfter, z. B. Caus. plant. 6, 10, 5 (άλμορά nach dem Herausgeber unmöglich)».

413

- <sup>a</sup> ἀποβιαζόμενον: ἀ. καὶ στενοχωρούμενον Alex.

415

- <sup>a</sup> σόγκρουσιν Diels (secundum Diog. X, 101, cf. comm.): σόγκρασιν codd.  
<sup>b</sup> διὰ sup. Diels: ἐπὶ codd.  
<sup>c</sup> βάρος codd.: βάρος Diels.  
<sup>d</sup> App. crit. v. ad № 281.

416

- <sup>a</sup> ἀστέρας τινός: ὑπολειπόμενον ἀστέρα Philopon. ad loc. 88, 20.

417

- <sup>a</sup> φησί: φασί corr. Diels.

419

- <sup>a</sup> <ἐκλειπτιζόν δέ, δι' οὐ> suppl. Luria (cf. supra ad № 382).  
<sup>b</sup> [δὲ] del. Luria.

424

- <sup>a</sup> <ἐπὶ τὰ πολλά> Ascherson: lacuna in codd.

428

- <sup>a</sup> ὡς Luria: τοῖς codd.  
<sup>b</sup> τοῖς Luria: ὡς codd. (v. comm.).  
<sup>c</sup> <ἔστι> Luria: εἰ codd.

431

- <sup>a</sup> <καίπερ> Luria.  
<sup>b</sup> <διότι> Luria.  
<sup>c</sup> ἂν om. LSU (Bekk., Did.).  
<sup>d</sup> μεμέρισται: ἀλλ' ἄρως μεμέρισται LSU (Bekk., Did.): μερισται P.  
<sup>e</sup> δ': δι' M, om. LSU (Bekk., Did.).

432

- <sup>a</sup> <ἐν> Luria.  
<sup>b</sup> <οὐκ> Luria.

434

- <sup>a</sup> IHI: ZNZ codd., cf. ad № 241; at poterat sane iam ipse Philoponus litteris Z et N abuti.

437

- <sup>a</sup> πάθει Luria: πλήθει codd.

443a

- <sup>a</sup> Post καὶ ἀτόμων sequitur: τὰ σφαιροειδῆ πῦρ καὶ ψυχρὴν λέγει οἶον ἐν τῷ ἀέρι τὰ καλοόμενα ἔσοματὰ ἃ φαίνεται ἐν τοῖς διὰ τῶν θυρίδων, ὧν, quod Madvig et Diels sine iusta causa e textu eici tamquam posterius additamentum iusserunt. V. № 200.

444

- <sup>a</sup> κινητικώτερα Luria: κινητικώτατα codd.

451

- <sup>a</sup> πῦρ οἶον et Δημόκριτος supra τὸ πῦρ scriptum VMO.

457

- <sup>a</sup> <ἀλλὰ> Luria.

463

- <sup>a</sup> ἐκπρινομένων L: συγκρινομένων cett.

466

- <sup>a</sup> ἀλλ' ἐκπρίσει Heimsoeth, Diels (Dox.): ἀλλὰ κρᾶσει codd.: ἀποκρίσει Diels: ἄμ' ἐκπρίσει Bernardakis.

- <sup>a</sup> Ἀφροδίτην φροδίτην Luria: Ἀφροδίτην φροδίτην EMY, Ἀφροδίτην cett. codd. et editores, qui non perspecta totius loci sententia φροδίτην perperam pro dittographia habuerunt.

472a

- <sup>a</sup> earumque vetus correctio apud editores pervulgata eorumque codd., quod Diels tuetur post imagines εἰσῶλα vocat excidisse suspicans.  
<sup>b</sup> sententiam codd. («d. i. γνώμην» Diels); emendationes propositae, superfluae sunt.

477

- <sup>a</sup> οὐδέ ELMSY: οὐδέν PS, Did., Bekk.

478

- <sup>a</sup> <τῆς> Luria. πυκνῆς καὶ ἰσχυρᾶς σαρκός, quod in codicibus post σαρφά exstat, post ἐντός transposuit Luria, quoniam πυκνὴ καὶ ἰσχυρὰ σάρξ nihil aliud est quam idem ἔξω χιτῶν, id est exterior alba oculi cuticula (cf. Hippocr. De carn. 17, VIII, 606 Littré, ubi λευκὸν κρέας eadem significatione occurrit), cum denominationem, quae est σάρξ ad σαρφά male quadrare iam Lackenbacher recte observavisset (Wien. Stud. 35, 1913, p. 47 sq.). At idem sine iusta causa πυκνῆς καὶ ἰσχυρᾶς σαρκός, ἐτι δὲ ἰκράδος παχέας τε καὶ λιπαρᾶς καὶ pro glossemate notavit.

- <sup>b</sup> ἔστι Luria: ἐτι codd. (de genetivo materiae cf. Bonitz, Index Aristotelicus, p. 149a 41, 220a 51).

<sup>c</sup> καὶ: ὡς Diels.

- <sup>d</sup> ὁμοιοσημονεῖν Luria: μὴ εὐσημονεῖν codd.: ἑμοιοσημονεῖν Diels: ὁμοιοσημονοῖεν Schneider respiciens № 491, ubi ὁμοιοσημονα et postea θρόπτεσθαι itidem atque hic exstat.

<sup>e</sup> <οἰαί τε> Luria.

- <sup>f</sup> <ἐλλι>πῶς suppleni: πῶς codd.: <φαύλως> πῶς sive ἀσαφῶς conl. Diels: οὐκ Schneider male. Cf. № 139.

483

- <sup>a</sup> [τῶν χρωμάτων] del. Luria coll. l. 18.  
<sup>b</sup> <καὶ ἐρυθρὸν καὶ χλωρὸν> Luria coll. № 484, § 76; sed cogitari potest etiam de errore Alexandri, qui empedocleo-democriteam rationem cum peripatetica confuderit. V. Kranz, ad № 484.  
<sup>c</sup> καὶ τῆι ... παραθέσει Thurot coll. l. 14: κατὰ τῆι ... παραθέσειν codd.  
<sup>d</sup> ἄμα Diels: ἂν codd. πολλά <ὄντα> <τὰ> ὀρώμενα Diels: πολλά ἂν τὰ ὀρώμενα codd.

484

- <sup>a</sup> θεῖον: τὸν γὰρ ἰδὸν sup. Diels, Dox. («aeruginem, in quam splendor certe cadit»); Burchard sup. lacunam ante τὸ γάρ.

- <sup>b</sup> χλωρὸν καὶ λευκὸν Diels: καὶ λευκὸν Kranz: χλωρὸν codd.  
<sup>c</sup> τὸ γὰρ ἄσκιον καὶ: τὸ γὰρ ἄσκιον καὶ codd.: τὸ γὰρ κατᾶσκιον Mullach: (τοῦτο γὰρ ἄσκιον) (in parenthesis) καὶ Diels, Dox.: τῷ γὰρ ἄσκιῳ τὸ Kranz, o. c. 133. V. comm.  
<sup>d</sup> ἀγνωμένως Luria: μὴγνωμένως Diels, Dox. 523: μὴγνωμένως codd.  
<sup>e</sup> ἐξ ὧν PF: ζῳῶν Us., Diels (v. comm.).  
<sup>f</sup> τὸ τοῦ Schneider: τὸ τὸ codd.

487

- <sup>a</sup> ναστά Diels sec. Aët. I, 12, 6 (Dox. 311): Δ. τὰ πρῶτα ... σώματα, ταῦτα δ' ἦν τὰ ναστά et Aët. I, 3, 16 (№ 214, Dox. 285): Δ. τὰ ναστά καὶ κενά: μεστά codd.  
<sup>b</sup> προτροπήι codd.: τροπήι Meineke fortasse recte. V. № 239.

490

- <sup>a</sup> ἀτόμους Luria: ἀτομοὶ codd.  
<sup>b</sup> κατεσπαρμέναι: ἐγκατασπαρμένῃν Wyttenbach: κατεσπαρμένῃν conl. Bernardakis. Tum ἔχουσι potius, ut Usener opinatur, non ἐπέχουσι legendum esset; gravius est quod ea lectio omnino ad loci sententiam male quadrat.

<sup>c</sup> <κενότερες> Luria.

<sup>d</sup> <αὶ ἀτομοὶ> Luria.

<sup>e</sup> διασπάσεις codd.: διασπάσεις Wyttenbach.

<sup>f</sup> τὸ κενόν codd.: aglossema, debuit τὸν πόρον dici Us. fortasse recte.

<sup>g</sup> μακρά codd.: μικρά Us., Bernardakis, sententia loci non bene perspecta, v. ad b.

492

- <sup>a</sup> App. crit. v. ad № 565.

495

- <sup>a</sup> τοὺς Luria: τῶν codd.

<sup>a</sup> γωνιοειδῆ P: γωνιοειδῆ F<sup>1</sup>, γωνιοειδῆ F<sup>2</sup> («servavi praesertim in Democriteis γωνιοειδῆ ut ex γῶνος (cf. Hesych., s. v. γῶνον et γῶνος) probe formatum, cf. Theophr. De caus. pl. VI, 1, 6; 10, 3» — Diels, Dox. 517).

<sup>b</sup> <διαχεῖν μᾶλλον ἢ> Luria: quia θερμαίνεῖν apud Democritum semper expansionem (διαχεῖν) sibi assumit, non contractionem (συσπᾶν). V. comm. ad № 503.

<sup>c</sup> <ἐπὶ . . . σκαληγῶν> Diels, cf. Kafka, Philol. 72, 1913, 78.

<sup>d</sup> παράλλαξιν codd.: περιπάλλαξιν Diels sec. Dyroff Demokritstudien, 342; at cf. ad № 292.

<sup>e</sup> περιπλάττεσθαι codd. (fortasse περιπλέκεσθαι aut περιπλήσσεσθαι; T<sup>1</sup> a dialecto Democriti alienum est, ut sub περιπλάττεσθαι lutere possit ionicum περιπλήσσεσθαι in atticum male conversum): περιπαλάττεσθαι Diels, sed cf. № 313 c. comm.

<sup>f</sup> <. . .> lacunam suspicor ita fere supplendam: ἀραιὸν καὶ θερμὸν τὸ σῶμα, τὸν δὲ θερμὸν περιφερῆ.

<sup>g</sup> ἀγωνιοειδῆ codd.: γωνιοειδῆ Diels perperam, cum περιφερῆ et γωνιοειδῆ inter se conciliari non possint; cf. № 497 πολυγώνιον καὶ ἀπεριφερῆ; nam quod est paulo supra καὶ περιφερῆ, καὶ γωνιοειδῆ alternationem habet. Neque quod sequitur καὶ γὰρ τὸ γωνιοειδές etc. huic rationi obloquitur; v. comm.

<sup>h</sup> τὸ <τὸ αὐτὸ> Kochalsky.

499

<sup>a</sup> <ἢ τὰ μὲν ὑπομένειν, τὰ δ' ἐξίεναι> Diels.

501

<sup>a</sup> <ἐπὶ τοῦτο> Christ.

503

<sup>a</sup> <ἐκ>χρινομένων L: συχρινομένων cett.

504

<sup>a</sup> App. crit. v. ad № 496.

507

<sup>a</sup> App. crit. v. ad № 490.

510

<sup>a</sup> App. crit. v. ad № 466.

514

<sup>a</sup> εἶδε<ι> ἐν<δεδε>στ<έ>ρ<ω>ν coni. Luria: εἰδεεναστρον codd., ἰλυωδῶν ἀσῶν Diels, Dox. («sed non mihi satisfacio»), εἰδέων ἀνθρώπων coni. Diels, Vors.

515

<sup>a</sup> μᾶλλον Diels.

516

<sup>a</sup> γαπτόματος Luria, cf. Bull. Corr. Hell. 23, 178: γαντόματος codd.

<sup>b</sup> <ἀραιούται> Luria.

519

<sup>a</sup> πόρους: σπόρους YZ (ita iam Philoponus legabat, v. infra).

<sup>b</sup> σπόρους: πόρους PS (correwi ex Aristot.).

525

<sup>a</sup> ἄνθρωπος ἐξέσσεται ἐξ ἀνθρώπου παντός Diels sec. № 527, quod ad loci sententiam certissime quadrat; similiter Rau, Berl. Philol. Woch. 1923, 833: ἄνθρωποι εἰς ἔσται καὶ ἄνθρωπος πάντες codd., quod H. Gomperz frustra conatus est vindicare.

527

<sup>a</sup> V. app. crit. ad № 525.

529

<sup>a</sup> Δημόκριτος codd.: legendum videtur Ζήνων, v. comm.

530

<sup>a</sup> ἀπὸ Luria: ὁ Πλάτων ἀπὸ codd. V. comm.

541

<sup>a</sup> ὀδυῶντος: οἰδάναντος Pauw.

<sup>b</sup> τεχθῆναι: τεχθῆναι Makowelsky.

<sup>c</sup> πηγνομένη: ῥηγνομένη Triller.

<sup>a</sup> [ταῖς θριξίν] del. Luria utpote glossema propter falsam lectionem ὄστριχες ortum.

<sup>b</sup> ὄες τριχας Luria: ὄς τριχες A<sup>a</sup>: ὄστριχες cett.

547

<sup>a</sup> καὶ <αὐτὸν> τὸν κόσμον ἐνθεον Heeren: τὸν κόσμον καὶ τὸν ἐνθεον Diels.

<sup>b</sup> <οὗκ ἀποδέχονται ζῶια εἶναι> Us. Epicurea, p. 229: οὗκ ἐγχαίρειν vel μὴ λογικά εἶναι Diels.

557

<sup>a</sup> πῆγνυσθαι codd.: ῥῆγνυσθαι <καὶ τῷ δένδρῳ γίγνεσθαι> Diels. Locus pessime corruptus. An γίγνεσθαι pro tradito πῆγνυσθαι legendum?

558

<sup>a</sup> [ὡς οἰδὲ] suppl. Us.

<sup>b</sup> συναπετίθοντο codd.: em. Trinc.

560

<sup>a</sup> ἐκείνοι Hercher: ἐκείνων codd.

561

<sup>a</sup> μοιχίδιον codd.: em. Reiske.

<sup>b</sup> βιασαμένου Diels: βιασάμενος codd.

<sup>c</sup> ὑπομείνεις Diels: ὑπομείνη codd.

562

<sup>a</sup> ἐπωφελείης Schäfer: ἐπὶ ὠφελείης MA; deficiunt Tr. S.

<sup>b</sup> σμικρά ἢ Schäfer: σμικρὰ MA.

<sup>c</sup> ὄσα Diels: ὄσα MA: ὄσα Gesner.

<sup>d</sup> νομίζον codd.: νομιζόμενον coni. Reinhardt.

563

<sup>a</sup> suppl. Diels.

565

<sup>a</sup> ἀτόμων Barchard: ΔΟΜΩΝ (ω ex ο) Y: λόγων ε.

567a

<sup>a</sup> ὡς Δημόκριτος Etym. Gen.: ὡς Θεόκριτος Etym. Gud.

569

<sup>a</sup> ποιητὰ δὲ νόμιμα codd. omnes: ποιότητος δὲ νόμῳ Zeller, Diels, sine necessitate. <τὰ> νόμιμα Bignone (v. comm.).

573

<sup>a</sup> αἰρέμενος Orelli: ἐρεώμενος ALBC: ἐρεγόμενος P.

<sup>b</sup> αἰρέεται Gnom. Bar.: ἐρέεται ALBCP.

576

<sup>a</sup> φρενὶ θεῖαι sive θεῖη coni. Lobeck, Rhemat., p. 21: φῆνι θεὰ codd.: φήμη θεῖη νοῦνται («oraculis divinis erudiuntur») Sylburg.

577

<sup>a</sup> αἱ φαρμακίδες codd.: τὰς φαρμακίδας Wendel, Diels.

580

<sup>a</sup> Democriti verba e tali contextu eliciuntur: in Protreptico (cod. P): ὄθεν οὐκ ἀπεικότως ὁ Δ. . . φησὶν; in Stromatibus (cod. L) et apud Euseb.: ἦδη δὲ ὡς εἶπεῖν ὄπ' αὐγὰς εἶναι τινὰς . . . γράφει. . .

<sup>b</sup> τῶν λογίων ἀνθρώπων ὀλίγοι restituit Diels: τ.λ.α. ὀλίγους Protr.: ὀλίγους τῶν ἀνθρώπων Strom., Euseb.

<sup>c</sup> ἀνατείνοντες rest. Diels: ἀνατείναντας Protr.: οἱ δὲ ἀνατείνοντες Strom.: οἱ δὲ ἀνατείναντες Euseb.

<sup>d</sup> ὄν Clem., cf. Wackernagel, Glotta 7 (1916), 197, № 1: οὗ Euseb., Diels.

<sup>e</sup> <εἶπαν> Ζεὺς μυθεῖται Reinhardt: <φασὶν> Ζεὺς μυθεῖται Diels: Ζεὺς μυθεῖται Strom.: Ζεὺς μυθεῖται Euseb. διαμυθεῖσθαι (= Δία μυθεῖσθαι) Protr.

<sup>f</sup> ἀφαίρεται Diels: ἀφαίρεται Protr., Strom., cod. L<sup>3</sup>, Euseb.: ἀφαίρεται Strom., cod. L<sup>1</sup>.

581

<sup>a</sup> sol Lambin.: nox (ut Diels putat, ex v. 1190) OQ.

<sup>b</sup> ros Lambin.: sol OQ (ex v. 1189).

581a

<sup>a</sup> πολιτεύεται A: ἐμπολιτεύεται M<sup>2</sup>Hδ, in margine, Sp. Del. in textu, cf. ib. IV, 28, p. 297, l. 10, sed πολιτεύεται ib. p. 296, l. 31.

583

<sup>a</sup> θνητής Stob.: θνητῶν Apostol. Arsen. (em. christiana).

<sup>b</sup> φύσεως codd.: φύσιος Mullach.

<sup>c</sup> ἐνιοι . . . εἰδότες Stob. IV, 52, Apostol. Arsen.: ἄπαντες IV, 34 (em. christiana).

<sup>d</sup> μυθοπλαστέοντες χρόνου Stob. IV, 52, Apostol. Arsen.: μυθεόντες φόβου Stob. IV, 34 (em. christiana).

584

<sup>a</sup> ὡς A Tr.: deest M: ἕως Diels, Langerbeck: καί (sensu καίπερ) Hense.

<sup>b</sup> <αἰθῆν> Luria, v. comm.: <ἀχθος> Kowalski.

585

<sup>a</sup> <τὰ τοῦ> Kroll.

<sup>b</sup> ἐπιτ. p. ου legit Kroll supplens: Ἐπικουρείων.

<sup>c</sup> δόγματων Diels: δόγματα Kroll.

<sup>d</sup> ἐπιτήδειον cod.: ἐπιτήδεως Kroll.

<sup>e</sup> γενόμενον cod.: γενόμενος Kroll.

586

<sup>a</sup> Democritii em. Bentley: democritici codd.

<sup>b</sup> ὁμοίως . . . Δημόκριτος Alex.: Δημόκριτος τὰ νεκρά τῶν σωμάτων αισθάνεσθαι Aët.

587

<sup>a</sup> Omnia supplementa hic per < > annotata Dielsio debentur, cf. Herc. vol. coll. tertiam I, 47.

<sup>b</sup> δυσμορφίας Mekler: νομο . . . ιας pap.

<sup>c</sup> σκιά Diels: ΩΣΑΙ pap.

<sup>d</sup> δίασ' ἐμφορσίν Diels: δις ἐμφορσίν Th. Gomperz: ΔΙ|ΕΜΦΟΡΣΙΝ coll. Neapolitana, ΔΙ|CΥΜΦΟΡΣΙΝ coll. Croenerti, v. Kolotes, p. 130. «Es könnte auch CC im Papyrus gestanden haben, da zwischen Y und dem Rest von C eine ziemlich große Lücke ist». Croenert legit διςσυμφορσίν, quod Diels pro improbabilissimo habet: «Y enthält den rechten Bogen des C und den Bauch des C».

588a

<sup>a</sup> Democriti Mayhoff.

591

<sup>a</sup> regantur codd. optimi: gerantur Rohann. et Sangerman.: geruntur codd. deteriores.

<sup>b</sup> fortuito: abest a 13 codd. et a 2 vet. edd. Rom., sed extat in aliis, apud eundem Lact. Epit. cap. 36 et apud Cic. De nat. deor. I, 24.

<sup>c</sup> coiisse: cohaesisse codd. nonnulli et edd.

593

<sup>a</sup> ὕγεινήν εὐχήν codd. Stob.: ὕγειαν ἔχειν Max. Ant.: ὕγιήν εὐχῆσαι em. Gesnerus, Meineke.

<sup>b</sup> ἄνθρωποι Stob.: οἱ ἄνθρωποι Max. Ant. (em. christiana).

<sup>c</sup> ἐν ἑαυτοῖς Stob.: παρ' ἑαυτοῖς Max. Ant.

594

<sup>a</sup> ἀναγέγραπτο: ἀναγέγραπτο M edd.

<sup>b</sup> προσ(ωπο)ποιουμένωι Sp. Del. (in textu): προσποιουμένωι A Hδ.

595

<sup>a</sup> χρεῶν delevi, v. comm.

<sup>b</sup> ἄξεται Koen.: ἀξεται codd.

<sup>c</sup> ξυνοῦ Wakefield: ξένου codd.

598

<sup>a</sup> ἀληθομυθεῖν χρεῶν Stob.: ἀληθόμυθον χρεῖ εἶναι Democrat. P: εἶναι χρεῖ Democrat. B, χρεῖ Democrat. ALC: ὅκου λῶιον Natorp: ὅπου λῶιον Stob.: οὐ πολύλογον Democrat.:

182

ὁ πολὺ λῶιον Buecheler (coll. Hesiod. Opp. 432, qui locus prorsus alium sensum habet): οὐ πολυλογεῖν Friedländer, Diels, Kranz. «Es soll wohl bedeuten: Man muß die Wahrheit sagen, wo es besser ist (sonst lieber schweigen. . . Der sog. Demokrates 44 scheint ΔΟΓΟΝ für ΔΩΙΟΝ gelesen und danach ΜΥΘΟΝ aus ΜΥΘΕΙΝ verändert zu haben; so schrieb er ἀληθόμυθον χρεῖ, οὐ πολύλογον; εἶναι, das in A und L fehlt, fügte P nach B vor χρεῖ ein» (Philippson, Hermes, LIX, 1924, p. 384, n. 1), cf. Burchard, Fragmente der Moral des Demokrit, p. 38. Huic lectioni ΔΟΓΟΝ pro ΔΩΙΟΝ fortasse fragmenta Democrat. 51 (πολλὰ λασσηγνεύμενος) et 29—30 (πολυμαθέες, πολυμαθῆν) ansam praebuerunt. Natorp, p. 119 feliciter comparat cum hoc fragmento Stob. III, 13, 47 (N<sup>o</sup> 597), quod demonstrare videtur lectionem Stobaei rectam esse. Alfieri (Gli atomisti, p. 221, n. 560) perperam contendit lectionem ὁ πολὺ λῶιον codicibus inesse, lectionem autem ὅπου λῶιον a Zellero (I<sup>o</sup>, p. 1173, n. 2) primo propositam esse; errat evidentissime vir doctus.

600

<sup>a</sup> αἰτιῶται: αἰτιῶται codd. (fortasse recte).

601

<sup>a</sup> χρεῖ εἶναι: sic etiam N<sup>o</sup> 741.

604

<sup>a</sup> χρεῶν delevi, v. comm.

608

<sup>a</sup> Δημοκρίτου Stob.: Ἐπικτήτου Max., Ant.

611

<sup>a</sup> ἐπι legit in papyro Diels: ἐν Crönert. Hoc vocabulo linea finitur, in sequentibus lineis Crönert legit: ΤΟΙΣΙΝΕ · ΚΑΡΑ · ΔΑΝΕΙΝΩΣ||ΖΗ. O. Diels secundum Plutarchi locum citatum supplet: <τῶν> τοῖς π[ε]λ[α]α[ς] ἀγδάνειν ὡς ζ[η]μ[ι]ώδη, dubito an recte. Crönert supplet: ζ[η]μ[ι]ο[ύ]σαν.

612

<sup>a</sup> κακῶς ἂν ἔσχεν vult Jacobs, sed v. comm.

<sup>b</sup> ἀμελέαι τις Meineke: ἀμελέοιτο codd. <sup>c</sup> Suppl. Meineke.

613

<sup>a</sup> οὐδενὶ γὰρ ἄλλωι εἶσκε ἢ τῶι τὸν αἰτὸν ἐπ' ἐρπετοῖσι γίνεσθαι Th. Gomperz (v. comm.): ἢ ἑαυτῶι τὸν αὐτὸν ἐφ' ἑτέροισι γ. S: ἢ ἑ. τῶν αὐτῶν ἑ. ἑ. γ. MA: ἐφ' codd.: ὅφ' sec. proxime sequentia Jacobs: <αὐ> γίνεσθαι Hahn. Diels putat totam lineam post τὸν peritisse; lacunam sic supplet: τὸν κάρχοντα εἶναι ὁπερθευον οὐδ' ἑτέρων ἀρξάντα μετ' ἐνι-αυτὸν αὐτὸν. . . Cf. Alfieri, p. 270, n. 678.

<sup>b</sup> οὕτω . . . ἀδικεῶν codd.: τοῦτο κατὰ ταῦτα κοσμηθῆναι, ὅπως [ὁ μὴδὲν ἀδικεῶν] H. Gomperz.

614

<sup>a</sup> ἀνακυδέες M: ἂν ἀκυδέες, AS, Ant.: ἂν ἀκῆδες Tr: ἀνακῆδες Diels: ἀναιδέες Cobet. Cf. N<sup>o</sup> 689.

615

<sup>a</sup> θωιῆς Burchard, Diels: θοιῆς codd.

<sup>b</sup> νόμον Jacobson, Diels: νοῦν (fortasse: νόμον → νόον → νοῦν) codd.

616

<sup>a</sup> Post ὡσπερ supplet Hirschig et Diels γὰρ τὸν sine necessitate, ut Friedländer, Hermes, 48, 1913, 603 sqq. docet.

619

<sup>a</sup> [τὰς μεγίστας] abest Tr.; in codd. SMA e superiore linea (μεγίστην) irrepsisse puto.

<sup>b</sup> τάμων codd.: ταμειῶν Th. Gomperz, P. Friedländer sine necessitate, ut videtur.

621

<sup>a</sup> εὐθυμίας Wakefield: ἐπιθυμίας codd., cf. N<sup>o</sup> 747, ubi pari modo pro εὐθυμῆν codd. ἐπιθυμῆν exhibent.

<sup>b</sup> ἐκτάσεως H. Gomperz: κτάσεως codd.: κτήσεως dubitanter Diels et Kranz.

622

<sup>a</sup> γεγράφεται codd.: νόμοι γεγράφεται Diels: γέγραπται Natorp, Alfieri: γέγραφα Langerbeck, p. 54 sqq.

183

628

<sup>a</sup> Δημόκριτος *Reiske*: Δημοκράτης *codd.*

629

<sup>a</sup> μή *supplet Mullachius, cui adstipulantur alii; dubito an recte, v. comm.*

632

<sup>a</sup> ἐν μὲν *S*: μὲν *MA*: [μ]εν *Natorp*: μῆ *codd.*

<sup>b</sup> *aiei Diels quondam dubitanter, Luria (Rhein. Mus. LXXVIII, 1929, pp. 243—245).*

<sup>c</sup> προσαρμόσαν *codd.*: προσαρμόσαν <ἄν> *Luria, ib.*: μῆ προσαρμόσαν καὶ τὸ συνεχές *delet ut glossema marginale lectoris senioris aetatis R. Philippson (Philol. Woch. 43, 1923, 623) perperam, ut puto, v. Rhein. Mus., p. 243<sup>3</sup>.*

636

<sup>a</sup> ξυγή *codd.*: ξυγή <ἀλυσιτελής> (ξυγή: τῶι κοινῶι) *Diels*: ξυγή <ἀνωφελής> *Hense*: <οὐ> ξυγή *Schwartz*: κενεή *aut* ἰδίη ἢ ξυγή *Th. Gomperz. Omnia haec superflua puto, v. comm.*

638

<sup>a</sup> μὲν πορίζειν *P*: πορίζειν *cett.*

642

<sup>a</sup> ἐπιφανέστερον *Ant.*: ἐπὶ φανερώτερον *Max.*

643a

<sup>a</sup> *Quattuor sententias №№ 643 a—d habet Maximus sine lemmatibus post lemma Ἀριστοτέλ(ους). V. comm.*

<sup>b</sup> τῶν ἀνέμων: *om. Cod. Paris. et vet. interpr. rossica, v. comm.*

643b

<sup>a</sup> [πλούτου] *legitur in codd. omnibus, praeter Gnom. Syllog. Leid. (cod. Voss.); Ten-Brink hoc verbum glossema esse putat, fortasse recte.*

643c

<sup>a</sup> *Democrito tribuit vetus versio rossica.*

645a

<sup>a</sup> κακὴν *delet Meineke; servat κακὴν sed pro κακοδοξίην κενοδοξίην Buecheler.*

646

<sup>a</sup> *Meineke et Diels coniciebant: ἀμέτρητα ἐπὶ τοῖς ἀναγκαίοις τάλαιπωρήι. Coniectura Kochalskii: ὅπως ἄνθρωπος μετρίως τε κτήσιος ἐπιμέλεται καὶ μέτριος ἢ καὶ ἐπὶ τοῖς ἀναγκαίοις <μ>ῆ τάλαιπωρήι valde a codicum lectione abhorret; nescio qua de causa Alfieri (p. 275, n. 690) eam ceteris («molto più soddisfacente e aderente alla tradizione mss») praeferat. Langerbeck (p. 71) recte monet lectionem codicum servandam esse: «ἐπὶ ist zwar ungewöhnlich, aber es scheint mir dem Sinn durchaus angemessen. Die τάλαιπωρή soll abgegrenzt werden auf diese hin».*

649

<sup>a</sup> χρεῶν *delevi; cf. ad № 598.*

657

<sup>a</sup> τὰ δ' ἐλλείποντα *Hirschig*: τὰ δὲ λείποντα *codd.*

<sup>b</sup> συμβαίνει *Diels*: συμβαίνει *codd.*

<sup>c</sup> δίζησθαι *Wilamowitz apud Dielsium coll. № 33b*: δίζεσθαι *codd.*

<sup>d</sup> ὁκόσω *Wachsmuth*: ὅπως *codd.*

659

<sup>a</sup> τὰς εὐφροσύνας ἠδίωνας *Burchard*: τὰς εὐτυχίας *Kranz*: τὰς φιλίας ἠδείας *codd.*

<sup>b</sup> τῶν μὲν ... τῶν δὲ ... *Burchard*: ὧν μὲν ... ὧν δὲ *codd.*

669

<sup>a</sup> ζηλέειν *conieci collato ζηλοῦν Democrat. cum ζηλεύειν Stob.*

680

<sup>a</sup> ταύτας *om. Democrat. Exc. Vind. Post ταύτας habent Ant. CPP ἐν περιστάσει, Cod. Paris. ἐν καιρῶι περιστάσεως. Vocabulum περιστάσις sine dubio glossema vocis καιρῶι est, olim in margine adscriptum, quod postea in textum irrepsit. Cf. Lortzing, p. 12 (περιστάσις vocabulum primum apud Polybium legitur).*

184

681a

<sup>a</sup> καταθήρη *Mullach*: καταθήη *Ant.*: καταμάθης *Cod. Paris.*

682

<sup>a</sup> *Apud Theodoretum legitur: Δ. τὸν Δαμασκόπου Ἀβδηρίτην φασὶ παραπλησίαν etc. in acc. c. inf.*

<sup>b</sup> καὶ τοὺς παλαιούς ... ἐνέθηκε: *extat apud solum Theodoretum, Clemeus pergit: καὶ διήνεγκεν οὐδὲν ἢ φύσει πλασθῆναι τοιόνδε ἢ χρόνοι καὶ μαθήσει μετατυπωθῆναι, quod, quoad sensum generalem, cum Democriti fragmento apud Maximum (v. infra) miro quodam modo convenit.*

689

<sup>a</sup> ἀνακηδέες *v. app. crit. ad № 614.*

692

<sup>a</sup> ἔξω τί πως ἢ *Diels, ed. 2, coll. Herodot. VII, 228*: ἔξω ἢ τὸ ... ἐπίγραμμα: ἔξω-τικῶς μῆ *codd.*

<sup>b</sup> <εἰθισμένοι> *dubitanter conieci.*

<sup>c</sup> ἀνιέντες *hic intransitive et absolute positum est, ut e. g. Thuc. I, 75: οὐκ ἀσφαλῆς ἐδόκει εἶναι ἀνέντας κινδυνεύειν, VI, 86: οὐκ ἀνιῶσιν.*

693

<sup>a</sup> *agunt: sic codd. omnes, non alunt! Cf. Horat. Ars poetica 100: poemata ... quocumque volent animum auditoris agunto.*

700

<sup>a</sup> γήρας ... σωφροσύνης *codd.*: γήραος ... σωφροσύνη *perperam con. Halm, Diels.*

<sup>b</sup> μέλλοντος *restitui: μέλλοντος ei Stob.: μένοντος Mosqu.: μέλλοντος eti con. Diels: μέλλοντός τε con. Meineke.*

704

<sup>a</sup> ὕβρις εἴη ἂν ἀνδρὶ *Diels*: ὕβρις καὶ ἀνανδρὶη *Democrat. AZ*: ὕβρις καὶ ἀνανδρία *Democrat. BCP*: ὕβρις ἀνδρὶ *Stob. SMA*: ὕβρις ἂν εἴη *CPP*: ὕβρις ἂν εἴη ἐσχάτη καὶ ἀνανδρία καὶ ὑπερβάλλουσα ἀτιμία. *Cod. Paris. 1169*: ὕβρις ἂν εἴη ἐσχάτα *Max.*: ὕβρις ἂν εἴη ἐσχάτη *Ant., qui habet lemma Philonis (v. comm).*

706

<sup>a</sup> πολίων *Mullach*: πόνων *Stob., M, Brux*: πόλεων *cett.*

707

<sup>a</sup> ἀγαπῶ μούνη *Diels*<sup>1-3</sup>: ἀγαπωμένη *A (Kranz)*: ἀγάπη μούνη *Nauck.*

728

<sup>a</sup> πολιτικὴν *con. Reiske*: πολεμικὴν *codd., quam lectionem servant Philippson et Langerbeck, sed contextui contradicit, v. comm.*

<sup>b</sup> μεγάλη κακίη <λαμπρά> *Diels*: μεγάλη λαμπρέαν *Pal.*: μεγάλη καλά *cett.*

734

<sup>a</sup> οὖρος τῶν περιημαζότων *codd., quod servat Langerbeck*: οὖρος τῶν <συμφόρων καὶ τῶν ἀσυμφόρων ὃ προκείσθαι τέλος τῶι βίωι τῶν ἀνθρώπων τῶν τε νέων καὶ τῶν περιημαζότων. *Diels*: οὖρος τῶν πρηγτέων *Zeller*: οὖρος τῶν πρηγτέων καὶ μῆ πρηγτέων *Natorp: suppl. Luria.*

735

<sup>a</sup> ποιητὰ δὲ νόμιμα *codd.*: ποιότητος δὲ νόμοι *Zeller, Diels, Kranz, Alfieri.*

740

<sup>a</sup> ἀνακηδῆς *Burchard*: ἀνάκυδης *codd., cf. № 614.*

742

<sup>a</sup> εὐδαιμονίαν καὶ *suppl. Meineke.*

743

<sup>a</sup> <ἀταρ>αξίη *Friedländer*: ἀξίη *codd.*

747

<sup>a</sup> εὐθυρίαν *scripsi*: ἐπιθυρίαν *codd., cf. № 621.*

185



<sup>a</sup> ἀδυνατοῖσι olim coniect. collatis aliis locis Rhein. Mus., N. F., 78, 1929, p. 242 sqq.:  
μη ἐπὶ τοῖς θνητοῖσι recte codd., v. comm.

750

<sup>a</sup> ἢ πόσειν, ἢ ἀφροδισίωσιν Stob. III, 18, 35: ἢ ἐπὶ πόσ. ἢ ἐπὶ ἀφρ. Stob. III, 6, 65.  
<sup>b</sup> πολλαὶ καὶ μακρὰ Diels, v. comm.  
<sup>c</sup> κακοθηγίη SA: καθοδιγίη M: alii alias correctiones (κακοδιγίη Diels, κακοθηγίη Wilamowitz) sine necessitate proposuerunt, v. comm.

750a

<sup>a</sup> Lemma Δημοκρίτου apud Antonium et in Cod. Paris. et praeterea in veteribus versionibus rossica et serbica; Maximus sine lemmate post lemma Ἀριστοτέλους, sed inter sententias, quae Democriti sunt.

<sup>b</sup> του conl. Ten-Brink, Philol. VI, 1851, p. 577 sqq.: καὶ codd.

759a

<sup>a</sup> μακρόν CPP, Max.: μικρόν Cod. Paris. 1169, vetus versio rossica.

760

<sup>a</sup> ἐν καιρῶι suppl. Jacobs.

771

<sup>a</sup> ἄκος τῆι codd. omnes: ἐκάστη Diels perperam.  
<sup>b</sup> τὸ πᾶν codd.: τὸ πονεῖν Mullach: τὸ πονεῖν(?) Diels: ἔν δὲ ἄκος <ἢ ἐπιτυχίη ἐν δὲ>  
τῆι ἀποτυχίη: τὸ πᾶν H. Fraenkel, lectionem codicum servat Langerbeck, v. comm.  
<sup>c</sup> <ἐνδυμέσθαι> supplevi, v. comm.

776

<sup>a</sup> <τὸ> κακοδαῖμον tempto: τὴν αἰτίαν τῆς κακοδαίμονιας Diels, audacter fortasse, sed sensum loci bene divinans: κακοδαίμων codd.: κακοδαίμονιαν Patzig.

<sup>b</sup> δι(α)ιτητής> supplevi: δικαστής Tyrwhitt: δι . . . codd.

776a

<sup>a</sup> Supplementum temptavi exempli gratia: [καὶ διαφό]ρους Heberdey et Kalinka.

785

<sup>a</sup> Λεόκιμος codd.: Λεόκιπος conl. Sylburg, Diels: Λυζίανος Bywater, cui Kranz assentitur.

796

<sup>a</sup> V. app. crit. ad № 584.

797

<sup>a</sup> <ὄρεγόμενοι> supplevi: <ἐπιθυμοῦντες> Pasquali apud Alfieri, p. 258, № 652:  
[γῆρας] delent Friedländer, Philippson, Diels: <ἀντι γῆρας> Th. Gomperz, Alfieri:  
γῆρας ὡς θάνατον H. Schenkel: γῆρας κάματον Hense.

803

<sup>a</sup> γνώμη codd.: γνώμη H. Gomperz, v. comm.

804a

<sup>a</sup> App. crit. v. ad № 527.

804b

<sup>a</sup> Contextum restituit Usener, nisus locis sqq.: Diog. συνουσίη δὲ FP<sup>2</sup>H<sup>1</sup>: συνουσίην δὲ B: συνοῦσιν ἢδε Q: συνουσίην δὲ Us.: ὄνησε codd.: ὄνησαι Us.: Clem.: συνουσία ὡ. μ. οὐδένα, α. δ. ε. μ. ε.: Porphyr.: τὰ ἀφροδισία ὄνησαι μὲν οὐδένα τινά, α. δ. ε. μ. ε. (ὄνησαι Us.: ὄν ὄνησε codd.): Galen. De arte med.: ἀφροδισίων δὲ κατὰ μὲν Ἐπίκουρον οὐδενία χρῆσις ὄνησιν (cf. V, p. 911: χρῆσιν Gassendus: κρίσιν vulgo); Galen. in epidem.: εἰρηκέναι . . . Ἐπίκουρον μηδέποτε μὲν ὠφελεῖν ἀφροδισίων χρῆσιν, α. δ. ε. μ. βλάψειν; Metrodor.: ἀφροδισία γὰρ οὐδέποτε ὄνησαν, ἀγαπητόν δὲ εἰ μὴ ἔβλαψεν. Συνουσίη scripsi coll. № 804a.

828

<sup>a</sup> ἀμφιδήτιοι codd.: ἀμφιδῆ· Τῆτιοι Diels.

<sup>b</sup> «Vox Democritea?» Bechtel. Die griechischen Dialekte, III, 148.

<sup>c</sup> συγγονή· σύστασις Δ. 1402b, 19 Schm.: συντονή· σύστασις 1418b, 1 Schm., lectionem secundam corruptam esse putat Diels: σύστασις Friedländer.

829

<sup>a</sup> <εἰ> suppl. Diels.

<sup>b</sup> ἔστιν codd.: ἔστιν <δὲ> Wilamowitz.

<sup>c</sup> διαίρετόν Diels: ἀδιαίρετον codd.

CONCORDANTIA DIELSIANA

ТАБЛИЦА СООТВЕТСТВИЙ  
МЕЖДУ НОМЕРАМИ СОБРАНИЙ  
ДИЛЬСА И ЛУРЬЕ

Дильс	Лурье	Дильс	Лурье
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16	XX	48a	107
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17a	XXXVII		
18	XXXV		
19	XXXIII		
20	XXIII		
21	LXI, LXII, LXIV, 513, 816		
22	XLII		
23	XLIV		

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50	39	104a	453
51	XCIX	105	74, 455
52	XCV	106	445, 452, 463, 503
53	XCVIII	107	456
55	169	108	454
		109	466
56	15, 180, 361	110	54
57	8, 42, 179, 198, 221	111	81
58	313, 332, 333, 364	112	52, 73, 80
59	92	113	69
60	368	114	76
60a	274	115	437
61	368	116	86, 438, 520, 572
62	375	117	448, 586
63	315	118	470
64	342	119	428, 440
65	14	120	171, 505
66	23, 25, 323	121	477
67	19	122	468
68	24	123	482
69	18, 36a, 288	124	486
70	27, 591	125	94, 214, 243, 487
71	21, 304	126	423, 481
72	287	126a	480, 489
73	232	127	493
74	XCVII, 472a	128	491, 565
75	581	127	497
76	594 (комм.)	130	498
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78	472a	132	499
79	572	133	442, 500
80	26	134	56
81	6, 350	135	3, 71, 144, 280, 317, 363, 369, 425, 426, 430, 435, 441, 460, 461, 478, 484, 488, 496, 502, 504
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83	23, 290	136	473, 512
84	12, 353	137	474
85	393	138	578
86	390	139	514
87	396	140	322, 523
88	380, 390, 394	141	525
89	420	142	529
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90	400	144	535, 536
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92	390, 416	146	546
93	415	147	517
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94	405, 407	149	519
95	402	150	544
96	419	150a	560
97	413	151	519, 545, 561
98	414	152	521
99	411, 412	153	541
99a	318, 410	154	543
100	409	155	542
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102	198	155b	552
103	450	156	549

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158	551	33	682
159	567a	34	10
160	586	36	784
161	588	37	573, 782
162	557	38	656
163	91	39	649
164	448	40	781
165	319	41	605, 789
166	195, 571, 725, 738	42	766
167	742	43	675
169	XXVI, XLIII, 743	44	593
170	723	45	655
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1a	587	49	614
2	822	50	639
3	737	51	596, 694
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5	558	53	685
5, 1	515, 572a	53a	672a
5, 2	534, 556	54	800
5a	566	55	669
5a—b	390	56	686
6	CXVI, 48	57	783
7	49	58	799
8	50	59	682a
9	55	60	677
10a	578	61	752
10b	98	62	603
11	83	63	670
111	82, 133	64—65	CXI
11p	134	66	675
12	423	67	606
13	422, 829	68	33c, 606
14	424	69	89
14,5	422	70	754
14c	406	71	755
15	407	72	767
16	568a, 729	73	787
17	574	74	756
18	574	75	655
19	824	76	33a, 800
20	825	77	637
21	575	78	638
22	817	79	650
23	818	80	648
24	819	81	775
25	397a, 821	82	677
26	563	83	696
26f	806a	84	604
27	807	85	CVIII
27a	515, 808	86	CX
28	809	87	672
29	828	8	679
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30	580	90	709
31	779	91	676
		92	680

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94	680	152	281, 415
95	689	153	611
96	681	154	559
97	661	155	126
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100	663	158	511
101	665	159	776
102	739, 749	160	628
103	662	161	577
104	701	162	128
105	778	163	75, 167
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109	677	167	288
110	703	168	196, 313, 744
111	704, 734	169	CXII, 741
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113	690	171	780
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126	555	185	697, 799
127	528	186	673, 711
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129	576, 829	188	734
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133	828	193	609
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139	326	199	584, 796
139a	327	200	793
140	828	201	793
141	198, 828	202	794
142	564	203	797
143	64	204	795
144	568	205	797
145	493a	206	797
146	790	207	786
147	581a	208	687
148	537a	209	758
149	776a	210	759
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213	764	274	703
214	706	275	721
215	602, 743	276	722
216	743	277	724
217	594 (комм.)	278	562
218	642	279	715
219	631	280	691
220	640	281	632
221	641	282	636
222	626	283	652
223	750	284	653
224	645	285	646
225	598	286	651, 739
226	597	287	647
227	627	288	12a
228	629	289	717
229	760	290	763
230	718	291	654
231	644	292	799
232	757	293	678
233	753	294	700
234	593	295	700
235	750	296	702
236	762	297	466, 583
237	679	298	829
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18	17	36	531
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Achilles Tattius. — Achilles Tattius. Leucippe et Clitophon.  
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Ael. N. a. — Aelianus. De natura animalium.  
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Aeneas Tact. — Aeneas Tacticus.  
Aeschin. — Aeschines.  
Aesch. Eumenid. — Aeschylus. Eumenides.  
Aesch. Prometh. — Aeschylus. Prometheus.  
Aesch. Sept. — Aeschylus. Septem contra Thebas.  
Aesch. Suppl. — Aeschylus. Supplices.  
Aesop. — Aesopus. Fabulae.  
Aët. — Aëtius. De placitis philosophorum.  
Agathemerus. — Agathemerus. Geographi Graeci Minores, ed. C.  
Müller.  
Albert. Magn. De lapid. — Albertus Magnus. De lapidibus.  
Albert. Magn. Eth. — Albertus Magnus. Ethica.  
Alcaeus. — Alcaeus Lyricus.  
Alciphron. Epist. — Alciphron. Epistulae.  
Alcmaeon. — Diels. Fr. d. Vors.  
Alex. De anima. — Alexander Aphrodisiensis. De anima (Supplementum  
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Alex. De mixt. — Alexander Aphrodisiensis. De mixtione (Supplemen-  
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Alex. in De sensu. — Alexander Aphrodisiensis. In Aristotelis De sensu.  
Alex. in Metaph. — Alexander Aphrodisiensis. In Aristotelis Metaphysica.  
Alex. in Meteor. — Alexander Aphrodisiensis. In Aristotelis Meteorologica.  
Alex. in Top. — Alexander Aphrodisiensis. In Aristotelis Topica.  
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Alphonso. De quadratura — Alphonso Mathematicus Iudaeus. De quadratura  
circuli.  
Ambros. Hexaemer. — Ambrosius Mediolanensis. Hexaemeron.  
Anacreon. — Anacreon Lyricus.  
Anaxagor. — Anaxagoras.  
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Anon. Flor. post Athen. II. — Anonymus Περί τῆς τοῦ Νείλου ἀναβάσεως (Athenaeus.  
Deipnosopistae. Vol. I, pp. 129—132 Meineke).

## TRANSLATION OF TEXTS

### THE LIFE OF DEMOCRITUS

#### a. TIME AND PROVENANCE

##### 1. Time when he lived

I. (DK 68 A I) Diogenes Laertius [DL] IX.41: Regarding the time of his birth<sup>1</sup>, he was, as he himself says in the Great World-System, young in the old age of Anaxagoras, being forty years younger than he. And he says that the Lesser World-System was written seven hundred and thirty years after the capture of Troy. He would have been born, according to Apollodorus in the Chronicles (FGH 244F. 36 II 1030) in the 80<sup>th</sup> Olympiad (460-457), or, as Thrasyllus says in his book entitled Prolegomena to the Works of Democritus, in the third year of the 77<sup>th</sup> Olympiad (470/69), being a year older than Socrates. He would have been a contemporary of Archelaus the pupil of Anaxagoras and of the school of Oenopides, for he mentions the latter. (42) He also mentions the doctrine of the One of Parmenides, Zeno and their followers (whom he describes as very celebrated contemporaries), and Protagoras of Abdera, who is acknowledged to have been a contemporary of Socrates.

II. (DK 68 A 36; see no. 99) Aristotle [Ar.] Parts of Animals [PA] I, 642a27: Democritus was the first to attempt (the definition of substance) ... and this ... was advanced by Socrates. Ar. Metaphysics [Meta.] XIII.4, 1078b17: Socrates dealt with ethical topics and was the first to seek for universal definitions in those areas; for of the natural philosophers Democritus attempted that only to a small extent and defined the hot and the cold after a fashion ... (DK 68 A 95, no. 58) Cicero [Cic.] Posterior Analytics [Acad. post.] I.12.44: Matters which had induced Socrates to confess ignorance, and Democritus even before Socrates. (Not in DK) Cic. De finibus [De fin.] V.28.88: For Democritus ... indeed said a few things about virtue, but they were not worked out by him. Afterwards they began to be investigated, for the first time in this city, by Socrates.

III. (Not in DK) Aulus Gellius [Aul. Gell.] Attic Nights [Noct. Att.] XVII.21.16-18: Then the greatest of the wars in Greece, the Peloponnesian War ... began round about the 323<sup>rd</sup> year after the foundation of Rome (430 BCE). At that time there lived the great and famous tragedians Sophocles and then Euripides, the physician Hippocrates and the philosopher Democritus; Socrates the Athenian was younger than they, but they lived at the same time.

IV. (Not in DK) Soranus, Life of Hippocrates (vol. II, P. 951 Linden): He (Hippocrates?) was born, according to Histomachus in Book 1 of his work on the Hippocratic school, in the



first year of the 80<sup>th</sup> Olympiad (460) ... (on the death of Hippocrates) ... when Democritus is said to have died also. Some say he was ninety years old, others eighty-five, others a hundred and four, others a hundred and nine.

V. (DK 68 A 2) Suda, s.v. Dēmokritos: born at the same time as the philosopher Socrates in the 77<sup>th</sup> Olympiad (472-479) (some say in the 80<sup>th</sup> (460-57)). But also in the Suda (DK 29 A 2): Zeno son of Teleutagoras the Eleatic philosopher, contemporary with the school of Pythagoras and with Democritus; for he was alive<sup>1</sup> in the 78<sup>th</sup> Olympiad (468-465).

VI. (DK 68 A 5) Diodorus [Diod.] XIV.11.5: About the same time (Ol. 44.1 = 404)<sup>1</sup> the philosopher Democritus died at the age of ninety.

See commentary for the various reports of Christian writers.

## **2. Democritus' place in the history of philosophy**

VII. (Not in DK)<sup>1</sup> DL Preface 13-15: There came into being two successions in philosophy, one from Anaximander, the other from Pythagoras; the former was a pupil of Thales, and Pherecydes taught Pythagoras. The former was called the Ionian [succession, school], the latter the Italian ... Now Anaximander was a pupil of Thales, Anaximenes of Anaximander, Anaxagoras of Anaximenes, Archelaus of Anaxagoras, Socrates of Archelaus ... Plato and the other Socratics of Socrates ... down to Chrysippus ... it came to an end. The Italian [succession] is as follows: Pythagoras was a pupil of Pherecydes, Telauges his son of Pythagoras, Xenophanes of Telauges, Parmenides of Xenophanes, Zeno of Elea of Parmenides, Leucippus of Zeno, Democritus of Leucippus. Democritus had many pupils, of whom the most notable was Nausiphanes, of whom Epicurus was a pupil.

VIII. (Not in DK) Eusebius [Eus.] Preparation for the Gospel [PE] XIV.17.10, p. 758 A: Parmenides became a pupil of Xenophanes, Melissus of him, Zeno of him, Leucippus of him, Democritus of him, Protagoras of him ... (X.14.15-16, p. 504 CD) Parmenides is said to have been taught by Xenophanes, Melissus by Parmenides, Zeno of Elea by Melissus ... Leucippus became a pupil of Melissus, Democritus of Leucippus, Protagoras of Democritus (on the succession Thales – Socrates ib. X.14.11-13, p. 504 AC). Clement [Clem.] Miscellanies [Strom.] I.14.64.3-4: Now Parmenides became a pupil of Xenophanes, Zeno of Parmenides, then Leucippus, then Democritus. Pupils of Democritus were Protagoras ... . Epiphanius [Epiphan] Against heresies [Adv. haer.] III, p. 562.12 Dind. (= Dox. 589-590, 1-6): Thales ... Anaximander ... Anaximenes ... Anaxagoras ... Archelaus ... Socrates. (7-16) Pherecydes ... Pythagoras ... Xenophanes ... Parmenides ... Zeno of Elea ... Melissus ... Leucippus of Miletus ... according to some, of Elea<sup>1</sup> ... Democritus ... Metrodorus ... Protagoras .... DL IX.30: Leucippus of Elea, or as some say of Abdera<sup>2</sup>, in some accounts of Melos (thus the mss: Diels corrected to 'of Miletus'). He was a pupil of Zeno. Simplicius [Simpl.] Commentary on Aristotle, Physics [in Phys.] 28.4 (= Theophrastus [Theophr.] Opinions of the Natural

Philosophers [Phys. opin.] Fr.8; Dox. 483): Leucippus of Elea or Miletus<sup>3</sup> (both are said about him) having been a philosophical associate of Parmenides<sup>4</sup> .... See nos. 150-154.

### 3. Place of birth

IX. (DK 68 A 3) Aetius [Aet.] I.3.16 (Dox. 285) = Theodoretus [Theodoret.] IV.2 (ib.): Democritus son of Damasippus of Abdera. DL IX.34: Democritus, an Abderite or, according to some, a Milesian.<sup>1</sup> Sozomenus [Sozom.] II.24.76 (PG 67, p. 997): Democritus of Cos.<sup>2</sup>

X. (DK 68 B 300, 17) Ps-Synnesius Commentary on Democritus to Dioscorides [Ad Dioscor. Comm in Democr.] (I.56.7 Berth.): Democritus was a natural philosopher from Abdera who investigated and wrote about everything in nature. Abdera is a city in Thrace; he was a most learned man.

### b. LIFE

#### 1. Childhood and youth

XI. (DK 68 A 1) DL 34ff.: Democritus son of Hegesistratus, on other accounts of Athenocritus or of Damasippus, from Abdera or on other accounts Miletus (cf. no. VIII). He was taught by some magi and Chaldeans, whom King Xerxes had left with his father to take charge of him, when he was entertained in his house, as Herodotus says<sup>1</sup>; from them he learned theology and astronomy while still a child ... (35) ... he received his inheritance as the youngest of three brothers. The majority of sources say that he chose the smallest portion, which was in cash, since he needed it for travel, which aroused the suspicion of the others. (36) Demetrius<sup>2</sup> says that his share was over a hundred talents, all of which he spent.

XII. (Not in DK) Valerius Maximus [Val. Max.] VII.7, extr. 4: John of Salisbury Polycraticus 7.669 (PL 199):<sup>1</sup> When Democritus came to be assessed for his wealth, which was so great that his father was easily able to feed Xerxes' army, in order more readily to devote himself to the study of learning with an unencumbered mind, he kept a quite small sum and gave his inheritance to the city.

XIII. (DK 68 A 1) DL IX.36: He (i.e. Demetrius) says that he was so studious that he fenced off a small house in the grounds and shut himself up. And once when his father was taking an ox to be sacrificed and had tied it up there, for quite some time he did not notice it, until his father told him about it when he summoned him to the sacrifice ... (38) He practised, says Antisthenes<sup>1</sup>, examining his ideas<sup>2</sup> in a variety of ways, sometimes living alone, or among the tombs.

XIIIa. (Not in DK) ps-Hippocrates [ps-Hippocr.] Letters [Ep.] 12 (p. 330 Littré): Democritus was alone and solitary night and day, often in desert places and caves ... many things of that kind happen to those suffering from melancholy ... it is not unlikely that those who are enthusiastic about learning should find their other thoughts absorbed by the single concern with their state of wisdom<sup>1</sup> ... they seek out caves and silence ... the desire for freedom from

disturbance ... is regarded as madness because of their love of solitude ... (Not in DK)  
Anonymous comm. on Aristotle Sophistical Refutations [Anon. in Soph. El. ] V, 167b23ff., p. 15.15 Hayd.: Democritus flees into deserted places, someone who flees into deserted places is mad, therefore Democritus is mad. Now it follows that everyone who is mad flees into deserted places, but not that if someone flees into deserted places he is mad. For it is not the case that if someone is devoted to study and for that reason wants peace and quiet and seeks out the least noisy places, he is mad, rather than a paragon of good sense and wisdom ...<sup>2</sup> Lucian the Lover of Lies [Philops.] 32 (III.59 R.) (= no. 579a): (Democritus of Abdera) ... shut himself up in a tomb outside the gates and stayed there writing and composing treatises night and day.

XIV. (DK 68 B 299)<sup>1</sup> Clem. Strom. I.15.69 (II.43.13-44.4 St.); Eus. PE X.4.23-4, p. 472 AB; cf. Sozom. (no.. XV): For Democritus appropriated the Babylonian ethical writings<sup>12</sup>; for he is said to have translated the stele of Acicarus and incorporated it into his own writings; this is indicated by his writing 'Thus says Democritus'. And further he boasts of his learning: 'I travelled the furthest of the men of my time and investigated the greatest things and saw the most lands and people and listened to the most learned men<sup>2</sup>, and no-one ever found an error<sup>3</sup> in my geometrical proofs, not even those Egyptians who are called surveyors.<sup>4</sup> Including my stay with the latter I spent about eight<sup>5</sup> years abroad<sup>6</sup>'. For he went to Babylon and Persia and Egypt to learn from the Egyptians and magii and priests.

XV. (Not in DK) Sozom. II.24.4: But Democritus of Cos<sup>1</sup> investigated very many cities and their climate, and places and peoples, and he himself says that he spent eighty years abroad ...

XVI. (Not in DK) Diod. I.98.3 (also in Eus. PE X.8.14, p. 482 AB): And the Egyptian priests accept that Democritus spent five years with them and learned a great deal about astronomy ...; Diod. I.96.2 (also in Eus. PE X.8.2, p. 480 B-C): The Egyptian priests learn from what is written in their sacred books ... that ... came ... and also Democritus of Abdera.

XVII. (DK 68 A 1) DL IX.35: Demetrius<sup>1</sup> says in his work On people with the same name and Antisthenes<sup>2</sup> in his Successions that he went to Egypt to learn geometry from the priests, and to the Chaldeans and to Persia and the Red Sea, and some say that he associated with the naked sages in India and came to Ethiopia ... (38) It is clear from his writings what sort of person he was.

XVIII. (DK 68 A 40) Hippolytus [Hippol.] Refutation of All Heresies [Refut.] I.13.1 (Dox. 565): Democritus was acquainted with Leucippus. Democritus son of Damasippus of Abdera

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<sup>12</sup> [This translates L's textual emendation tous Babulōnious logous ēthikous <idious> pepoiētai, lit. 'made the Babylonian ethical writings his own'. DK prints the ms. text tous B. logous pepoiētai ('made up the B. writings') with a question mark after logous; the note on p. 208, l. 3 records Diels's conjecture tous B. logous oikeous pepoiētai, ('made the B. writings his own').]

associated with many naked sages in India and priests in Egypt and astronomers and magi in Babylon<sup>1</sup>.

XIX. (DK 68 A 2) Suda: 'Democritus ... a pupil ... as some say ... of Magi and Persian Chaldeans<sup>1</sup>; for he went to the Persians and Indians and Egyptians and learned their wisdom.

XX. (DK 68 A 16) Aelian [Ael.] Miscellaneous History [VH] IV.20: There is a story that Democritus of Abdera was wise in other respects, and had a desire to live in obscurity<sup>1</sup>, which he put into effect with vigour. So he travelled to many lands; he went to the Chaldeans and to Babylon, and to the magi and the sages<sup>2</sup> of India. The wealth of his father Damasippus was divided into three among the three brothers, and he took only the cash to pay for his journeys and left the rest to his brothers. Therefore Theophrastus<sup>3</sup> praises him for having accumulated on his travels more than Menelaus and Odysseus.<sup>4</sup> For their wanderings were no different from those of Phoenician traders; they were gathering wealth, and that was the aim of their travelling and voyaging.

XXI. (DK 68 A 13) Cic. De fin. V.19.50: What shall I say about Pythagoras, Plato or Democritus? We see that they travelled to the ends of the earth from a desire for learning.

XXII. (DK 68 A 12) Megasthenes, ap. Strabo XV. p. 703<sup>1</sup>: He says that in the mountainous country (sc. of India) there is a river Sila, on which nothing floats. Democritus, who travelled extensively in Asia, denies this.

XXIII. (DK 68 A 20) Julian Letter 201: It is said that Democritus of Abdera, being unable to console Darius for the death of his beautiful wife, promised to bring her back from the dead, if the king was willing to provide everything necessary. When the king told him to spare nothing necessary for the fulfilment of his promise, after a short delay he said that everything necessary had been supplied, except one thing which he himself could not provide, but which Darius, the king of all Asia, could no doubt find without difficulty. And when Darius asked what this thing was which it was granted only to the king to know, Democritus replied that if he could inscribe on his wife's tomb the names of three people who had known no grief, she would immediately return to life, constrained by the ordinance of the rite. And when Darius, after long pondering, was unable to find anyone who had not suffered any misfortune, Democritus laughed in his characteristic way and said 'Why then, most foolish of men, do you grieve just if you alone had such sorrow, when you cannot find one who has ever lived who is without his own grief?'<sup>1</sup>

XXIIIa. For the spurious magico-alchemical fragments see comm.<sup>1</sup>

### **3. Journey to Athens**

XXIV. (DK 68 B 116) DL IX.36: It seems, he (i.e. Demetrius of Magnesia) says, that when he came to Athens he did not trouble to make himself known, since he was indifferent to his

reputation, and that he knew Socrates but was not known by him; 'for I came', he says, 'to Athens and no one knew me'. Cic. Tusculan Disputations [Tusc]. V.36.104: So it must be understood that we should not seek public recognition for its own sake nor fear lack of reputation. 'I came to Athens', says Democritus, 'and no-one knew me there.' A man of weight and integrity, to pride himself on his lack of pride. (DK 68 A 11) Val. Max. VIII.7, extr. 4 (after no. XII): He stayed in Athens for several years, and from giving every moment of his time to the acquisition and exercise of learning he lived unknown in that city, as he states in a certain book<sup>1</sup>.

XXV. (DK 68 A 1) DL IX.37: Demetrius of Phalerum says in his Defence of Socrates that he never even came to Athens. That is all the more remarkable, if he neglected a city of such importance, not wishing to acquire a reputation from a place, but preferring to confer a reputation on a place.

#### **4. Returns home, is prosecuted, achieves fame.**

XXVI. (partly in DK 68 A 1) DL IX.39: Antisthenes<sup>1</sup> says that when he returned from abroad he lived in the greatest poverty, having spent all he had, and that because of his poverty he was kept by his brother Damasus. Cic. Tusc. V.39.115<sup>2</sup>: Had that not been so (i.e. had they not been delighted to do so) would Anaxagoras or Democritus himself have abandoned their lands and their inheritance? Would they have given themselves whole-heartedly to this divine delight of learning and enquiry? (DK 68 A 169) Cic. De fin. V.29.87: In order to be distracted from his reflections as little as possible Democritus neglected his inheritance and left his fields uncultivated; what was he seeking if not a blessed life?

XXVII. (DK 68 A 15) Philo On the contemplative life [De vita contempl.] 2.14 (VI.49 C.—W.): The Greeks proclaim that Anaxagoras and Democritus were so seized by the desire for learning that they left their property to be devoured by sheep. Dio 54.2, p. 113.21 Arn.; Horace Epist. I.12.12: We wonder that the flock devours Democritus' fields and crops, while his mind is moving swiftly elsewhere apart from his body. Origen [Orig.] Against Celsus [Contra Cels.] II.84.418, p. 164 K: Most Greeks know from what is written about Democritus, who left his property to be devoured by sheep (sc. that he was poor). Clem. Which rich man is saved? [Quis div. salv.] 11 (III.167.9 St.); Lactantius [Lact.] Divine Institutions [Inst.] III.23.4.

XXVIII. (DK 68 A 1)<sup>1</sup> DL IX.39: There was a law to the effect that that someone who had spent his inherited wealth should not be allowed burial in his homeland, and Antisthenes<sup>2</sup> says that, realising that and wishing to forestall any accusation from his enemies, he read them his Great World-System, the most important of all his writings, and that he was awarded five hundred talents, and not only that, but bronze statues as well ... <sup>3</sup>(40) Demetrius<sup>4</sup> says that it was his relatives who read the Great World-System, and that the award was only one hundred talents. Hippobotus<sup>5</sup> says the same.

XXIX. (DK 68 A 14) Philo On Providence [De prov.] II.13, p. 52 Aucher.: Democritus was another (after Anaxagoras; cf. no. XXVII) who, though rich and possessed of great wealth, coming as he did from a noble family, was given over to the desire for wisdom above all, and put a check on that blind and hateful opulence which is usually a mark of the base and depraved; instead he sought that wealth which is not blind, but reliable, since it is an attribute of the good alone. Therefore he was thought to be overthrowing all the laws of his country and was looked on as a sort of evil spirit, to such an extent that he was in danger of being deprived even of burial by a law in force in Abdera which prescribed that the body of someone who had not observed the laws of the country should be cast out unburied. That would indeed have happened to Democritus, had he not secured pardon through the benevolence of Hippocrates of Cos; for they were rivals in the pursuit of wisdom. Further, of his famous works the one called the Great World-System was valued at a hundred Attic talents, or three hundred more according to some accounts.<sup>1</sup>

XXIXa. (Not in DK) Athenagoras Embassy on behalf of the Christians [Leg. pro christ.] 31: Similarly Pythagoras was burned along with three hundred companions, and Heraclitus was exiled<sup>1</sup> from Ephesus and Democritus from Abdera, accused of being mad; and the Athenians condemned Socrates to death.

XXX. (DK 68 A 2) Suda: Democritus son of Hegeistratus (some say of Athenocritus or of Damasippus)... From Abdera in Thrace, philosopher, according to some sources pupil of Anaxagoras and Leucippus, and also, some say, of Persian magi and Chaldeans, for he went to Persia, India and Egypt and learned their wisdom. Then he came back and lived with his brothers Herodotus and Damastes<sup>1</sup>. He held office in Abdera, being highly regarded for his wisdom.

XXXI (Not in DK)<sup>1</sup> Silver coin of Abdera, with the emblem of that city and the inscription epi Dēmokrito . (The name of an annually-elected magistrate, regarded as a priest of Apollo and perhaps bearing the title archōn; C. Seltman, Greek Coins , London, 1933, p. 143.)

##### **5. Fables about Democritus' wisdom. Sayings of his.**

XXXII. (DK 68 A 1) DL IX.39: He became famous for foretelling some things that were going to happen,<sup>1</sup> and thereafter was generally revered as someone divinely inspired. Suda, s.v. Dēmokritos: and he was nicknamed Wisdom.<sup>2</sup>

XXXIII. (DK 68 A 19) Philostratus [Philostrat.] Life of Apollonius [De vita Apoll.] VIII.7, P. 313.17 Kayser: What wise man do you think would shun a contest on behalf of such a city, remembering that Democritus one delivered the people of Abdera from a plague<sup>1,13</sup>, and bearing in mind Sophocles of Athens, who is said to have charmed unseasonable winds?

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<sup>13</sup> [Mistranslated 'famine' in Taylor 1999, no. 26, p. 64.]



XXXIV (DK 68 A 17)<sup>1</sup> Pliny Natural History [NH] XVIII.273: It is said that Democritus was the first to understand and demonstrate the affinity between earth and the heavens. The richest of his fellow-citizens laughed at that interest of his, but he foresaw from the rising of the Pleiades<sup>2</sup> (I have explained the reason and shall expound it more fully) that oil was going to be very dear, and bought up all the oil in the district at a time when the price was very low because of the expectation of a bumper olive crop, to the astonishment of those who were aware of his poverty and his concern above all to have peace and quiet for his studies. And when it turned out as he had said and he had become immensely rich, he repaid the money to those worried, grasping landowners (who now regretted their attitude), content to have proved that he could easily have wealth whenever he wished.

XXXV. (DK 68 A 18) Clem. Strom. VI.32 (II.466.28 St.): Democritus was nicknamed Wisdom because of the many predictions he made from observations of the heavens. His brother Damasus looked after him kindly, and once from his observation of the stars he predicted heavy rain. They believed him and brought in the crops (since it was summer they were still at work on the threshing-floors)<sup>14</sup>, but the others lost everything when an unexpected heavy storm broke. Pliny NH XVIII.341: They say that when his brother was harvesting in extremely hot weather, the above-mentioned Democritus asked him to leave the rest of the crop and bring under cover what was already cut, and that his prediction was confirmed by a fierce storm a few hours later.

XXXVI. (DK 68 A 1) DL IX.42: Athenodorus says in the eighth book of his Discourses that once when Hippocrates came to visit him he ordered some milk to be brought, and when he had inspected it he said that it was from a black goat which had borne its first kid, so that Hippocrates was astonished at his acuity. Hippocrates was accompanied by a girl, and on the first day Democritus greeted her with the words 'Greetings, maiden', and the next day with 'Greetings, woman', and indeed the girl had been seduced during the night.

XXXVII. (DK 68 A 17a) Plutarch [Plut.] Convivial Questions [Quaest. Conv.] I.10.2, 628b-d: Love of enquiry will do for us what it did for the learned Democritus. It seems that he was once eating a cucumber, and noticing that it tasted of honey he asked the maidservant where she had bought it. She mentioned a garden, and he got up and told her to take him and show him the place. The woman was surprised and him what he wanted. 'I have to find the cause<sup>1</sup> of the sweetness,' he said, 'and I shall find it out by seeing the place'. The woman smiled and said, 'Sit down; I put the cucumber by mistake into a jar that had had honey in it'. 'You've exasperated me,' he said, apparently in anger, but all the same I shall pursue the enquiry and investigate the cause,' as if the sweetness belonged naturally to the cucumber.

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<sup>14</sup> [Mistranslated in Taylor 1999, no. 25, p. 64: 'though it was still summer, not yet threshing-time'.]

XXXVIII.<sup>1</sup> (Not in DK, Mull. 178) Maximus [Maxim.] Commonplaces [Loc.comm.] 20, p. 597 (PG 91, 847D): Democrit. Seeing someone talking a great deal of ignorant stuff, he said 'This man seems to me not a capable speaker, but someone who is incapable of keeping quiet'.<sup>2</sup>

XXXIX (not in DK) Maxim. Loc. comm. 16, p. 586 (PG 91, p. 825 D): Democrit. When a young man was showing off in the theatre, saying that he was wise, as he mixed with many wise people, someone said 'I mix with many rich people, but I am not rich'.<sup>1</sup>

XL. A dubious fragment, on which see comm.<sup>1</sup>

XLI. (Not in DK) Maxim. Loc. comm. 32, p. 621 (PG 91, p. 891 A);\_ Antonius Melissa [Ant. Mel.] II.45, p. 195 (PG 136, p. 1124 C): The same man (i.e. Democritus), seeing a young man working hard, said 'You are cooking a splendid dish for your old age'.

XLII (DK 68 A 22) Cic. Tusc. V.39.114:<sup>1</sup> Democritus, having lost his sight, could not distinguish white from black, but he could certainly tell good from bad, just from unjust, useful from useless, great from small, and could live happily without any variety of colours, but not without understanding of things. This man thought that the acuity of the mind was actually hindered by looking with one's eyes, and when others often failed to see what was before their feet, he used to journey over the whole of infinity<sup>2</sup>, stopping at no boundary.

XLIII. (DK 68 A 169, 4 Natorp [N])<sup>1</sup> Cic. De fin. V.29.87: Democritus, who is said (whether truly or falsely we shall not enquire) to have blinded himself, certainly neglected his inheritance and left his fields uncultivated, so that his mind should be distracted as little as possible from its thoughts ...

XLIV. (DK 68 A 23) Aul. Gell. Noct. Att. X.17: It is written in the records of Greek history that the philosopher Democritus, a man of ancient authority, venerable above others, voluntarily deprived himself of the sight of his eyes, because he considered that the thoughts and reflections of his mind would be more vigorous and exact in contemplating the rational construction of nature if he had freed them from the allurements of sight and the hindrances of the eyes. This action, and the way in which he contrived to blind himself easily by a most subtle device, is elegantly and vividly described by the poet Laberius in his mime The Rope-seller, but he gave a fictional cause of the voluntary blindness, adapting it ingeniously to the subject of the play. The character who says this in Laberius is that of a rich and avaricious old man who is complaining about the extravagance and vast expenditure of his young son. The lines of Laberius are as follows (CRF, ed. 3, 72ff., p. 353 Ribb.) :

Democritus of Abdera the natural philosopher

Set up a shield<sup>1</sup> opposite the rising of Hyperion,

To put his eyes out through its airy brightness.

Thus by the rays of the sun he put out the light of his eyes,  
So as not to see the good fortune of wicked fellow-citizens.  
So I want the brightness of my gleaming money  
To shine on my death in old age,  
So that I do not see a wicked son in prosperity.

XLV (DK 68 A 27) Plut., On curiosity [De curios.] 12, 521 D: There is no truth in the story that Democritus voluntarily destroyed his eyesight by staring into burning mirrors<sup>1</sup> and receiving their reflection, so that his eyes should not constantly disturb his thought by calling it outside, but should let it stay indoors to consider abstract things, like shuttered windows overlooking a street.

XLVI. (DK 68 A 23) Himerius [Himer.] Selections [Ecl.] 3.18: Democritus was voluntarily sick in body, so as to be healthy for higher things.

XLVII. (DK 68 A 26) Tertullian [Tert.]. 46 D: Democritus, who blinded himself because he could not look at a woman without lust and was distressed if he could not have her, confesses his intemperance by his remedy.

## 6. Old age and death

XLVIII. (DK 68 A 6) ps-Lucian Long-lived People [Macrob.] 18: Democritus of Abdera died at the age of one hundred and four<sup>1</sup> by abstaining from food. Censorinus [Censor.] 15.3: Also Democritus of Abdera and the orator Isocrates are said to have attained nearly the same age as Gorgias of Leontini, who is agreed to have been the oldest of all the ancients, having lived for one hundred and eight years.

XLIX. (DK 68 A 1) DL IX.39: And indeed he was honoured with bronze statues, and was given a public funeral on his death at the age of over a hundred. Papyrus fragment of an anonymous Succession of philosophers: Vol. Herc. coll. alt. 3.197-199, fr. 5 (Crönert, Kolotes und Menedemos, p. 128: ... patriotic and? [-----] [was calle]d (?)<sup>1</sup> by the citi[zens and received] a public funeral. [And they decid]ed to erect a bronze statue of him in the public square... it is written in the same [text] ...

L. (Not in DK) Jerome Letter LII (ad Nepotianum) (PL 21, p.256): I say nothing about the other philosophers, Pythagoras, Democritus, Xenocrates, Zeno and Cleanthes, who were active in learned studies even in old age<sup>1</sup>.

LI. (DK 68 A 24)<sup>1</sup> Lucretius [Lucr.] III 1039-41 (imitated by Lact. Inst. III.18.6): Finally when old age warned Democritus that his powers of mind and memory were declining, of his own free will he gave himself up to death.

LII. (Not in DK) Maximus Loc. comm. 36, p. 627 (PG 91, p. 903 C); Ant. Mel. I.58, p. 103 (PG 136, p. 957 D): Democritus was ill, and fainted. When he recovered he said, 'Love of life will not lead me astray', and removed himself from life.

LIII. (DK 68 A 1) DL IX.43: Democritus died, according to Hermippus<sup>1</sup>, in this way. He was already very old and on the point of death. His sister was upset because he was going to die on the day of the festival of the Thesmophoria, which would prevent her from performing her service to the goddess. He told her not to worry, but to bring him warm loaves each day, and by applying them to his nostrils he lasted out the festival. And when the festival days, three in all, were over, he breathed his last without any suffering, as Hipparchus<sup>2</sup> reports, at the age of a hundred and nine, I have written about him as follows in my Verses in all Kinds of Metre:

Who was so wise, who e'er did such a deed

As versatile Democritus achieved?

Three days he kept Death as his guest at home

And entertained him with warm breath of loaves.

Such was his life.

LIV. (DK 68 A 28) Asclepiades, (Suppl. Arist. III.1, c. 37, 34ff.): And there he (i.e. Asclepiades)<sup>1</sup> says that there is a story that Democritus had fasted for four days and was on the point of death when some women begged him to remain alive for a few days, so that the Thesmophoria, which were then being celebrated, should not be spoiled by an ill omen. He told them to go away, and sat by the loaves which were being baked, so that the vapour blew on him. And Democritus regained his strength by inhaling the vapours from the oven and so lived on for the remaining time.<sup>2</sup>

LV. (DK 68 A 28) Caelius Aurelianus [Cael. Aur.] Acute Diseases [Acut. Morb.] II.37: So let there be prepared an infusion of barley and dry bread soaked in vinegar, or quinces or myrtle and similar things. For these preserve the failing strength of the body, as is shown by reason and by the celebrated story of the postponement of the death<sup>1</sup> of Democritus.

LVI. (68 A 29) Athenaeus [Athen.] Deipnosophistae [Deipn.] II.46e: The story goes that Democritus of Abdera had decided to end his life because of his great age and was abstaining from food every day. Since the days of the Thesmophoria were near, and the women of the family begged him not to die during the festival, so that they could take part, he agreed and ordered a jar of honey to be placed beside him, and lived for the required number of days on nothing more than the exhalation<sup>1</sup> of the honey. And after that time the honey was removed and he died. Democritus was always fond of honey, and when someone asked him how to keep healthy he said 'Moisten the inside with honey and the outside with oil'.

LVII. (DK 68 A 30) Marcus Aurelius [Marc. Aur.] I. III.3: Lice killed Democritus.<sup>1</sup>

### c. DEMOCRITUS THE SEEKER FOR KNOWLEDGE

#### 1. Learning the highest joy in life

LVIII. (DK 68 B 118 in part) Dionysius [Dion.] ap. Eus. PE XIV.27.4:<sup>1</sup> Democritus himself, so they say, used to say that he would rather discover a single causal explanation<sup>2</sup> than acquire the kingdom of the Persians (there follow nos. 29 and 32) ... Or will Epicurus or Democritus be bold enough to say that they find philosophizing a burden? Cf. Theodorus Prodromus [Theodor. Prodrom.] Against those who complain of Providence [In eos qui Provid. convic.] 11 (PG 133, p. 1294): What are the riches of Midas compared to a single laugh of Democritus'?

LIX. (DK 68 A 35a) Plut. On moral virtue [De virt. mor.] 7, 448 A: Aristotle himself, Democritus and Chrysippus gave up some of their earlier opinions without fuss and regret, indeed gladly. Cf. DL IX.47: (Democritus') Kratunteria<sup>1</sup>, which are critical of what had been said previously.

LX. (DK 68 B 300.6)<sup>1</sup> Petronius [Petron.] 88.2: For in earlier times, when people were still keen on plain and simple virtue, the arts flourished honestly and the keenest struggle between people was not to let anything which might be useful ... lie hidden. Therefore ... Democritus ... spent his whole life in experiments.

#### 2. The fable of the laughing philosopher

LXI. (DK 68 A 21)<sup>1</sup> Cic. De oratore [De orat.] II.58.235: But the primary question of what laughter itself is and what gives rise to it ... is a question for Democritus.

LXII. (DK 68 A 21) Horace Epist. II.1.94: If he were alive, Democritus would laugh. Sotion On anger Book 2 ap. Stobaeus [Stob.] III.20.53; Maxim. Loc. comm. 19.35, p. 594 (PG 91, p. 841): Among the sages, instead of anger Heraclitus was moved to tears, and Democritus to laughter<sup>1</sup>. Seneca [Sen.] On anger [De ira] II.10.5: Every time Heraclitus went out and saw so many of those around him living and indeed dying badly, he used to weep and pitied them all ... Democritus on the contrary is said never to have appeared in public without laughing, so little did he take seriously anything of what people were seriously engaged on. Sen., On tranquility of mind [De tranquil. animi] XV.2: So in this we should be induced to regard all the vices of the rabble not as hateful but as ridiculous, and to imitate Democritus rather than Heraclitus. Sen. Letters to Lucilius [Epist. Ad Lucil.] 79.14: As long as Democritus seemed to be mad.

LXIII. (Not in DK) ps-Hippocr. Epist. 10 (IX, p. 320 Littré): Neglecting everything, including himself, he stays awake night and day, and spends his whole life laughing at everything, regarding great and small alike as nothing. One gets married, another goes trading, one is an orator, another a ruler, another an ambassador, one is elected to office, another is

dismissed, one is ill, another is wounded (332 L.), another dies; he laughs at everything, seeing some dejected and sad, others rejoicing. Epist. 17 (IX, p. 360 Littré): But I ... one ridiculous man, weighed down with irrationality but empty of good deeds, foolishly engaged in all sorts of schemes and suffering useless ills for no good purpose, journeying to the ends and furthest corners of the earth through his immoderate greed, ceaselessly melting down silver and gold, and the more he acquires, always worrying that he may incur a loss ... (362 L.) How ridiculous, to desire a hidden and troublesome land, while despising the one in front of them. Some of them buy dogs, others horses. Some enclose a great tract of land and register it as their own; they want to be masters of much land, but they are incapable of mastering themselves. They are eager to get married, but soon divorce their wives, they love, but then they hate, they have children from desire, but drive them from home when they are grown up. What is the empty and irrational eagerness, no different from madness ... they seek for silver by digging the land, and when they have found silver they want to buy land, they sell the land to buy crops, and when they have sold the crops they get silver once again ... when they do not have wealth they want it, but when they have it they hide and conceal it. I laugh at their wickednesses, and extend my laughter to their misfortunes, for they break the laws of truth ... (368 L.) Others, who did not investigate what happened in the past, came to grief from their own mistakes; they did not consider what was plainly to be seen, treating it as concealed, though their long life was an indication of what had and what had not happened, from which they ought to have realised what was to be. This is what I laugh at, foolish people ... and another condemns their incapacity, for they lack sight and hearing; it is only perception which gives people's minds far-sighted accuracy, foreseeing what is and what will be. They are unpleasant to everyone and then they make overtures once again to the same people ... (370 L.) In their passions, what superiority do they concede to the irrational animals? Only that the animals are self-sufficient. For which lion digs gold from the ground (372 L.)? Which bull is equipped with acquisitiveness? Which leopard is insatiable? A thirsty pig is fierce, to the extent that it wants water. A wolf stops being fierce once it has devoured the necessary food which has come its way. Man is not satiated in bed for days and nights together. The animals have a limited annual season of sexual intercourse, but man has a continual mad impulse to unchastity. Hippocrates, should I not laugh at someone weeping for love, because he has been shut out as he should ...<sup>1</sup>

The pseudo-Hippocratic Letters are the principal source of the following testimonia.

LXIV. (DK 68 A 21) Juvenal [Juv.] X.32ff<sup>1</sup>:

Democritus used to sake his lungs with perpetual laughter ...

(47) Then<sup>2</sup> too he found material for laughter in all the doings of men.

His wisdom shows that men of the highest quality, destined to

Give great examples, can be born in a city of oafs<sup>3</sup> and in a thick air.<sup>4</sup>



He laughed at the worries<sup>5</sup> and at the joys of the people,  
And sometimes at their tears, while he himself to threatening fortune<sup>6</sup>  
Recommended the noose<sup>7</sup> and put out his middle finger.<sup>8</sup>  
Therefore, vain or harmful are those prayers  
For which it is right to wax the knees of the gods<sup>9</sup>.

LXV. (not in DK) Ael. VH IV.20.69<sup>1</sup>: The people of Abdera called Democritus 'Philosophy' and Protagoras 'Reason'. Democritus used to laugh at everyone and say that they were mad, whence his fellow-citizens called him 'the Laugher'. And the same people say that at their first meeting Hippocrates formed the impression that Democritus was mad, but as their association progressed he came to admire him exceedingly. And they say that though Hippocrates was a Dorian, to oblige Democritus he wrote in Ionic.<sup>2</sup> (IV.29.72) I cannot be persuaded not to laugh at Alexander son of Philip, if it is true that when he heard that Democritus says in his writings that there are innumerable worlds he was grieved that he had not conquered even this single world of ours (cf. DK 72 A 11, no. LXXXIII); there is no need to say how much Democritus himself would have laughed at him, since that was his forte.

LXVI (Not in DK) Philostrat. Vita Apollon. VIII.7.162 (p. 321 Kayser): But if you ask me as a philosopher, I used to praise the laughter of Democritus, who laughs at all human affairs. Lucian The Sale of Lives [Vit. Auctio] 13: Why are you laughing? DEMOCRITUS Do you ask me why? Because everything that we do and we ourselves seem to me ridiculous ...t here is nothing serious in them, everything is void and the motion of an infinity of atoms.

LXVII. (DK 68 A 2) Suda, s.v. Dēmokritos: Democritus was nicknamed 'Wisdom' and 'Laugher' because he laughed at the empty aspirations of mankind.

LXVIII. (DK 68 A 40) Hippol. Refut. I.13 (Dox. 565): He used to laugh at everything, on the ground that all human affairs are worthy of laughter.

In Christian literature the laughter of Democritus is very frequently referred to as proverbial, e.g. Theodor. Prodróm. In eos qui Provid. convic. 11; Hermias [Herm.] Mockery of the Pagan Philosophers [Irris.] 6 (=13).35; Nicephorus Gregoras [Nicephor. Greg.] Byzantine history [Byz. hist.] VIII.14, p. 375 Schoppen, XXI.10, p. 354 Bekker; Sidonius Apollinaris [Sidon. Apollinar.] Epist. IX.265, Poems [Carm.] 294; Tzetzes [Tzetz.] Chiliades [Chil.] II. 720-722; Gregory of Naziansus [Greg. Naz.] Orations [Or.] XXVI.9, t. 1, p. 478, ed. Maurin., Paris, 1778, with scholium of Elias of Crete (PG 34, p. 887, n. 6), and elsewhere.

### 3. Friends and colleagues

(see nos. 76-9)

LXIX. (DK 68 A 1) DL IX.42: (Democritus) also mentions ... Protagoras of Abdera. (DL 80 A 1) DL IX.50: Protagoras was a pupil of Democritus'. (53) And he invented the so-called knot, on which loads are carried, as Aristotle says in his work On Education (fr. 63 Rose); for he was a porter, as Epicurus says somewhere, and it was in this way that he became an associate of Democritus, who had noticed him tying up wood. (Not in DK) DL X.8: The slanderers of Epicurus say that he called Protagoras a porter and Democritus' secretary<sup>1</sup> (see no. CIII).

LXX. (DK 68 A 9) Athen. VIII.354 C: In the same letter (see no. CIII) Epicurus says that the sophist Protagoras went first from being a porter and wood-carrier to become Democritus' secretary; Democritus admired him for a certain special way that he had of tying up wood, and beginning with that he took him up and put him into a village school to teach reading and writing, from where he went on to become a sophist. (DK 80 A 3) Hesychius [Hesych] Lexicon [Onomatol.] in a scholium on Plato [Pl.] Rep. 600 C: Protagoras son of Artemon<sup>1</sup> of Abdera: He was a porter, and after meeting Democritus he took up philosophy and rhetoric. (Not in DK) Aul. Gell. Noct. Att. V.3<sup>2</sup>: It is said that Protagoras, a man distinguished for his learning, whose name Plato gave to that famous book of his, was as a youth<sup>3</sup> sent out to work to support himself and made his living by carrying loads; the Greeks call those who do that 'bearers of loads' (achthophorous) and in Latin we call them 'porters' (baiulos). He used to come into the city of Abdera, of which he was a citizen, from the countryside nearby carrying a huge number of sticks tied with a short piece of rope. Democritus, a citizen of the same city and a man excelling all others in virtue and wisdom, was going out of the city when he happened to see him walking along easily and quickly though burdened with such a difficult load. He approached him, examined the expert and skilful way in which the load had been constructed and asked to him to sit down for a little. When Protagoras had done as he asked, he noticed that the pile of sticks, virtually forming a sphere tied with a short rope, was balanced and held together in a geometrical ratio, and asked who had put the wood together in that way. When Protagoras said that he had done it himself, Democritus asked him to take it apart and put it together again in the same way. When he had taken it apart and put it back together in the same way, Democritus was astonished at the intelligence and skill of an uneducated man, and said, 'Young man, since you have a talent for doing well, there are greater and better things which you could do together with me', and immediately took him and kept him with him, provided for him, taught him different subjects and made him what he later became.

LXXI. (DK 68 A 9) Philostr. Lives of the sophists [Vitae sophist.] I.10, p. 13 Kayser: Protagoras the sophist from Abdera was a pupil of Democritus at home, and he associated with the Persian magi during Xerxes' invasion of Greece, since his father Maiandrius was wealthier than many in Thrace.

LXXII. (DK 80 B 4) Eus. PE XIV.3.7: For Protagoras, having become an associate<sup>1</sup> of Democritus, achieved fame as an atheist. (DK 80 A 4) Apuleius [Apul.] Florida 18(p. 36.3 Helm): Protagoras, who was by far the most learned of the sophists and was distinguished

for his oratory among the founders of rhetoric, was a contemporary<sup>2</sup> and fellow-citizen of the natural philosopher Democritus, from whom he took his doctrine ...

LXXIII. (DK 68 B 156 = no. 78) Plut. Against Colotes [Col.] 1108 F: Democritus is so far from thinking that each thing is no more this [than that] that he opposed the sophist Protagoras, who maintained that, and wrote many persuasive arguments against him. (DK 68 A 114) Sextus Empiricus [Sext.] Against the Mathematicians [M] 389.275 B: One would not say that every appearance is true ... as Democritus and Plato taught in opposition to Protagoras<sup>1</sup> (see no. 76) LXXIV. (Not in DK) Ael. VH 1.23.10 H: Among the Greeks of old Gorgias of Leontini far excelled<sup>1</sup> Philolaus in reputation and Protagoras excelled Democritus, but in wisdom they were as inferior to them as children are to grown men.

LXXV. (DK 67 A 3) Simpl. in Phys. 25.1 (Dox. 477): Diogenes of Apollonia, who was pretty well the last to discuss these topics, wrote eclectically<sup>1</sup> for the most part, taking some things from Anaxagoras and others from Leucippus.<sup>2</sup>

LXXVI (DK 68 A 10a)<sup>1</sup> Suda, s.v. Diagoras: Democritus of Abdera noticed his intelligence and ransomed him from slavery for ten thousand drachmae and made him his pupil. He wrote lyric poetry after the time of Pindar and Bacchylides, but was older than Melanippides. Hence his akme is assigned to the 78<sup>th</sup> Olympiad.

LXXVII (DK 68 A 10) Suda, s.v. Hippokratēs: ... he became a pupil first of his father, and after that of Herodicus of Selymbria and Gorgias of Leontini the orator and philosopher, and according to some sources of Democritus of Abdera. He met him in his old age, when Democritus was young.<sup>1</sup> According to some sources he was also a pupil of Prodicus.

LXXVIII (DK 30 A 1) DL IX.24: (Melissus) recommended (Heraclitus) to the Ephesians ... as Hippocrates recommended Democritus to the people of Abdera.

LXXXIX (DK 68 A 2) Suda s.v. Dēmokritos: Hippocrates the physician ... was a famous pupil of his (Democritus').

For other testimonia on Hippocrates see above nos. XXIX, XXXVI, LXIII, LXV.

#### **4. Plato and Democritus**

LXXX (Not in DK)<sup>1</sup> DL III.25: And since he (Plato) was the first to oppose practically all his predecessors, there is a question why he did not mention Democritus.

(DK 68 A 1) DL IX.40: In his historical notes Aristoxenus<sup>2</sup> says that Plato wanted to burn all the works of Democritus which he could collect. Amyclas and Cleinias<sup>3</sup> the Pythagoreans stopped him, saying that there was no point, as his books were already widely circulated. That is clear; for Plato, who mentions practically all the early philosophers, never mentions

Democritus at all, even in places where he ought to reply to him. He plainly realised that he would be disputing with the best of the philosophers. Timon<sup>4</sup> praises him in these words:

Among the first I saw the wise Democritus,  
Shepherd of tales and super-learned chatterer.

## 5. Pupils and followers of Democritus

Democriteans

LXXXI. (DK 69 A: see no. VIII) Eus. PE XIV.17.10: Democritus, whose pupils were Protagoras and Nessas.<sup>1</sup> Metrodorus was a pupil of Nessas, Diogenes of Metrodorus and Anaxarchus of Diogenes; Pyrrho became an associate of Anaxarchus. (DK 72 A 1) DL IX.58: Anaxarchus of Abdera; he was a pupil of Diogenes of Smyrna, who was a pupil of Metrodorus of Chios ... Metrodorus was a pupil of Nessas of Chios, and according to some sources of Democritus.

LXXXII. (DK 70 A 1) Clem. Strom. I.64 (II.41.1 St.; Dox. 244, 601): Protagoras of Abdera and Metrodorus of Chios were pupils of Democritus; Diogenes of Smyrna was a pupil of Metrodorus, Anaxarchus of Diogenes, Pyrrho of Anaxarchus, and Nausiphanes of Pyrrho. Some sources say that Epicurus was a pupil of Nausiphanes. Suda s.v. Purrōn: (Pyrrho) ... was a pupil of Bryson ... and then of Anaxarchus the pupil of Metrodorus of Chios, whose teacher was <Democritus> of Abdera.

LXXXIII. (DK 72 a 11) Val. Max. 14, extr. 2: (Alexander) said to his friend Anaxarchus, who was declaring on the authority of Democritus that there are innumerable worlds ... Cf. Plut. On tranquillity of mind [De tranqu. animi] 4.446 D (DK 72 A 11) and no. LXV. (Not in DK) Eus. PE XIV.18.27: Of a certain Anaxarchus ... who was first of all a painter, not a particularly successful one,, and then he came across the books of Democritus but found nothing useful in them nor wrote anything useful himself, but spoke ill of all gods and men ...

LXXXIV. (DK 68 A 2) Suda, s.v. Dēmokritos: Metrodorus of Chios was a celebrated pupil of his, and in their turn Anaxarchus and Hippocrates the physician were pupils of Metrodorus.

LXXXV. (DK 68 B 4) Clem. Strom. II.130 (II.184.14 St.): But the Abderites<sup>1</sup> also teach that there is an end ... Hecataeus [calls it] self-sufficiency.

LXXXVI. (DK 74.3) Pliny NH XXIV.167: Apollodorus a follower of his (i.e. of Democritus) ...

LXXXVII. (DK 75 A 1) DL Preface I.15: Democritus had many pupils, notably Nausiphanes (and Naucides) <of whom> Epicurus was a pupil (see no. VII).

LXXXVIII (DK 75 A 7)<sup>1</sup> Herculaneum papyrus 1005, fr. 24 (Crönert, Kolotes und Memedemus, p. 174): The man (i.e. Nausiphanes) who gathered together in Teos the

mutilators of the Hermai<sup>2</sup> to listen to him philosophizing according to the principles of Democritus and Leucippus.

LXXXIX. (DK 76.1) Aet. II.17.3 (Dox. 436): Diotimus of Tyre the Democritean put forward the same doctrine as they (i.e. Metrodorus and Strato) did.

XC. (DK 77.1) DL IV.58: There were ten people named Bion ... the fourth (after Bion of Borysthenes) was a Democritean and mathematician from Abdera.

XC!. (DK 78)<sup>1</sup> Apollonius [Apollon.] Marvellous Tales 31, from Theophr. Enquiry into plants [H. pl.] IX.17.4; Stephanus of Byzantium [Steph. Byz.] s.v. apsunthos: it is a kind of plant about which Bolus the Democritean ... ; (DK 68 B 300.4) Scholium on Nicander On animals [Ther.]: Bolus ... the Democritean in his work On sympathies and antipathies ...; (DK 68 B 300.1) Suda: Bolus a Democritean philosopher; History and Art of Medicine; (DK 68 B 300.3) Columella [Colum.] VII.5.17: a celebrated Egyptian author, Bolus of Mendes, whose works, entitled in Greek Cheirokmēta [Handworks], circulate spuriously under the name of Democritus.

#### Sceptics

XCII. (Not in DK)<sup>1</sup> DL IX.67: Moreover Philo of Athens, who had come to know him, used to say that he (i.e. Pyrrho) used to mention Democritus most of all, and after him Homer.

XCIII. (Not in DK) Eus. PE XIV.6.4: Pyrrho started from Democritus in a sense ...

XCIV. (Not in DK) Eus. PE XIV.18.27: Now Pyrrho became a pupil of a certain Anaxarchus ... (17.10) Pyrrho came to know Anaxarchus ...

#### Epicureans

XCV. (DK 68 A 52)<sup>1</sup> DL X.2: Hermippus says that he (i.e. Epicurus) was a schoolteacher, who then turned to philosophy after coming across the works of Democritus.

XCVI. (Not in DK) Aet. I.3.18 (Dox. 285): Epicurus ... following Democritus in philosophy ...; (Not in DK) Cic. De fin. II.31.102: Democritus ... the only one whom he (i.e. Epicurus) followed.

XCVII. (DK 68 A 74) Cic. De natura deorum [ND] I.43.120: Democritus, a great man of the first rank, from whose springs Epicurus watered his gardens ...

XCVIII. (DK 68 A 53) Plut. Col. 1108 F: He (i.e. Epicurus) begins with Democritus, who thus gets from him a splendid and fitting fee for his teaching. Yet for a long time Epicurus used to call himself a Democritean, as is attested by many sources, particularly Leonteus, one of Epicurus' principal pupils; in a letter to Lycophron he says that Democritus was held in honour by Epicurus for having anticipated him in getting hold of correct knowledge, and

that his whole theory was called Democritean because he had anticipated him in coming upon the principles of nature. And Metrodorus says straight out in his On philosophy that, if Democritus had not led the way, Epicurus would not have attained wisdom.

XCIX. (DK 68 A 51, 233 Us.) Cic. ND i.26.73: What is there in Epicurus' natural philosophy which is not derived from Democritus? For though he changed some things, as I said a little earlier in connection with the swerve of the atoms, none the less more of the things he says are the same, atoms, void, images, the infinity of space, innumerable worlds, and their coming to be and perishing, pretty well everything which is contained in his account of nature.

C. (Not in DK, 234 Us.) Cic. De fin. 1.6.17-21: (Epicurus) repeats Democritus' views, changing very little, but doing so in such a way that he seems to me to make worse what he wants to correct ... (18) Now Epicurus makes hardly any slips where he is following Democritus ... (21) What he changes he spoils, and where he follows him everything belongs to Democritus.

CI. (Not in DK; 16, 97, 10 Us.) Philodemus [Philod.] On freedom of speech [De libertate dicendi] Herculaneum papyrus [pHerc.] 1471 fr. 20: ... moreover, the pardon accorded to their errors, a position which Epicurus takes up throughout his Critique of Democritus ... ; DL X.24: The works of Metrodorus are the following: Critique of Democritus ...

CII. (Not in DK)<sup>1</sup> Epicurus [Epicur.] cited by Philod. pHerc 1005 (Crönert, Kolotes und Menedemos, p. 174): when you write a letter you might enclose some works of Democritus ...

CIII. (Not in DK) DL X.3-4<sup>1</sup>: Diotimus the Stoic, who was hostile to him, slandered him most bitterly, producing fifty improper letters under the name of Epicurus, as did the person who assembled as works of Epicurus the letters attributed to Chrysippus; moreover Posidonius the Stoic and Nicolaus and Sotion in the twelve books entitled Refutations by Diocles ... and Dionysius of Halicarnassus ... [say that] he claims as his own the writings of Democritus on the atoms and Aristippus on pleasure (8) And (they slander) Epicurus himself, saying that in his letters ... he calls ... Democritus 'Lerocritus' [i.e. 'judge of rubbish']. (9) Those people were mad. Cf. Athen. XIII.62, 611b:<sup>2</sup> Diotimus who wrote the books against Epicurus was summoned for examination by Zeno the Epicurean and put to death ...

CIV. (Not in DK) Cic. ND I.33.93: Epicurus ... was ungrateful to Democritus, whom he followed.

CV. (DK 68 B 156) Plut. Col. 1108 F: Colotes' first accusation (against Democritus) is that he has thrown life into confusion (see nos. 7, 78).



CVI (Not in DK; 16, 97 Us.) Plut. Epicurus makes a pleasant life impossible [Non posse] 1100  
A: Epicurus ... was so crazily puffed up and fidgety about his reputation that he ... fought over every syllable and comma with Democritus, whose doctrines he had filched word for word ...

## 6. Democritus against dialecticians

### (Eleatics or Socrates or certain sophists)

CVII. (DK 68 B 150, 109 N)<sup>1</sup> Plut. Quaest. Conviv. 614D-E: So easy-going enquiries move our minds in a harmonious and useful way, and as Democritus says we should set aside the arguments of wranglers and 'strap-twisters'<sup>2</sup>. Strabo I.7, p. 65 C: (Eratosthenes) says that he does not see how this enquiry could lead to results, and it is for wranglers only, as Democritus says. Cf. Clem. Strom. I.3.22 (II.14.25 St.): Some are forced in their enthusiasm to devise verbal slanders; they provide sophistical puzzles, hunt out phrases, and eagerly seek stratagems, they are wranglers and strap-twisters.

CVIII (DK 68 B 85, 108 N) Democrates [Democrat.] 51, Stob. II.31.73: Someone who answers back and chatters a lot is unsuited to learning what he should.

CIX. (DK 68 B 52, 113 N) Democrat. 18, Stob. III.10.42: He who reproves someone who thinks he is intelligent is wasting his time.

CX. (DK 68 B 86, 110 N)<sup>1</sup> Democrat. 52, Stob. III.36.24, Corpus Parisinum Profanum [CPP] 69, Maxim. Loc. comm. 48, p. 647 (PG 91, p. 911 A): It is overbearing to talk all the time, and never be willing to listen. Cf. no. XXXVIII.

CXI. (DK 68 B 64-5, 190-1 N) Democrat. 29, 30, Stob. III.4.81: Many who have much learning have no intelligence. One should cultivate much intelligence, not much learning. Cf. no. XXXIX.

CXII. (DK 68 B 169, 192 N) Stob. II.1.12 Wachsmuth: Democritus; Do not try to know everything, lest you become ignorant of everything.

CXIII. (DK 68 B 195, 172 N) Stob. III.4.69:<sup>1</sup> Democritus; ... images beautiful to behold in dress and ornament, but empty of heart.<sup>2</sup> Cf. Aristides XLVI, vol. II, p. 307 Jebb: (The cynics) go around ... pointlessly, images of the dead ... no different from mended clothes, impressive on the outside, but what is inside another would know.

CXIV. (DK 68 B 114, 117N)<sup>1</sup> Democrat. 82: It is better to be praised by someone else than by oneself.

## 7. Writings of Democritus

CXV. (DK 68 A 33)<sup>1</sup> DL.IX.45-9

Thrasyllus listed his works, arranging them in tetralogies as with the works of Plato.

#### (46) Ethics

I. 1. Pythagoras.<sup>2</sup> 2. The state of the sage.<sup>3</sup> 3. On the things in Hades.<sup>4</sup> 4. Tritogeneia<sup>5</sup> (this means that she [i.e. Athena] produces three things which sustain everything human).

II. 1. On the goodness of man or On excellence. 2. The horn of Amalthea.<sup>6</sup> 3. On cheerfulness.<sup>7</sup> 4. Ethical notes (number of books missing). Well-being is not extant.<sup>9</sup>

These are the ethical works.

#### Works on nature

III. 1. Great World-System (which the school of Theophrastus attributes to Leucippus).<sup>10</sup> 2. Lesser World-System. 3. Description of the cosmos.<sup>11</sup> 4. On the planets.<sup>12</sup>

IV. 1. On nature, book 1<sup>13</sup>. 2. On the nature of man<sup>14</sup> (or On flesh), book 2. 3. On mind.<sup>15</sup> 4. On the senses (some authorities count these together<sup>16</sup> as one book, entitled On the soul<sup>17</sup>).

V. 1. On tastes.<sup>18</sup> 2. On colours.<sup>19</sup> 3. On the different shapes.<sup>20</sup> 4. On changes of shape.<sup>21</sup>

VI. 1. Kratunteria<sup>22</sup> (which is critical of what has previously been said). 2. On images<sup>23</sup>, or On forethought. 3. On logical matters, or The canon<sup>24</sup>, 3 books. 4. Problems (number of books missing).

These are the works on nature.

#### Miscellaneous

1. Celestial causes. 2. Causes in the air. 3. Terrestrial causes. 4. Causes concerning fire and the things in fire. 5. Causes concerning sounds. 6. Causes concerning seeds, plants and fruits. 7. Causes concerning animals<sup>27</sup>, 3 books. 8. Miscellaneous causes. 9. On the stone.<sup>28</sup>

These are the miscellaneous works.

#### Mathematics<sup>29</sup>

VII. 1. On different judgement<sup>30</sup>, or On the contact of circle and sphere. 2. On geometry. 3. Topics in geometry.<sup>31</sup> 4. Numbers.

VIII. 1. On irrational lines and solids, 2 books. 2. Things unfolded.<sup>32</sup> (48) 3. The great year, or Astronomy,<sup>33</sup> a calendar. 4. The contest of (or 'with') the water-clock (?)<sup>34</sup>.

IX. 1. Treatise on the heavens. 2. Geography<sup>35</sup>. 3. Treatise on the poles<sup>36</sup>. 4. Treatise on rays.<sup>37</sup>

These are the mathematical works.

Music and literature<sup>38</sup>

X. 1. On rhythm and melody. 2. On poetry. 3. On beauty of words. 4. On euphonious and cacophonous letters.

XI. 1. On Homer<sup>39</sup>, or On correct diction and words. 2. On song. 3. On words. 4. On names<sup>40</sup> (number of books?)

These are the works on music and literature.

Technical works

XII. 1. Prognosis. 2. On diet, or Dietetics. 3. Medical judgement. 4. Causes concerning appropriate and inappropriate times.

XIV. 1. On agriculture, or Land-measurement.<sup>42</sup> 2. On painting. 3. Tactics and use of arms.<sup>43</sup>

That is all under this heading.

Some authorities list separately the following titles from the notes<sup>44</sup>.

(49) 1. On the sacred writings in Babylon. 2. On the things in Meroe<sup>45</sup>. 3. Voyage round the ocean. 4. On history<sup>46</sup>. 5. Chaldean treatise. 6. Phrygian treatise<sup>47</sup>. 7. On fever and coughs. 8. Legal causes. 9. The hand is victorious<sup>48</sup> (?), or Problems.

The other works attributed to him are either compilations from his writings or acknowledged to be by other hands.<sup>50</sup> This is the total of his works.

CXVI. (DK 68 A 31, 163 N) Suda, s.v. Dēmokritos: His genuine works are two, the Great World-System and On the nature of the cosmos. He also wrote letters.; (DK 67 B 2) Aet. I.25.4: Leucippus ... says ... in On mind; (DK 68 B 6) Sext. M VII.137: Democritus ... in ... On ideas; (DK 68 B 13) Apollonius Dyscolus [Apollon.] On pronouns [De pronom.] p. 65.15 Schneid.: Democritus in On Astronomy ... (see no. 422); scholium on Apollonius Rhodius [Apoll. Rhod.] II.1098: Democritus in On Astronomy ... (see no. 424.5).

## 8. Writings on Democritus

CXVII. (DK 68 A before 35) [Simpl.] Comm. on De caelo [in De caelo] 294.33: a few things from Aristotle's On Democritus (nos. 172, 197, 204, 227, 293, 320, 339. DL V.26 (catalogue of Aristotle's works) Problems from Democritus, 2 books.

CXVIII. (DK 68 A before 35) DL V.49 (catalogue of Theophrastus' works): On Democritus, 1 book; ib. 43: On Democritus' astronomy, 1 book (see no. 422).

CXIX. (DK 68 A before 35) DL V.87 (catalogue of works of Heraclides Ponticus): On the soul and On nature and On images against Democritus; i. 88: Expositions against Democritus, 1 book.

CXX. (DK 68 A before 35) Philod. De libertate dicendi, pHerc 1471 fr. 20: a position which Epicurus takes up throughout his Critique of Democritus.

CXXI. (DK 68 A before 35) DL X.24 (catalogue of the works of the Epicurean Metrodorus): Against Democritus.

CXXII. (DK 68 B 156) Plut. Col. 1108 F: Colotes accuses him (i.e. Democritus) ...

CXXIII. (DK 68 A before 35) DL VII.144 (catalogue of the works of Cleanthes): Against Democritus.

CXXIV. (DK 68 A 32) Suda s.v. Kallimachos (catalogue of works): List of words and expressions of Democritus.<sup>1</sup>

CXXV. (DK 68 A 32) Steph. Byz., p. 649.5 Mein.: Hegesianax<sup>1</sup>, a grammarian who wrote one book On the diction of Democritus and On poetical expressions; he came from the Troad.

CXXVI. (DK 68 A before 35) DL VII.178 (catalogue of the works of Sphaerus): On minima, against atoms and images.

CXXVII. (DK 68 A 1; see no. 1) DL IX.41: (Democritus) would have been born, as Apollodorus says in his Chronicles ... or as Thrasyllus says in his work entitled Prolegomena to the works of Democritus ...

## THE DOCTRINE OF DEMOCRITUS

### A. GENERAL PRINCIPLES

#### a. PRINCIPLES OF THINGS

##### I. The principle of 'isonomia (equiprobability or equal attribution)

##### 'why rather here and now, than there and then'

1. (In part in DK 12 A 15) Ar. Physics [Phys.] III.4, 203b22ff.:<sup>1</sup> (The belief that something infinite exists derives from five main reasons) ... and above all the most important, which presents the problem common to all: for it is because 'thought does not give out' that number and mathematical quantities and what is outside the cosmos<sup>2</sup> seem to be infinite. And since what is outside is infinite, there seem to be infinite body and [infinitely many] worlds [kosmoi]. For why here rather than here in the void? So if it is anywhere, the solid must be everywhere. And at the same time if there is infinite void and space, it is necessary for there to be infinite body also. For in eternal things<sup>4</sup> there is no difference between being possible and being the case. Simpl. ad loc. 467.16: If the void (sc. is infinite), as Democritus seems to have said, the worlds would be infinite. Philoponus [Philop.] ad loc. 405.23: For it was on the basis of this that Democritus posited that there are infinite worlds, positing that there is an infinite void. For what is the chance of this part of the void being filled up by a world, and others not. So that if there is a world in any part of the void, there must be one in all of the void. So the void being infinite, the worlds too will be infinite. Lact. De ira dei 10.10 (p. 86.11 Brandt): Since the whole, he (Leucippus) says, is infinite nor can any part of it be empty, it is therefore necessary that there are innumerable worlds.<sup>5</sup>

2. (DK 67 A 8 and 68 A 38) Simpl. in Phys. 1.2, 148b 15, 28.4ff. (= Theophr. Phys. opin. Fr. 8 : Dox. 483): Leucippus ... postulated ... that the number of their (the elements') shapes is infinite because there is no more this than that ... (Leucippus and Democritus) say that the number of shapes of the atoms is infinite because there is no more this than that; that is what they themselves give as the cause of their infinity.

3. (Not in DK; no. 85) Sext. Outlines of Pyrrhonism (PH) I.213: From the fact that honey seems sweet to some and bitter to others Democritus is said to conclude that it is neither

sweet not bitter and therefore to repeat<sup>1</sup> the slogan 'no more' (in part in DK 68 A 112; cf. nos. 73, 77, 80). Ar. Meta. III.5, 1009b1ff.: Some have derived the truth about appearances from the senses. For they think that it is not appropriate for the truth to be judged by what appears so to more people and to fewer, and the same thing tastes sweet to some and bitter to others ... and things do not always appear the same in perception to each individual. So which of these are true or false is unclear; for this is no more true than that, but they are alike. That is why Democritus says that either nothing is true or it is unclear to us. (DK 68 A 135) Theophr. De sensu 69 ff. (Dox. 519; cf. no. 441): But in general the greatest contradiction<sup>2</sup>, which pervades the whole theory, is his both making them states of perception and at the same time distinguishing them by their shapes, and saying that the same thing appears bitter to some, sweet to others, and different to yet others. For it is impossible for the shape to be a state, or for the same thing to be spherical to some and differently shaped to others (yet perhaps that it how it has to be, if it is sweet to some and bitter to others), or for the shapes to change according to our dispositions. It is simply the case that shape is intrinsic, but sweet and sensible qualities in general are relative and dependent on other things, as he says. And it is absurd to require that the same appearance should be presented to everyone who perceives the same thing and to test their truth, when he has previously said that things appear differently to those who have different dispositions, and again that none has more truth than any other. (71) Further, he makes it clearer where he says that each of them comes to be and is in reality.

4. (DK 28 A 44) Aet. III.15.7 (Dox. 380): Parmenides and Democritus say that because (the earth) is equidistant in all directions it remains in equilibrium, since there is nothing to cause it to incline this way rather than that; that is why it merely oscillates, but does not move from its position. Ar. De caelo II.13, 259b10:<sup>1</sup> Some say that it remains stationary because of similarity, e.g. Anaximander among the early thinkers; for it is not appropriate for something positioned in the middle and similarly related to the extremities<sup>2</sup> to move one way rather than the other up or down or sideways, and it is impossible for it to move in opposite directions at the same time; so of necessity it remains stationary.

5. (Not in DK) Ar. Phys. IV.8, 214b28: Those who say that there must be void, if there is to be motion ... face the consequence that nothing can move if there is a void. For just as people say that the earth remains stationary because of similarity<sup>1</sup>, similarly things must remain stationary in a void. For there is no place to which they will move more or less than to any other, for where is a void, there is no differentiation.<sup>2</sup> (215a19): ... further, no-one could say why something in motion will stop anywhere, for why here rather than there? So it will either remain stationary or it must go on for ever, unless something more powerful prevents it.

6. (In part in DK A 81) Cic. Acad. pr. II.17.55: Then you have recourse to the natural philosophers, who are thoroughly ridiculed in the Academy (even you can't keep your hands off them), and you say that Democritus says that there are innumerable worlds, and indeed



some which are not only similar to one another but in every respect so perfectly and absolutely matched that there is no difference at all between them, and the same with people. Then you demand the concession that, if there is a world so like another that there is not the smallest difference between them, in our world too there should be things which do not differ at all from one another<sup>1</sup>. For, you will say, since from those atoms from which Democritus says everything comes into being, in those innumerable other worlds there not only can be, but actually are, innumerable Q. Lutatius Catuluses, why cannot another Catulus come into being just in this world? First of all you refer me to Democritus, with whom I do not agree; rather I refute him by appeal to the lucid demonstrations of more polished philosophers that distinct individual things have their own distinct individual properties. (Not in DK) Cic. Acad. pr. II.40.125: Whom (should I choose)? Democritus? ... Do you ...think ... when in a single world here there is such a marvellous structure, that there are innumerable worlds above and below, to left and right, before and after, some different, others of the same kind.? And, as we now seem to be at Bauli and Puteoli, so there are innumerable people in places just like this, with the same names, distinctions, careers, talents, appearance and age, talking about the same things? (Not in DK) ps-Hippocr. Epist. 10 (IX, p. 322.5 Littré): And he (i.e. Democritus) says that he sometimes travels through infinite space, and that there are countless Democrituses like himself.

7. (DK 68B 156) Plut. Col. 1108 F: He ((Colotes) accuses him (Democritus) first of throwing all life into confusion by saying that each thing is no more of this kind than that<sup>1</sup> ... Colotes was misled by Democritus' phraseology, when he said that thing [den]<sup>2</sup> is no more than nothing [mēden], calling 'thing' body and 'nothing' the void, since that too has a substance and nature of its own. (DK 67 A 6) Ar. Meta. I.4, 985b8: (Leucippus and his associate Democritus) say that what is no more is than what is not. Asclepius [Asclep.] ad loc. 33.9: (Leucippus and Democritus) said that what is no more is than what is not, for neither does body, i.e. the atoms, exist more than the void; for both body and atoms exist everywhere. (DK 67 A 8) Simpl. in Phys. 1.2, 184b15, 28.4 (= Theophr. Phys. opin. fr. 8, Dox. 483): Leucippus ... postulated ... that what is no more exists than what is not.

8. (Not in DK) Ar. Meta. III.5, 1009a22<sup>1</sup>: Those who feel the difficulties have been led by observation of perceptible things to the view that contradictions and contraries exist at the same time, for they see opposites coming into being from the same thing. So if it is not possible for what is not to come into being, the thing which previously existed was both alike, as Anaxagoras says that everything was mixed in everything, and so does Democritus; for he says that the void and the full exist alike in every part, though one of these is what is and the other what is not. Alexander [Alex.] ad loc. 304.2ff.: He [Ar.] is explaining how it is that, since he {Democritus} calls the full 'what is' and the void 'what is not', and these are alike in everything from which things come to be, the contradiction 'it is and is not' is was said by him to be true of everything. (DK 68 A 57) Ar. Meta XI.2, 1069b22: and as Democritus says, 'all things were together' potentially, but not actually (see no. 221).

## II. The principle of analogy between microcosm and macrocosm

9. (DK 68 B 165)<sup>1</sup> Sext. M 265, Cic. Acad. pr. II.23.73, see no. 65: This I say about everything; man is what we all know ...<sup>2</sup>
10. (DK 68 B 34) Ar. Phys. VIII.2, 252b24: and if this can come about in an animal, what prevents it from coming about in the whole universe as well? For if it comes about in a small world, it does so also in a large one.<sup>1</sup> See no. 40 w. comm. David Prolegomena 38.14 Busse: in man who is a small world according to Democritus. Galen On the use of parts [De usu part.] III.10 (III.241 K., I.177 10 Helmr.) and indeed men of old learned about nature say that the animal is like a small world.
11. (DK 68 B 164) Sext. M VII.116-117: an ancient ... belief that like things have knowledge of like things ... but Democritus applies the thesis to animate and inanimate things; 'For animals', he says, 'congregate with animals of the same kind, e.g. doves with doves and cranes with cranes' ... (DK 68 A 128, Dox. 408) Aet. IV.19.3: Democritus says that the air is split up into bodies of like shape which travel about together with fragments of sound. For 'birds of a feather flock together' [lit. 'jackdaw sits next to jackdaw'], and 'god always puts like together with like'. See nos. 316, 491.
12. (DK 68 A 93a) Sen. Natural questions [Nat. quaest.] V.2: Democritus says '... as in a square or street, as long as there are few people about, one can walk without fuss '(cf. Themistius [Them.] in Phys. IV.9, 216b22, 135.15: the ... bodies ... give way ... as if to people going through a crowd (= Simpl. ad loc. 683.12)) 'but when a crowd congregates in a narrow space, quarrels break out as they bump into one another. So in this space which surrounds us, since many bodies have filled a small space, of necessity they collide, force others away and are themselves forced back, get tangled and squeezed together ... See no. 371. Aet. II.4.9: the world perishes when the larger overcomes the smaller.<sup>1</sup> (DK 68 A 143) Ar. De generatione animalium [GA] IV.1,746a6: Democritus of Abdera {says that} the difference between female and male [depends on] the predominance of the seed of the one or the other coming from the part... (764b19) one becomes female and another male through the predominance of one part over another ... the predominance of the part produces a female ... . Philopon. In GA IV.1, 763b20, 167.13: Democritus ... said that males and females come into being ... according to the predominance of the parts ... and the struggle takes place first of all in the parts in which the male and female differ ... and if the womb prevails over the penis, it changes it to its own nature (cf. no. 530). See also nos. 531-2.
- 12a. (DK 68 B 288) Stob. IV.40.21: Disease comes about in household and in livelihood as it does in body.<sup>1</sup>

## III. What is eternal has neither beginning nor cause

13. (Not in DK) Ar. GA II.6, 742b7: Those who say that it always happens like that, and think that that is a principle [archē] in those cases, are not correct, nor do they explain the

necessity of the cause. Thus Democritus of Abdera says that there is no beginning [archē] of what always happens, or of the infinite, but the cause is a beginning, and what always happens is infinite, so that he says that asking for the cause in such cases is looking for a beginning of the infinite (cf. no. 304).<sup>15</sup>

14. (DK 68 A 65) Ar. Phys. VIII.1, 251b15: this is how Democritus shows that it is impossible for everything to have come into being; for time has not come into being. (252a32) And in general thinking that this is a sufficient principle [archē], that it always is or comes to be this way, is not correct. Democritus reduces natural causes to this, that this is how things occurred previously, but he does not think that one should seek for a principle<sup>16</sup> of what is always so.

15. (DK 68 A 56) Cic. De fin. I.6.17: He (Democritus) ... thinks ... that the motion of atoms must be understood as having no beginning, but as going on from all eternity. Cic. Acad. pr. II.40.25: Do you (Democritus) ... think ... that anything noteworthy can be produced without some mind?

15a. (Not in DK) Varro On the Latin language [De lingua lat.] VI.39: Democritus, Epicurus and others, who have said that there are infinitely many basic things [principia], do not say where they come from, but what kind of thing they are; nonetheless they take the important step of showing what are the things in the world which are composed of them.

16. (DK 67 A 16) Therefore Leucippus and Democritus, who say that the primary bodies are in eternal motion in the infinite void, must say what that motion is, and what is their natural motion. Simpl. ad loc. 583.20: they said that their primary bodies, i.e. the atoms, are in eternal motion in the infinite void as a result of force.<sup>1</sup> (DK 67 A 6) Ar. Meta. I.4, 985b19: But on the question of the origin of motion and how it applies to things (Leucippus and his associate Democritus) also, like the others, passed that over cursorily. Alexander [Alex.] ad loc. 36.21: He is speaking about Leucippus and Democritus; they say that the atoms are moved by mutual collision and impact, but what the origin [archē] of their natural motion is they do not say. For motion caused by collision is forcible, not natural, and the forcible is posterior to the natural. (DK 67 A 10) Hippol. Refut. I.12 (Dox. 564): Leucippus ... did not define necessity.

17. (cf. DK 67 A 18) Ar. Meta. XII.6, 1071b26: Yet if their theory is like that of the religious writers who generate things from night, or of the natural philosophers who say

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<sup>15</sup> [Aristotle's argument appears to rest on the ambiguity of archē, which has to mean 'principle' in the first sentence, but 'beginning' in his account of the views of Democritus. The people criticised in the opening sentence think that 'It always happens that way' is sufficient to explain its happening on this occasion, i.e. that is itself an explanatory principle, so it is a mistake to look for any further principle to explain what always happens. Democritus' point appears to be quite different; for him what always happens is an infinite succession of events, and it is a mistake to look for a beginning of such a succession. A cause is a beginning, presumably in the sense that the initiating cause starts off the causal process. There is no ground for supposing that his argument (as distinct from Aristotle's) trades on the ambiguity of archē.]

<sup>16</sup> [See previous note.]

that 'all things were together'<sup>17</sup>, the same impossibility arises. For how will motion occur, if nothing is its actual cause? For matter will not move itself, but the art of building, nor will the menstrual fluid or earth, but the seeds and sperm. That is why some people, e.g. Leucippus and Plato, posit eternal actuality; they say that motion occurs eternally, but they do not say why or what motion it is, nor the cause of its being this sort or that. (1072a4) That there was actuality previously is asserted by Anaxagoras ... and those, e.g. Leucippus, who say that motion occurs eternally. (Not in DK) Alex. ad loc. 690.28: That is why some people, e.g. Leucippus and Plato, seek to escape from these absurdities by making actuality prior to potentiality and saying that that actuality is motion. For Leucippus and Plato said that motion occurs eternally ... and Leucippus said that the atoms are in motion in the void for an infinite time. And they asserted that the motion is actuality, but why the motion is actuality, and what motion it is in itself, circular motion or some other, and why some things are moved in one way and others in another, they do not say. For since, as has been shown, some things must occur eternally, they ought to have stated the cause of the motion of the fixed stars from east to west, and of the planets in the opposite direction; for it is not the case that the motion of everything that moves occurs by chance.

18. (DK 68 A 69) Ar. Phys. II.4, 196a24: There are some who identify the cause of this world<sup>1</sup> and all the cosmoi as the spontaneous [to automaton];<sup>2</sup> they say that the swirl which separates out the totality and sets it in this order occurs spontaneously [apo tautomatou]... though animals and plants neither are nor come to be by chance [apo tuchēs], but either nature or mind or something else is the cause (for it is not the case that each thing comes to be from seed<sup>3</sup> as it chances, but an olive comes from one kind of seed and a man from another ), but the world and the most divine of observable things come into being spontaneously, with no cause for that such as for animals and plants.<sup>4</sup> (Not in DK) Simpl. ad loc. 331.6: Democritus and his school seem to incur a twofold absurdity, first that as far as this world is concerned (why speak of this world, since they identify the spontaneous as the cause of all the infinitely many worlds?) still they do not say what the spontaneous is ... Themist. ad loc. 49.12: How is it not right to accuse Democritus and the others of attributing the greatest things to it (i.e. to chance) but not ascribing the least significance to people<sup>5,17</sup>, attributing the innumerable worlds and the swirl and the controlling order to no other cause than mere chance and the spontaneous.<sup>6</sup> Philop. ad loc. 261.31: There are some, he says, referring to Democritus and his school, who think that it (i.e. chance) is the cause of 'this world' and the most divine of observable things, but do not say even the least thing about it (see further no. 346). (262.15) That is why he finds fault with Democritus, for saying that none of the particular things comes to be by chance (for a chance thing does not come into being from a chance thing), and in his exposition of particular things (e.g. how does he differentiate hot and white things, and why is honey

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<sup>17</sup> ['Not ascribing the least significance to people' follows L's translation, commented on in his n. 5. But it seems clear that this is a mistranslation, since the context has nothing to do with the freedom of the will. The correct translation is 'not giving people the least account of it' (i.e. chance).]

sweet) he identifies as causes the position and arrangement and shape of the atoms, but he says that it is the spontaneous which is the cause of the coming into being of the totalities. (262.5) Democritus ... says that it is chance which is the cause of the ordering of things to make worlds ... (265.6) They say that this motion of theirs (i.e. of the atoms) by which they are separated from one another happens by chance, and that the swirl which has set the world in its present arrangement in which the air is carried round along with the heavens and the earth keeps its place in the centre<sup>7</sup> because of its rapid rotation similarly occurs spontaneously and by chance. (265.15) It would be sheer stupidity to regard the spontaneous as the cause of what always occurs ...

19. (DK 68 A 67) Simpl. in Phys. II.4, 196a24, 327.24: But when Democritus says 'A swirl of all kinds of shapes was separated off from the totality' (how and by what cause he does not say) he seems to generate it spontaneously and by chance.<sup>1</sup>

20. (DK 68 A 39) ps-Plutarch [ps-Plut.] Miscellanies [Strom,] 7 (Dox. 581): Democritus of Abdeera maintained that the universe is infinite because it was never fashioned by anything, and further he says that it is unchanging and sets out an explicit, comprehensive account of the whole. There is no beginning of the causes of the things that are now coming to be, but simply everything which was and is and will be has been completely under the control of necessity from infinite time past.<sup>1</sup>

21. (DK 68 A 71) Ar. Phys. VIII.1, 251b16: for they say that it (i.e. time) did not come into being, and that is how Democritus shows that it is impossible for everything to have come into being, for time did not come into being. Simpl. ad loc. 1153.22: But Democritus was so persuaded that time is eternal that he used the thesis that time has not come into being as a clear proof that not everything has come into being.

#### IV. Natural necessity

22. (DK 67 B 2) Aet. I.25.4 (Dox. 321): Leucippus says that everything happens by necessity, which is the same as fate; for he says in his On Mind<sup>1</sup> 'Nothing happens in vain, but everything by reason and by necessity' (= Theodorot. VI.13, which however reads 'the school of Democritus' instead of 'Leucippus').

23. (DK 68 A 1) DL IX.45: everything ... happens by necessity, since the swirl, which (Democritus) calls necessity, is the cause of everything's coming to be. (DK 68 A 83) Sext. M IX.113: so that by necessity and as a result of the swirl, as the school of Democritus said, the world would not be moved. (DK 28 A 32) Aet. I.25.3 (Dox. 321): Parmenides and Democritus say that everything happens by necessity, which is the same as fate, justice, providence and the creator. (DK 68 A 66) Ar. GA V.8, 789b2: Democritus neglects the final cause, reducing all the operations of nature to necessity. (DK 68 A 39) ps-Plut. Strom. 7 (Dox. 581, see no. 20): ... the causes of the things that are now coming to be, but simply everything which was and is and will be has been completely subject to necessity from infinite time past. (DK 67 A

10) Hippol. Refut. I.12.2 (Dox. 564-5): [When] many bodies [are gathered together and congregate] those of like shape get entangled ... and stars come into being and increase and diminish through necessity. (In part in DK 67 A 22) Aet. II.3.2 (Dox. 329-30): All the others say that the world is a living thing governed by providence, but Leucippus, Democritus, Epicurus, and all those who introduce the atoms and the void say that it is neither living nor governed by providence, but is composed of atoms by a certain non-rational nature<sup>1</sup>. (See nos. 291, 318.)

24. (In part in DK 68 A 68) Ar. Phys. II.4, 195b36<sup>1</sup>: Some raise the question of whether or not there is such a thing as chance; they say that nothing happens by chance, but all the things which we say happen by spontaneity and chance have some definite cause, e.g. the cause of one's going by chance to the market -place and finding someone one wanted to see but did not think would be there is one's going there because one wanted to buy something. And similarly in the other cases which are said to happen by chance one can always find something as the cause, not chance. For if there were such a thing as chance it would seem to be really absurd, and one might ask why none of the wise men of old who discussed the causes of coming to be and perishing said nothing definite about chance, but apparently themselves thought that nothing happens by chance. (So far Aristotle reports Democritus' arguments; then he goes on to refute him.) But this too is astonishing. For many things happen and are so by chance and spontaneity, and while people are not unaware that one can refer every one of the things that happen to some cause, as the ancient argument for the denial of chance says, nevertheless everyone says that some things are by chance and others not by chance. Simpl. ad loc. 330.14: 'as the ancient argument for the denial of chance says' seems to be directed against Democritus. For though in his cosmogony he seems to make use of chance, when it comes to particular cases he says that chance is not the cause of anything but refers them to other causes, e.g. the cause of finding treasure is digging or planting an olive-tree<sup>2</sup>, or the cause of the bald man's fracturing his skull is the eagle's dropping a tortoise<sup>3</sup> to break its shell, as Eudemus reports. (Cf. 328.3: Someone became healthy from being thirsty and drinking cold water, but perhaps Democritus says that it was not chance which was the cause, but being thirsty.) (DK 68 A 66) Cic. De fato 17.39: Everything is so fixed by fate that that fate has the force of necessity; Democritus, Heraclitus, Empedocles and Anaxagoras were of that opinion.

25. (DK 68 A 66) Aet. I.26.2 (Dox. 321; on the nature of necessity): Democritus says that it is resistance and motion and a blow<sup>1</sup> of matter . Ar. De caelo III.2, 300b11 (after no. 16): ... for if one thing is moved by another by the force of their elements ...

26. (DK 68 A 80) Cic. Acad. pr. II.38.121: Now here you have Strato of Lampsacus cutting in to give that god of yours exemption from a large task indeed (and since the priests of the gods have holidays, how much fairer it is that the gods should have them too); he maintains that he does not make use of divine activity in forming the world. He teaches that everything that there is is brought about by nature, but not like the man who says that

everything is composed of rough and smooth, hooked and crooked bodies interspersed with void ; he thinks that these are dreams on the part of Democritus, speaking not as a teacher but as a visionary. But he himself goes through all the parts of the world in succession and teaches that whatever is or comes to be is being or has been made by natural forces of weight and motion.

27. (DK 68 A 70) Lact. Inst. I.2: ... from that enquiry to fix on what seems to be the basic principle in nature, whether it is providence which takes care of everything , or whether everything comes about or is controlled by chance. That opinion was introduced by Democritus and confirmed by Epicurus.

28. (DK 59 A 66; Dox. 326b 7) Aet. I.29.7 (= Theodoret. VI.15; Suda s.v. heimarmenē): Anaxagoras and Democritus and the Stoics<sup>1</sup> say that it [i.e. chance] is a cause which is unclear to human reasoning; what is so by necessity, by fate, by choice, by chance, by spontaneity. Chance is a name for disorderly activity<sup>2</sup>. Ar. Phys. II.4, 196b5: Some think that chance is a cause which is unclear to human thought , as it is something divine and more supernatural.<sup>3</sup>

29. (DK 68 B 118) Dionysius ap. Eus. PE XIV.27.4: Now Democritus himself, so they say, said that he would rather discover a single causal explanation than acquire the kingdom of the Persians (= no. LVIII). This though his causal explanations were vain and lacking cause, since he started from an empty principle and an unstable assumption, and did not see the root and common necessity of the nature of things, but regarded as the greatest wisdom the conception that things occur unwisely and foolishly. He set up <sup>1</sup> chance as the mistress and queen of things as a whole, even of divine things, and proclaimed that everything happens according to her, while banishing her from human life and accusing of ignorance those who reverence her.

30. (Not in DK; see no. LXIV) Juv. X.52-3: ... when to threatening fortune he himself (i.e. Democritus) recommended the noose and extended his middle finger.

31. (Not in DK) Ar. Phys. II.8, 198b10<sup>1</sup>: Now we must discuss ... the nature of necessity in natural phenomena.<sup>2</sup> For everyone brings things back to this cause, because heat and cold are such and such by nature, and everything like that, and these things are so and happen of necessity (Philop. ad loc. 312.4: since, he says, heat and cold are such and such, that was why this happened, or because it was composed of these atoms ...) ... there is a problem; what prevents nature from acting not for the sake of something, nor because it is better, but as when Zeus rains, not to make the corn grow, but of necessity. What rises up must be cooled, and what is cooled becomes water and falls down; when this comes about it happens that the corn grows. And similarly if someone's corn is spoiled on the threshing-floor, it does not rain in order to spoil it, but that is what happens. So what prevents the bodily parts being naturally like this, e.g. the front teeth naturally grow sharp and suitable for dividing the food and the molars flat, suitable for grinding it, though they do not come



to be so for the sake of that, but it happens, and similarly for the other parts too, where there seems to be purposiveness. So where everything happened as if for a purpose, those creatures fortuitously survived because they were suitably constructed, but where it was not so, they perished and still perish, as Empedocles spoke of the 'race of cattle with human faces'. This, or some other, is the argument by which one might raise the problem ... (199a5): but indeed everything is like that by nature, as even those who argue like this would themselves acknowledge. (Not in DK) Simpl. ad loc. 369.20: all the natural philosophers bring the causes back to necessity, saying that this happens this way of necessity. And they bring them back to matter on the ground that that is what necessity is, saying that from such and such a quality of the underlying things such and such happens of necessity ... (370.7) Further, some of the early natural philosophers treated chance and spontaneity as productive causes of what happens, or rather of what happens without a cause, while others were content with material necessity ... (371.6) but just as Zeus might rain even in summer, not in order to spoil the corn on the threshing-floor, but it happened that when it rained the corn was spoiled, so what prevents one from saying that it does not rain in order that the corn should grow, but rather than when it has rained it happens that the corn grows, and that the rain occurs by nature and material necessity ... (371.12) And rather they would say that the better never happens for the sake of the worse either by rational thought or by nature, so that the motion of the sun, which is the cause of heat and rain and the rest when it cools, occurs for the sake of the crops, but their nourishment happens additionally to the many other things, as if the most precise intellect were acting for the sake of them ... (See further no. 516).

## V. Free will

32. (DK 68 B 119) Dionysius ap. Eus. PE XIV.27.5: At the beginning of his Precepts he says 'People fashioned an image of chance as an excuse for their own stupidity. For by nature judgement conflicts with chance, and this very thing, which is most hostile to intelligence, they said is in control. And utterly overthrowing and banishing intelligence they set up chance in its place; for they do not sing the praises of intelligence as something which enjoys good luck, but of chance as the most intelligent of things.' Stob. II.8.16: Democritus. People fashioned an image of chance as an excuse for their own folly. For in a few cases chance conflicts with prudence, but most things in life intelligent clear-sightedness keeps straight. (See no. 28: chance is a name for disorderly activity.)

33. (DK 68 B 172, 26 N) Stob. II.9.1: From the very same things as benefit us we may also get evils, and escape from evils. For example deep water is useful for many things, and then again bad; for there is danger of drowning. So a remedy has been discovered, teaching people to swim.

33a. (DK 68 B 176, 64 N) Stob. II.9.5: Chance gives great gifts, but is unreliable, while nature is self-sufficient; so its dependable inferiority outweighs the greater advantage which one hopes for<sup>1</sup> [sc. from chance]. See comm. on no. 37.

33b. (DK 68 B 269, 126 N) Stob. IV.10.28: Daring begins an action, but chance controls its end. (DK 68 B 108, 27 N) Stob. IV.34.58, Democrat. 75: Good things come with difficulty to those who seek them, but bad even to those who do not seek them. <sup>1</sup>

33c. (DK 68 B 89, 39 N) Democrat. 55 One's enemy is not the person who does one wrong, but the person who wants to. (DK 68 B 68, 40 N) Democrat. 33: A man is reputable or disreputable on the strength not only of what he does, but also of what he wants.

33d. (Not in DK) Ant. Mel. i.70 (PG 136, 981 D): Even a good sailor is sometime shipwrecked, and a good man has bad luck. Democritus.

34. (DK 68 B 173)<sup>1</sup> Stob. II.9.2 (cf. III.4.51): [from] the same [author](i.e. Democritus): Evils accrue to people from good things, when one does not know how to direct the good things or bring them through the right channel. <sup>2</sup> So it is not right to judge such things<sup>3</sup> as evils but as goods, and being able to make use of good things is also a protection against evils, if one so chooses.<sup>4</sup>

35. (DK 68 B 182) Stob. II.31.66: the same: Learning achieves good things<sup>1</sup> through taking pains, but evils one acquires of themselves without any pains. An indeed they often constrain<sup>2</sup> someone, even against his will, to be such; so great is the power of natural wickedness.

36. (No. 72 Makovelsky)<sup>1</sup> Ar. De interpretatione [De int.] 9, 18b26: the ... absurd consequences ... if ... it is necessary that one of the contraries (i.e. assertion and denial) should be true and the other false, and nothing should happen whichever way it chances, but everything should be and happen of necessity. So that one should not deliberate or act on the basis that if we do this, this will be the case, and if we do not do this, this will not be the case. Cf. no. 36a (26.8-16), no. 39 (27.16-21, 36-8), no. 103.

36a. (In part in DK 68 A 69)<sup>1</sup> Epicurus [Epicur.] De rerum natura = pap. 1056, col. 25 Gomperz (Wiener Studien I, 1879 p. 27ff.) [= fr. 34.30 Arighetti]: Those who gave an adequate account of causes from the beginning, far surpassing not only their predecessors but their successors too in many ways, though they alleviated many great evils, failed to see what they were doing in making necessity and chance the cause of everything. The very thesis which asserts this broke down and involved the man [i.e. Democritus] unawares in a conflict between his actions and his opinions, so that, had he not in his actions forgotten his opinions, he would have been in a continual state of self-induced confusion, succumbing to the most extreme consequences when his opinion prevailed, and where it did not gain the upper hand <sup>2</sup>full of internal division <sup>3</sup>, through the opposition of his actions and his opinion. Epicur. Vatican Sentences 57: ... his whole life will be confounded by distrust and completely upset<sup>4</sup>. Philod. On freedom of speech 20.8 (p. 10.5) [pHerc. 1471, fr. 20.5-10 ( see nos. CI, CXX)]: ... moreover, the pardon accorded to their errors, a position which Epicurus takes up throughout his critique of Democritus and of Heracleides ... .

37. (Not in DK)<sup>1</sup> Epicur. Epist. III.133: ... he laughs at necessity, whom some have introduced as the mistress of everything ... for it would be better to subscribe to the tale of the gods than to be enslaved to the fate of the natural philosophers. For the former suggests a hope of placating the gods by worship, while the latter involves an implacable necessity. As for chance, he neither regards it as a god, as most do (for nothing is done by god in a disorderly way), nor as unreliable (scholium : for he (Democritus) thinks that good and evil are given by this to men in order to live a blessed life ...) <sup>2</sup>.

38.<sup>1</sup> (Not in DK) Cic. ND I.25.69 (281 Us.): Epicurus ... found a way to escape necessity (which had evidently escaped Democritus!); he says that as the atom is borne straight downwards by its weight and heaviness, it swerves a little. He says that it is only by the swerve of the atoms that free will is preserved. Cic. De fato 10.23 (281 Us.): Epicurus introduced this theory (i.e. the swerve) because he was afraid that, if the atom were perpetually impelled by the natural necessity of its heaviness, we would have no freedom, since the mind would be compelled to move by the motion of its atoms. Democritus, the originator of the atomic theory, preferred accepting that everything happens by necessity to depriving the indivisible bodies of their natural motions.

39. (In part in DK 68 A 50) Diogenes of Oenoanda fr. 32, col. I (p. 56 Chilton) [fr. 54 Smith]: for if anyone says that what has been said previously is not true, and that it is not possible to escape necessity, he will never solve the puzzle. And if he rejects this ... it is clear that he will have nothing else to believe about what has been said. So if prophecy has been questioned (col. II), is there any other indication of fate? For if anyone follows Democritus' theory, saying that the atoms have no free motion, since they collide with one another, from which it appears that the motion of everything is necessitated, we shall say to him 'Do you not know, who (col. III) ever you are, that the atoms have a free motion, which Democritus did not discover, but Epicurus revealed, namely the motion of the swerve, as he shows from the phenomena?' The main point is this; if you believe in fate all correction and reproof are abolished, and it will not even be possible to punish the wicked. (fr. 5, col. II, p. 11 [fr. 6 Smith]) Democritus of Abdera was right in maintaining that there are indivisible natures, but since he made some mistakes about them, he will be ex(col. III) amined in our opinions. (fr. 6, col. II, p. 12 [fr. 7 Smith]) ... according to your theory, Democritus, we shall be unable, not only to discover the truth, but even to live, avoiding neither fire nor murder (col. III) nor ... <sup>2</sup> (= no. 61).

40.<sup>1</sup> (= no. 18). Themist. in Phys. II.4, 196a24, 49.12: Democritus and the others ... who assigned the greatest affects to it (i.e. chance) but did not give the least significance to people.<sup>18</sup>

41. (Not in DK)<sup>1</sup> Oenomaus of Gadara ap. Eus. PE VI.7 (more fully no. 62, where see critical apparatus): for according to the learned there has been banished from human life,

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<sup>18</sup> [See translator's note on no. 18.]

whether you prefer to call it the rudder or the basis or the foundation, the very possibility of our life, which we regard as the monarch of the most necessary things, but Democritus, if I am not mistaken ... claims to demonstrate that the finest of human things ... is a slave.

(19) For see, by the same means as we apprehend ourselves (which was the ultimate criterion of truth for Democritus also) by that we grasp which of the things in us are self-chosen and which are imposed on us, and we are not unaware of the difference between walking and being dragged, or between choosing and being necessitated ... (20) the motives (for these) depend on our wishing. Theodoret. VI.11, p. 153 Raeder: The cynic made the same accusation against the Delphic oracle and against Democritus, complaining reasonably that having enslaved the free nature of our mind they handed it over to the necessity of fate and destiny.

## **VI. Nothing comes to be from nothing**

### **(The principle of the conservation of matter and energy)**

42. (DK 68 A 57) Plut. Col. 8, 1110 F: for what does Democritus say? ... everything is the atoms, which he calls shapes, and there is nothing else. For there is no coming to be from what is not,<sup>1</sup> and nothing would come to be from what is, since the atoms are neither affected nor change because of their solidity, so that neither colour comes to be from colourless things nor nature nor soul from things without qualities or affections. DL IX.44, Suda s.v. Dēmokritos: nothing comes to be from what is not nor perishes into what is not. Alex. in Meta. III.5, 1009a6, 303.33: Democritus ... says ... they (i.e. perceptible things) come to be by separation from what already exists.

43. (DK 68 A 39) ps-Plut. Strom. 7 (Dox. 581): Democritus of Abdera ... says ... that the totality ... is changless.

44. (DK 68 A 82) Simpl. in De caelo I.10, 28023, 310.5: 'for, ' he (Alexander) says, ' the dissolution and destruction of the world is not into matter which has the capacity to become a world, but into another world, and since there are infinitely many which receive one another there is no necessity of a return to the same world'. This was the view of the school of Leucippus and Democritus ... but since Democritus' worlds which change into other worlds consist of the same atoms, they are the same in kind, though not in number.<sup>1</sup>

## **VII. The principle of impenetrability**

45. (not in DK, cf. DK 67 A 19)<sup>1</sup> Ar. Phys. IV.6, 213b6: (as Democritus and Leucippus say...) for what is full cannot receive anything. If it were to receive anything there would be two things in the same place, and there could be any number of bodies [in one place] simultaneously<sup>2</sup>, for it is impossible to state the difference according to which that would not be so. And the smallest will receive the largest. For the large consists of many smalls, so that if many equals can be in the same [place] so can many unequals (see no. 255

46. (DK 67 A 7) Ar. GC 1.8, 325a34: from what is truly one a plurality would not have come into being, nor one thing from what are truly many, but that is impossible. (DK 68 A 42) Ar. Meta. VI.13, 1039a9: (Democritus) says that it is impossible for one thing to come from two, or two from one.

47. (DK 67 A 15) Ar. De caelo III.4, 303a4: Leucippus and Democritus [say that] many things do not come to be from one, nor one from many (see no. 289). (not in DK) Simpl. ad loc., 699.22: and they said that many do not come to be from one, for the atom is not divided; nor one truly continuous thing from many, but each thing appears to come to be by combination of the atoms. (DK 68 A 37) Simpl. in De caelo I.10, 279b12, 293.12: but in reality it does not generate any single nature from them; for it is totally silly [to suppose] that two or more things should ever become one (= no. 293).

## b. THEORY OF COGNITION

### 1. Preliminary confession of ignorance

(see comm. on no. 63)

48. (DK 68 B 6) Sext. M VII.137 (after no. 55): and in his On Shapes 'By this principle<sup>1</sup> man must know that he is removed from reality'.

49. (DK 68 B 7) [Sext. ibid.]: and again 'this argument too shows that in reality we know nothing, but each person's opinion presents the form (of things) in a changed shape<sup>1, 19'</sup>

50. (DK 68 B 8) [Sext. ibid.]: and further 'Yet it will be clear that to know what kind of thing each thing is in reality is attended with very great difficulties'.

51. (DK 68 B 117) DL IX.72: And indeed Xenophanes and Zeno of Elea and Democritus turn out to be sceptics according to them (the Pyrrhonists) ... Democritus in that he gets rid of the qualities, where he says 'By convention hot, by convention cold, but in reality atoms and void' and again 'In reality we know nothing, for reality is in a deep abyss<sup>1'</sup>. Cic. Acad. pr. II.10.32: Accuse nature, which, as Democritus says, has completely hidden truth in the depths. Lact. Epitome of Divine Institutions [Epit. Div. inst.] 40 (PL VI, p. 1047 C): Democritus affirms that truth lies sunk in a deep well. Lact. Inst. III.28.13 (PL VI, p. 439 A): Democritus says that truth lies sunk in a well so deep as to have no bottom. Lact. Inst III.30.6 (PL VI, p. 445 A 1) Shall we wait till Socrates knows? ... Or Democritus pulls truth out of the well? Honorius Augustodunensis (PL 172, p. 235): Democritus ... says truth lies hidden like water in a deep well without a bottom. Isidore of Seville [Isid. Hisp.] Etymologies {Etym.} VII.6.12 (= Rabanus Maurus De universo XV.1, PL 111, p. 414): Democritus said that truth lies hidden as if in a well so deep as to have no bottom.

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<sup>19</sup> [I translate Luria's Russian version. For a defence of the alternative translation 'opinion is something which flows in' (preferred by DK) see the note on the passage in Taylor 1999, pp. 11-13.]

52. (DK 68 A 112) Ar. Meta. III.5, 1009b9: so which of these are true or false is unclear ... which is why Democritus says that either nothing is true or it is unclear<sup>1</sup> (no. 73 follows). (Not in DK) Alex. ad loc., 305.26: for some things appear sweet and edible to some and bitter and inedible to others, e.g, the shoot of the olive, which is sweet to the animals which graze on it, but bitter to us humans ... for none is more this than that, but they are alike, which is why Democritus says, looking to these differences, that either nothing is true or, if anything is true it is unclear us, in that people's opinions and representations of things are similarly situated with regard to the opposed [phenomena]<sup>2</sup> (so also Syrianus ad loc., 75.19).
53. (DK 67 A 33) Epiphan. Adv. haer. III.2.9 (Dox. 590): Leucippus of Miletus, or according to some sources of Elea, was also an eristic<sup>1</sup>. He too said that the totality of things was in the infinite, and that everything occurs according to appearance and opinion, but nothing in truth, but it appears like the oar in the water.<sup>2</sup>
54. (DK 68 A 110) Sext. M VII.369: some, e.g. the school of Democritus, abolish all the appearances. (DK 59 A 96) Aet. IV.9.1 (Dox. 396): Anaxagoras [and] Democritus [say that] the senses are false.
55. (DK 68 B 9)<sup>1</sup> Sext. M VII.135: Democritus sometimes abolishes sensory appearances and says that none of them appears as things are in reality, but merely as they are in opinion, and that reality in things consists of the atoms and the void. For he says 'By convention sweet and by convention bitter, by convention hot, by convention cold, by convention colour, but in reality atoms and void', (i.e. the appearances are conventionally thought to exist, but they do not really exist, but only the atoms and the void). (136) And in his Confirmations [Kratuntēria] although he had undertaken to show that the senses have the force of reliability<sup>20</sup>, he is found to be no less condemnatory of them. For he says 'But we<sup>2</sup> In fact know nothing firm, but what changes according to the conditions of the body and the things that enter it and come up against it'. (DK 68 B 10) and again, he says, 'That in reality we do not know what kind of thing each thing is or is not has been shown many times'.
56. (DK 68 A 134) Sext. PH II.63: (see no. 85): from honey's seeming bitter to some and sweet to others Democritus said that it is neither sweet nor bitter.
57. (not in DK) <sup>1</sup>Sext. M VIII.184: Democritus says that none of the sensible things exist, but our apprehensions of them are empty states of the senses, and in the external world there is nothing sweet, bitter, hot, cold, white, black or anything else which appears to everyone, for these are names for our states. But Epicurus said that all such sensible things exist. (VIII.6) Democritus [says that] nothing sensible exists by nature (see no. 92).
58. (DK 68 B 165) Cic. Acad. pr. II.23.73: What shall I say about Democritus? Whom can we compare with him for greatness not merely of intellect, but also of soul? He was bold

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<sup>20</sup> [Alternatively 'undertaken to give the senses control over belief', adopted in Taylor 1999, 179a, p. 142.]

enough to begin with 'This I say about everything' (cf. no. 65). He makes no exceptions, of things on which he does not pronounce, for what can be outside the whole universe? ... But he does not mention this, that we, who do not deny that there is some truth, nevertheless deny that it can be apprehended. He flatly denies that anything is true<sup>1</sup>, and says that the senses are not obscure, but 'dark'<sup>2</sup>, as he calls them. (DK 59 A 95) Cic. Acad. post. I.12.64: (Arcesilaus had begun a dispute with Zeno) on the obscurity of those things which had led Socrates to his confession of ignorance, and even before Socrates Democritus, Anaxagoras, Empedocles and virtually all the early thinkers, who said that nothing could be apprehended, perceived or known; that the senses are narrow in scope (Empedocles), our minds weak (Anaxagoras), our span of life short (Protagoras), and, as Democritus says, that truth is sunk in an abyss (see no. 51), that everything is governed by opinions and conventions, that nothing is left for truth, and to sum up they said that everything is swathed<sup>3</sup> in darkness.

59. (Not in DK) Simpl. in Phys. III.7, 207b27, 512.28: Democritus trying to establish that colours do not exist in bodies by nature, but have their being by convention and stipulation relative to us<sup>1</sup> (the same ap. Themist. 98.13).

60. (Not in DK) Simpl. in De anima III.2, 426a11, 193.3: according to the school of Democritus even the potentially perceptible, e.g. colour itself and sound, would have to exist in the sense-organ and would not exist without actual perception.

61. (Not in DK)<sup>1</sup> Plut. Col. 8, 1110 E: ... in his second accusation he has failed to notice that he is expelling Epicurus from life along with Democritus<sup>2</sup>, for he says that Democritus' thesis that colour is by convention and sweet is by convention and the compound by convention, but in reality the void and the atoms conflicts with the senses, and that someone who adheres to this theory and makes use of it could not himself determine, so he says, whether he is dead or alive. I have nothing to say in reply to this argument, but I say that these things are as inseparable from the views of Epicurus as they say shape and weight are from the atom. Diogenes of Oenoanda fr. 6, col. II, p. 12 Chilton [fr. 7 Smith II.12-14]: ... Democritus made a mistake unworthy of himself in saying that only the atoms really exist, and everything else only by convention. For according to your theory, Democritus, we shall be unable,, not merely to discover the truth, but even to live, escaping neither fire nor murder (col. III) nor ... (cf. no. 39).

Plut. Col. 8, 1108 F: He (Colotes) first accuses him (Democritus) of throwing life into confusion by saying that each thing is no more of this kind than that. Sext. M VIII.56: The schools of Democritus and Plato throw things into confusion by rejecting the senses, getting rid of sensory objects and following only intelligible things, and they shake not only the reality of things, but the very conception<sup>4</sup> of them.

62. (Not in DK)<sup>1</sup> Oenomaus of Gadara (14 Mull.) ap. Eus. PE VI.7.2-2 0 (cf. Theodoret. VI.8-11, 13 pp. 151-5 Raeder); Georgius Monachus II.18; Suda, s.v. heimarmenē: for



according to the learned ... a slave ... [see no. 41] (10) Are you and I something? You would say so, but however do we know this? How have we come to judge that we know it? Is it not the case that there is nothing else so adequate as our consciousness and apprehension<sup>2</sup>of ourselves? (11) Well then, how have we ever discovered that we are living things? (12) And how do we know that we are talking at this moment? What do you have to say? Have we not rightly judged the apprehension of ourselves as what is the most immediate thing of all?<sup>3</sup> Clearly so. For there is nothing superior to it or more authoritative or more reliable than it. (13) For if that were not so ... (15) nor does he know if he himself is something. (16) But neither you nor Democritus will allow anyone to say so; for there is no more reliable measure than what I say ... (17) So, Democritus, someone might say, and you, Chrysippus, and you, seer, since you get annoyed if someone ventures to do away with your apprehension of yourselves (for then those many books of yours no longer exist)<sup>4</sup>, let us get annoyed with you in return. (18) What then, is that the most reliable and authoritative thing, when you so decide, but when you decide otherwise, will it be ruled by some fate or destiny unseen there<sup>5</sup>, something conceived differently by each of you, coming from god (in the case of the seer of Delphi), or from chance (in the case of Chrysippus) or (in the case of Democritus) from those small bodies which move downwards, rebound upwards, get entangled and separate, move apart and come together of necessity? (19) For see, by the same means as we apprehend ourselves we also apprehend those things in us which are self-chosen and those which are enforced on us,<sup>6</sup> and we are not unaware of the difference between walking and being dragged, or between choosing and being necessitated. (20) The motives (for these) depend on our wishing.

63. (DK 68 B 304) Greco-Syriac sayings, trans. Ryssel [RhM\_1896, 539]: Democritus said 'I know only that I know nothing'. Cf. Gnomologium Vaticanum [Gnom. Vat.] 743 (Wiener Studien [Wien. Stud.] 10, 1888, 232), no. 267 = Cod. Vatic. Gr. 1144, fr. 217 r: The same person (i.e. Democritus) said 'I know only one thing, that I do not know'.

64. (DK 68 B 143) Philod. On anger 28.17 G [= pHerc 182, col. XXIX.17-29]: And often many disasters come upon friends and other relatives, and sometimes on countries and kingdoms, not just long ago when that wrath [i.e. of Achilles] 'Wrought countless woes for the Greeks', but every day. And more or less evils as many as one could conceive of<sup>1,21</sup>, as Democritus says, all come about through immoderate fits of anger.

Relying on this passage and on the testimonia cited in my notes, I believe that Democritus said 'Whatever things one might think of, all exist' (hosa tis an nōsaito, panta

<sup>21</sup> [The papyrus has hosa tis an nōsaito kata D. kata, with a superscript correction of the τ of the second kata to κ. Given the correction the sense of Philodemus' sentence is 'As many evils as one could conceive of, as D. says', but the Greek word order allows the actual quotation from Democritus to be either 'As many things as one could conceive of', as L takes it, or (as in DK) 'As many evils as one could conceive of'. On neither reading does the passage support L's attribution to Democritus of the statement 'Whatever one might think of, exists'.]

esti). Therefore according to Democritus phenomena are the only source of our cognition of things.

65. (DK 68 B 165) Sext. M VII.265: Democritus, imitating the voice of Zeus and ‘Saying this about everything’ tried to set out his conception (i.e. the concept ‘man’)<sup>1</sup>, but achieved no more than the commonplace<sup>2</sup> statement ‘Man is what we all know’. Sext. PH II.23: Democritus says that ‘Man is what we all know’. Ar. PA I.1, 640b29: Now if each animal and its parts were [constituted by] their colour and shape, Democritus would be right; it seems that that is what he supposes. At any rate he says that is clear to everyone what shape a man is, on the ground that he is known by his shape and colour. Michael of Ephesus [Mich. Ephes.] ad loc. 5.35: Democritus answered by focusing his entire enquiry on the material cause, and ignored the final and formal causes, saying ‘It is clear to everyone what kind of thing man and each of the animals is in respect of shape and colour, but it is unclear in respect of matter. And if so, one should enquire about what is unclear, not about what is totally apparent’.

Relying on all these passages, Diels thinks that Democritus said<sup>3</sup> ‘This I say about everything ; man is what we all know’<sup>4,22</sup>.

66. (Not in DK) Ar. De sensu 6, 445b15 (see no. 429): further, by what means shall we judge or know these things? By thought? But they are not grasped by thought, nor does the mind think of external things without perception. And also if that is right, it seems to support those who posit indivisible magnitudes<sup>1</sup>.

67. (DK 68 A 101) Ar. De anima [De an.] I.2, 404a27: But (Anaxagoras) does not say exactly the same thing as Democritus; for the latter says that soul and mind are without qualification the same thing (see no. 68). For reality is what appears<sup>1</sup>, which is why Homer was right to say that ‘Hector lay thinking otherwise’<sup>2</sup>. For he does not treat the mind as a capacity to do with reality, but says that soul and mind are the same thing. Ar. Meta. IV.5, 1009b28 (following a mention of Democritus): and they say that it seems that Homer too had that opinion (that all appearances are true) because he wrote of Hector, who had been rendered unconscious by a blow, as lying thinking otherwise, since those who are out of their minds are still thinking, but not thinking the same things. (DK 68 A 135) Theophr. De sensu 58 (see no. 460): About thinking ... he said ... that the early thinkers were right to suppose that it is possible to ‘think other things’. It is clear, therefore, that he explains

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<sup>22</sup> [In fact Diels suggests tentatively (DK II, p. 177, lines 12-13) that ‘This I say about everything’ may have been the opening of the Lesser World-System. He does not explicitly state as his opinion that the two sentences consecutively constituted the beginning of that or any other work. That it was his view that the two sentences were consecutive may be suggested by his printing them as a single fragment, 68 B 165, but even there there is some doubt, since the two sentences are separated by a full point, followed by a long dash. While L may be right in his reading of Diels, there is no doubt that his own assertion that the two sentences consecutively began a major work of Democritus is much more emphatic than Diels’s wording.

The only ancient source which definitely ascribes either sentence to the beginning of a work is Cic. Acad. pr. II.23.73 (L no. 58). It is noteworthy that Cicero quotes only the first of the two sentences.]

thought by the constitution of the body, which is perhaps consistent on his part, since he makes the soul out to be a body.

68. (DK 68 A 101) Ar. De an. I.2, 405a8: Democritus said more subtly ... that soul and mind are the same. (DK 68 A 106) Ar. On breath [De respir.] 4, 472a6: for in the air there are a great number of things of the sort which he calls mind and soul. Aet. IV.5.12 (Dox. 392): Parmenides and Empedocles and Democritus say that mind and soul are the same, so according to them no animal strictly speaking lacks reason. Aet. IV.8.10 (Dox. 395): Leucippus, Democritus and Epicurus say that perception and thought occur when images come from outside. Aet. IV.8.5 (Dox. 394): Democritus says that perceptions and thoughts are alterations of the body. (DK 68 A 1) DL IX.44: [The sun and moon] are compounded of smooth round bodies of that kind, as is the soul, which is the same as the mind. (Not in DK) Tert. De an. 12: Both (mind and soul) will be one [and the same], and Democritus will win the day [?] by abolishing the difference. (See also no. 452.)

69. (DK 68 A 113) Philop. in De an. 1.2, 405a25, 71.19: [He asks whether] they said that mind moves the totality, from which they concluded that the motion belongs to the soul also? Yes, he says; for they supposed that soul and mind are the same, e.g. Democritus. We never find them saying expressly that mind and soul are the same, but he derives this conclusion from a syllogism. Democritus, he says, clearly intends this; for he said straight out that the true and the apparent are the same, and that there is no difference between the truth and what appears to sense, but what appears and seems to each person is also true, as Protagoras also said<sup>1</sup>, though on the correct account they are different<sup>2</sup>, in that sense and imagination have to do with what appears, but mind with the truth. So if mind has to do with the truth, and the soul with what appears, and the true is the same as what appears, as Democritus thinks, the mind is then the same as the soul. For as the mind is related to the truth, so the soul is to what appears<sup>3</sup>; hence, by permutation, as what appears is related to the truth, so the mind is to the soul. So if what appears is the same as the true, the mind is then the same as the soul.

70. (DK 67 A 9) Ar. GC 1.2, 315b6: (Democritus and Leucippus) thought that the true is in appearance.<sup>1, 23</sup> (Not in DK) Philop. ad loc. 23.2; see no. 96.

71. (DK 68 A 135) Theophr. De sensu 60ff. (Dox. 16): Democritus and Plato [discussed them (i.e. colours)] ... Plato does not deprive the objects of sense of their own nature, whereas Democritus reduces them all to states of the sense. We shall not discuss which of these views is true, but let us try to set out how far each pursued the topic and what distinctions he made, having first given an outline of each view in its entirety. Democritus does not give a uniform account of them all, but differentiates some by size, some by shape, and some by order and arrangement. Plato ascribes almost all to states and the sense [i.e. to states of the sense]. So each seems to contradict his assumption; (61) as Democritus

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<sup>23</sup> [L translates 'reality is contained in the phenomena'. See comm. on no. 70.]

makes them out to be states of the sense but distinguishes them with respect to their own nature, while Plato makes them out to be things in their own right<sup>1</sup> but ascribes them to states of the sense. ... (63) That is his [Democritus'] account of heavy and light and hard and soft. None of the other sensible qualities has any nature of its own, but all are states of the sense when it is altered so as to give rise to an appearance. [...] The evidence for this is that things do not naturally seem the same to all creatures, but what is sweet to us is bitter to other creatures, sharp-tasting to others, pungent to others, sour to others again, and the same for other cases. ... (69) But in general the greatest contradiction, which pervades the whole theory, is his both making them states of perception and at the same time distinguishing them by their shapes ... and it is absurd to require that the same appearance should be presented to everyone who perceives the same thing but nonetheless to refute their objective reality<sup>2, 24</sup>, when he has previously said that things appear differently to those who have different dispositions, and again that none has more truth than any other. ... (71) Further, he makes it fairly clear in what he says that each of them [i.e. sensory appearances] comes to be and is in reality (see no. 441).

72. (DK 59 B 21a) Sext. M VII.140: Diotimus said that according to him (Democritus) there are three criteria, the phenomena being the criterion of the apprehension of things that are unclear; 'for the phenomena are the sight of the things which are unclear'<sup>1</sup>, as Anaxagoras says, and Democritus praises him for that ...

73. (DK 68 A 112) Ar. Meta. III.5, 1009b11 (following no. 52): Which is why Democritus says [that either nothing is true, or it is unclear]. Nevertheless because he thinks that thought is perception, and that that is alteration, he says that sensory appearances are of necessity true.<sup>1, 25</sup> For it is from those assumptions that Empedocles and Democritus and pretty well all the others are committed to such views.

74. (DK 68 A 105) Philop. in De an. I.1, 35.12: for Democritus says that it (the soul) has no parts nor a plurality of capacities; he says that thinking is identical with perceiving and that they issue from the same capacity.

## II. Refutation of the pure phenomenalism of Xenocrates and Protagoras

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<sup>24</sup> [I translate L's Russian translation, which is presupposed in comm. on no. 71, n. 2. But see the editors' corrigendum appended to the note. It seems to me that neither L's rendering nor that of Alfieri reported in L's note is entirely satisfactory. A better sense is attained by translating 'to require that the same appearance should be presented to everyone who perceives the same thing, and to examine their truth [i.e. the truth of the appearances]'. On that rendering Theophrastus is ascribing to Democritus the supposition that everyone who perceives a given sensory quality (e.g. the taste of some particular thing) should receive the same sensory appearance (e.g. that this apple should taste sweet), and that perceptions which satisfy that requirement are true, whereas any 'aberrant' perceptions are false. That supposition Theophrastus rightly describes as inconsistent with the view, already ascribed to Democritus, that all appearances are true. (In making this suggestion I abandon the translation in Taylor 1999, no. 113 (p. 114) 'and should be the test of their truth', which makes the syntax of the sentence incoherent.)]

<sup>25</sup> [Despite L's note, the reading given above is much more plausible than L's favoured alternative 'he says of necessity that sensory appearances are true'.]

75. (Dox. 81; in part in DK 68 B 63) Sext. M VII.53: Xenias of Corinth, whom Democritus also mentions<sup>1</sup>, said that everything is false and that every appearance and opinion is false, and that everything which comes to be comes to be from what is not, and that everything which perishes perishes into what is not ...

76. (In part in DK 68 A 114) Sext. M VII.388-9: either every appearance should be said to be true, as Protagoras said, or every one false, as Xenias of Corinth maintained ... one would not say that every appearance is true because of self-refutation, as Democritus and Plato<sup>2</sup> taught in opposition to Protagoras. For if every appearance is true, then that not every appearance is true, which is itself an appearance, will also be true, and so it will become false that every appearance is true.

77. (not in DK)<sup>1</sup> Ar. Meta. III.5, 1099b1 (he is arguing against Protagoras in the whole chapter): And similarly some have inferred from the objects of sense the truth about appearances. For they think that the truth should not be judged on the grounds of number, large or small<sup>2</sup>, and that the same thing tastes sweet to some and bitter to others, so that if everyone was ill or mad, and only two or three were healthy or sane, they would be thought ill or mad, and not the others (there follows no. 80) . Which is why Democritus says ... . Syrianus ad loc. 75.19: The philosopher shows the confusion of those who think, on the basis of what occurs, that contraries are simultaneously true, since they do not distinguish potentiality from actuality, and says that Protagoras and his followers supposed, on the basis that the objects of sense sometimes appear one way and sometimes another, that what appears to each person is actually so; for the question should not be decided by the number of appearances, large or small, nor did people hit on any other way of deciding it ... from which Democritus declared that either nothing is true or it is unknown to us.

78. (DK 68 B 156) Plut. Col. 4, 1108 F: The first charge he (Colotes) makes against him (Democritus) is that by saying that each thing is no more of one kind than another he has thrown life into confusion. But Democritus was so far from thinking that each thing is no more of one kind than another that he opposed the sophist Protagoras for saying just that, and wrote many persuasive arguments him. Colotes did not come across these, even in a dream, and was misled by Democritus' phraseology, when he said that thing is no more than nothing, calling 'thing' body and 'nothing' the void, since that too has a nature and substance of its own (see no. 7).

### III. The two kinds of cognition

79-80. (DK 68 125)<sup>1</sup> Galen On medical experience, fr. ed. H. Schöne (Berl. Sitz.- Ber. 1901, 1259.8) [15.7 R. Walzer, Oxford, 1944]: If someone cannot even make a start except from something evident, how can he be relied on when he attacks his very starting-point? Democritus was aware of this; when he was attacking the senses with the words 'By convention colour, by convention sweet, by convention bitter, but in reality atoms and void' he made the senses reply to thought as follows: 'Wretched mind, you get your

evidence from us, and yet you overthrow us?<sup>2</sup> The overthrow is a fall for you'. Cf. (Dk 68 A 112) Ar. Meta. III.5, 1009b7: further, to many animals in good health the same things appear opposite to the way they appear to us, and to each individual things do not always seem the same as far as the senses are concerned, So which of these is true or false is unclear; for this is no more true than that, but they are alike. That is why Democritus said that either nothing is true, or it is unclear to us. But yet because they suppose that intelligence is sensation, and the latter is alteration, they say that what appears to sense is necessarily true<sup>3</sup> (= nos. 3, 52, 73).

81. (DK 68 A 111) Sext. M VII.140 (see nos. 72, 734; no. 83 precedes): Diotimus said that according to him (Democritus) there are three criteria; of the apprehension of things that are unclear [the criteria are] the appearances ... of enquiry the thought<sup>1</sup> ... and of choice and avoidance the feelings; for what we are attracted to, as belonging to us, is to be chosen, and what we are alienated from is to be avoided.

82. (dk 68 A 33, B 11) DL IX.47: ...his (Democritus') books ... Mathematics; On difference of judgement<sup>1</sup>, or On the contact of circle and sphere ...

83. (DK 68 B 11) Sext. M VII.138 (after no. 50): In the Canons<sup>1</sup> he says that there are two sort of knowledge, one through the senses and the other through thought; he calls knowledge through thought 'genuine'<sup>2</sup> testifying in favour of its trustworthiness in the judgement of truth, and he names knowledge through the senses 'bastard'<sup>3</sup>, denying it inerrant recognition of the truth. (139) His own words are: 'There are two forms of knowledge, genuine and bastard. To the bastard form belong all these, sight, hearing, smell, taste, touch, but the genuine is separate from this'. Then he continues, ranking the genuine above the bastard form 'When the bastard form can no longer<sup>4</sup> see anything smaller<sup>5</sup> or taste or perceive by touch, but <one must proceed> to a finer degree, <then the genuine takes over>'. Cf. (DK 68 A 105) Aet. IV.6.4 (Dox. 390):<sup>6</sup> Democritus and Epicurus say that the soul is bipartite, having the rational part situated in the chest and the non-rational distributed throughout the entire structure of the body.

84. (Not in DK) Sext. M VII.321: Most of the dogmatists were about the same age when they declared themselves to be criteria<sup>1</sup> of the truth. For it was once they were elderly that Plato, it may be, Democritus, Epicurus and Zeno testified to their discovery of the truth.

85. (Not in DK) Sext. PH I.213: But the philosophy of Democritus is also said to be akin to scepticism ... for from the fact that honey appears sweet to some and bitter to others Democritus is said to have concluded that 'It is neither sweet nor bitter', and hence kept on repeating<sup>1</sup> the sceptical slogan 'no more'. But the Sceptics and the school of Democritus make different use of the 'no more' slogan; for they apply it in the sense of neither alternative being the case [but we in the sense of not knowing whether both appearances are true or neither]. ... the difference becomes perfectly clear when Democritus says 'but in

reality atoms and void'. Marcus Aurelius VII.31: He (Democritus) says that everything is by convention, but in reality there are only the elements.

86. (DK 68 A 116)<sup>1</sup> Aet. IV.10.4 (Dox. 309): Democritus says that the non-rational animals and wise people and the gods have more senses (sc. than the five).

87. (Not in DK) Anon. In Ar. NE VII.5, 1146b26, 417.26: Some people who have opinions are not doubtful or divided in mind about their opinions, but think that they know exactly, e.g. Democritus taught that bodies are composed of atoms, and claimed to have exact opinion.

88. (Not in DK) Plut. De tranqu. an. 13, 472 D: ... Democritus ... writing about the world and the truth of things ...

89. (DK 68 B 69m 6 N)<sup>1</sup> Democrat. 34: For all people the same thing is good and true, but pleasant differs from one to another.

90. (DK 68 A 49) Galen, On the elements according to Hippocrates I.2 (1.417 K, 3.20 Helmr.): 'For by convention colour, by convention sweet, by convention bitter, but in reality atoms and void' (no. 80), says Democritus, who thinks that all the perceptible qualities are brought into being, relative to us who perceive them, by the combination of atoms, but by nature nothing is white or black or yellow or red or bitter or sweet. By the expression 'by convention' (nomōi) he means 'conventionally' (nomisti) and 'relative to us' (pros hēmas), not according to the nature of things themselves, which he calls by contrast 'in reality' (eteēi), forming the term from 'real' (eteon), which means 'true'. The whole substance of this theory is as follows. People think of things as being white and black and sweet and bitter and all the other qualities, but in truth 'thing' (den) and 'nothing' (mēden) is all there is.

91. (DK 68 A 163) Theophr. De caus. plant. VI.17.11: But, as we have said previously, it is absurd if what is foul-smelling or odourless to us smells pleasant to those (animals). But perhaps it is not absurd; at any rate we see this happening in other cases, e.g. in the simple case of their food, for which the cause is most obviously their different constitutions. For though Democritus' atoms, as we have said, have distinct shapes, yet they do not have<sup>1</sup> to have distinct properties.<sup>26</sup>

92. (DK 68 A 59) Sext. M VIII.6: The schools of Plato and Democritus thought that only intelligible things are real, but in the case of Democritus that was on the ground that nothing sensible exists by nature, whereas the atoms which compose everything have a

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<sup>26</sup> [I translate L's Russian version, which assumes his reading of the final sentence, retaining the mss' kaitoi ge ouk echrēn poiein. DK delete kaitoi ge ouk, reading the final sentence as 'For since Democritus' atoms have determinate shapes they ought to make the properties determinate too'. That appears to give a better sense, since the point of the passage is to explain why, given the atomic theory, different combinations of atomic structures (both those in the perceiver and in the perceived object), give rise to different perceptible qualities.]



nature which lacks any sensible properties, while for Plato it was because sensible things are always in a state of coming to be, never of being ...

93. (DK 68 A 1) DL IX.44: the principles of everything are atoms and void, and everything else is conventional ...

94. (DK 68 A 125) Aet. I.15.8 (Dox. 314): Democritus says that by nature there is no colour: for the elements, the solids and the void, have no qualities ... appearances depend on these.

95. (DK 67 A 32) Aet. IV.9.8 (Dox. 397): The others say that sensible things exist by nature, but Leucippus, Democritus and Diogenes say that it is by convention, that is by our opinion and experiences. And there is nothing real or apprehensible apart from the primary elements, atoms and void. For they alone exist by nature, together with the properties which result from their differences from one another in position and arrangement and shape.

96. (Not in DK)<sup>1</sup> Philop. Comm. on Ar. De Generatione et Corruptione [in GC] 1.2, 315b9, 23.2: since, he says, they say that every appearance is true, and each thing is as it appears, and people often have conflicting appearances of the same thing, Democritus and his followers are able to preserve the truth of these appearances of the same thing on the basis of their principles, since they posit that the elements have infinitely many shapes.

Cf. also a dubious testimonium, which Diels lists among the spurious fragments (68 B 309):

97. (DK 68 B 309)<sup>1</sup> Albertus Magnus, Ethica I.1.3 (lv, p. 4 Jammy): Now this is what Democritus says, that 'the wise person is the measure of everything that there is. For he is the measure of sensible things by sense and of intelligible things by intellect.' For everything is measured by the primary and most simple thing of its own kind. Now virtue is the primary and most simple thing of every kind. So its own virtue is the principle of knowledge of anything whatever; so the knowledge of everything is achieved in the knowledge of its virtue. Cf. also the chapter on sensation (nos. 369, 441, secs. 60, 61, 68-70).

### **c. THE LOGICAL FORMS OF THE THINGS THAT THERE ARE**

#### **(RULES OF COGNITION)**

##### **I. General**

98. (DK 68 A 33, B 10b)<sup>1</sup> DL IX.47: His works ... Works on Nature: On Logical Matters, <or> The Canon, 3 books.

99. (in part in DK 68 A 36) Ar. Meta. XIII.4, 1078b19: Of the natural philosophers Democritus dealt with definition only to a small extent, and gave some sort of definition of the hot and the cold; and earlier the Pythaoreans dealt with a few things, reducing their definitions to numbers, e.g. what is the right time, or justice, or marriage, but he<sup>1</sup> sought for the definition of what something is in the right way, for he was seeking to construct arguments, and the starting-point of the arguments is what the thing is. For dialectic had not yet developed to the point of being able to examine the opposites even without the definition of what the thing is, and [to say] whether the knowledge of the opposites is the same. (DK 68 A 36) Ar. Parts of Animals [PA] I.1, 642a24: the reason why the earlier thinkers did not arrive at this (i.e. the Aristotelian) method was that they did not have [a grasp of] the essence of a thing and the definition of its nature, but Democritus was the first to deal with it, not on the ground that it is necessary for the investigation of nature, but driven by the nature of the subject. This method was advanced by Socrates, but he abandoned the investigation of nature, and philosophers turned to useful virtue and political theory. (Not in DK) Ar. Phys. II.2, 194a15: This question too might be raised in two ways; since there are two natures (i.e. form and matter) which of them should the natural philosopher discuss, or should it be the compound of the two? But if it is the compound, then he must discuss each individually. So does it belong to the same (knowledge) to know each, or different ones? Now if one looks at the early thinkers they would seem to have dealt with matter, for Empedocles and Democritus dealt with the form and the essence only to a small extent.<sup>2</sup> (Not in DK) Simpl. ad loc. 300.13: Here he shows, by making a distinction regarding the enquiry, that the early natural philosophers were concerned with the investigation of the other thing, i.e. the matter, while Empedocles and Democritus dealt to a small extent with the formal nature ... (17) Democritus defines the form logically<sup>3</sup>, in terms of shape, position and arrangement. (Not in DK) Themist. ad loc. 42.11: To a slight extent Empedocles and Democritus dreamed of the form, Empedocles by positing strife and love as formal principles, while Democritus posited the shapes. Philop. ad loc. 228.25: for all the early thinkers gave a lot of attention to the matter, but some paid no attention to the form, and those who did think of it did so only to a small extent, viz. Empedocles and Democritus. Democritus said that matter is the substrate of the atoms, and that the shapes of the atoms are the formal causes.

100. (DK 68 A 35) Ar. GC I.2, 315a34: In general no-one apart from Democritus applied himself to these matters [i.e. coming to be and passing away] more than superficially; he seems to have thought about them all, and is from the outset distinguished by his method.

101. (Not in DK) Ar. GC I.2, 315b28: And again, if [the primary things are indivisible] magnitudes, are they bodies as Democritus and Leucippus say, or planes as in the Timaeus? Now as we have said elsewhere it is irrational to divide as far as planes, hence it is more reasonable to say that there are indivisible bodies ... (316a5): The reason for their (the Platonists') inability adequately to survey the acknowledged facts is lack of experience. Hence those who are more accustomed to investigations of nature are better able to posit

principles of wide application, whereas those who, from too much theorising, are not familiar with the facts are too ready to pronounce on the basis of few observations. This also shows how different investigations of nature are from those proceeding from wholly general principles; one school says that there are indivisible magnitudes, because otherwise The Triangle Itself will be many, whereas Democritus would appear to have been persuaded by arguments appropriate to an enquiry into nature<sup>1</sup>. Our meaning will be clear as we proceed (see no. 105). Philop. ad loc. 25.19: ... for some, he says, (i.e. the Platonists) lacked experience of natural matters because they had spent their time on mathematics, and he contrasts their lack of experience with being accustomed to nature, that is to say with having experience of it. For Democritus and his followers, who were trained in natural investigations, postulated principles which were better able to preserve agreement with the facts of nature, and in support of his contentions he sets out the theories which the two schools use in trying to prove that there are indivisible magnitudes, and shows that Democritus' theories are much more convincing than Plato's, and that the latter are plainly absurd, but those of Democritus are hard to refute. Cf. Plut. De comm. notit. 19, 1079 E:... when Democritus raised a question which was appropriate to the subject and successful... Ar. Generation of Animals [GA] IV.1, 764b20 (no. 530): and in general it is better to say that it is the supremacy of the part which makes the [offspring] female, then to neglect that and explain it purely as caused by heat. IV.3, 769b26 (no. 533): But those who account for the similarity (of parents and offspring) in the manner still to be described give a better explanation both of this point and of the others.

## **II. Direct cognition (axioms)**

### **Classification of expressions**

102. (see no. 65). Ar. PA I.1, 640b29; Mich. Ephes. ad loc. 5.35; cf. Ar. Phys. II.1, 193a3. Relying on these passages, Diels restored the following statement of Democritus: This I say about everything; man is what we all know.<sup>27</sup>

I consider this evidence of 'direct cognition' in Democritus of the greatest importance. From the several pieces of evidence collected under no. 65 the words of Michael of Ephesus give the best expression of Democritus' meaning: One should enquire about what is unclear, not about what is totally apparent.

Perhaps (DK 68 B 10b) is also relevant to this Sext. M VIII.327: The dogmatic philosophers ... maintain this (demonstration), but the Empiricists deny it, and it seems that Democritus too argued strongly against it in his Canons.

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<sup>27</sup> [See translator's note on no. 65.]

103. (Not in DK) Suda, s.v. anangkaion: Democritus of Abdera says<sup>1,28</sup> ... He divides things into being or being of necessity, e.g. that man is an animal, for what belongs to every one and always, that is of necessity, and similarly it is necessary that god is indestructible<sup>2</sup>. And things which can be, and of the things which can be some are for the most part, e.g. a man's having five fingers<sup>3</sup> and turning grey as he grows old, and some for the lesser part, e.g. the opposites of those, a man's having four or six fingers (for there are such cases) or not turning grey<sup>4</sup> with age, <and some equally<sup>5</sup> either way, e.g. a man's engaging in politics<sup>6</sup>> or not, or being <or not>, or washing or not.

### III. Excluded middle

104. (Not in DK)<sup>1</sup> Plut. De comm. not. 39, 1080 C: Further, how do they (the Stoics) dare to censure 'those who introduce empty spaces<sup>2</sup> and indivisibles and who posit the contradiction that [some things are] neither in motion nor stationary', when they themselves say that axioms such as 'things which are not equal to one another are unequal to one another'... [and] 'it is not the case that these (apparently 'segments' (see no. 105)) are equal to one another, and these are not unequal to one another'<sup>29</sup> are false.

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<sup>28</sup> [L's setting-out of the text suggests that what follows is a quotation from Democritus. In fact, as L himself points out in his comm. on no. 103, n. 1, it is a quotation from Alexander's commentary on Aristotle's Topics, specifically on 112b1ff. The Suda article is, as L points out, largely composed of two quotations, the first from DL IX.44-5, giving Democritus' account of necessity, the second the passage of Alexander, expounding Aristotle's distinction of what is necessary from a) what is not necessary but true for the most part and b) what is neither necessary nor true for the most part, but 'equally either way'. Neither Alexander's text nor the passage of the Topics to which it refers has anything to do with Democritus, dealing as they do with Aristotle's own distinctions of the necessary, i.e. what cannot be otherwise, from what holds either 'for the most part' or merely in some chance cases. Hence L's assertion in comm. on no. 103, n. 1 that Alexander does not name his source, which was also the source of the passage of Aristotle he is explaining, is groundless; his source is Aristotle. Equally baseless, therefore, is L's assertion in his excursus on no. 103 that the tripartite distinction specified above belongs not to Aristotle but to Democritus, and the alleged consequence that '[O]ne has to regard not Aristotle but Democritus as the founder of inductive logic'.

L's entire treatment of this topic rests on his assumptions a) that the whole of the Suda text refers to Democritus, and b) that its alleged attribution of the tripartite distinction to Democritus is reliable. In fact it is unclear whether the compiler of that text believed that Alexander's text derived from Democritus, or whether he simply stitched together two texts on necessity from DL and in Alexander which he found in a handbook. If he did believe that Alexander's text derives from Democritus, his belief was plainly unfounded, both because Alexander says nothing about Democritus in that context, and because the distinction which he expounds is standard Aristotelian doctrine (see e.g. Bonitz under anangkaion, hōs epi to polu etc.)]

<sup>29</sup> [Here L prints the last sentence of the text as ouk esti men isa tauta allēlois, ouk anisa de esti tauta allēlois. In his commentary on the passage, n. 2, he includes the substitution of ouk anisa for anisa among errors introduced by Leonicus, which suggests that he thinks that the actual text is ... allēlois, anisa de esti tauta allēlois, in which case the inclusion of ouk before anisa is a slip. This is confirmed by his translation 'These things are not equal to one another, i.e. they are unequal to one another'.

When he repeats the passage in no. 126 his text reads ... allēlois, anisa de esti tauta allēlois, and in his apparatus he cites ouk anisa as the reading of the mss and anisa as a correction by Dübner. He translates 'These things are not equal to one another, but unequal'. It is, then, clear that the discrepancy between the text printed in the two passages is an editorial slip, not a change of mind on L's part.

On this reading the 'axiom' which the Stoics deny is 'these things are not equal to one another, these things are unequal to one another'. The negation of that 'axiom', which the Stoics therefore assert, is either (if the scope of 'not' is the whole conjunction) 'It is not the case that these things are equal to another and

This concerns a problem raised by Democritus (see no. 101, Plut. De comm. not. 39, 1079 D) which the Stoics had solved by acknowledging 'that the surfaces are neither equal not unequal'.

## B. MATHEMATICS

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unequal to one another' or (if the scope of 'not' is the first conjunct only) 'Either these things are equal to one another or these things are not unequal to one another'. (L does not mention the scope ambiguity.)

On neither reading is it clear what is supposed to be objectionable in the Stoics' rejection of the 'axiom'. If, on the other hand, the emendation ouk anisa in the final clause is accepted, the long-scope reading of 'not' gives 'It is not the case that these things are equal and not unequal to one another', which may be understood as 'Some things are such that they are neither equal nor unequal to one another, or both equal and unequal to one another'. (The short-scope reading gives 'Either these things are equal to one another or these things are not not unequal to one another'.) It may be thought that these are attempts to spell out the implications of the denial of the other axiom (of which the Stoics have just been accused) 'Things which are not equal to one another are unequal to one another'.]

I have discussed the mathematics of the atomists more fully in 'Die Infinitesimaltheorie der antiken Atomisten', Quellen und Studien zur Geschichte der Mathematik [Qu. u. St. z. Gesch. d. Math.] 2, 1932, 106-85, an expanded version of which appeared in Russian in 1935, entitled 'The theory of infinitesimals in the ancient atomists'.

105. (DK 68 A 48b) Ar. GC 1.2, 316a13: Democritus would appear to have been convinced by appropriate<sup>1</sup> arguments, belonging to the nature of the subject-matter. What I mean will become clearer as we proceed. For there is a problem, if one posits a body and a magnitude<sup>2</sup> divisible at every point, and posits this as possible. For what will there be which survives the division?<sup>3</sup> For if it is divisible at every point, and this is possible, it could at one and the same time be in a state of having been divided, even if it has not been divided all at once. And if that were to happen, there would be no impossibility<sup>5</sup>. So if it is divisible at every point, both at the mid-point<sup>6</sup> and generally, nothing impossible will have occurred if it is divided, for even if it were divided into ten thousand parts ten thousand times over, there is no impossibility, though perhaps no-one would divide it like that<sup>7</sup>. Now since the body is like that at every point, let it have been divided<sup>8</sup>. What is now left? A magnitude? That is not possible; for it will be something undivided, but it was assumed that it was divisible at every point. But if no body or magnitude is left, but there is a division<sup>9</sup>, either it will be composed of points and put together from things with no magnitude or it will be nothing at all, so that even if it could come to be by being put together out of nothing, the whole would be nothing but an appearance. Similarly if it is composed of points it will not be a quantity<sup>10</sup>. For when they were in contact and together as one magnitude they did not make the whole any bigger<sup>11</sup>; for when it is divided into two or more parts<sup>12</sup> the whole is no larger or smaller than before; so that even if they are all put together, they will not make any magnitude<sup>13</sup>. But now if a sort of sawdust results from the division of the body, and a body emerges from the magnitude in that way, the same argument applies; for that is somehow divisible<sup>14</sup>. And if what results is not a body but some separate form or property and the magnitude consists of points or contacts with that property<sup>15</sup>, it is absurd that a magnitude should consist of non-magnitudes. Further, where will the points be, and will they be motionless or in motion<sup>16</sup>? And a contact is always between two things, so that there is something besides the contact and the division and the point. Now if anyone posits that a body of whatever size is divisible at every point, this follows. Further, if, having divided it, I put the piece of wood or whatever back together, it is again one thing, the same size as before. Now clearly this is so if I cut the wood at any point; for it was potentially divided at every point. So what is there besides the division? If there is some property besides, how is it resolved into things of that kind and reconstituted from them? And how are those things separated? So if it is impossible that magnitudes should be composed of contacts or points, there must be indivisible bodies and magnitudes.<sup>17</sup>

Aristotle adds his own version of the argument: But on the other hand if we posit them, the consequences are no less impossible<sup>18</sup>, as we have discussed elsewhere<sup>19</sup>. Still we must try to resolve these difficulties, so we must set out the problem from the beginning once again. That every perceptible body should be both divisible at any point and indivisible is not at all absurd; the former attribute will apply to it potentially, the latter actually. That it should be potentially divisible at every point simultaneously would appear to be impossible. For if it were possible, it could happen (not so as to be actually both indivisible and divided simultaneously, but divided at every point); so there will be nothing left, and the body will disappear into something incorporeal, and would come into being again either out of points or altogether from nothing. And how is that possible? But surely it is clear that it is divided into separate, ever smaller magnitudes, removed and separated from one another. Now if it is divided piece by piece the breaking up could not go on for ever, nor can it have been divided simultaneously at every point (for that is impossible), but only so far; so there must exist indivisible magnitudes which are invisible, especially if there is to be coming to be and passing away, occurring by joining together and separation respectively<sup>20</sup>. This is the argument which seems to necessitate the existence of indivisible magnitudes ... .

Philop. ad loc. 29.8: If we suppose that the magnitude has been divided into ten thousand parts ten thousand times, even if has not yet been divided nor perhaps can it be divided because of the weakness of the divider, the supposition is neither impossible nor absurd.

(34.8): Now he repeats Democritus' argument in summary form, adding some distinctions, and that is the way he examines it.

(35.10): ... by taking the expression 'everywhere divisible' in that sense Democritus reduces the thesis to absurdity, raising a difficulty deriving from his own supposition, but not examining the question before him.<sup>21</sup>

(36.37): ... Saying that he is going to repeat Democritus' problem in summary, Aristotle first distinguishes the sense of 'everywhere divisible' from which no absurdity follows from the sense in which all the absurdities assembled by Democritus do follow, and says that to call 'everywhere divisible' what can be divided at every point, even if it has not yet been divided, is true and has no absurd consequences (for it is possible to call what is actually indivisible 'everywhere divisible' in that sense, for since one can take every point on a continuum, it is clear that there will also be a division in every part of the continuum), but calling it 'everywhere divisible' in the sense of being simultaneously divided everywhere is absurd. How and why it is absurd he sets out once again, repeating Democritus' problem. And then he subsequently gives the solution, saying that Democritus goes wrong by not refuting the thesis that the magnitude is everywhere divisible, but taking the expression 'everywhere divisible' in a sense suitable to his own supposition.



(37.22): He next states the absurdities which follow from the supposition that the magnitude is divided into points, repeating Democritus' problem.

(37.31): Having reduced to absurdity the thesis that the body has been simultaneously divided everywhere, by showing that it follows from that that the body is composed of points or of nothing, he clearly shows, taking the argument from Democritus, that the division always results in separate, i.e. actual magnitudes. For if the division always produces smaller segments, still these are actual things, which are capable of existing in their own right<sup>22</sup>. And if that is clear, it is obvious that there never exists simultaneously an infinite number of separated things, nor does the division proceed to infinity, since there is not an infinite number of separate parts in finite magnitudes. For 'always' does not mean 'to infinity' in this context (for the argument which leads to this conclusion is presented as an argument of Democritus')<sup>23</sup>, but, he says, things are always divided 'up to a certain point', at which, as he says in what follows, the division will arrive at indivisibles.

(39.20): For being everywhere divisible belongs to magnitudes in one way, and does not belong in another way. The way in which it does not belong is that in which Democritus having heard<sup>24</sup> reduced the thesis to absurdity, viz. that a magnitude is simultaneously divisible everywhere, and that is impossible because, he says, no point is adjacent to any point<sup>25</sup>. Aristotle takes that as obvious, and it was also agreed by Democritus and his school.

(38.22)<sup>26</sup>: The text is somewhat obscure; he appears to say that if coming to be and passing away occur, the latter by separation and the former by combination, there must also be indivisible magnitudes, and that conversely one must conclude from the assumption of indivisibles that coming to be occurs by combination. Now if the underlying things are indivisible coming to be occurs by combination, but if coming to be occurs by combination it is not necessary that the underlying things are indivisible. And indeed Democritus' argument seems to have demonstrated that there are indivisibles, not that coming to be occurs by combination. Hence from the existence of indivisibles one must conclude that coming to be occurs by combination, not conversely as the text seems to indicate. So it is simpler to take the text to be saying 'So it is necessary that there are indivisible magnitudes', punctuating there, and to be deducing 'If coming to be and passing away occur, the latter will occur by separation, the former by combination' from another premiss. Or as follows: 'So it is necessary that there are indivisible magnitudes, and if coming to be and passing away occur, which is obvious, the former occurs by their combination, and the latter by their separation'.

105a. (In part in DK 29 A 22) Ar. Phys. I.3, 187a1: some<sup>1</sup> gave in to both arguments, first to the argument that everything is one if 'being' has one meaning, by positing non-being, and secondly to the argument from dichotomy, by positing indivisible magnitudes.

## **b. PARTLESS MATHEMATICAL ENTITIES**

## I. The indivisibility of the partless entities

106. (DK 68 A 48)<sup>1</sup> Aet. I.16.2 (Dox. 315): Those [positing] the atoms [say that] division stops at the partless entities and does not go on to infinity. = Stob. I.14.1: <sup>2</sup> Democritus [says that] division stops at the partless entities.

107. (DK 68 A 48a)<sup>1</sup> Schol. on Euclid X.1 (V.436.16 Heiberg): There is no smallest magnitude, as the Democriteans say.

108. (Not in DK) Ar. De caelo 1.5, 271b2: whether there is an infinite body<sup>1</sup>, as most of the early philosophers thought ... (8) if even a small departure from the truth is magnified ten thousand times, e.g. if one were to say that there is a smallest magnitude; the person who introduced the smallest magnitude would overturn the greatest truths of mathematics. Simpl. ad loc. 202.27: Democritus, or whoever would make such a postulate, postulated as principles small entities, i.e. indivisible magnitudes, and because those have the greatest power in virtue of being principles, in going wrong about them they overturned the greatest truths of geometry, viz. that magnitudes are infinitely divisible, in virtue of which it is possible to bisect a given straight line<sup>2</sup>. Simpl. in De caelo III.7, 306a26, 649.1: those who define the natures of the elements by their shapes ... or by saying that they are indivisible they are forced to say that not every body is divisible and [thereby] to conflict with the mathematical sciences in saying what is totally contrary to them; for those sciences take it that [not only perceptible but] also intelligible body ... is divisible <into two>, but those people say that not even perceptible [body is divisible]. Philop. in GC I.8, 325b34, 164.20: those who say this do away with the most exact sciences, I mean the mathematical. For they [i.e. mathematicians] divide ... into two every magnitude, including magnitude which is grasped in thought, but [the former] [do not divide] even physical magnitude.

109. (DK 67 A 15)<sup>1</sup> Ar. De caelo III.4, 303a4: nor are the consequences reasonable of what others, e.g. Leucippus and Democritus of Abdera, say; for they say that the primary magnitudes are infinite in number but indivisible in magnitude ... for in a way they too make everything into numbers and composed of numbers<sup>2</sup>, for even if they do not say so plainly, nevertheless that is what they mean ... (20) further, in saying that there are indivisible bodies they are necessarily in conflict with the mathematical sciences<sup>3</sup> and do away with many accepted views and sensible phenomena, as we have previously said in our work on time and motion ... . Simpl. in Phys III.7, 207b27, 512.34: someone who posits partless and smallest things as principles and elements is an obstacle to geometry, for he does away with division to infinity, and along with it many currently available mathematical proofs.

110. (Not in DK)<sup>1</sup> Ar. De sensu 6, 445b58: it seems to tell in favour of those who posit indivisible magnitudes, since the problem would be solved in that way, but they are impossible. We have discussed them in our work on motion ... (see no. 429).

111. (DK 67 A 14) Simpl. in Phys. I.2, 184b15, 36.1: Leucippus and Democritus and their followers, who call the smallest primary bodies atoms.<sup>1</sup>
112. (DK 68 A 49)<sup>1</sup> Galen On the elements according to Hippocrates [De elem. sec. Hipp] I.2 (I.418K., 3.20 Helmr., 205.2 Us.): they propose that the primary bodies are incapable of being affected, some, e.g. Epicurus and his followers, on the ground that they are indestructible because of their hardness, others, e.g. Leucippus and his followers, on the ground that they are indivisible because of their smallness.
113. (DK 67 A 13)<sup>1</sup> Simpl. in Phys. VI.1, 231a21, 925.10: Those who abandoned the idea of cutting to infinity, on the ground that we cannot cut to infinity and so establish the inexhaustibility of cutting, said that bodies are composed of indivisibles and divided into indivisibles. Except that Leucippus and Democritus say that the cause of the indivisibility of the primary bodies is not merely their inability to be affected but also their smallness and partlessness, whereas Epicurus<sup>2</sup> subsequently denies that they are partless, but says that they are uncuttable because of their inability to be affected. Aristotle criticised the view of Leucippus and Democritus in many places, and it was perhaps because of his criticisms of the doctrine of partlessness that Epicurus, who came later and supported the view of Leucippus and Democritus about the primary bodies, maintained the position that that they are incapable of being affected but abandoned partlessness, thinking that on that point they had been refuted by Aristotle. Cf. Theodoret. IV.9 (Dox. 285): Epicurus ... later than Democritus ... some say that the indivisible and atomic and solid is so called because it is incapable of being affected, others that it is because it is extremely small, so as to be incapable of being cut or divided.
114. (Not in DK) Asclepius [Asclep.] in Meta. IV.2, 1014a26, 307.9: But Democritus, who said that the elements are the <indivisible> magnitudes and the atoms, supposed them to be indivisible not only in form.<sup>1</sup> Alex. ad loc. 355.13: against those who treat the atoms as elements and [say that] the elements are indivisible in magnitude, not only in form.
115. (Not in DK) ps-Ar. On indivisible lines [De lin. insec.] 969a21: Again, it is silly to demand that the bodily elements should be indivisible. For even though some people say so, as regards the present enquiry they are assuming the point at issue. Or rather, the more they seem to be assuming the point at issue, the more it seems that body and length<sup>2</sup> are divisible in bulk and distance.
116. (Not in DK)<sup>1</sup> Bradwardine Treatise on the continuum [Tract. de cont.] 31 (ed. W. Schulze, Zeitschrift für Mathematik und Physik, Suppl. 13, 1868, p. 88): Some, e.g. Aristotle (?) maintain ... that a continuum is not composed of atoms, but of infinitely divisible parts. Others say it is composed of indivisibles, and there are two versions of this view, since Democritus says that it is composed of indivisible bodies, but others that it is composed of points. And there are two versions of that view too, because Pythagoras, the founder of

that sect, and Plato ... maintain that it is composed of finite[ly many] individuals, others that it is composed of infinite[ly many]. See also Dionysius (no. 124).

## II. Partless entities and the elements of the Platonists and Pythagoreans

117. (Not in DK)<sup>1</sup> Ar. De an. 1.4, 409a10: It would seem to make no difference whether one speaks of mathematical units or small bodies; for if Democritus' spheres are turned into points ... Simpl. ad loc. 63.56: ... and alleging that the same absurdity follows from Democritus' theory of the soul, he first states the identity of the opinions of Democritus and Xenocrates on what they mean by quantity, so that, as previously said, the same absurdity follows from both. For even if Democritus constructs number out of bodies, all the same those are indivisible through their solidity and also indistinguishable in form and underlying nature ... Philop. ad loc. 167.20: further, he means to assimilate Xenocrates' opinion to that of Democritus ... (23) But depriving the atoms of continuity in no way damages Democritus' assumption, for he did not say that bodies were moved by continuity, but by mutual resistance caused by their number. Sophonius [Sophon.] ad loc. 30.4: further, Xenocrates' opinion would appear to be very similar to that of Democritus; for what is the difference between speaking of mathematical units and number, which the former postulated, or small bodies, which the latter did? For if the spherical atoms are turned into points by being deprived of magnitude, while the number remains [the same], the thesis is no further refuted, nor does depriving the atoms of continuity damage the assumption.<sup>2</sup> (31.4) So, as we have said, Xenocrates' opinion is absurd. How is that the case for those who postulate a body with minimum surface, or who say the same as Democritus? ... But by assimilating Xenocrates' opinion to that of Democritus, and identifying the point and the mathematical unit with the atom, we have treated them as a single theory.

118. (DK 67 A 7) Ar. GC I.8, 325b24: as Plato wrote in the Timaeus; the extent of the difference between him and Leucippus is that the latter<sup>1</sup> says that the indivisibles are solids, the former<sup>2</sup> that they are planes.

119. (Not in DK) Simpl. in De caelo III.8, 307a19, 665.5: if there are atomic magnitudes ... as maintained by Democritus and his followers, and by Xenocrates who postulated atomic [i.e. indivisible, uncuttable] lines ...

120. (Not in DK) Ar. Meta. XIII.8, 1084b23: The cause of their (i.e. the Pythagoreans') mistake was that they conducted their enquiries at the same time from mathematics and from universal formulae, so that from those they treated unity, their principle, as a point. For the unit is a point without position.<sup>2</sup> So as some others<sup>3</sup> did, they constructed things out of minimum parts. Alex. ad loc. 775.26: they treated the primary unit as a point, for they said that the unit differs from a point only in lacking any position. So, he says, just as Democritus and his followers constructed things from the minimum, atomic bodies, they did the same from the partless unit ... Syrian ad loc. 152.20: so they (the Pythagoreans) do not construct things out of partless atoms, as Democritus and his followers do.

121. (Not in DK)<sup>1</sup> Sext. M X.252: for those who say that atoms or homoiomerics or solid bodies<sup>2</sup>, or in general intelligible bodies are the principles of everything were right in some respects, but wrong in others ... (253) for just as the elements of speech are not speeches, so the elements of bodies are not bodies ... (255) We, say the Pythagoreans, examine by the method of the natural philosophers the question of what constitutes these eternal bodies which are grasped by reason. (256) Now their constituents are either bodies or bodiless, and we would not say that they are bodies, for we will have to say that there are bodies composing them too, and since that argument goes on to infinity it turns out that there is no principle of the whole ... .

122. (Not in DK) Simpl. in De caelo III.1, 299b23, 576.10: But what, he (Alexander) says, will be the difference between Democritus' opinion and that which says that things are composed of planes, if that too says that the kinds of physical bodies are determined by their shapes? It will be easy to say in reply to that too that in this respect there is no difference. For, as I said earlier<sup>1</sup> Theophrastus reports that when people were speculating about the causes of the hot and the cold and such things in an inexpert fashion Democritus arrived at [the theory of] the atoms. That other theory [sc. that things are composed of planes] perhaps differs from his in positing the plane, something simpler than bodies, prior to the atoms, which are bodies, and in finding creative symmetries and analogies in the shapes and in treating earth differently.<sup>2</sup>

### III. Two kinds of atoms

123. (Not in DK)<sup>1</sup> Alex. in Meta. I.4, 985b18, 36.21: He is speaking of Leucippus and Democritus ... for the partless elements which they postulate as parts of the atoms have, they say, no weight. Cf. Epicur. Epist. I.58: the minimum in the atom. Themist. in De caelo III.5, 304a8, 186.30: Those who postulate indivisibles do not say that they are totally small, since there is found in them that which admits of notional division into seven parts, and they say that this is not divided into smaller parts.<sup>2</sup>

With these seven parts cf. the following passages of Giordano Bruno 'On the triple minimum': II.11, scholia, p. 255: As in Democritus' space it is clear that a minimum ... is in contact with not more than six other points of the same size. (III.11.12) : In Leucippus' space ... we know that around a spherical atom there will combine only six of equal size, filling the space ... . III.11, scholium on 90, p. 240: that (space) of seven parts ... .

Supplement. On Diodorus Cronus, inventor of the term 'partless things'.

124. (Not in DK)<sup>1</sup> Aet. I.3.27 (= Stob. I.10.16): Diodorus nicknamed Cronus says that the principles of things are the infinite partless bodies, also called minima, which are infinite in number, but defined in size. (I.13.3); Xenocrates and Diodorus defined the minima as partless ... . Sext. M IX.363: Democritus and Epicurus say that the elements of things are atoms ... Diodorus nicknamed Cronus says that they are minimal and partless bodies, and

Asclepiades of Bithynia that they are unjointed solid bodies (= Sext. PH III.32). Alex. On mixtures [De mixt.] 2, 213.18: some of whom say [the the principles are] atoms, bodies infinite in number ... Leucippus and Democritus seem to have been the first to maintain this doctrine, and later Epicurus ... (214.3) also some proceeded to say that some partless bodies are the principles and elements of everything. And there is a view which makes bodies come to be from planes, and another from numbers. Alex. in De sensu 6, 445b31, 122.21: nor could it be proved that there is a minimum magnitude in its own right, as Diodorus claims to prove. Galen History of philosophy [Hist. phil.] 18.611 D: Diodorus nicknamed Cronus says that there are partless minimum bodies. Dion. ap. Eus. PE XIV.23.2: some applying the term 'atoms' to certain very small, indestructible bodies ... (4) others who change the terminology say that the atoms are partless bodies which are parts of everything, from which indivisible things they compose everything and into which they split everything up, and they say that it was Diodorus who gave the name to these partless things. Clem. Strom. VIII.15: the elements of the principles ... Diodorus calls 'partless things', i.e. things which have no parts.

#### IV. Axiomatics

125. (Notes to DK 68 B 155) Archimedes Mathematical theorems addressed to Eratosthenes [Archim. Math.] II, ed. 2, p. 428.26 Heiberg:<sup>1</sup> Some of the things which I had previously observed by mechanical means I later proved geometrically, because that kind of investigation proceeds without proof. It seems more suitable to provide a proof of something of which one has acquired prior knowledge in that way, than of something of which nothing is known. (430.1) <Therefore, of these theo>rems first proved by Eudoxus, that the cone is one-third of the cylinder of equal height on the same base, and the pyramid one-third of the prism, no small share should be ascribed to Democritus, who first made the assertion about the above-mentioned figure without proof.

As an illustration of the atomists' axiomatic method I cite some passages dealing with that kind of axiomatisation, or in which similar axiomatisation is applied. It should not be supposed that these passages necessarily derive from Democritus himself, but there is no doubt that they are to be ascribed to philosophers of the same school.

Archim. The squaring of the parabola [Quadr. parab.] (II, ed. 2, p. 262.8 Heiberg): I have decided to send you in writing ... some geometrical theorems which had not previously been studied but have now been studied by me, first discovered by mechanical means and then proved geometrically. Some earlier geometers<sup>2</sup> had attempted to show that it is possible to find a rectilinear figure equal to a given circle or to a given segment of a circle, and after that they tried to square the area enclosed by the section of the cylinder<sup>3</sup> and a straight line, making assumptions which are not readily admissible, which is why most people thought that they had not discovered these theorems. I am not aware that any of my predecessors tried to square the segment enclosed by a straight line and a right-angled cone.

Examples of such 'not readily admissible assumptions' of the atomists.

- 1) Euclid Conic sections [Sect. con.] p. 158 Heiberg:<sup>4</sup> one should say that sounds are composed of parts, since they reach the right magnitude by addition and subtraction, and everything composed of parts is described by arithmetical proportion between one another [sc. of the parts]
- 2) Eutocius on Archim. On the sphere and the cylinder [De sphaera et cyl.] I, p. 6.10:<sup>5</sup> Next Archimedes makes some assumptions which are useful for his subsequent demonstrations and are agreed on the basis of perception itself. They are no less capable of being proved from common assumptions and from demonstrations by the Stoics. The first of these assumptions is the following: of all lines with the same end-points the shortest is the straight line ... (8.7) It is clear that this line (ACB) is longer than AB, since it is possible at every point on it [ACB] to take straight lines joining [the points] and so make as it were the same line composed of straight lines joined together, which has been proved to be longer ... than AB, for it is not absurd to assume such additional notions<sup>6</sup> in the demonstrations of what is agreed. (p. 12.12 Heiberg) and if either the enclosed or the enclosing lines or both are arcs, we may suppose the same (sc. that the enclosing lines are always longer than the enclosed). When continuous<sup>7</sup> points are taken on them and joined by straight lines, compound lines will be taken as formed from the straight lines, to which will apply the above-mentioned demonstration that the compound lines formed from straight lines are as it were the same lines as those postulated, since every line is conceived as existing<sup>8</sup> in virtue of the continuity of its points.
- 3) Euclid 1, def. IV:<sup>9</sup> A straight line is one which has the same direction as the points on it.<sup>30</sup> Procl. ad loc. 110.10: But Archimedes for his part defined the straight line as the shortest of those with the same end-points. For since, as the Euclidean theory says, it has the same direction as the points on it, it is therefore the shortest of those with the same end-points.
- 4) Antiphon reported by Alphonso, a learned Jew of the 15<sup>th</sup> century, in The squaring of the circle (see my Theory of infinitesimals, p. 150): Those particles in which consist both the straight line and the circumference of the circle (translated from the Hebrew).

## **V. The integration of the partless things**

Since in Thrasyllus' catalogue (DL IX.30) a book On geometry and books of Geometrical topics are listed separately among the mathematical works of Democritus, we must suppose that the first of those works dealt with methodological questions; it is therefore probable that the passages assembled in this chapter are taken from the book On Geometry.

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<sup>30</sup> [I translate L's rendering of Euclid's definition; a more literal (but obscure) rendering is 'A straight line is a line which lies evenly with [= coincides with?] the points on itself'.]



126. (in part in DK 68 B 155) Plut. On common notions [De comm. not.] 39, 1079 DE:<sup>1</sup> On this he (Chrysippus) ventured to say that since the pyramid is composed of triangles the inclined sides are unequal where they join, but do not project where they are bigger ... further, see how he answered the difficulty raised appropriately and successfully by Democritus, viz. if a cone is cut parallel to its base, must we think that the surfaces of the segments are equal or unequal? If they are unequal they will make the cone uneven, with many step-like indentations and projections, but if they are equal the segments will be equal and the cone will turn out to have become a cylinder, being composed of equal, not unequal circles, which is altogether absurd. This is just where he maintains that Democritus is wrong; he says that the surfaces are neither equal nor unequal ... (1080 C) Moreover, how do they (the Stoics) dare to censure those 'who introduce empty spaces and some partless things and who posit the contradiction that [some things are] neither in motion nor stationary<sup>2</sup>, when they themselves say that axioms such as 'things which are not equal to one another are unequal to one another' and 'it is not the case that these things are equal to one another, and these are unequal to one another'<sup>3,31</sup> are false. Ar.De caelo III.7, 306a26: Moreover, they have to say that not every body is divisible, but instead to conflict with the most exact sciences. Some of those, i.e. the mathematical, take [not merely the perceptible but] the intelligible also to be divisible <into two>, but they do not even agree that every perceptible [body] is divisible, because they want to preserve their hypothesis. For those who give each of the elements a shape and define their essences by that have to make<sup>4</sup> them indivisible. For if the sphere or the pyramid is divided what remains is not a sphere or a pyramid, so that the part of fire is not fire, but there is something prior to the element (since everything is either an element or composed of elements), or not every body is divisible. (III.1, 299b29): But if (planes) can be put together by superimposition, there will be some body which is neither an element nor composed of elements, but put together from planes which have been put together in that way. Simpl. in De caelo III.7, 306a7, 648.26: this argument is directed in common against those who construct the shapes of the primary bodies either out of planes or as Democritus does ... those who define the essences of the elements (sc. the planes) by shape ... or who say that they are indivisible (i.e. Democritus and his school) have to say that not every body is divisible and to conflict with the mathematical sciences ... but if in order to avoid this they say that they are divided<sup>6</sup>, and the pyramid and the sphere (for Democritus and his school said that the sphere is fire) are 'divided in a way', i.e. divided in such a fashion, that the pyramid is divided in a plane parallel to its base and the sphere by equal subtraction in all directions, what is towards the centre remains a sphere and what is towards the apex a pyramid, but the rest of the sphere is not a sphere nor the rest of the pyramid a pyramid. Ar. De caelo III.5, 304a22: for if they make the primary body an atom ... it is not possible to say that if one is conducting an enquiry into nature ... (33) and the element of the air would be divisible, and of fire and in general of the finest substances. And if they are divisible, for those who assign fire a shape

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<sup>31</sup> [See translator's note on no. 104.]

the parts of fire will turn out not to be fire, because the pyramid is not composed of pyramids, and further [it will turn out] that not every body is either an element or composed of elements (for the parts of fire are neither fire nor any other element). Schol. Coisl. ad loc. 514b5 Brandis: Since the pyramid can be divided by being cut parallel to the base, what is towards the apex will be a pyramid, but what is towards the base will no longer be a pyramid, but as they say a 'tailless pyramid'.<sup>7</sup>

127. (Not in DK) Syrianus in Meta. XIII.8, 1083b, 143.16: when a magnitude consists of indivisibles they (sc. the Pythagoreans) say that is not that atoms combine and make the intervals by being as it were packed together<sup>1</sup> (that is Democritus' doctrine, which contradicts geometry and pretty well all the sciences) ...

128. (DK 68 B 162)<sup>1</sup> Schol. AB on Homer Iliad [Hom. Il.] XIII.137: Democritus calls the cylindrical shape holooitrochon [lit. 'boulder']. Eustathius in Il., p. 925: ... Democritus is said to call the cylindrical shape holooitrochon, perhaps taking as his starting-point 'though rushing furiously it [a boulder] does not roll [when it reaches flat ground]' (Il. XIII.142)

129. (Not in DK) Ar. De caelo I.1, 268a30: there is no transition to another kind, as from a length to a surface, or from a surface to a body. Simpl. ad loc. 10.1: magnitudes are not put together from partless things ... . Ar. De caelo III.1, 299a6: it is clearly part of the same theory that solids are composed of planes and planes of lines and lines of points, and if that is so it is not necessary that a part of a line is a line. It has been shown previously in our treatment of motion (Phys. VI.1; see no. 283) that there are no indivisible lengths.

130. (Not in DK) Ar. De caelo III.4, 303a29: Moreover, not even on their (Leucippus' and Democritus') hypothesis would the elements appear to be infinite, if bodies differ in shapes and all shapes are composed of pyramids, straight-edged shapes from straight-edged pyramids, and the sphere from eight parts<sup>1</sup> (cf. no. 230; Simpl. ad loc. 649.9). Simpl.. ad loc. 613.18: As in plane figures every rectilinear plane figure is divided into triangles and composed of triangles, because the triangle is the simplest and most basic of the plane figures, so every solid bounded by plane rectilinear figures is resolved into pyramids, and the pyramid is the simplest and most basic solid, of which rectilinear solid shapes are composed and into which they are divided. Now this is clear, and also that there must be principles of compound shapes. But as to what he means by saying that the sphere is composed of eight parts, the interpreters really needed an oracle. I think that Alexander was right to suggest that he is saying that all bodies are composed of pyramids, rectilinear bodies of rectilinear pyramids, and the sphere of eight pyramids with circular bases. For if we divide the sphere in two by a horizontal circle and draw vertically two great circles cutting each other and the diameter at right angles, analogous to the equator and the meridian, the sphere will be divided into eight equal segments, each composed of isosceles triangles meeting at the centre of the sphere, with an equilateral triangle as its base. Now if these bases have a circular surface, the sphere will be composed of eight such pyramids.

131. (Not in DK) Ar. De caelo III.8, 306b3: and in general the attempt to assign shapes to the simple bodies is absurd ... (23) for (none of the continuous bodies can come into being) either from the elements themselves ... or from the combined planes ... (32) since fire is mobile, and heats and burns, some made it a sphere, others a pyramid, for these are the most mobile<sup>1</sup> since they have minimum contact [with other things] and the smallest base, and the most productive of heat and burning, because the former is 'all angle'<sup>2</sup> and the latter has the sharpest angles, and they heat and burn by means of their angles, as they say. (307a16) According to Democritus the sphere is a kind of angle, which cuts because it is mobile... but it is obvious that that is false. And at the same time it will follow that mathematical bodies too cut and burn; for they too have angles, and they contain atoms and spheres and pyramids, especially if there are atomic magnitudes, as they say ... . Simpl. ad loc. 659.13: This eighth argument is directed in common against those who [who construct things] by combining magnitudes, whether atoms, e.g. Democritus and his school, or planes, as in the Timaeus, making bodies come into being from one another, and he shows that in fact they get rid of coming into being altogether ... In criticising Democritus he applies the term 'elements' to the atoms ... [saying that] nothing continuous comes into being from the combination of those elements...<sup>3</sup> (661.29): for fire is mobile, he says, and it heats and burns. Democritus and his school 'made it a sphere' and those who postulated planes 'a pyramid', for indeed ... the sphere is mobile because it touches the underlying plane at a point and, as Plato says (Politicus 270a) goes on the smallest foot ... 'and these shapes seem the most productive of heat and burning, because they burn and heat by means of their angles', so they say, separating and dividing bodies finely, 'and the pyramid has the sharpest angles, and the spherical is all angle'. For if what is bent is an angle, and the sphere is bent throughout itself, it is appropriately called 'all angle'. (664.30) And in mathematical entities too there are sharp angles and pyramids and spheres, and these are atoms, as are also the things composed of them, i.e. they are not divided into things similar to the whole. (665.5) and if there atomic magnitudes which have no affections or qualities, as Democritus and his school and Xenocrates said when they posited indivisible lines ... . Themist. ad loc. 201.24: But Alexander said that part of what Aristotle said was in response to Democritus ... (202.20) the sphere is all angle – for what is totally curved in itself exists as a sort of angle.

132. (Not in DK) Philop. in De an. I.2, 405a8, 84.21: It is worth asking why Democritus said that spherical atoms had the smallest parts, and were thereby mobile. Now it is clear that the spherical is mobile; for he shows that the sphere touches the plane at a point; so in touching it at a point it is mobile, since it slides easily ... (84.29): so we say that it is demonstrated in geometry that of the rectilinear figures with the same circumference those with more angles have a larger base than those with less. E.g., suppose a square each of whose sides measures two cubits, so that its whole circumference measures eight cubits, and suppose a hexagon each of whose sides measures one and one-third cubits, so that its whole circumference is eight cubits, and suppose an octagon each of whose sides measures

one cubit, so that its whole circumference is eight cubits. These shapes, square, hexagon and octagon, all have the same circumference (eight cubits), the octagon will have the largest base and the hexagon smaller than that and the square smaller than that again. Now if the figure with more angles has a greater area, among figures with the same circumference the circle will have the base covering the largest area<sup>1</sup>, since the figures with more angles approximate more closely to the circle. For the more angles they have the nearer they are to having no angles<sup>2</sup>, and the circle has no angles. The same argument applies to the solids, so that the sphere has a greater volume than solid rectilinear figures with the same circumference. So if it is the case that among figures with the same circumference those with more angles have a larger base, and again that among figures with the same base those with more angles have a smaller circumference, the sphere will have the smallest circumference of all. So Democritus was right to suppose that among atoms of the same size the spherical had the smallest parts.<sup>3</sup> Cf. Ptolemy [Ptol.] Mathematical treatise [Math. Syntax.] I.3, p. 13.21 Heiberg.

## VI. Touch

133. (= no. 82) (DK 68 B 111) DL IX.33 (from Thrasyllus' catalogue): Among his mathematical works, On difference of judgement or On the contact of circle and sphere.<sup>1</sup> Cf. no. CXV.

## VII. The problem of incommensurability

134. (DK 68 B 11p) DL IX.33 (from Thrasyllus' catalogue): Among his mathematical works, On irrational lines and solids,<sup>1</sup> 2 books. Cf. no. CXV.

### c. GEOMETRY

#### I. Plane geometry

135. (DK 68 B 11n) DL IX.33 (from Thrasyllus' catalogue): Among his mathematical works, Geometrical topics (number of books uncertain). Cf. no. CXV.

136. (DK 68 B 132) Hesychius, s.v. askalēros: equilateral according to Democritus.

137. (DK68 B 299)<sup>1</sup> Clem. Strom. I.15.69: Thus says Democritus ... and no-one ever found an error in my geometrical proofs, not even those Egyptians who are called surveyors. Cf. no. XIV.

#### II. Theory of perspective

138. (DK 68 B 15b) DL IX.33: (from Thrasyllus' catalogue): Among his mathematical works, Treatise on Rays.<sup>1</sup> Cf. no. CXV.

139. (DK 59 A 39) Vitruvius [Vitruv.] VII, preface. Agatharchus of Athens was the first to build a stage scene, for a production of a tragedy by Aeschylus, and to write a commentary on it. Influenced by him, Democritus and Amaxagoras wrote on the same topic, showing how, once a certain point is fixed as the centre<sup>1</sup> the lines of the scene should correspond<sup>2</sup> in natural proportion to the direction of the eyes and the spreading of the rays, so that clear images of what is unclear<sup>3</sup> present the appearance of buildings in the painted scenery, and some of the pictures on the flat screens directly facing one seem to recede and other to project. (DK 68 A 135) Theophr. De sensu 54 (Dox. 513): although he attempted to explain the appearance of magnitude and distance, his exposition is inadequate<sup>4</sup>. Philop. in GC I.2, 315b9, 23.10 (no. 434): Democritus and his school ... say that square shapes seen at a distance look round<sup>5</sup>, and a circle placed at a distance is seen as a straight line if we look at it horizontally ... . Epiphanius. Adv. Haer. III.2.9 (no. 53): Leucippus says that nothing appears as it is in reality, but it appears like the oar in water<sup>7</sup>.

#### d. INFINITY

##### I. Demonstrations of the existence of infinity

140. (Not in DK; cf. no. 1)<sup>1</sup> Ar. Phys. III.4, 203b22: (The belief that something infinite exists derives from five main reasons) ... and above all the most important, which presents the problem common to all; since thought does not give out, number and mathematical magnitudes and what is outside the cosmos seem to be infinite ... and at the same time, if there is infinite void and place, it is necessary for there to be infinite body too; for in eternal things there is no difference between being and being possible. Philop. ad loc. 405.23: this is why Democritus too supposed that there are infinite[ly many] worlds. Lact. De ira dei 10.10 (p. 86 Brandt) Since Leucippus says that the totality is infinite and nothing can be empty, it is therefore necessary that there should be innumerable worlds. More fully above (no. 1).

##### II. An infinite number of atoms cannot be contained in a finite body. Only an infinite quantity of each of the four atoms can be called a universal seminal mixture of the atoms.

140a. (DK 67 A 28) Ar. De an. I.2, 404a1: Democritus ... says that since the shapes and the atoms are infinite the elements of the whole of nature are the universal mixture of seeds (and similarly Leucippus). Ar. De caelo III.2, 303a15 (= no. 25): the nature of them (air, water etc.) is as it were a universal seminal mixture of all the elements.

141. (Not in DK)<sup>1</sup> Philop. in GC I.1, 314a15, 12.2: Democritus and Leucippus posited atomic bodies infinite not merely in number but also in the difference of their shapes, so that it results from this theory that there is something more infinite than the infinite, since they locate each of the shapes not in one atom [only], but in more. According to Alexander, Epicurus and his followers did not agree with Democritus on this point; they suppose that

the atoms are infinite in number, but in respect of shape they are innumerable but not infinite.

142. (= nos. 277, 494) Ar. De sensu 4, 441a4: necessarily ... water ... is matter which consists of a universal seminal mixture of flavours ... (18) similarly it is impossible for water to be matter consisting in a universal seminal mixture. Philop. in De an. I.2, 404a4, 67.30: he calls the quantity of the atoms a universal seminal mixture; for as in a heap there are wheat and barley and the other seeds, so in the atoms there is a universal seminal mixture of shapes. Leucippus too is said to have held this opinion, for he was an associate of Democritus. Simpl. ad loc. 26.3: that is why he calls them a universal seminal mixture, since they are seeds of everything

143. (Not in DK) Ar. Meta. III.5, 1009a26: and Anaxagoras says that everything is mixed in everything and so does Democritus; for the latter says that both the void and the full are in every part<sup>1</sup> [of the universe]. Ar. GC I.2, 316b29: nor if things are divided into parts would the splitting go on to infinity. Philop. ad loc. 37.33ff.: Aristotle says, following Democritus, that division always produces separate things, i.e. existing magnitudes ... and if that is clear, it is very obvious that the things which are divided are not infinite, nor does the division proceed to infinity, because there are not infinite separate parts in finite magnitudes. 'Always' does not mean 'to infinity' in this context – the argument to the stated conclusion is taken from Democritus. Themist. in De caelo III.4, 303a25, 181.13: Further, neither do the followers of Leucippus and Democritus accept that the elements, which those two regard as indivisible, are infinite.

144. (DK 68 A 135) Theophr. De sensu 67 (Dox. 513): (Democritus says that) of all the shapes none is pure and unmixed with the others, but there are in many in each thing. Scholium on Aelius Aristides Panathenaic Oration [Aristid. Panath.] 130.7 Jebb, 356 Fromm: This comes from Democritus the natural philosopher, who claimed that all the material causes<sup>1</sup> are in everything and said that all things are together; from this that came to be a proverbial saying applied to things mixed up in confusion. Apostolius [Apost.] XIV.3 (Corpus of Greek writers of proverbs [Corp. Paroem. Gr.] 609: All things; applied to things mixed up in confusion; taken from Democritus the natural philosopher (= Arsenius [Arsen.] 43.27).

145. (DK 59 A 45) Ar. Phys. III.4, 203a19: those who make the elements infinite, e.g. Anaxagoras and Democritus, the former from the homoiomerics, the latter from a universal seminal mixture of shapes ... the former says that any part is a mixture in the same way as the whole because anything is seen to come into being from anything ... Democritus says that none of the primary things comes into being from anything else. Simpl. ad loc. 461.32: even though Democritus did not explain coming to be by separation or say that everything exists in everything as Anaxagoras did. (459.26) He said that there is a universal seminal mixture of Democritus' atomic shapes, since he supposed that there are infinite differences of shapes in the case of the atoms. Philop. ad loc. 396.10: He speaks of a universal seminal mixture of shapes, since Democritus and his school said that the atoms are infinite not only

in number but also in their shapes.<sup>1</sup> Simpl. in De caelo IV.6, 313a14, 730.9: Democritus speaking of hot things rising up from water; for there are seeds ... of everything in everything, which is why everything comes into being from everything. Theophr. De sensu 78 (Dox. 513): (Democritus) says that infinitely many colours and flavours are produced by mixtures, adding and subtracting and mixing more of one and less of another; none of these will be [exactly] like any other.

### **C. THE DOCTRINE OF ATOMS**

#### **a. HISTORICAL AND GENERAL MATTERS**

##### **I. The history of the doctrine of atoms**

146. (DK 67 A 7) Ar. GC I.8, 324b35: The most systematic single comprehensive theory<sup>1</sup> was proposed by Leucippus and Democritus, taking as their starting-point the actual nature of things.<sup>2</sup> For some of the older philosophers thought that what exists is necessarily one and motionless, for the void does not exist, and there could be no motion without a separate void<sup>4</sup>, nor could there be many things if there were nothing to separate them ... (325a13) as a result of these theories they neglect perception<sup>5</sup> and ignore it on the ground that one must follow the theory, and say that the totality of things is one and motionless and infinite too, as some say;<sup>6</sup> for a limit would limit it against the void. So they made these pronouncements about reality for those reasons; and these conclusions appear to follow in theory, but in fact thinking that way seems close to madness ... (325a23) Leucippus thought that he had arguments which agreed with perception and did not do away with coming into being or ceasing to be or motion and the number of things. In these respects he agreed with the phenomena, but he agreed with the proponents of the one that here is no motion without void, saying that the void, which is not, exists no less than what is<sup>7</sup>. What strictly speaking is is a total plenum [i.e. contains no void], but that is not one thing, but infinitely many things invisible because of their smallness. They are borne about in the void (for the void exists) and when they combine they bring things into being, and when they separate they make things cease to be. They act and are affected as they happen to come into contact, for in that way they are not one. And they generate by being combined and entangled with one another. From what is truly one thing a plurality could never come into being, nor from what are truly many one thing; that is impossible. But just as Empedocles and others<sup>8</sup> say happens by means of the pores, so on this theory all qualitative change and every case in which something is affected comes about in this way; dissolution and ceasing to be occurs by means of the void, and growth too, when solid bodies are imperceptibly added. And Empedocles has to say more or less the same as Leucippus, for there are<sup>9</sup> bodies which are solid but indivisible, unless there are continuous pores everywhere, but that is impossible<sup>10</sup>. For there will be nothing solid besides the pores, but everything will be void. So the things in contact must be indivisible, and the things between them void, which he (i.e. Empedocles) calls pores. This is what Leucippus says about acting and being affected.



146a.<sup>1</sup> = no. 105a.

147. (DK 67 A 8) Simpl. In Phys. I.2, 184b15, 28.4 (from Theophr. Phys. opin. Fr. 8, Dox. 483): He (i.e. Leucippus) did not take the same route as Parmenides and Xenophanes about what there is, but, so it seems<sup>1</sup>, the opposite one. For whereas they said that the universe is a single thing, motionless, ungenerated and bounded, and did not agree that one could even investigate what is not, he supposed that there are infinite[ly many] elements in perpetual motion, the atoms, and that the number of their shapes is infinite because they are no more of this kind than that<sup>2</sup>, and he considered that coming to be and change occur in things uninterruptedly. And further that what is exists no more than what is not<sup>3</sup>, and both are alike causes of the coming into being of things, For he supposed that the nature of things is solid and a plenum, calling it 'what is' and saying that it is borne about in the void, which he called 'what is not' and says that it is no less than what is. And similarly his associate Democritus of Abdera postulated as principles the plenum and the void, calling the former 'what is' and the latter 'what is not'.

148. (Not in DK)<sup>1</sup> Scholium on Ar. Meta. I.4, 984b1, p. 563a27 Brandis (cod. Laur.): (Parmenides says that) earth is matter and fire an efficient cause; he also calls fire 'what is' and earth 'what is not'. For in general he calls the inferior of the contraries 'what is not'. So in his Way of Opinion Parmenides called what is and what is not principles of the things that there are, just as Democritus the associate of Leucippus called the atoms 'what is' and the void 'what is not'. Now it is clear that they too regarded the principles as opposites, for cold is opposed to heat and the void is opposed to the plenum, i.e. the atoms, which Democritus also called bodies, and the void is the place in which the atoms, which are in perpetual motion, are situated. Alex. In Meta. I.5, 986 b17, 45.5: Parmenides postulated two principles ... fire and earth, of which he called fire 'what is' and earth and the cold 'what is not'; so that it was not only Leucippus and Democritus who put what is and what is not among the principles.

149. (DK 68 A 1) DL IX.42: Democritus also mentions<sup>1</sup> Parmenides, Zeno and their followers as contemporaries very celebrated for their theory of the one, and Protagoras of Abdera, who is agreed to have been a contemporary of Socrates.

150. (DK 67 A 8) Simpl. in Phys. 28.4 (from Theophr. Phys. opin., fr. 8, (Dox. 483): Leucippus of Elea or Miletus (both are said about him) associated with Parmenides in philosophy. Clem. Protrepticus [Protr.] 5.19 (PG 8, p. 169 A): Leucippus of Miletus

151. (DK 67 A 10) Hippol. Refut. I.12.1 (Dox. 564,16 W): Leucippus the associate of Zeno did not keep to the same opinion, but says that there are infinite[ly many] things in perpetual motion, and that coming into being and change are continuous. And he says that the elements are the plenum and the void.

152. (Not in DK) DL preface 15.9: Zeno of Elea, who taught Leucippus, who taught Democritus. (DK 68 A 1) DL IX.30ff.: Leucippus of Elea (in some sources of Abdera, in others of Miletus); he was a pupil of Zeno. (DK 67 A 5) ps.-Galen Hist. phil. 3 (Dox. 601.9): His (Zeno of Elea's) pupil Leucippus of Abdera was the originator of the theory of atoms. (DK 67 A 4) Clem. Strom. I.64 (II.40.24 St.): Now Parmenides was a pupil of Xenophanes, and Zeno of Parmenides, then Leucippus, then Democritus.

153. (DK 67 A 5) Tzetzes Chiliades [Tzetz. Chil.] II.980: Of Leucippus the pupil of Melissus.<sup>1</sup>

154. (DK 68 A 33) DL IX.45: Among his works ... Pythagoras<sup>1</sup>. (DK 68 A 1) DL IX.38: He seems, says Thrasyllus, to have been an adherent of the Pythagoreans; moreover, he mentions Pythagoras himself, praising him in the work named after him, and seems to have got everything from him and would appear to have been his pupil, if the chronology did not forbid it. But Glaucus of Rhegium, a contemporary of his, says definitely that he was a pupil of one of the Pythagoreans, and Apollodorus of Cyzicus says that he was an associate of Philolaus. (DK 67 A 5) Iamblichus Life of Pythagoras [Iambl. Vita Pythag.] 104: those of this school, especially the earliest, who were contemporaries of Pythagoras and young pupils of his in his old age, Philolaus and Eurytus ... Leucippus and Alcmaeon. Cf. Porphyry Life of Pythagoras [Porph. Vita Pythag.] 3: In the second book of his Horae Douris of Samos records Arimnestus as his (Pythagoras') son and says that he was a teacher of Democritus (cf. no. VII).

155. (Not in DK)<sup>1</sup> Philop. in GC II.34a10, 15.15: It is clear, he (Aristotle) says, that they say that coming to be occurs in his way, i.e. in the way that has been described, taking off from Empedocles' words 'but only mixture and separation of what had been mixed', which were also the source of Democritus' saying that compounds 'differ in their components'.

156. (DK 11 A 1)<sup>1</sup> DL I.22: Now Thales' father was Examylus, as reported by Herodotus, Douris and Democritus, and his mother was Cleoboulinē; he was of the family of the Thēlides, who are Phoenicians, the noblest of the descendants of Cadmus and Agenor ... (23) He seems, according to some reports, to have been the first to engage in astronomy and to predict solar eclipses and solstices ... as reported by ... and Democritus.

157. (DK 68 A 7)<sup>1</sup> Ar. Meteor. II.7 (on earthquakes) 365a17: Anaxagoras of Clazomenae and earlier Anaximenes of Miletus pronounced on this topic, and subsequently Democritus of Abdera.

158. (Not in DK) Philop. in Phys. III.5, 204a1, 409.7: Aristotle demonstrated this also in the first book, in his arguments against Anaxagoras and Democritus.<sup>1</sup>

159. (DK 68 A 1) DL IX.34: Later he (Democritus) studied with Leucippus and according to some sources with Anaxagoras, being forty years younger than the latter. Favorinus reports in his Miscellaneous History that Democritus said that Anaxagoras' doctrines about the sun

and moon were not his own, but ancient<sup>1</sup> doctrines which he had plagiarised, (35) and that he ridiculed his views about the formation of the world and about mind, out of hostility towards him, because Anaxagoras had not accepted him [sc. as an associate]. So how was he a pupil of his, as some people say? (DK 59 A 1) DL II.14: He (Anaxagoras) seemed to be somehow hostile to Democritus from having been worsted in argument with him.

160. (Not in DK)<sup>1</sup> Sext. M VII.140: for the appearances are the sight of the things that are unclear, as Anaxagoras says, for which Democritus commends him. Vitruv. VII, preface 11 (see no. 139): Democritus and Anaxagoras wrote on the same topic, showing how ... the lines of the scene should correspond ... to the direction of the eyes and the spreading of the rays, so that clear images of what is unclear (i.e. of the things that are unclear) present the appearance ... .

161. (DK 67 A 1) DL IX.30: Leucippus ... was the first ... to put forward the atoms as principles.

162. (DK 67 A 2)<sup>1</sup> DL IX.13 (Epicurea, p. 365.19 Us.): And he (Epicurus) says that there never even was such a philosopher as Leucippus, as does Hermarchus, but some (including the Epicurean Apollodorus) say that he (Leucippus) was the teacher of Democritus.

163. (DK 68 A 31) Suda s.v. Dēmokritos: His genuine works are two, The Great World-system and The Nature of the World<sup>1</sup>; he also wrote letters. (DK 68 A 1) DL IX.45ff.: His (Democritus') works ... The Great World-system, which Theophrastus and his school ascribe to Leucippus. Aet. I.25.4: Leucippus ... says in On Mind.

164. (DK 67 B 1a) [Herculaneum papyrus 1788, fr. 1] Vol. Herc. Coll. alt. VIII, 58-62, fr. 1 (Crönert, Kolotes und Menedemos, p. 147): [he was not ashamed to] write [exactly] the same as had previously [been said in ] the Great [World-system], which they say<sup>1</sup> is [by Leucippus]. And having gone so far in plagiarising<sup>1</sup> the works of others, [he says that ] [Democritus is exposed as] having put in the [Lesser] World-system [what is also found in the] G[reat] ...

165. (DK 67 A 8) Cic. Acad. prior. II.37.118 (Dox. 119): Leucippus posited the full and the void; Democritus agreed with him in that, but wrote more fully on other topics. Cic. ND I.24.66: ... of Democritus, or even of Leucippus before him ...<sup>1</sup>.

166. (DK 67 A 7) ps-Ar. On Melissus, Xenophanes and Gorgias [MXG] 6, 980a7: Gorgias uses 'divided' to mean the void, as in the works attributed to Leucippus.<sup>1</sup>

167. (DK 68 B 163) Sext. M VII.153: Xenias of Corinth, whom Democritus mentions.

168. (DK 68 A 1) DL IX.41: He would have been a contemporary of Archelaus the pupil of Anaxagoras and of the school of Oinopides; for he mentions the latter. For passages relating to Protagoras as a precursor of Democritus see nos. 76-8.

169. (DK 68 A 55) <sup>1</sup> Strabo XVI.757: If we are to believe Posidonius, the theory of atoms is an ancient one, proposed by Mochus, a man from Sidon, who lived before the Trojan war. Sext. M IX.363: Democritus and Epicurus proposed the theory of atoms, unless that theory is held to be more ancient, introduced by a Phoenician called Mochus, as the Stoic Posidonius said. Cf. DL preface 1, Josephus, Jewish Antiquities [Ios. Ant.] I.9.107, Iambl. Vita Pythag. 13-14.

170. (Not in DK; no. 262 Makovelsky) ps-Plut. On the life and poetry of Homer [De vita et poesi Homeri] 150, fr. VII (p. 422 Bernardakis): If it is appropriate to mention the founders of different schools, we shall find that they too took their starting-points from Homer; Democritus, who took his images from this passage (Il. V.449) 'and Apollo of the silver bow fashioned an image'. Eustathius in Od. IV.795 (p. 1518): that the poet taught Democritus his theory that dreams occur when images impact and penetrate from outside. So, he says, Athena made or fashioned a faint image.

## II. General testimonia (atoms and void)

171.<sup>1</sup> (In part in DK 68 A 120) Simpl. in De caelo III.1, 299a2, 564.24 (almost the same as 576.10 = no. 122): but, as Theophrastus reports in his Physics (fr. 13; Dox. 491), when people were speculating about the causes of the hot and the cold and such things in an inexpert fashion<sup>2</sup> Democritus arrived at [the theory of] the atoms, and similarly the Pythagoreans [arrived at the theory of] the planes, regarding<sup>3</sup> shapes and magnitudes as causes of heat and cold, as those which divide and separate produce the sensation of heat and those which combine and condense [produce the sensation] of cold. (641.5) For the speculations about heat and cold and such things were previously said by Democritus<sup>4</sup> himself to have been produced in a non-expert fashion, as Theophrastus says. Ar. Phys. II.8, 198b11<sup>5</sup> (no. 31): as it [i.e. necessity] is in nature, since everyone refers things to that cause, [saying that] since heat and cold and such things are by nature such and such, such and such [effects] are and come to be of necessity. Philop. ad loc. 312.4: 'For since' they say, 'heat is such and such and cold such and such', that is why this came into being, or because it was composed of these atoms. Philop. ad loc. 262.17: Democritus ... in his exposition of particular questions, e.g. why do hot and white things produce separation, or why is honey sweet, gives the position and order and shape of the atoms as causes. Ar. PA I,1, 640b4: the earliest philosophers of nature investigated the material principle and the material cause, asking what it is and what kind of thing, and how the universe comes into being from it, and what is the productive cause, e.g. strife and love or mind or chance<sup>6</sup>; and on the basis that the underlying matter has such and such a nature of necessity, e.g. fire is hot and earth cold, and the former is heavy and the latter light, that is how they generate the world. Ar. Meta. XIII.4, 1078b19: Democritus ... defined the hot and cold after a fashion (no. 99). Simpl. in De caelo III.1, 299a2, 565: now their second supposition is that there are elements which are more primitive than the four elements, but I have cited them to show that it was not

unreasonable that in their quest for the principles of qualities the Pythagoreans and Democritus arrived at shapes.

172. (DK 68 A 37) Simpl. in De caelo 294.33: A brief quotation from Aristotle's On Democritus (fr. 208 Rose) will set out their view.

'Democritus thinks that the nature of the eternal things consists of small substances infinite in number; these he places in space, separate from them and infinite in extent. He calls space by the following names: "the void", "nothing" and "the infinite", and each of the substances he calls "thing", "the solid" and "what is"'.

173. (DK 67 A 6) Ar. Meta. I.4, 985b4: Leucippus and his associate Democritus say that the elements are the plenum and the void, calling the one 'what is' and the other 'what is not', viz. the plenum and solid 'what is' and the void and fine-textured 'what is not' (which is why they say that what is is no more than what is not, because the void is no less than body, and these are the material causes of what there is. And just as those who make the underlying substance one generate everything else by means of its properties, positing density and looseness of texture as principles of the properties of things (like some mathematicians<sup>1</sup>), in the same way these people too say that the differentiations [of the atoms] are the cause of everything else. (Not in DK) Alex. ad loc. 36.12: Some texts have the reading 'as in the case of the mathematical'. If that is the correct reading, he would be referring to Plato, saying that as he generates bodies from mathematical entities and their differentiating properties from the different kinds of triangle and their number, so the atomists generate them from the differences of shape of the primary bodies.

174. (DK 67 A 15) Ar. De caelo III.4, 303a4: like Leucippus and Democritus of Abdera ... in a way they too make everything numbers and from numbers; even if they do not say so clearly, all the same that is what they mean.

175. (Not in DK) <sup>1</sup> Theophr. Meta. fr. 12.34 Wimmer: among sensible things the heavenly bodies would appear to possess the highest degree of order, and among other things mathematical entities, unless there is anything prior to them. Even if they do not possess total order, still there is more order in them [than anywhere else], except if one conceived shapes such as Democritus supposes those of the atoms to be.

176. (Not in DK) Scholium on Ar. Meta. I.4, 985b6, p. 539a3 Brandis (cod. Reg.): Leucippus and Democritus and their followers posit the void and the plenum as elements of what there is, and they say that the things which are plena are the atoms of different shapes, which they called atoms as being solid and indivisible, and that the void is the air<sup>1</sup> in the whole universe, in which the atoms move, as they believed.

177. (Not in DK) Asclep. in Meta. I.4, 985b4, 33.9: He then turns to Leucippus and his pupil Democritus, and says that they said that the material elements of what there is are the

atoms and the void. And they called the atoms 'what is' and the void 'what is not', and said that what is no more is than what is not, since body, i.e. the atoms, exists no more than the void; for everywhere there exist void and atoms. Similarly, Plato says in the Republic (Bk. V, 479a) that what is not is no less than what is ... and that what is in no way at all can be neither spoken nor thought of; Democritus says of it that it is no less than what is. Democritus and his followers say that these, the atoms and the void, are material causes.<sup>1</sup>

178. (Not in DK) Alex. in Meta. III.5, 1009a6, 303.31: and Democritus says that the void and the plenum are the only things that there are. For, Aristotle says, he posited atoms and void, and he says that both are present in every part of each sensible thing, so that they come to be by separation from something which already exists. Asclep. ad loc. 275.18: Democritus said that what is and what is not are everywhere ... and that the void and the atoms are everywhere, and that the atoms are <limited> by the void.

179. (DK 68 A 57) Plut. Col. 1110 F: For what does Democritus say? That an infinite number of undifferentiated atoms, without properties and incapable of being affected, move about in the void. And when they approach one another, collide and get entangled, then some of the collections have the appearance of water, other of fire, others of a plant, others of a man.

180. (DK 68 A 56) Cic. De fin. I.6.17: He (Democritus) thinks that what he calls atoms, i.e. bodies which are indivisible because of their solidity, move about in infinite space, in which there is no top or bottom or middle or ultimate boundary, in such a way that when they collide they stick together, which gives rise to everything which exists and is perceived; that motion of the atoms has to be understood as having no beginning, but going on from eternity.

181. (Not in DK) Cic. Acad. pr. II.40.125: Whom (shall I choose). Democritus? For as you know, I have always been a supporter of the nobility ...<sup>1</sup> Do you really think that there can be any void, when everything is so full and compacted that wherever any body moves in any direction another immediately takes its place? Or that there are any atoms such that whatever is made from them is entirely unlike them? Or that any splendid thing can be produced without the action of some mind?

182. (Not in DK) Cic. De fin. I.6.21: Atoms, the void, images (which they [the Epicureans] call eidōla), infinity itself (which they call apeiria) all of that they get from him (Democritus).

183. (Not in DK) Sext. M X.318 (= Hippol. Refut. X.7): The schools of Anaxagoras of Clazomenae and Democritus and Epicurus and very many others taught that the origins of things are infinite, but Democritus and Epicurus and their followers said that they are dissimilar and incapable of being affected, i.e. the atoms.

184. (DK 68 A 1) DL IX.44: His (Democritus') doctrines are as follows: the principles of everything are atoms and void ... and the atoms are infinite in size<sup>1</sup> and number.
185. (DK 68 A 49) Galen De elem. sec. Hipp. I.2 (I.417 K, 3.20 Helmr.): Democritus says ... 'For by convention colour, by convention sweet etc. (see no. 90), but in reality thing and nothing are everything'. That too is just what he said, calling the atoms 'thing' and the void 'nothing'. Now the atoms are all small bodies without qualities, and the void is a sort of place ... .
186. (DK 67 A 12) Aet. I.3.15 (Dox. 285): Leucippus of Miletus says that the principles and elements are the plenum and the void.
187. (DK 67 A 15) Aet. I.18.3 (Dox. 316): Leucippus, Democritus ... and Epicurus say that the atoms are infinite in number, and the void infinite in extent.
188. (Not in DK) Philop. in Phys. I.5, 188a19, 110.7: Democritus postulated the atoms and the void, and called the atoms 'plenum'; he said that the plenum and the void are the principles of of what there is, and the plenum and the void are opposites, which he called 'what is' and 'what is not', and 'thing' and 'nothing', thing being the plenum and nothing the void.
189. (Not in DK) Philop. in De an. I.2, 403b31, 67.4: (Aristotle) sets out Democritus' doctrine first; he said that the elements of natural bodies are the atoms and the void, for there are in the universe infinite[ly many]atomic bodies of infinite[ly many] different shapes, whose combination and separation causes things to come into being and to cease to be ...
190. (DK 68 A 40) Hippol. Refut. I.13 (Dox. 565, no. 16): (Democritus) says the same as Leucippus about the elements, [that they are] the plenum and the void, calling the plenum 'what is' and the void 'what is not'. And he said that the things that there are are always moving in the void.
191. (Not in DK) Clem. Protr. 5.19 (PG 8, p. 199 A): It appears that Leucippus of Miletus and Metrodorus of Chios also bequeathed [to their followers] two principles, the plenum and the void, and that Democritus of Abdera accepted those two and added the images.<sup>1</sup>
192. (DK 67 A 17, 68 A 44) Herm. Irris. 12-13 (Dox. 654): Leucippus ... says that the principles are the infinite[ly many] smallest bodies in perpetual motion ... Democritus ... says that the principles are what is and what is not, and what is is the plenum, and what is not is the void.
193. (Not in DK)<sup>1</sup> Aet. I.9.3 (Dox. 308): Democritus and his followers say that the primary things, the atom and the void and the incorporeal, are incapable of being affected. Cf.

Theodoret. IV.13 (Dox. 308): Democritus, Metrodorus and Epicurus described the atoms and the void as incapable of being affected.

194. (Not in DK) Eus. PE VII.12 (PG 21, p. 541): Epicurus and Democritus proclaimed that the principle of everything is atomic bodies. PE XIV.3 (PG 21, p. 1185 D): Democritus said that the principles of everything are the void and the plenum, saying that the plenum is what is and is solid, and the void what is not, which is why he says that what is no more is than what is not. And he says that the things that there are are from eternity in continuous swift motion in the void.

195. (DK 68 A 166) Epiphan. Adv. Haer. III.2.9 (Dox. 590): Democritus son of Damasippus of Abdera said that the world is infinite and that it lies on top of a void.<sup>1</sup>

## **b. THE ATOM**

### **I. Names by which the atoms are designated**

196. The name hē atomos<sup>1</sup> occurs so often that it is superfluous to enumerate passages relating to it; the name to atomon<sup>2</sup> occurs somewhat more rarely, e.g. Simpl.in Phys. I.2, 184b15, 36.1: Leucippus and Democritus and their followers calling the smallest primary bodies atoma {atoms} and elsewhere.

196a. (DK 68 B 168) Simpl. in Phys. VIII.9, 265b24, 1318.33: the primary natural atomic bodies; these they called 'nature'.<sup>1</sup>

197. (Not in DK) Philop. in Phys. I.5, 188a19, 110.7: Democritus called the atoms 'plenum' ... and the plenum ... he called 'what is' ... and 'thing'.<sup>1</sup> (DK 68 A 37) Simpl. in De caelo I.10, 279b12, 294.33: a brief quotation from Aristotle's On Democritus ... and he calls ... each of the substances 'thing' and 'solid' and 'what is'. (DK 68 A 49) Galen De elem. sec. Hipp. I.2: Democritus says ... in reality thing and nothing are everything ... calling the atoms 'thing'. Plut. Col. 4, 1109 A: calling body 'thing'.

198. (DK 68 A 57) Scholias Basilii (ed. Pasquali, Göttingensche Nachrichten 1910, p. 196): Democritus [called the atoms] shapes. Ps-Clement Recognitiones VIII.15 (Dox. 250, On principles): Democritus [called the principles] shapes. Plut. Col. 8, 1108 F: For what does Democritus say? Substances infinite in number ... and that everything consists of what he calls the atomic shapes. (DK 68 A 102) Aet. IV.3.5 (Dox. 388): Democritus says that (the soul) consists of ... things with spherical shape. Hesych. s.v. idea: the similarity, shape, form, and the smallest body.<sup>2</sup> Cf. the title of Democritus' book Peri ideōn [On shapes] (no. CXVI).



199. (Not in DK) Theodoret. IV.57.9 (Dox. 285): Democritus, son of Damasippus, of Abdera was the first to introduce the doctrine of the void and the solids. Metrodorus of Chios called them indivisibles and void, and Epicurus, son of Neocles, of Athens, who lived in the fifth generation after Democritus, described as atoms the things that they had called solids and indivisibles.

## II. The shape of the atoms revealed by sense-perception

200. (DK 67 A 28) Ar. De an. I.2, 404a1:<sup>1</sup> Democritus ... says that of the infinite[ly many] atomic shapes the spherical constitute fire and soul, like what are called motes in the air, which are visible in the rays through windows. He says that the universal seminal mixture of them [the atoms] constitutes the elements of everything, as does Leucippus ... (404a16): it seems that what the Pythagoreans say has the same meaning, for some of them said that the soul is the motes in the air, and others that it is what moves them. The reason for that is that they seem to be in continuous motion even when the air is perfectly still. (Not in DK) Simpl. ad loc. 25.30: Democritus' doctrine of the elements is clear from the first book of the Physics<sup>2</sup>; it maintains that there are small atomic bodies, like the motes in the air which are visible in the rays through windows. Democritus did not posit them as elements, but things similar to them in their smallness, all of a single substance, but differing from one another in size and shape, from which as seeds<sup>3</sup> all compound bodies are composed. (26.13): One should not rely on Aristotle's account when all that he is doing is setting out the way things seem [to others], as in the case of what he says about the Pythagoreans. For he says that Democritus says that the elements are like the motes in the air, while some of the Pythagoreans said that they are those very things, though none of the Pythagoreans thought that, but perhaps they used that sensible phenomenon to demonstrate the divided nature of the soul. Philop. ad loc. 67.21: Democritus did not say that fire or soul consist of those specks of dust which are seen through windows, or in general that they are atoms. But, he says, just as they are present in the air, but do not seem to be there because their small size makes them invisible, until they are detected by the rays of the sun shining through windows, similarly the atomic bodies are fine-textured and invisible because of their small size. He thought that they are the principles of all natural things, as the physicians say that the four elements are [principles] of compound things ... Themist. ad loc. 9.13: It is not surprising that the soul, though it is a body, is not seen. For what are called motes in the air, which are seen in the rays through windows, would not be seen if the sun were not shining<sup>4</sup>, but the air appears totally empty to us, though it is full of solid bodies. He supposes that the atoms are much smaller and swifter than those, especially spherical atoms, of which the soul is composed, which is why he says that breath is the defining limit of life. Philop. in Phys. I.2, 184b15, 25.5: Democritus, Leucippus and Epicurus posited the atoms and the void, and then that the void is infinite and the atoms in it. And he (Democritus ?) said that the atoms are bodies which are invisible because of their smallness and indivisible because of their hardness, like the particles of dust which are seen in the rays

through windows, which are unseen when there is no sunshine, not because they are not there, but because of their smallness.

201. (Not in DK) Theodoret. IV.10, p.102.26 Raeder (Dox. 285-6) = Suda, s.v. atoma (cf. PG 83, p. 901): Democritus and Epicurus call atoms those smallest and finest bodies, which the sun shows vibrating<sup>1</sup> up and down when it shines through windows. Ecphantus of Syracuse the Pythagorean followed them. Much the same in Philop. in GC 39.7 (no. 206).

202. (Not in DK) Jerome on Isaiah XII.40 (PL21, p. 407 B): The Hebrews say that by the word Doc is signified the very fine dust, which is often blown into the eyes by the wind, and is felt rather than seen. So the most minute, barely visible fragments of dust are called by this name, which perhaps Democritus and his associate Epicurus call atoms.

203. (Not in DK) Lact. De ira dei 10.9 (p. 86.3 Brandt): These, (Leucippus) says, ... fly about through the void in incessant movements and move hither and thither, as we see specks of dust in the sun, when it sends rays of light through a window.

### III. The size of the atoms

204. (DK 68 A 37) Simpl. in De caelo I.10, 279b12, 295.1: (from Ar. On Democritus) Democritus thinks that the nature of the eternal things consists of small substances ... and he considers that those substances are so small as to escape our senses. They have all sorts of forms and shapes and differences of size.<sup>1</sup>

205. (Not in DK) Ar. GC I.8, 325a29: but (what there is) is not one thing, but things infinite in number and invisible because of their small size. [Leucippus]

206. Philop. in GC I.2, 316b32, 39.4 (discussing a passage which reads 'so they [i.e. bodies] must contain invisible atomic magnitudes'. It deals with mathematical indivisibles, see. no. 204): he said that the atoms are invisible magnitudes, so as to escape examination by the senses. For no perceptible magnitude is indivisible. So he said that the atoms are invisible because of their smallness, and it is not surprising that they exist but are not seen because of their smallness, like speck of dust in the air which were previously unseen by us, but when a sunbeam shines through a window they become visible in it because of the brightness of the light.

207. (DK 68 A 47) Aet. I.12.6 (Dox. 311): Democritus ... says that it is possible for an atom to be as big as a world. Dion. ap. Eus. PE XIV.23.2 and 3: some applied the term 'atoms' to a countless number of indestructible, tiny bodies ... Epicurus and Democritus were of this view, with this difference, that the former held that all the atoms are extremely small and therefore imperceptible, but the latter, Democritus, held that there are atoms which are extremely large.<sup>1</sup>

208. (Not in DK) Them. In De caelo III.5, 304b2, 186.30: those who believe in indivisibles do not say that they are extremely small.

209. (Not in DK) Eus. PE XIV.14 (PG 21, p. 1232): Democritus, whom Epicurus followed for the most part, says that the principles of things are atomic bodies, grasped in thought ...<sup>1</sup>

210. (Not in DK) Philop. in Phys. III.4, 203a11, 398.11: Democritus, he says, holds that of the primary bodies ... some are larger and others smaller (see no. 230).

#### IV. The impassibility and solidity of the atoms

211. (DK 68 A 42)<sup>1</sup> Ar. Meta. VI.13, 1039a9: Democritus says that it is impossible for one thing to come from two or two from one; for he makes the atomic magnitudes<sup>2</sup> substances. (Not in DK) Alex. ad loc. 526.13: Just as Democritus said that it is impossible for one atom to come from two (for he supposed that they were incapable of being affected) or two from one (for he said that they were uncuttable), so we too say that it is impossible for one substance to come from two actual substances (see no. 235).

212. (Not in DK) Simpl. in Phys. 1.2, 185b8 ('now if (the one) is continuous, the one will be many, for what is continuous is divisible ad infinitum'), 81.34: if the one is one in the sense of undivided, since things can be undivided in several ways, either in being not yet divided but capable of being divided, e.g. every continuous thing<sup>1</sup>, or in being essentially totally incapable of being divided through having no parts into which they could be divided, e.g. the point or the unit, or in having parts<sup>2</sup> and magnitude, but being incapable of being affected in virtue of their solidity and fullness, e.g. each of the atoms of Democritus ... Simpl. in De caelo III.4, 303a4, 699.17: he turns to discuss Leucippus, Democritus and their followers, who said that the elements are atoms [which are indivisible] in virtue of their smallness and solidity ...

213. (Not in DK) Ar. Phys. VIII.4, 255a13: in so far as something is one and continuous not by contact<sup>1</sup>, to that extent it is incapable of being affected.

214. (DK 67 A 14) Simpl. in De caelo I.7, 275b29, 242.15: nor is it possible for the elemental bodies to be an infinite number of separate bodies, as supposed by Leucippus, Democritus and their followers, who were earlier than he (Aristotle) and by Epicurus, who was later. They said that the principles are infinite in number, and considered them atomic, i.e. indivisible, and incapable of being affected, because they are solid and contain no void, for they said that division occurs in virtue of the void contained in bodies. (DK 68 A 125) Aet. I.15.8 (Dox. 314): Democritus says that ... the elements, the solid things and the void, have no qualities. Aet. I.9.3 (Dox. 308): Democritus and his followers said that the primary things, the atom and the void and incorporeal, are incapable of being affected. (DK 68 A 46) Aet. I.3.16 (Dox. 285): Democritus says that the solid and void things (are the principles). Alex. in Meta. I.4, 958b21, 35.24: next he discusses the view of Leucippus and Democritus about the elements ... they said that the body of the elements was a plenum through its solidity and being unmixed with void.

215. (DK 68 A 1) DL IX.44: (the atoms) are incapable of being affected and unalterable because of their solidity. (DK 68 A 49) Galen De elem. sec. Hipp. 1.2 (l.417 K.: 3.29 Helmr.): they supposed that the primary bodies are incapable of being affected, some of them, e.g. Epicurus and his followers, supposing them unbreakable because of their hardness, others, e.g. Leucippus and his followers, supposing them indivisible because of their smallness. Nor did they think that they could undergo any of these alterations which everyone is taught by the senses to accept, e.g. they say that none of them becomes hot or cold, or dry or wet, still less turns white or black or in general takes on any property via any process of change.

216. (Not in DK) Plut. Col. 8, 1111 A (288 Us.): So Democritus<sup>1</sup> should be charged, not with drawing conclusions which agree with his principles, but with choosing principles from which those conclusions follow. For he ought not to have posited changeless primary substances, but having posited them he ought to have seen that the acquisition of all qualities disappears. But it is totally shameless to see the absurdity and then deny it, as Colotes says that Epicurus posits the same principles, but does not say that colour and sweet and white and the other qualities exist by convention. If 'does not say' means 'does not agree' he is doing as he usually does ... it was not necessary to postulate, or rather to filch from Democritus the doctrine that atoms are the principles of everything, but once he had laid down that doctrine and prided himself on its initial plausibilities, he has either to swallow its disagreeable consequences, or to show how bodies without qualities give rise to all kinds of qualities purely by combining, e.g. where does what we call heat come from and how does it supervene on atoms which neither possess any heat before they combine nor become hot when they have combined? The former is a case of possessing a quality, the latter of being such as to be affected, neither of which you say can properly exist in atoms because of their indestructibility.

217. (Not in DK) Eus. PE XIV.14.5 (PG 21, p. 1232), Aet. I.3.18(Dox.285): Democritus, whom Epicurus followed for the most part, said that the principles of things are atomic bodies, grasped in thought, containing no void, ungenerated, eternal, indestructible, unbreakable, incapable of reshaping by change of parts or of alteration, and grasped themselves in thought. These move in and through the void, and the void is itself also infinite, and the bodies are infinite ... and it is called an atom not because it is the smallest thing, but because it cannot be cut, since it is incapable of being affected and contains no void. So if anyone says that an atom is unbreakable, he also means that it is incapable of being affected and contains no void.

218. (Not in DK) Lact. De ira dei 10.5 (p. 85.6 Brandt): They are so small, he (Democritus) says, that no iron blade is fine enough to cut and divide them, whence he gave them the name 'atoms'. Id. Inst. III.17.22: Why then do we not feel or see those (seeds)? Because, he says, they have neither colour, heat nor smell, are also without any taste or moistness, and so small that they cannot be cut or divided. Thus, because he had accepted something false at the outset, the necessity of the consequences led him to raving. For where are those

corpuscles or where do they come from? Why did no-one except Leucippus alone dream them up? Learning from him Democritus received an inheritance of folly which he bequeathed to Epicurus. If there are such corpuscles, and they are solid too, as they say, they can certainly be seen ... so small that they cannot be cut by any iron blade ...

219. (DK 68 A 43) Dion. ap. Eus. PE XIV.23.3: Epicurus and Democritus both say that there are atoms, which are so called because of their indestructible solidity.

#### V. The matter and form of the atoms

220. (DK 68 A 41) Ar. Phys. III.4, 203a33: Democritus says that none of the primary things comes from any other, but all the same for him the common body is a principle of everything, different in size and shape in the parts.<sup>1</sup>

220a. (DK 67 A 15) Ar. De caelo III.4, 303a4: e.g. Leucippus and Democritus of Abdera ... (11) say that since the bodies differ in shape, and the shapes are infinite[ly many], the simple bodies are also infinite[ly many]. They said nothing about what shape belongs to each of the elements, except only that they assigned the sphere to fire.

221. (DK 68 A 57) Ar. Meta. XII.1, 1069b22: and as Democritus says, everything was together potentially, but not actually.<sup>1</sup> Alex. ad loc. 673.19: and indeed by saying 'everything was together potentially' Democritus shows that his conception of matter was a dim one; for 'everything was together potentially' is the same as 'there is in us something capable of [becoming]everything [in thought]'. Galen De elem. sec. Hipp. I.2 (I.416 K.): and one could say that in idea and potentially everything is one, as Epicurus and Democritus and their followers said about the atoms.

222. (DK 67 A 7) Ar. GC I.8, 325b24: as Plato has written in the Timaeus. His view differs from that of Leucippus to this extent, that the latter says that the indivisibles are solids, whereas he (Plato) says that they are planes, and Leucippus says that each of the indivisible solids is bounded by infinite[ly many] shapes, but Plato by a finite number, since both say that the indivisibles are bounded by shapes.

223. (Not in DK) Ar. Phys. I.1, 184b20: and whether the principles have to be infinite[ly many], or, as Democritus says, one in kind but different in shape or form<sup>1</sup>, or even opposites.

224. (Not in DK) Simpl. in Phys. I.4, 187b9 (what is infinite in variety of kind is unknowable in quality), 166.6: Democritus and Leucippus and their followers, though postulating the principles as infinite in number, nevertheless postulated that the kind and nature of <each of> them was single and definite, so that according to them the principle was not unknowable, unless they assigned to them infinite[ly many] shapes or other qualities of their external appearance.

225. (Not in DK) Alex. On mixtures [De mixt.] I.213.14: (dealing with philosophical doctrines and treatments of mixture and blending) On this topic there was a dispute between those

who say that a single matter underlies all natural bodies and those who make it out to be constituted of different separate bodies. Some of them say that the principles and elements are atomic bodies infinite in number, differing from one another only in shape and size, and that other things come into being through their combination and a sort of entanglement, and also through their order and position. Leucippus and Democritus seem to have been the first to hold that view, and subsequently Epicurus and those who followed the same path as he. The cause of this disagreement is the difficulty of the topic. Since it is clear that some bodies mingle with one another practically all those who theorise about nature and natural happenings undertook the investigation of the cause, but since it was difficult to discover, and each of the proposed causes gave rise to its own particular difficulties, different people took different directions.

226. (DK 67 A 11) Cic. ND I.24.66: These are the outrageous views of Democritus or perhaps even of Leucippus before him, that there are corpuscles some of which are smooth, others rough, others round, some angled or with hooks<sup>1</sup>, some curved and as it were bent.

227. (DK 68 A 37) Ar. ap. Simpl. in De caelo, 279b12, 295.5: Democritus thinks that the substances are so small as to elude our senses, and that they have all sorts of forms and shapes and differences of size ... and that some of them are irregular and others hook-shaped, some concave and others convex, and some with countless other differences.

228. (Not in DK) Simpl. in Phys. 1.2, 185b8, 44.3: Democritus and his followers, supposing that the atoms have a single nature, regard the plenum as a single kind ...

229. (Not in DK) Aet. I.14.3 (Dox. 312) Leucippus and his followers say that the atoms have many shapes.

230. (Not in DK) Philop. in Phys. III.4, 203a34, 398.11: Democritus, Aristotle says, says that the primary bodies (I mean the atoms) are ungenerated (for none comes from any other, like the spherical from the pyramidal)<sup>1</sup>, but he supposes that all the shapes have a single common nature, whose parts are the atoms, which differ from one another in shape and size. Not only do they have different shapes, but some of them are bigger and others smaller.

231. (Not in DK) Ar. De caelo III.8, 306b32: fire ... some made it a sphere (see no. 131). Simpl. in De caelo III.7, 306a21, 649.9: of the pyramid or the sphere ... since Democritus and his followers said that fire is a sphere ... Philop. in GC I.1, 314a21, 12.31: according to Democritus ... fire and earth are not composed of the same atoms, but fire is composed of spherical atoms. Id. In Phys. II.2, 194a15, 229.1: for spherical atoms constitute the nature of fire.

232. (DK 68 A 73) Theophr. On fire [De igne] 52: the question is raised why the shape of a flame is pyramidal; Democritus says it is because when the extremities are cooled they contract and taper to a point.<sup>1</sup>

233. (Not in DK)<sup>1</sup> Philop. in Phys. I.5, 188a19, 116.21: Democritus ... says that the atoms have opposite shapes in that some have angles while others are without angles; for having angles is opposite to having no angles. So the compounds differ in respect of this opposition, in that some are composed of atoms with angles, others of atoms with no angles. And also in respect of the ordering of the atoms, e.g. it might be that in this thing the spherical atoms come first and the pyramidal later (as in man it happens that the spherical are at the top, which is why the head is spherical, but the pyramidal are round the jaw), while in another thing the order is reversed, and the first is opposite to the later. They also differ in respect of the position of the atoms, e.g. in this thing the pyramids have the apex below and the base above (as in the jaw the apex is below and the base above), but in another the apex is above and the base below.

234. (Not in DK)<sup>1</sup> Aet. I.3.18 (Dox. 285-6; 270 Us.) = Eus. PE XIV.4.5 (p. 290.15 Dindorf): Democritus ... said that there are two (properties of the atoms), size and shape, and Epicurus ... says ...that the atoms have indefinite[ly many] shapes, not infinite[ly many], for they are not hook-shaped or trident-shaped or ring-shaped, for those shapes are easily broken, but atoms are incapable of being affected, and so unbreakable. Similar objections to Democritus in Epicurus (Epist. I.42 (7.17 Us.)): further, the atomic plena, from which the compounds come into being and into which they are dissolved, have indefinitely many different shapes. For it is not possible for such differences to arise from the same definite shapes, and in the case of each shape the similar atoms are unqualifiedly infinite, but in their differences they are not unqualifiedly infinite, but only indefinite (see no. 225).

235. (Not in DK) Lact. De ira dei 10.5 (p. 85.8 Brandt): It occurred to him (Democritus) that if everything had one and the same nature they could not generate things of such diversity as we see to be in the world. So he said that they are smooth, rough, round, with angles, and hooked ... If they are rough and angled, so as to be able to stick together, they are therefore divisible and cuttable; for the hooks and angles must stick out and be able to be cut off ... Id. Inst. III.17.23 (p. 232.14 Brandt): Learning from him (Leucippus) Democritus received an inheritance of folly which he bequeathed to Epicurus ... Letters have different shapes; so, he said, do these very elements, for they are rough, hooked, smooth. So they can be cut up and divided, if they have any parts which stick out, but if they are smooth and without hooks they cannot stick together. So they have to have hooks, by which they can be linked together. But since they are said to be so small that they cannot be cut apart by the edge of any blade, how can they have hooks or angles? Because they project, they must be capable of being torn off.

For further testimonia on the shape of the atoms (rusmos) see nos. 238-48. On the shape of the hot, cold, sweet etc. see nos. 428-439.

### **c. HOW THE ATOMS ARE SITUATED RELATIVE TO ONE ANOTHER**

#### **I. The meaning of 'contact'**

236. (DK 67 A 7)<sup>1</sup> Philop. in GC I.8, 325a32, 158.26: Democritus did not use the word 'contact' in the strict sense when he said that the atoms are in contact with one another ... what he called contact was the atoms' being near, not distant from, one another. For they are totally separated by void. (160.10) Leucippus and his followers did not speak of contact in the strict sense. I.2, 317a10, 39.23: a point is not adjacent to a point ... and that was indeed agreed by Democritus and his followers.

237. (Not in DK) Ar. Phys. III.4, 203a19: Those who, like Anaxagoras and Democritus, make the elements infinite ... say that the infinite is continuous by contact.<sup>1</sup> Simpl. ad loc. 448.26: Those who, like Anaxagoras and Democritus, posited things infinite in number introduced the infinite both in number and in magnitude. For the things that are infinite in number are continuous in contact, but they do not make up an infinite magnitude by their unity. (459.22) that what is continuous by contact is something infinite is clear from this as well. For the things which are infinite in number, having magnitude and being of the same kind, so as to be in contact with one another, make up an infinite magnitude which is continuous by contact. That is why Eudemus says in the second book of his Physics (fr. 39) 'Saying that things of one kind are infinite in number is no different from saying that they are infinite in magnitude'. Simpl. in De caelo III.4, 303a4, 609.17: He went on to discuss Leucippus and Democritus and their followers, who said that the elements are the things which are atomic [i.e. indivisible] through their smallness and solidity, infinite both in number and in their shapes. These alone they said were continuous; for the other things which seem to be continuous are in close proximity to one another by contact. That is why they eliminated cutting, and called what seems to be cutting separation of things in contact, and why they said 'nor can many come from one', for the atom cannot be divided; 'nor from many can there come one' thing which is truly continuous, but each thing seems to be one through the interweaving of the atoms. Philop. in Phys. III.8, 208a14, 494.20: but given Democritus' assumptions this is what happens; for the atoms which move in the void are limited, but not in contact with anything.

## II. The position of each atom

### (rusmos, tropē, diathigē)

#### (shape, position, arrangement)

238. (DK 68 A 45)<sup>1</sup> Ar. Phys. I.5, 188a22: (everyone agrees that the principles are contraries) Democritus with the solid (plenum Simpl. 44.16) and the void, of which he says that the former is what is, the latter what is not. Further, he speaks of position, shape and arrangement, which are kinds of opposites, up and down, forward and backward<sup>2</sup> in the case of position, angled, straight and round in the case of shape.

239. (DK 68 A 38) Ar. GC I.9, 327a16: and we see the same continuous body now liquid and now frozen, though it does not undergo that change through separation and



combination nor through turning and contact [position and arrangement] as Democritus says; for it is not by repositioning<sup>1</sup> or by change of its nature<sup>2</sup> that something turns from liquid to frozen.

240. (DK 67 A 9) Ar. GC I.1, 314a21: Democritus and Leucippus say that the other things are composed of indivisible bodies, infinite in number and in respect of shape, and they [i.e. the other things] differ from one another in their components and their position and arrangement. (315b6) Democritus and Leucippus posit the shapes<sup>1</sup> and derive alteration and coming into being from them, coming into being and perishing from separation and combination, and alteration from arrangement and position. And since they thought that the truth is in what appears<sup>2</sup>, and the appearances are opposite and infinite, they made the shapes infinite. So through changes in the underlying things the same thing appears opposite to one from how it appears to another, and through some small addition things change and appear wholly different as the result of a single change, for tragedy and comedy consist of the same letters.<sup>3</sup> Philop. ad loc. 12.30: ... these compounds, he says, differ from each other in three ways according to Democritus. One way is by being composed of differently shaped atoms, by which he means 'through their components'; for (13.1) fire and earth are not composed of the same atoms, but fire is composed of spherical atoms and earth not of those, but perhaps of cubical atoms. But, he says, compounds differ from one another also in the position and arrangement of their atoms. For two things composed of the same atoms often differ in the arrangement of the atoms, if, for instance, in one the spherical atoms<sup>4</sup> are arranged first and the pyramidal last, but in the other the pyramidal are first and the spherical last, as in the syllables OS and SO; for though the elements are the same the arrangement makes the difference. And similarly a difference in the compounds arises from the position of the atoms, whether they are slanting or upright or horizontal. At any rate the difference between the elements Z and N and Γ and Λ is only their position. One must know that of the three differences mentioned, the first, in which the compounds are composed<sup>5</sup> of different atoms, makes the compounds other and completely different, whereas difference of position and order make them dissimilar but not different. Cf. no. 434, end. Philop. in GC I.1, 314b15, 17.32: according to Democritus and his followers things formed from triangles will not be similar (to things formed from spheres), if their bases are outside and their apexes inside or the other way round ... (see no. 433).

241. (DK 67 A 6) Ar. Meta. i.4, 985b4: Leucippus and his associate Democritus ... and just as those who make the underlying substance one generate everything else by means of its properties, positing density and fineness of texture as principles of the properties of things, in the same way they say that the differentiations [of the atoms] are the causes of everything else. Now they say that these are three, shape, arrangement and position. For they say that what there is is differentiated only in 'rhythm', 'contact'<sup>1</sup> and 'turning'. 'Rhythm' is shape, 'contact' arrangement, and 'turning' position; for A differs from N in shape, AN from NA in arrangement and I from H in position<sup>2</sup>. Lact. Inst. III.17.22 (p. 232.14 Brandt): learning from him (Leucippus) Democritus acquired an inheritance of folly which he

bequeathed to Epicurus. They come together, he says, in a variety of arrangements and positions, like letters, which, though they are few, yet make up countless words in the variety of their juxtapositions. But letters have different shapes; and so, he says, have these elements too.

242. (Not in DK) Ar. Meta. VII.2, 1042b11: Now Democritus seems to have thought that there are three differentiations; for the underlying body, the matter, is one and the same, but it differs in 'rhythm', which is shape, or in 'turning', which is position, or in 'contact', which is arrangement. Alex. ad loc. 548.3 does not differ at all.

243. (DK 68 A 125) Aet. I.15.8 (Dox. 314): Democritus says that by nature there is no such thing as colour; for the elements, the solid things and the void, have no qualities. The compounds which are formed from them are coloured by contact, rhythm and turning<sup>1</sup>, of which the first is arrangement, the second shape and the third position. (DK 67 A 32, no. 85), Aet. IV.9.8 (Dox. 397): for these (atoms and void) are the only things which exist by nature, whereas the things formed from them, which differ from one another by position, shape and arrangement, are properties [of the atoms]. For the more significant fragments of Philoponus see nos. 232, 433, 434.

244. (DK 67 A 14) Simpl. in De caelo I.7, 275b29, 242.22: differing in shape and size and position and arrangement ... they get entangled with one another according to how their shapes and sizes and positions and arrangements fit together.

245. (Not in DK) Philop. in Phys. II.4, 195b28, 116.1: in his exposition of particular questions, e.g. why do hot and white things separate, or why is honey sweet, Democritus gives the position and arrangement and shape of the atoms as causes ...

246. (Not in DK) Philop. in Phys. I.5, 188a19, 116.21: 'and Democritus speaks of plenum and void' (Aristotle's words); for he called the atoms 'plenum', and said that they are separated by void. So all kinds of things are formed by the interweaving of the void and the plenum. But since there is great diversity in things, he posited other oppositions, and in that way gave his accounts of the diversity of things. For as far as the void and the plenum are concerned, since everything is composed of them, things would not have differed from one another. So that is why he posits three other kinds of opposites, whose diversity gives rise to diverse effects.<sup>1</sup> (See further no. 233.) (117.9) Opposites in position are up and down, right and left,<sup>2</sup> front and back, so that he posits the opposite as principles of things, and he called shape, position and arrangement by the Abderan words 'rhythm, turning and contact', 'rhythm' for 'shape', 'turning' for 'position' and 'contact' for 'arrangement'. Philop. in GC 1.2, 315b35, 26.7: by turning and contact; 'rhythm, turning and contact' are words of Abderan dialect which Democritus used, calling shape 'rhythm', position 'turning' (e.g. if the base of a pyramid is down and the apex up, or vice versa) and arrangement 'contact', on the ground that if these happen to be primary, the others are secondary. Philop. in De an. I.2, 404a6, 68.3ff.

247. (DK 67 A 14) Simpl. in Phys. I.2, 184b15, 36.1: Leucippus, Democritus and their followers called the smallest primary bodies atoms, and said that through their differences of shape and position and arrangement some bodies become hot and fiery, namely those which are composed of primary bodies which move more quickly and are finer-textured and placed in a similar position, while others, composed of the opposite [kinds of atoms] become cold and watery, and the former are bright and luminous, the latter dim and dark. Simpl. in De caelo I.7, 275b29, 242.21: and these atoms, separated from one another in the infinite void and differing in shape, size, position and arrangement, move in the void.

Similarly Simpl. in Phys. I.2, 184b20, 44.3. (DK 68 A 38) Simpl. in Phys. 1.2, 184b15, 28.7 (from Theophr. Phys. opin. Fr. 8): for positing the atoms as the matter of things they generate the rest by their differentiae. And these are three, rhythm, turning and contact, i.e. shape, position and arrangement.

248. (DK 68 A 44) Herm. Irris. 13 (Dox. 654): and the plenum in the void makes everything by its turning and rhythm.

#### **d. THE VOID**

##### **I. Definition of the void**

249. (Not in DK) <sup>1</sup>Ar. Phys. IV.8, 215a11: for the void seems to be something which is not, and a privation. Themist. ad loc. 129.8: for Democritus says that the void is something which is not, and a privation.

250. (Not in DK) Simpl. in Phys. III, prooem. 1, 200b12, 394.25: some suppose that place is the void, and say emphatically that motion occurs in the void, e.g. Democritus. (397.2) among his [Aristotle's] predecessors in natural philosophy Democritus and his followers held that motion takes place through the void, and that the void is place containing no body.

251. (Not in DK) Simpl. in Phys. IV.1, 209a18, 533.14: In the third book of his Physics (fr.39 Sp.) Eudemus follows what is said there [by Democritus] and deprives place of each of the causes, treating that as something agreed. 'But is it the efficient cause?'<sup>1</sup> he says, 'or is that also impossible, Democritus? For it must be a source of motion and have some power.' For Democritus said that the void is place, 'which in its own nature would have been something really void and inert'<sup>2</sup>, so it could not be the final cause.

252. (Not in DK) ps.-Ar. MXG 6, 980a6: for, he (Gorgias) says, in so far as it has been divided it lacks being, using the term 'having been divided'<sup>1</sup> instead of 'void', as in the works attributed to Leucippus.

253. (Not in DK) Theodoret. IV.14, p.104 Raeder (Dox 316: cf. Proleg. 46): Democritus and his followers call the void the place of the atoms, but everyone else absolutely makes fun of that expression<sup>1</sup>.

254. (Not in DK) Simpl. in Phys. IV.4, 211b5, 571.22 (= 273 Us.): ... or the interval between the limits of the surroundings must be place, as said by some earlier thinkers, e.g. Democritus and his followers, and by some later, e.g. Epicurus and his followers ... (27) this interval is said by Democritus and Epicurus and their followers to be empty in such a way as sometimes to be filled with body and sometimes left empty.

## II. Demonstration of the existence of void. Void a cause of motion.

255. (DK 67 A 19) Ar. Phys. IV.6, 213a27<sup>1</sup>: People mean [by void] that it is an empty interval, in which there is no perceptible body; and since they think that everything which exists is body, they say that the void is that in which there is nothing at all, and hence that what is full of air is void. So one does not have to show that air is something, but that there is no actual separate interval distinct from bodies, which separates the totality of body,<sup>2</sup> so that it is not continuous, as Democritus and Leucippus and (213b) many other natural philosophers say, or even something outside the continuous totality of body.<sup>3</sup> Now those people<sup>4</sup> do not approach the problem in the right way, but those who assert the existence of void do to a greater extent. One thing<sup>5</sup> that they say is that [without a void] there would be no motion in respect of place (i.e. locomotion and growth); for it does not seem that there could be motion if there were no void, for it is impossible for a plenum to admit anything. But if it does admit something, and there are two things in the same place, there could be any number of bodies [in the same place] simultaneously; for it is impossible to specify the difference which would prevent that from happening. But if that is possible, then the smallest will admit the largest, since the large consists of many small things; so if it is possible for many things of equal size to be in the same place, the same will hold for many things of unequal size ... that is one way in which they show that there is a void, and another is that some things appear to be combined and compressed, e.g. people say that jars can contain wine together with the wine-skins, since the compressed body<sup>6</sup> combines with the empty spaces inside it. Further, growth too seems to everyone to occur through the medium of the void, since food is a body, and it is impossible for two bodies to be [in the same place] simultaneously. They also use as evidence the case of ashes, which admit the same amount of water as the empty jar.<sup>7</sup>

256. (Not in DK) Ar. Phys. IV.9, 216b22: there are some people<sup>1</sup> who think that it is apparent from the phenomena of the rare and the dense that there is void, for if there are no such things as rare and dense things cannot combine and be compressed. But if that is not possible, then either there will be no motion at all, or the universe will swell, as Xuthus said, or air and water will always change into one another in equal quantities<sup>2</sup>. I mean that if air comes into being from a ladle of water, an equal amount of water will simultaneously have come into being from air, or there must be void, for otherwise things cannot be compressed and expanded ... they say that the rare contains many separate<sup>3</sup> voids ... Themist. ad loc. 135.10: If condensation is the contraction of the same body into a smaller volume and rarefaction is the expansion of the same body into a larger volume,

there must be voids scattered throughout the bodies, into which compressed things contract and rarified things expand. Those who get rid of the void get rid not only of condensation and rarefaction but also of motion as a whole. For when something moves in place, the adjoining bodies through which it passes contract and make room for those which are passing through them, as people make way for those who are going through a crowd ...<sup>4</sup> (136.7) they say that the void is scattered throughout bodies, so that in things that are rare there are separate intervals capable of receiving bodies ... Simpl. ad loc. 683.6: for these people said not merely that if the void is done away with, rarefaction and condensation are done away with too, but that if there is no void there is no rarefaction and condensation, and if there is no rarefaction and condensation there will be no change at all, neither locomotion nor growth, nor alteration nor coming into being. For they say that locomotion occurs not otherwise than by the contraction and compression of bodies making way for those passing through them like people going through a crowd<sup>4</sup>, and that things which grow and expand in volume have room to increase from the compression and contraction of other things into the voids in them. And things which grow larger and occupy more space do so by the compression and contraction of [other] things. There is no compression unless void is scattered through bodies, and in general if there is no rarefaction things cannot get bigger; there is no rarefaction without void to divide bodies. But not even alteration could occur without locomotion; for what is altered and what alters it must come together in motion.

257. (Not in DK) Ar. Phys. IV.8, 216a23: some think that that if there is locomotion the void exists as something distinct in its own right.<sup>1</sup> That is the same as saying that place is something separate. Cf. Simpl. ad loc. 680.19.

258. (DK 68 A 46a) Ar. De caelo III.7, 305b12 (Empedocles and Democritus and their followers are mentioned immediately beforehand): the finer-textured [substance] occupies a larger space, as is apparent from change of substance. For when a liquid evaporates and turns into vapour the vessels containing the volumes of liquid break because they are too small. Hence if there is no void at all and bodies do not expand, as the people who maintain this say<sup>1</sup>, the impossibility is obvious<sup>2</sup>. But if there is a void and expansion, it is absurd that what is separated always occupies a larger space.<sup>3</sup>

259. (Not in DK) Simpl. in De caelo III.7, 305b12, 634.4: If, as Democritus and his followers say, there is a void, into which bodies expand, in so far as the expansion of bodies is possible, it is absurd that the body, e.g. air, which is separated out of the mixture always occupies a larger space.<sup>1</sup> Thus at the beginning of his discussion of the separate void (i.e. the place into which bodies expand) Alexander changed to talking of the dispersed void without any indication of the change ... by what necessity and power does it intervene to separate and divide bodies? But perhaps Aristotle's discussion is not entirely about the dispersed void; for according to Democritus and his followers that is the cause of the expansion of bodies;<sup>2</sup> for the separate void is not the cause of the expansion of bodies, but it

provides space for their expansion, which is why he says 'if there is no void at all', neither the separate nor the dispersed,<sup>3</sup> 'and bodies do not expand', as Democritus and his followers say that bodies expand through the intervention of the void ... 'the impossibility is obvious', he says ... 'and if' he says, 'there is the dispersed void and expansion', as Democritus means, it is absurd that when the atoms are mixed together they are not separated by the void, but that happens when they are separated, and for that reason what is separated occupies a larger space.

260. (Not in DK) Ar. Phys. IV.7, 214a22: For locomotion comes to the aid<sup>1</sup> ... of those who maintain that the void is something besides the bodies which come to occupy it, and they think that the void is a cause of motion in the sense of that in which motion occurs. (VIII.9, 265b24) and they say that motion occurs because of the void<sup>2</sup>. Philop. in Phys IV.8, 214b12, 630.13: Democritus and his followers said ... that there is a void, and in saying that there is a void they said that it is a cause of motion (for there would be no motion if there were no void).

### III. Why 'non-being' is admitted by philosophers.

#### Non-being as void. The matter and structure of the void.

261. (= no. 105a) (Not in DK) Ar. Phys. I.3, 187a1: some gave in to both arguments, to the argument that everything is one, if 'being' has one meaning, by positing non-being ... (DK 67 A 19) Ar. De caelo I.7, 275b29: but if the universe is not continuous, but differentiated by the void, as Democritus and Leucippus say, everything must have a single motion.<sup>1</sup> For they are differentiated by their shapes, but they say that they have a single nature, as if each separate thing were made of gold.<sup>2</sup>

262. (Not in DK) Alex. in Meta. IV.5, 1009a6, 303.34: He goes on to say that Democritus said that the plenum is what is, and the void what is not, perhaps also showing a certain absurdity in that view, if he {Democritus} posited that the void is what is not, and, [despite] thinking that nothing comes into being from what is not, said that everything which comes into being is and comes into being no less from the void than from the plenum, calling the void what is not. For he agreed that coming into being occurs from what is not, but to escape that he supposed that coming into being occurs through mixture.

263. (Not in DK) Alex. in Meta. I.6, 988a11, 60.5: in speaking of those who posit body as the material cause, he (Aristotle) did not mention Leucippus and Democritus, according to whom matter is both a sort of body and incorporeal; for the void is not a body. He has spoken of this previously. (The same in Alex. in Meta. I.7, 988a28, 61.19; Asclep. ad loc. 53.30).

264. (Not in DK) Asclep. in Meta. I.4, 985b4, 33.9: (Aristotle) says that (Leucippus and Democritus) said that the material elements of things are the atoms and the void ... ( see nos.177-8).

265. (DK 68 A 43) Dion. ap. Eus. PE XIV,23, 2 & 3: those who applied the term 'atoms' ... assume that there is an empty space boundless in extent.

266. (Not in DK) Simpl. in Phys. IV, corollary on place, 601.19 (= 273 Us.): of those who say that (the void) is extended, some extend it in two dimensions, e.g. Aristotle<sup>1</sup> and his entire school, and others in three, and of the latter some say that it is totally undifferentiated and exists even when it contains no body, e.g. Democritus and Epicurus and their followers, and others that it is an interval which always contains body and is adapted to each one, e.g. the most celebrated Platonists and Strato<sup>2</sup> of Lampsacus.

267. (Not in DK) Simpl. in Phys. IV, corollary on place, 618.10 (= 273 Us.): again, of those who posit the void itself some say that it is infinite and that it exceeds the bodies in infinity and therefore contains different [bodies] in different parts of itself, wherever they happen to be (if one can speak of parts of the infinite void). It appears that Democritus and the early natural philosophers associated with him held that view.

#### **IV. Two kinds of void (the void inside things and the external void)**

268. (Not in DK) Themist. in Phys. IV.6, 213a32, 123.16: Democritus, Leucippus and many others say that (the void) is scattered throughout bodies, as does Epicurus (274 Us.) later. All of them say that it is the presence of void in bodies which makes them divisible, since in their view what is truly continuous is indivisible. Porphyry ap. Simpl. in Phys. IV.6, 218a22, 648.18: Democritus and his followers posited that it (the void) is non-separate<sup>1</sup>, and hence that the universe is not continuous, since bodies have empty spaces inside them. <sup>32</sup>

269. (Not in DK) Philop. in De an. I.2, 403b31, 67.18: Democritus says that the atoms are not continuous, but separated by the void.

270. (Not in DK) Philop. in Phys. IV.7, 214a22, 613.21: and this (the void) ...scattered throughout bodies and preventing them from being continuous, as Democritus and Leucippus and their followers said ... (24) and outside the heaven<sup>1</sup> there is a void in itself ...<sup>2</sup> Simpl. in Phys. IV.6, 213a22, 648.11 (= 274 Us.): those people said that there is an interval which actually exists between bodies and does not allow them to be continuous. That was the view of Democritus, Leucippus and their followers, who said that there is void not only inside the world, but outside it also. It is clear that it would not be place, but something which exists in itself. That was also the view of Metrodorus of Chios ... and subsequently of Epicurus.

#### **e. THE FOUR ELEMENTS**

##### **I. The composition of the four elements**

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<sup>32</sup> [Alternatively, as L translates, 'bodies are separated from one another by empty space'.]

271. (DK 68 A 1) DL IX.44: (Democritus) thinks that ... the atoms ... move about ... and so generate all the compounds; fire, water, air and earth. They too are structures of atoms.

272. (Not in DK) Simpl in De caelo III.1, 299a2, 565 (see no. 171): they say that there exist elements which are more primitive than the four elements. Sophonius paraphrase of De anima [Sophon. in De an. paraphr.] I.1, 403b15, 11.2: Democritus defined ... in his view atoms and void are principles of natural bodies and of course of the four elements, just as they are principles of the things compounded from them; Leucippus says the same. Lact. De ira dei 10.4 (p. 85 Brandt): the early philosophers taught that everything consists of the four elements; he (Democritus) disagreed, in order not to seem to be following in the footsteps of others. But he maintained that there are other things which are primitive components of the elements themselves, which can neither be seen nor touched nor felt by any part of the body.

## II. The constituents of each of the four elements

273. (Not in DK) Simpl. in Phys. I.2, 184b15, 35.22: Leucippus and Democritus and the Pythagorean Timaeus and their followers do not disagree that the four elements are the principles of compound bodies; but, like the Pythagoreans and Plato and Aristotle, since they observed fire, air and water, and perhaps earth too, being transformed into one another, they looked for more primitive and simpler causes, through which to explain the qualitative differences of those elements. No. 247 follows, after a discussion of Plato's treatment of elements as planes with volume.

274. (DK 68 A 60a)<sup>1</sup> Ar. De caelo III.4, 303a25: It is impossible for air, earth and water to differ in size if the elements are atoms, for it is impossible for them to come into being from one another. For the largest bodies will always be separated out and so they will give out, but that is the way they say that water and air and earth come into being from one another. Themist. ad loc. 179.37; Simpl. ad loc. 612.26: for if they say that earth comes from water by the separation out of the largest bodies in the water, since it is possible that once all the largest bodies have been separated out from the water and the air the separation of the largest bodies will similarly give out, earth will [thus] cease to come from water and water from air, so that there will be some water from which no earth can come, and air from which no more water would come ... but if the separation of the smallest bodies gives out, water will no longer come from earth or air from water. But we see every part of water changing into air and every part of air into water. And if fire consists only of spherical bodies<sup>2</sup>, but the other elements from all, nothing else will ever come from fire, nor fire from the others (see no. 276).

275. (DK 67 A 15) Ar. De caelo III.4, 303a12: they did not specify the shape of each of the elements, but merely assigned the sphere to fire; they differentiated air, water and the rest by the size of the constituents, on the ground that their nature was a sort of seminal mixture of all the elements. Simpl. ad loc. 610.18: they said that the shape was spherical



only in the case of fire and the atoms which generate it, since it is reasonable that it permeates things and is mobile, and also that it moves and divides things, and burns things which it approaches through the roundness and smoothness and smallness of the elements ... they said that air is composed of the smallest elements in respect of shape, and water of larger, and earth of larger still; these no longer differ in shape, but each is composed of all kinds of shapes, i.e. the same shapes. Simpl. in De caelo III.5, 304 b6, 625.1: Democritus and his followers said that the three, air, water and earth, differ in the smallness of elements of similar shape.<sup>1</sup> Themist. in De caelo III.4, 303a12, 178.28: Nor do they ascribe a different shape to each of the elements, like those who ascribe the pyramidal shape to fire, and say that earth is represented by its likeness to the cube, but fit two other shapes to the others. For both (Leucippus and Democritus) ascribe a shape to fire alone, namely the sphere, since it is in constant motion and has very small parts, and thus permeates<sup>2</sup> and penetrates every body, since it lacks angles and is not held back by anything; but they do not attribute any specific shape to air, water or earth. The elements of those kinds are distinguished only by size; the elements of earth exceed those of water in size, and those of water exceed those of air. So as regards shape the account of them all is the same; none of them, whichever it is, is of any particular shape, but they come from all shapes as it were in a mixture of seeds<sup>3</sup>. Themist. ad loc. 179.38<sup>4</sup>: Now they say that earth, water, air and fire come into being from one another when the large atoms are segregated, separated and distinguished from the small and vice versa; but things can come into being in that way from one another only in so far as small bodies are formed by the division of large. For example, they say that earth differs from water not because the atoms of which each is composed are of different shapes (since the shapes of the atoms of which each is formed are in both cases the same), but they differ in that the atoms from which earth and its species are formed are in themselves larger. Now many atoms of which earth is formed are found in water, but vastly more in earth. And they say that when earth turns into water it is by the separation, dividing off and segregation of either all or most of the atoms which form earth that the transformation occurs, and that earth comes from water by the separation, dividing off and segregation of all or most of the atoms which form water. For if an atom (which cannot be divided) had existed in a divided state, it would admit of increase and decrease of size in its own parts; hence water would be formed in proportion as the large become small, and earth in proportion as the small become large again. But since it does not admit of change of size, the result is that one or other, earth or water, is altogether absent, nor will water come from the parts which make up earth nor earth from the parts which make up water, when in their opinion the one comes from the other. For these two theses, viz. that they come from one another and that they are atoms, are mutually inconsistent. So though he [Aristotle] had <not> explained how atoms come into being from one another <but how> they say one thing is formed from another (namely by being larger and smaller), he added this extra question and said how <atoms> come from one another in turn.<sup>33</sup> Once he had taken a

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<sup>33</sup> {The insertions in angled brackets are L's. See critical apparatus.}

position opposed to theirs [the atomists], and had rejected their other explanation of how things come into being by the atoms themselves (by becoming smaller and larger), he used that to refute their thesis that things come from one another in turn. But on their view the way that one thing is formed from another is different, in so far as the thing which is formed is formed by segregation and separation; indeed this theory will explain how when a drug is prepared it becomes something else, as when the thinner elements of wine are burned off the residue of the wine becomes thick. And in general on the question whether something is so or not, it is appropriate to attack someone by showing that they are refuted by their own argument, not to reject their argument on the basis of equivocation.<sup>5</sup>

276. (Not in DK) Simpl. in De caelo III.7, 305a33, 632.16: and Democritus says that his elements, the atoms, come from one another by separation from the mixture;<sup>1</sup> for when water goes out of existence its atoms, which are of such and such a kind, are separated out and combine to form air by interweaving in such and such a way. So they ... say that each of their elements is already present in the thing, and is actually separated out.

277. (Not in DK) Ar. De sensu 4, 441a4: ... either the water must contain the kinds of flavours, insensible because of their small size,<sup>1</sup> as Empedocles says, or it [the water] must be present as matter in the form of a universal seminal mixture of flavours, all of which come from the water, one from one part and another from another ... (18) and similarly, it is impossible for the water to be the matter of a universal seminal mixture, for we see that different flavours come from the same [water], i.e. from the same nourishment. Alex. ad loc. 68.24: here he would seem to be referring to the opinion of Democritus, who posited the atoms as elements of everything. For other testimonia on panspermia [universal seminal mixture] see nos. 140-2, 289.

278. (DK 30 A 5) ps.-Ar. MXG (on Melissus) 2.11, 975b27: and Democritus says that water and air and each of the many things, [though] being all the same in shape, differ [from one another].

279. (Not in DK)<sup>1</sup> Philop. in Phys. II.2, 194a15, 229.1: the spherical atoms form fire, and the cubical perhaps form water, and others are formed by other shapes. Id. In GC I.1, 314a21, 12.31: according to Democritus fire and earth are not composed of the same atoms, but fire of spherical [atoms] and earth not of that sort, but perhaps of cubical.

280. (DK 68 A 135)<sup>1</sup> Theophr. De sensu 67 (Dox. 513): (Democritus says that) ... none of the shapes is pure and unmixed with the others, but in each (flavour) there are many ... and the one of which there is most predominates in respect of perception and effect.

281. (DK 68 B 152)<sup>1</sup> Plut. Quaest. conviv. IV2,4, 665 F: the fire of the thunderbolt is marvellous in its precision and fineness, springing from a pure and unadulterated substance, which by the keenness of its motion throws off and thoroughly purges anything damp or

earthy which it encounters. 'Nothing is hurled by Zeus,' as Democritus says, 'but what comes from the aithēr contains a bright<sup>2</sup> flash'.<sup>34</sup>

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<sup>34</sup> [I follow L's translation of the citation from Democritus; for alternative renderings see Taylor 1999, D11, p. 7.]

## D. MECHANICS AND COSMOGONY

### a. THE NATURE OF TIME AND MOTION

282. (Not in DK)<sup>1</sup> Ar. De sensu 3, 440a20 (more fully in no. 483): In the case of things which adjoin one another<sup>2</sup> it is necessary to assume imperceptible time, just as [it is necessary to assume] invisible magnitude, so that motions escape our notice when they reach us and it [i.e. colour] seems to be a single thing because they [i.e. the motions] are perceived simultaneously ... (30) that there is no invisible magnitude is to be considered later, but whether there is a mixture of bodies, not just in the way that some suppose, viz. that the smallest bodies adjoin one another, but are unclear to us because of our perception. Alex. ad loc. 56.13: ... such were Leucippus and Democritus and their followers, who constructed the appearance of the intermediate colours from the juxtaposition of things which are invisible through their smallness ... (60.8) all those who think that seeing occurs in this way need imperceptible times, while those who also ascribe the difference of colours to the juxtaposition of imperceptible bodies ... have to say ... that there are ... not ... only imperceptible magnitudes, but imperceptible times too. Having to say that there are imperceptible times can be said to be something which follows specifically<sup>3</sup> in the case of those who ascribe difference of colour to the juxtaposition of small-scale bodies, so that when many are seen simultaneously they are seen as one, if the emanation from each one escapes notice when it individually impacts the eyes and appears as a single one occurring simultaneously from a single object of sight. Augustine [Aug.] Letter to Dioscorides [Ad Diosc.] = Epist. CXVIII.30 (PL 33, p. 446) (on Democritus): When you ask them why, when innumerable images are flowing from an object, what appears to us is a single image of that object, they answer that by the very fact that the images are flowing and moving quickly, their being densely packed together makes a single image appear out of many...

283. (Not in DK) Ar. Phys. VI.1, 231a24: it is impossible for anything continuous to be composed of indivisibles, e.g. a line of points ... for in the indivisible there is no last part nor any other part distinct from the last ... for there is nothing last in what is partless ... the same argument holds for all indivisibles ... but a point will not be continuous with a point, nor a now with a now, so that a magnitude or a time could be composed of them ... the same reasoning<sup>1</sup> holds for magnitude and time and motion being composed of indivisibles, and being divided 'into indivisibles or nothing'.<sup>2</sup> And it is clear from the following: for if the magnitude is composed of indivisibles its motion will also be composed of equal indivisibles, e.g. if ABC is composed of the indivisibles A, B and C, the motion DEF with which [an object] O traverses ABC will have as each of its parts an indivisible ... (232a6) and if something moves over the whole of ABC, and its motion is DEF, and nothing is in motion over the partless A, but has moved, then the motion would not be composed of motions [i.e. of

processes of motion] but of movements [i.e. outcomes of processes of motion, as the movement of a chess piece is the outcome of the process of moving it], and something would have moved without being in motion. For it has traversed A without being in the course of traversing it, so it will have gone a certain distance without ever going that distance; for it has gone that distance though it never was in the course of going that distance ... and if magnitude and motion are indivisible it is similarly necessary for time to be indivisible, composed of indivisible nows. (VI.6, 237a12)<sup>3</sup> If what is continuously changing and has not been destroyed nor has ceased changing must necessarily be changing or have changed in any [part of the] time [of its change], and it is not possible to change in the now, it must necessarily have changed with respect to each of the nows; so if the nows are infinite [in number], everything which is changing must have undergone infinite[ly many] changes. And not only must what is changing have changed, but what has changed must have been changing previously; for whatever has changed from something to something has changed in a time. Let it have changed in the now from A to B; hence it has not changed in the same now in which it is in A ... but if in another now, there will be a time in between. For the nows were not adjacent. So since it has changed in a time, and every time is continuous, in half that time it will have undergone another change, and another again in half that time, and so on for ever; so it would be changing previously. This is even clearer in the case of magnitude, since the magnitude in which something changes is continuous. For let something have changed from C to D. So if CD is indivisible, something partless will be adjacent to something partless; and since that is impossible, there must be an infinitely divisible magnitude in between. So it was previously changing [position] into those infinite[ly many] [parts of the magnitude]. So everything which has changed must previously have been changing ... the cause of that is that nothing partless is adjacent to anything partless. For the division is infinite, as in the extension and shortening of lines. (VI.10, 240b30): what is partless cannot be in motion, nor, in general, change; for it could be in motion only if time were composed of nows, for it would always have been in motion in the now, and always have changed, so that it never is in motion, but always has been in motion<sup>4</sup>. It has previously been shown that that is impossible; for time is not composed of nows, nor the line of points, nor motion of movements. Someone who says this does nothing but make motion out of partless things, like making time out of nows or extension out of points.

284. (Not in DK)<sup>1</sup> Ar. De sensu 6, 446b2: and if everything simultaneously sees and has seen, and in general perceives and has perceived, and there is no coming into being of them (i.e. perceptions), but they none the less exist without coming into being, like the sound when a blow has already been struck, <even though><sup>35</sup> it has not yet been heard.

285. (Not in DK)<sup>1</sup> ps-Ar. De lin. insec. 970b5: for time and the line will be cut in the same way. (8) as has been said, the same argument implies that all of these consist of indivisibles.

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<sup>35</sup> [The insertion is by L.]

(971a16) but perhaps it is also the case that time is composed of nows, and the same argument implies both ... so neither is the line composed of points nor time of nows. Ar. De caelo III.1, 300a14: for the atomic now is like the point on a line. Phys. IV.10, 218a6: the now is not a part; for it measures the part, and the whole is composed of the parts, but time does not appear to be composed of nows ... (18) let it be impossible for nows<sup>3</sup> to be adjacent<sup>2</sup> to one another, as is the case with points ... (25) further, if being simultaneous in time, neither before nor after, is being in one and the same now, if things which are before and after are in the same now, then things which will happen ten thousand years from now and happened<sup>4</sup> ten thousand years ago will be simultaneous, and nothing will be before or after anything else. Phys. IV.11, 220a18: it is clear that the now is no part of time nor the division<sup>5</sup> of motion, just as the point is no part of the line.

286. (Not in DK)<sup>1</sup> Ar. Phys. VIII.8, 263b15: Let the time be ACB, the object D, and let D be white in A and not white in B. So in C it is white and not white. For it is true to say that it is white in any part of A, if it was white for all that time, and not white in B, but C is in both. So one should not grant [that D is white] in the whole [of A], but in the whole minus the last now, i.e. C, and this already belongs to the later<sup>2</sup> [time, i.e. B]; even if it was becoming not white (or the whiteness was disappearing) in the whole of A, it became not white (the whiteness disappeared) in C, so that it is true to say that that was the first time in which it was not white, or else that when it has become something it will not be that thing, or when something has ceased to be it will still be, and that it has to be white and not white, and in general F and not-F. If something which is F but previously was not F must have become F, and is not F when it is still becoming F, it is not possible to divide time into indivisible times. For if D was becoming white in A, and became and is [white] in B, another atomic time adjacent to A (if it was becoming [white] in A, it was not [yet white], but it is [white] in B), there must be an intervening process of coming to be and also a time in which it was coming to be. The same argument will not apply to those who do not accept atoms; they will say that the thing came to be F and is F in the last point of the same time in which it was becoming F, but there is nothing adjoining or continuous with it, whereas atomic times are adjacent. But it is clear that if it was becoming in the whole of time A the time in which it was becoming and became is no greater<sup>3</sup> than that in all of which it was merely becoming. Simpl.. ad loc. 1297.8: time is not composed of partless things nor decomposed into partless things.

287. (DK 68 A 72)<sup>1</sup> Sext. M X.181: It appears that the following conception of time is ascribed to the natural philosophers of the schools of Epicurus and Democritus (294 Us.): 'Time is an appearance in the form of night and day'.

In addition there are passages which could be directed equally against the Democritean and the Epicurean interpretation of motion and time. I append these here because they provide an excellent way of filling gaps in Democritus' arguments. But the first

of these passages, which goes back to Chrysippus, probably concerns Democritus himself, since it is closely connected with a criticism of Democritus by Chrysippus.

287a. (Not in DK) Plut. De comm. notit. 1079 E-1081 C: there showing Democritus to be unaware ... then how do they (the Stoics) dare to find fault with 'those who introduce the voids and partless things and posit the contradiction that things are neither in motion nor at rest' ... it is contrary to the [ordinary] conception that there exist past and future times, but no present, that today and yesterday do exist, but there is no such thing as the present moment. Yet these conclusions apply to the Stoics, who do not accept a minimum time, or that the present moment is partless ...

287b. [Not in DK] ps.-Ar. Mechanics 24, 855b23:<sup>1</sup> and since there is no halting of the larger (sc. circle) for the smaller, so as to be at rest during an interval at the same point (for in both cases both are moved continuously), nor does the smaller skip any point, it is strange that the larger traverses the same distance as the smaller, and vice versa.

287c. [Not in DK] Alex. Questions and Answers [Quaest.] II.45.28: It follows from saying that magnitude and time are composed of indivisibles that everything in motion over a partless [magnitude] moves at the same speed. For if two things move over a partless [magnitude], one faster and one slower, and the faster moves over it in the indivisible time, then the slower must have moved over it in a greater, i.e. divisible time. But if it was in a divisible time, then the magnitude traversed by the motion will be divisible also. For if one were to say that the slower thing does not move over the partless [magnitude] nor in the indivisible time, he would not be able to say that the slower moves at all, if the whole magnitude and the whole time is composed of indivisibles, and it is not possible for the slower to have moved over any partless [magnitude]. So everything in motion over a partless [magnitude] moves at the same speed. And if they move in the partless [magnitude] at the same speed, they would move in every magnitude at the same speed, if all magnitudes are composed of partless things. For what is commonly said<sup>1</sup>, that everything moves similarly and at equal speed over a partless [magnitude], but that one thing appears to move slower than another because of collisions with the atoms in it [i.e. in the partless magnitude], is a fiction, and further how is it that things which move in that way appear <not to move uniformly? For it is not that> their motion in itself slows down, but interruption prevents them from moving continuously, especially if the faster thing moves many times faster. For if the faster thing has traversed the distance in <one> hour and the slower has traversed the same distance in five hours, the former must be in motion for one hour and remain motionless<sup>2</sup> for four. But it is absurd<sup>3</sup> in a way that what is motionless for the longer time should not appear to be motionless, but to be in uniform motion for five hours.

## **b. ON THE SHAPE AND CHARACTER OF THE GREAT VOID.**

### **ON THE ORIGIN OF WORLDS**

### I. General principles. The swirl. The original motion of the atoms.

288. (DK 68 A 69, B 167) Ar. Phys. II.4, 196a26: that the swirl and the motion which separates things and establishes the totality in this order come about by chance ... Simpl. ad loc. 327.24: but Democritus too (says the same), when he says that a swirl of all kinds of shapes is separated off from the totality but does not say how or from what cause. Philop. ad loc. 265.5: so such is their (the elements') motion, as a result of which they are separated from one another.

289. (DK 68 A 1) DLIX.30ff.: Leucippus ... he believed that all things are infinite and that they change into one another, and that the universe is void and full of bodies, and that the worlds come into being as bodies fall into the void and get entangled with one another ... and from this there are infinite[ly many] worlds and they are dissolved into these. The worlds come into being in this way: many bodies of all sorts of shapes move by separation<sup>1</sup> from the infinite into a great void, and collect together to form a single swirl, in which like bodies are separated out together with like, as they collide and revolve in all kinds of ways. (44) the atoms ... are infinite in size and number, and they move in a swirl in the whole.

290. (DK 68 A 83) Sext. M IX.113: so that the world would not be in motion by necessity and through the swirl, as Democritus and his followers say.

291. (DK 67 A 10) Hippol. Refut.I.12.2 (Dox. 564, 16 W.): Leucippus ... says that worlds come into being <in this way>; when many bodies collect and flow into a great void from what surrounds it, in colliding with one another those of the same and similar shapes get entangled, and from their entanglements other <orderings and other things> come into being, and they grow<sup>1</sup> and perish of necessity. Epicur. Epist. II (DL X.88ff. =p. 37ff. Us.):<sup>2</sup> A world is an area of the universe ... separate from the infinite ... and we may grasp that such worlds are infinite in number, and that such a world can come into being either within a world or in an interworld, which is what we call an interval between worlds, in a place containing a lot of void, not in a great and total void, as some say ... For it is not the case that there needs merely to come into being a collection or a swirl in a void in which a world can come into being of necessity, as is supposed, and grow till it collides with another, as one of those who are called natural philosophers says.

292. (DK 67 A 15)<sup>1</sup> Ar. De caelo III.4, 303a4: nor are the consequences reasonable of what people like Leucippus and Democritus of Abdera say; they say that the primary magnitudes are infinite in number and indivisible in size, and that neither many come from one nor one from many, but everything comes into being by their combination and interchange. Simpl. ad loc. 699.25: the Abderans, e.g. Democritus, call combination 'interchange'.

293. (DK 68 A 37) Ar. ap. Simpl. in De caelo I.10, 279b12, 295.8: 'So Democritus ... generates and puts together visible and sensible magnitudes from these (atoms) as elements. And they conflict and move in the void because of their unlikeness and the



other differences which have been mentioned, and in moving they collide and interweave so as to be in contact and near one another, but not truly to generate any single nature whatever. For it is quite silly to suppose that two or more things could ever become one. He thinks that these things remain together for a time because of the interchanges [see previous passage] and interpenetrations of their bodies. For some are irregular, some hook-shaped, some concave, some convex, and countless other shapes. He thinks that they hang on to one another and remain together until they are shaken apart and scattered by some stronger necessity coming along from the environment.'

294. (DK 67 A 6) Alex. in Meta. I.4, 985b4, 36.21: he is speaking about Leucippus and Democritus. For they say that the atoms are moved by colliding with and knocking against each other.<sup>1</sup> Philop. in De an. I.4, 409a10, 167.20: Democritus' supposition ... he said that they are moved ... by thrusting against one another because of their number.

295. (DK 67 A 14) Simpl. in De caelo I.7, 275b29, 242.21: these atoms are separated from one another in the infinite void and differ in shape, size, position and arrangement; they move in the void, and knock against and catch hold of each other, and some bounce off in whatever direction, while others get tangled up together, as determined by their shapes, sizes, position and arrangements, and stay there<sup>1</sup>, thus causing compound things to come into being.

296. (Not in DK) Themist. in De caelo III.2, 300b8, 161.16: the followers of Leucippus and Democritus, in that they think that the atoms are forcibly moved by one another in the void<sup>1</sup> (cf. no. 304: Ar. De caelo III.2, 300b8).

297. (DK 67 A 24) ps.-Plut. Epitome [Epit.] I.4.1 = Aet. I.4 (Dox. 289)<sup>1</sup>: Now the world came together in a rounded shape in the following way; as the atomic bodies moved constantly and very quickly in an undirected and chance motion, many bodies of a variety of sizes and shapes collected in the same place.

298. (DK 68 A 49) Galen, De elem.sec. Hipp. I.2 (I.417 K, 3.20 Helmr.): Democritus says ... that all these bodies move up and down for all time, and they either get somehow tangled up with one another or collide and bounce off, and they separate and recombine in accordance with such associations, and thus they make all the other compounds and our bodies and their qualities and perceptions<sup>1</sup>.

299. (DK 68 A 43) Dion.ap. Eus. PE XIV.23.2 and 3: Epicurus and Democritus say that these atoms move at random in the void and collide by chance in their disorderly flow, and that they get entangled and take hold<sup>1</sup> of one another through their multiplicity of shapes, and so make the world and the things in it, or rather infinite[ly many] worlds.

300. (Not in DK) Ar. Phys. VIII.1, 250b11: and did change<sup>36</sup> ever come into being, not having previously existed, and will it perish again so that nothing is changing, or did it never come into being nor will perish, but always was and always will be, an immortal and ceaseless attribute of things, as a sort of life<sup>1</sup> for all natural things? All who discuss nature say that change exists, because they construct worlds and because their entire study is concerned with coming into being and perishing, which cannot occur unless change exists, but those who say that there are infinite[ly many] worlds, some of which are coming into being and others perishing, say that change is always occurring (for their coming to be and perishing is necessarily accompanied by their change). Simpl. ad loc. 1120.18: he says that the natural philosophers 'construct worlds' not in the sense of saying that the world has come into being in time, but of attributing its formation to change. For that is how Democritus too constructs a world ... [saying that] the atomic bodies are combined and separated. (1121.5) for those who suppose that there are worlds infinite in number, as Anaximander and Democritus and their followers and subsequently Epicurus and his followers did, supposed that they come into being and perish in infinite succession, and that it is always the case that some are coming into being and others perishing, and that their change is eternal, since without change there is no coming into being or perishing.

301. (Not in DK)<sup>1</sup> Cic. De fin. I.8.18: Since there are two questions which arise about nature, first what is the matter of which each thing is made, and second what is the force which makes each thing, Epicurus and Democritus discussed matter but ignored causal force. That was a defect common to both, but these fatal flaws are specific to Epicurus; for he thinks that those same indivisible solid bodies are carried vertically downwards by their own weight, which is the source of the natural motion of all bodies ... When that was occurring, if everything was being carried downwards from the place where it is, carried vertically, as I said, one atom would never come into contact with another ... So that disorderly coming together of atoms on which Democritus insists will not be able to make this world order ... De fato 10.22: How can one atom be repelled by another, if the indivisible bodies are carried perpendicularly downwards as Epicurus thinks? ... Epicurus introduced that doctrine (sc. of the swerve) because he was afraid that, if the atom was always carried by its natural and necessary weight, we should have no freedom, since our mind would be moved as it was compelled by the motion of the atoms. Democritus, the

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<sup>36</sup> [L uniformly renders the Greek term kinēsis as dvijennie, 'motion, movement', whose primary connotation is locomotion, i.e. change of place. For Aristotle kinēsis designates non-substantial change, i.e. change apart from the coming-to-be or passing away of an individual substance; for him there are three types of kinēsis, viz. change of place, which he holds to be the primary kind of kinēsis (see Phys. 260a26ff. (no. 304), change of size (growth and diminution) and qualitative change. It is clear that the Greek term is often used in the sense of 'motion', as in the numerous passages mentioning the thesis that the atoms are always in kinēsis, which it would be absurd to translate as 'the atoms are always changing', since the only relevant change is change of place, which (together with the size and shape of the atoms) is what accounts for the formation of compound bodies. But Aristotle's abstract discussions of kinēsis sometimes require that the term be understood in the generic sense of 'change', not in the specific sense of 'motion'. Consequently, according to the context I translate either as 'change' or as 'motion', thus departing from L's practice.]

originator of the theory of atoms, preferred to accept that everything happens of necessity, rather than rob the indivisible bodies of their natural motions.

302. (Not in DK) Lact. De ira dei 10.9 (p. 86.3 Brandt): 'These', he (Leucippus) says, 'fly through the void and are borne hither and thither in ceaseless motion, as we specks of dust in the sunlight, when it sends rays of light through a window. From these arise trees, plants and all kinds of crops; from these come animals, water, fire and everything, and they are dissolved into those same things'. Even the world itself is composed of these ... He says that everything comes from indivisible corpuscles. (10.23, p. 89.1 Brandt): But let us suppose that joints, bones, nerves and blood can grow from atoms. What about sense, thought, memory, mind, talent? Of what seeds can they be composed? The tiniest, he says. So there are others which are larger. How are they then indivisible? Is it not a kind of miracle ... that there was born ... Democritus, who was his pupil, or Epicurus, all of whose empty words have their source in Leucippus ...

303. (Not in DK) Aug. Epist. CXVIII.31 (PL 33, p. 447): For if you concede (to Democritus and Epicurus) that there are atoms, and even that they are propelled and driven about at random, surely it is not right to concede as well that when the atoms come together at random they make anything, so as to modify its form, determine its shape, make it smooth and uniform and decorate it with colour.

304. (DK 68 A 71, see no. 21) Ar. Phys. VIII.1, 251b12: Now if time is the number of change, or some kind of change, if time always exists, then change too must be eternal. But apart from one<sup>1</sup>, everyone seems to be in agreement about time; they say that it did not come into being, and that is how Democritus demonstrates that it is impossible that everything came into being; for time did not come into being ... <sup>2</sup> (3, 253b9) and some say that it is not the case that some things are changing and others not, but that everything is always changing<sup>3</sup>, but that escapes our perception. Though they do not specify what kind of change<sup>4</sup> they are talking about, or whether they mean all kinds, it is not difficult to answer them. Simpl. ad loc. 1196.8: the Heracliteans said that everything is in motion ... and Alexander says that the atoms are [so], according to those who suppose them to be causes, always in motion, of the compounds formed from them, even if not perceptibly, 'and according to them' he says, 'the void is motionless'. Ar. Phys. VIII.7, 260a26: there are three kinds of change, change of size, change of quality and change of place, which we call locomotion; the last-mentioned must be primary ... so if change must always be occurring, locomotion, the primary form of change, must always be occurring too ... Simpl. ad loc. 1266.34: as Democritus, Anaxagoras, Empedocles and others thought (see no. 330). Ar. Phys. VIII.8, 265a3: nor are those natural philosophers right, who say that all sensible things are always changing<sup>37</sup> ... (DK 67 A 16) Ar. De caelo III,2, 300b8:<sup>5</sup> that is why one should ask Leucippus and Democritus, who say that the primary bodies are in constant motion<sup>38</sup> in the

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<sup>37</sup> [See n. 36 above.]

<sup>38</sup> [See n. 36 above.]

infinite void<sup>6</sup>, what motion<sup>7</sup> that is and what is their natural motion. Simpl. ad loc. 583.20: they said that their primary bodies, i.e. the atoms, are always in enforced motion in the infinite void.

305. (Not in DK) Ar. De caelo III.2, 300b31:<sup>1</sup> for those who postulate infinite[ly many] things being moved in an infinite [void], if the moving thing is a single thing, things must be moved with a single motion, so not in a disorderly way, but if the moving things are infinite[ly many], the motions must be infinite[ly many] also. For if they are finite [in number] there will be some order. For disorder does not result from things' not moving to the same place; for as things are now<sup>2</sup> it is not the case that everything moves to the same place, but only things of the same kind ... it is absurd ... that ... they have disorderly motion. (301a11) nothing happens by chance ... Simpl. ad loc. 588.10: (Aristotle) is arguing against Democritus and his followers, for it is they who postulate infinite[ly many] things being moved in the infinite void. Now against them he says that the moving thing must be a single thing, or a finite number or infinite[ly many] etc ... (589.4) from 'further, the disorderly is no different from the unnatural' to 'for nothing happens by chance' ... this argument too is directed rather against Democritus and his followers; for they say that the things which are being moved are infinite[ly many] ... so the consequence of their view is ... that disorder is natural ... if things which are in disorderly motion for an infinite time are for a short time arranged and ordered<sup>3</sup> by getting entangled with one another ... those who said that natural motion is disorderly said that what is natural comes about by chance ... (591.12) Now he was obliged to digress in opposition to those who postulate that the unnatural precedes the natural; those are firstly Democritus and his followers, who say that the infinite[ly many] atoms are in motion for an infinite time prior to the formation of worlds, and secondly the Timaeus, which describes the world as coming into being from preceding disorderly motion.

306. (Not in DK)<sup>1</sup> Simpl. In De an. I.3, 406b12, 39.26: Nor did he (i.e. Democritus) suppose that the body is at rest because of an outflow of atoms, or because the atoms are motionless; for an outflow of atoms causes the death of the body, not rest, while Democritus and his followers did not suppose that the atoms are motionless, but that they are in constant motion. (DK 68 A 47) Simpl. in Phys. I.2, 184b18, 42.10: Democritus said that the atoms are by nature motionless but set in motion by a blow.<sup>2</sup> (DK 67 A 17 Herm. Irris. 12 (Dox. 654): Leucippus ... says that the principles are the infinite[ly many] smallest things, which are in constant motion. (DK 68 A 40) Hippol. Refut. I.13.2 (Dox. 565, 16. W.): Democritus ... said that ... things are in constant motion in the void. Similarly no. 190.

307. (DK 68 A 47) Cic. De fato 20.46: They (i.e. the atoms) had from Democritus a different motive force, a driving force which he calls a blow<sup>1</sup>, from your force of gravity and weight, Epicurus.

308. (Not in DK) Sext. M.IX.112-13 : but it is not reasonable that it [the universe] should [be moved] of necessity by the swirl ... and if it (motion) is disorderly, it could not move anything in an orderly way. But if it moves anything with order and harmony, it will be

something divine and supernatural. Nor would anything move the universe in an orderly and providential way unless it were intelligent and divine. And anything of that sort would no longer be a swirl, for that is something disorderly and short-lived. So that necessarily the world would not be moved by a swirl, as Democritus and his followers said ...

309. (Not in DK) Themist. in Meta. XII.6, 1071b26, 16.34:<sup>1</sup> Leucippus mixed eternal motion with those indivisible particles of his, as Plato placed disorderly motion before the work of god.

310. (DK 68 A 43) Dion. ap. Eus. PE XIV.23.2-3: ... they say that these atoms move at random in the void ... Epicurus and Democritus were of this opinion ... ps.-Plut. Epit. I.4 = Aet. I.4: the atoms ... having a random motion ... (see no. 383a).

311. (DK 68 A 47) Aet. I.23.3 (Dox. 319): Democritus said that one kind of motion was vibration.<sup>1</sup>

312. (Not in DK) Suda, s.v. heimarmenē: and Democritus said ... when those smallest bodies are obviously borne up and down and vibrate and get entangled and separate and are carried about of necessity ...

313. (DK 68 A 58, B 168) Ar. Phys. VIII.9, 265b24: they say that motion occurs because of the void<sup>1</sup>; for they say that nature changes place. Simplicius ad loc. 1318.33: i.e. the primary, natural, indivisible bodies; for they called them 'nature', and said that they are moved by their weight through the void which yields and does not resist, and so they change place. They said that they vibrate<sup>2,39</sup>, and that is not merely the primary motion, but the only motion which they attribute to the elements.

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<sup>39</sup>[ Peripalassesthai, which is otherwise unattested, is Diels' emendation of the ms. reading peripalaisesthai, which gives no sense. If it is accepted, the interpretation 'vibrate', adopted by L, is by no means certain. The formation of the verb suggests that 'be scattered about' is a more plausible sense, which gives a better fit with the standard picture of the random motion of the atoms in the void.]

## II. The original speed of the atoms

314. (Not in DK) Ar. Phys. IV.8, 216a16: ... through the void ... for what will cause them (i.e. those with the greater impetus of weight or lightness) to travel more quickly? For necessarily in the plena ... so all will move at the same speed, but that is impossible. Now it is clear that if there is a void, the consequences are the opposite of the premises adopted by those who say that there is a void ... Simpl. ad loc. 679.4<sup>1</sup>: but those who introduce the atoms do not even give the cause of the difference (of speed) which results from shape. The question is why a flat piece of iron or lead floats rather on water, but not a round or a long one, even if it happens to be much smaller. It is easier for the others to say why ... but for those who say that there is a void that explanation is impossible. 'On these grounds' Alexander says, 'one can argue against Epicurus and perhaps also against Democritus and Leucippus and simply against all who maintain the atoms and the void, that if the atoms move in the void at the same speed it is time for them to state the causes of differences of speed. For neither their [the atoms'] size nor weight nor shape contributes to their speed. But if they move with the same speed, one will never catch up another, nor will the impact on or get tangled up with one another. Difference of shape cannot make cannot make their motion unequal [in speed]. Shapes make the motion unequal by dividing or not dividing [the medium through which the objects are moving], but in the void there is nothing to be divided;<sup>2</sup> so according to them nothing will even come into being'. And perhaps this absurd

consequence will follow from their saying that the atoms are in constant motion.<sup>40</sup> For if some are stationary and others are moving at the same speed, they catch one another up ... but if impulses are not the causes of the motion of atoms in the void, the bodies would not have any initial motion in the void.<sup>3</sup>

### III. Attraction and repulsion. The notion of force.

315. (Partly in DK 68 A 63) Ar. GC I.7, 323b10: Democritus alone, as distinct from the others<sup>1</sup>, took a view of his own; he says that it is the same and the similar which affect and are affected, for it is not possible for other and different things to be affected by one another, and even if different things affect one another it is not in so far as they are different, but in so far as they possess something the same, that that happens. Ar. De sensu 6, 446b10: it is not in virtue of being in a certain state that one thing sees and another is seen, e.g. <because><sup>41</sup> they are equal ... (see no. 431).

316. (DK 68 B 164) Sext. M VII.116: the ancient ... doctrine that like is known by like. (117) but Democritus applies the doctrine to living and non-living things. 'For animals' he says, 'flock together with animals of the same kind, doves with doves, cranes with cranes and similarly with all other non-rational creatures. And it is the same with non-living things, as can be seen from seeds sorted in a sieve<sup>1</sup> and pebbles driven by the waves, where as the winnowing-basket is whirled round beans are sorted out along with beans and barley with barley and wheat with wheat, and under the impact of the waves oblong pebbles are pushed into the same place as oblong and round together with round, as if the similarity in things<sup>3</sup> had something attractive in it<sup>2</sup>'. (DK 68 A 128) Aet. IV.19.13 (Dox. 408): and he [Democritus] says that the air is split up into bodies of the same shape (see no. 491) ... for 'Birds of a feather flock together' [lit. 'Jackdaw sits beside jackdaw'] and 'God always puts like together with like'<sup>4</sup> (Hom. Od. XVII.218). For on the sea-shore similar pebbles are seen together in the same place, round in one place and oblong in another, and when grains are being sieved those of the same shape gather in the same place, so that beans and chick-peas are separate. Ar. MM II.11, 1208b9: for, as they say 'Birds of a feather flock together' and 'God always puts like together with like'.

317. (DK 68 A 135)<sup>1</sup> Theophr. De sensu 49 (Dox. 513): Regarding perception, Democritus does not make clear whether it comes about through similars or dissimilars. If he makes perception come about through alteration, it would appear to be by dissimilars, for like is

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<sup>40</sup> [L translates 'But they do not turn out to be guilty of this incongruity if they assert that the atoms are always in motion'; his commentary on the passage, n. 3, assumes that translation. But Simplicius is saying the opposite, with a slight qualification: 'Perhaps (mēpote) this absurd consequence will follow from their saying that the atoms are in constant motion.' The absurd consequence, that atoms cannot come into contact with one another, and thereby form aggregates, is held to follow from the assumption that all atoms are in constant motion at the same speed, and to be avoided by the abandonment of that assumption, allowing some atoms to be stationary, while others move at the same speed as one another, thus allowing moving atoms to collide with stationary ones. L's interpretation depends on the assumption that, if the atoms are always in motion, 'in that case' some atoms might be stationary, which is plainly contradictory.]

<sup>41</sup> [Insertion by L.]

not altered by like. But again, perception and in general alteration are instances of being acted on, and it is impossible, he says, for things which are not the same to be acted on, but even if different things act [on one another] they do so not in so far as they are different, but in so far as the same attribute belongs to them, i.e. they are alike. So on this point it is possible to take either view ... (50) (see no. 478) the veins in the region of the eyes are straight and free of moisture and matching the shape of the impressions, for everything most readily recognises things of the same kind as itself ... (54) it is irrational to say that things of the same kind are most readily seen, but then explain the image as an effect of contrasting colours, on the ground that things alike in colour are not seen in an image.

318. (DK 68 A 38) Theophr.Phys. opin. fr. 8 ap. Simplic. In Phys. I.2, 181b15, 28.19 (following no. 245): for like is naturally moved by like, and things of the same kind move together and each shape is organised into another compound and makes another state. Hence they claimed that, since there are infinite[ly many] principles they would plausibly account for all qualities and substances, and explain what each thing comes from and how it comes into being. That is why they say that it is only if one makes the elements infinite [in number] that all the consequences are reasonable. (DK 67 A 1) DL IX.31 (see no. 382): many bodies ... move about ... which ... as they collide and circle in all sorts of ways are separated out, like to like. (DK 68 A 9a) Hibeh papyrus 16, p. 62 Grenfell & Hunt ('written under Ptolemy Philadelphus, presumably a fragment of Theophr. On water, DL V.45' [DK II, p. 108, lines 8-9]): he (Democritus) says that in liquids, as in the universe as a whole, like is sorted out together with like as a residue of putrefaction<sup>1</sup>... (DK 67 A 10) Hippol. Refut. I.12.2 (Dox. 564, 16 W.): Leucippus ... says that in colliding with one another [atoms] of the same and similar shapes get entangled.

319. (DK 68 A 33) DL IX.47 (catalogue of works of Democritus): On the stone. (DK 68 A 165)<sup>1</sup> Alex. Quaest. II.23 (II.72.28 Bruns, On the magnet, why does it draw iron?): Democritus posits that effluences are emitted and that like moves towards like, and also that everything moves into the void. On these assumptions he supposes that the loadstone and iron are composed of similar atoms, but smaller in the case of the stone, which is also looser-textured than the iron, with more void. Therefore its atoms are more mobile, and they move more quickly towards the iron (moving towards their like), enter its pores, and as they penetrate it they move its atoms through their small size. The atoms which are set in motion flow outwards towards the stone because of its likeness and of the heavy discharge of atoms. The stone does not move towards the iron because the iron does not contain as much void as the stone. Now one might accept that loadstone and iron are composed of similar components, but how could amber and chaff be? And if someone says that the cause is the same there too, many things are attracted by amber, and if all of them have similar components, they have similar components to one another and would attract one another. The same in Simplic. in Phys. 1056.1: either there are certain corporeal effluences from things which are stationary, which draw other things by contact and interweaving with them, or ...



320. (DK 68 A 37) Ar. On Democritus ap. Simpl. in De caelo 295.9: they conflict and move in the void because of their unlikeness<sup>1</sup> and the other differences mentioned ...

321. (DK 68 A 131)<sup>1</sup> Theophr. De caus. pl. VI.2.3: It was also absurd on the part of those who posit the atomic shapes to make differences of size between things of the same shape lead to a difference in power. For then the powers depend not on the shapes but on the size, which perhaps one might allow to make a difference in the violence and in general the degree of power, but it is not reasonable that they should not have the same power or action at all, since their powers are in their shapes<sup>2</sup>. For if they are shaped alike, they should have the same properties, as in other cases.

322. DK 68 A 140) Aet. V.4.3. (Dox. 417/8): Strato and Democritus say that the power also<sup>1</sup> is a body; for it consists of pneuma<sup>2</sup>. (322 Us.), Byzantine Grammarian, Cod. Paris. 2555, BAG, p. 1168: Democritus, Epicurus and the Stoics say ... that 'Everything which has activity ... or can do anything... is a body'.

323. (DK 68 A 47) Aet. I.12.6 (Dox. 311): Democritus says that the primary bodies ... are moved by mutual impact in the infinite. (DK 68 A 66) Aet. I.26.2 (Dox. 321, on the nature of necessity): Democritus says that it is impact and motion and a blow<sup>1</sup> of matter. (DK 67 A 1) DL IX.31: many bodies ... move ... colliding ... they separate. (Not in DK) Alex. In Meta. I.4, 985b4, 36.21 (cf. no. 294): Leucippus and Democritus say that they atoms are moved by mutual impact when they collide. (DK 67 A 14) Simpl. in De caelo I.7, 259b29, 242.21: these atoms [move] in the infinite void ... they collide and some bounce off at random ... (DK 68 A 49) Galen De elem. sec. Hipp. (no. 298): in moving these atoms ... collide and bounce off ...

#### IV. Combination and separation. Motion.

324. (DK 68 B 137) Hesych. s.v. suggonē:<sup>1</sup> sustasis [combination, structure]. Democritus.

325. (DK 68 B 138) Hesych. s.v. ameipsikosmiē:<sup>1</sup> metakosmēsis [re-ordering].

326. (DK 68 B 139) Hesych. s.v. ameipsirusmein:<sup>1</sup> allassein tēn sugkrisin ē metamorphousthai [change the combination or change the shape]. DL IX.47: among his works on nature ... On changes of shape.

327. (DK 68 B 139a) Hesych. s.v. ameipsichroon: metaballon ta chrōmata [changing the colours].

328. (Not in DK) Ar. Phys. I.4, 187a12: according to the natural philosophers, there are two ways [in which things come into being]. Some say ... (31) and others, that coming into being is combination and separation. Philop. ad loc. 95.12: 'some say combination and separation'. These are Democritus and Empedocles and their followers: for the latter say that things come into being by combination of the elements, and the former by combination of the atoms, and that they perish by separation. Philop. In Phys. I.5, 188a19, 110.11:

Democritus says that combination and separation are the causes of coming into being and perishing ...

329. (Not in DK) Ar. Phys. VIII.1, 250b15: All who discuss nature say that change exists, because they construct worlds<sup>1</sup> and because their entire study is concerned with coming into being and perishing, which cannot occur unless change exists. But those who say that there are infinite[ly many] worlds ... say that change is always occurring (for their coming to be and perishing is necessarily accompanied by their change). Simpl. ad loc. 1120.18: he says that the natural philosophers 'construct worlds' ... for that is how Democritus too constructs worlds ...[saying that] the atomic bodies are combined and separated. (1121.6) Anaximander and Democritus and their followers and subsequently Epicurus and his followers ... since without change there is no coming into being or perishing (see no. 300).

330.<sup>1</sup> (Not in DK) Ar. Phys. VIII.7, 260a26: there are three kinds of change, change of size, change of quality and change of place, which we call locomotion; the last-mentioned must be primary ... (260b5) so if change must always be occurring, locomotion, the primary form of change<sup>2</sup>, must always be occurring too ... for heavy and light, soft and hard, hot and cold seem to be forms of density and rarity. And density and rarity are combination and separation, in accordance with which things are said to come into being and perish. And things which combine and separate necessarily move in place. And also when something increases or decreases in size its magnitude changes place, so from this too it is clear to those who investigate the topic that locomotion is primary. Simpl. ad loc. 1266.33: for if coming to be and perishing are simply combination and separation<sup>3</sup>, as was held by Democritus, Anaxagoras, Empedocles and those who supposed the primary bodies to be completely lacking in qualities and generated the rest from them ...

331. (Not in DK) Ar. Phys. VIII.8, 265a3: nor are those natural philosophers<sup>1</sup> right, who say that all perceptible things are constantly changing; for they must be undergoing some of these changes, and according to them it is alteration in particular; for they say that everything is flowing and decaying, and they even call coming into being and perishing alteration.

332. (DK 68 A 58) Ar. Phys. VIII.9, 265b17: all those who have discussed change attest that locomotion is the primary change; for they ascribe the principles of change to things which cause that form of change. For separation and combination are changes of place ... (24) and they say that things move because of the void<sup>1</sup>; for indeed they say that nature<sup>2</sup> changes place, since movement because of the void is locomotion, which occurs in place. They think that none of the other kinds of change apply to the primary things, but only to things composed of them; for they say that growth and decay and alteration occur as the atomic bodies combine and separate.

333. (DK 68 A 58) Simpl. ad loc. 1318.32: as Democritus and his followers [say that things move] because of the void ... and that is not merely the primary form of change which they

ascribe to the elements, but the only one, while they ascribe the others to the things composed of the elements, saying that growth, decay, alteration, coming into being and perishing occur as the primary bodies are combined and separated. (1320.16): Democritus and his followers say that change of place is the only kind of change, since things which are undergoing alteration are changing in respect of place, but that is not noticed because [what changes place] does so not as a whole, but bit by bit.

334. (Not in DK) Simpl. in Phys. IV.1, 208a29, 522.15: for we all perceive change of place more readily than any of the others. That is why some got rid of perishing itself [i.e. said that nothing goes out of existence], e.g. Anaxagoras and his followers, and some alteration, e.g. those who said 'colour is by convention'<sup>1</sup>, but no-one seriously tried to get rid of locomotion (let us pass over Zeno's puzzle ...).

335. (partly in DK 68 A 46a) Ar. De caelo III.7, 305a33: we must once again consider how they [the elements] come from one another, whether it is as Empedocles and Democritus say, or as those who resolve them into planes ... Empedocles and Democritus and their followers fail to notice that they make things not actually come from one another but merely seem to do so. For they say that each was already there and is separated out, as if things came into being from a vessel, not from matter, and they do not in fact come into being when the change occurs ... now we have already said that change into one another does not occur by separation. Simpl. ad loc. 632.6: Democritus and those who propose planes make the elements come from one another by the combination and separation of the atoms and the planes. Aristotle first objects to Empedocles, Democritus, Anaxagoras and their followers, observing a feature common to all those theories, that the elements posited by each as eternal seem to come into being when separated from the others. Simpl. In Phys. III.4, 203a33, 461.32: even if Democritus did not make things come into being by separation nor said that everything is present in everything.

336. (Not in DK) Ar. GC I.1, 314a8: Those who say that everything is one thing and who generate everything from one thing have to say that coming into being is alteration and that what strictly speaking comes into being is altered. But those who posit that matter is more than one thing, e.g. Empedocles, Anaxagoras and Leucippus, have to say something different. Philop. ad loc. 10.15: those who suppose that the elements are more [than one] can distinguish coming into being from alteration, since they suppose that things come into being and perish by combination and separation, but alteration by repositioning and rearrangement, as Democritus and Leucippus and their followers supposed ...

337. (Not in DK) Ar. GC I.2, 315b15: Since almost everyone thinks that coming into being and alteration are different, since things come into being and perish when they combine and separate [respectively], but are altered when their properties change, we must examine the question, which raises many difficulties, and reasonably so. For if coming into being is combination, many impossibilities follow; but on the other side there are other compelling arguments, not easily refuted, for the conclusion that it cannot be otherwise. If coming into

being is not combination, either there will be no coming into being or alteration at all, or one must try to refute that argument, difficult though it is. The starting-point of all these arguments is whether things come into being and alter and grow, and undergo the opposite processes, in the situation where the primary real magnitudes are indivisible, or whether no magnitude is indivisible ... for this makes the greatest difference (no. 101 follows) ... hence it is more likely that there are indivisible bodies, but that too contains much inconsistency, nevertheless they can, as has been said, account for coming into being and alteration by changes of the position and arrangement of the same thing and by differences of shape, as Democritus does, which is why he says that colour does not exist, since things are coloured by position (no. 105 follows, then Aristotle concludes). (316b32) so there must be invisible atomic magnitudes in things, especially if<sup>1</sup> coming into being is to occur by combination and perishing by separation.

338. (DK 67 A 7)<sup>1</sup> Ar. GC I.8, 325b3: Leucippus says that ... all alteration and being affected occurs in this way; dissolution and perishing occurs through the void, and similarly growth, when solid bodies make their way imperceptibly. (29) Hence for Leucippus there are two kinds of coming into being and separation, that because of the void and that because of contact (for everything is divisible in that way<sup>2</sup>), but for Plato that of contact only, for he says that there is no void.

339. (DK 68 A 37) Ar. ap. Simpl. in De caelo I.10, 279b12, 295.20: and he says that coming into being and its opposite separation occur not only in animals, but in plants and in worlds and in general in all perceptible bodies. Now if coming into being is combination of the atoms, and perishing is separation, for Democritus too coming into being would be alteration.

340. (Not in DK) Ar. GC I.9, 327b33: we must determine whether mixture is something relative to perception. For when things which are mixed are divided in this way into small parts, and so placed alongside one another that each one is not perceptible, in that case are they mixed or not, or [are they mixed] when any part [of one] is next to some part [of the other]? The latter is how it is normally said, e.g. when grains of barley are 'mixed' with grains of wheat<sup>1</sup>, so that each one of the former is next to one of the latter ... Philop. ad loc. 192.29: Empedocles assumes one kind of mixing, in which the kinds which are mixed are preserved, but they are imperceptible because of the small size of the juxtaposition. A second kind is that in which the kinds which are mixed are no longer preserved, but dissolved into their constituents, so that their elements are juxtaposed to one another, as those who postulated the atoms said.<sup>2</sup>

341. (DK 59 A 54) Aet. I.17.2 (Dox. 315): Anaxagoras and Democritus and their followers say that mixtures occur through the juxtaposition of the elements. (Not in DK) Simpl. in De caelo III.4, 303a4, 612.20: and they will do away with mixture, since it will be nothing but juxtaposition of the bodies. Themist. ad loc. 177.33: Both of them (Democritus and Epicurus) posited indivisible principles, called 'primary magnitudes', and they say that they

are infinite in number. They also posit that they are indivisible in magnitude, in the sense of being minimally discontinuous, since of all bodies these are so continuous as to contain no void ... they say that nothing is divisible unless the parts into which it is divided are connected and combined. But in that case void is necessarily extended between the parts. And they say that all these things are generated not by mixture and perishing, but by combination. (179.27) There is no mixture or continuity in bodies, nor even affects in what is affected, nor, moreover, are animals and plants unified in body, nor are change, alteration, growth etc. continuous, which are partly perceptible, and partly seem [continuous] to most people.

342. (DK 68 A 64) Alex. De mixt. 2 (II.214.18 Bruns): Democritus thinks that what is called blending comes about by the juxtaposition of corpuscles, as the things which are blended are divided up into small fragments whose positioning beside one another constitutes the mixture. In reality, he says, nothing is really blended, but what appears to be a blend is the juxtaposition of tiny corpuscles each of which retains the nature which it had before the mixture. They appear to be blended because none of the juxtaposed items is big enough to be perceived individually. (Not in DK) 214.27 Those who say that the homoiomerics are the matter of things which come into being also ascribe blending to that sort of juxtaposition. But since Epicurus wanted to escape from what Democritus had said and did not wish to follow those who say that blending occurs through juxtaposition of the things that are blended, he too said that blending occurs through the juxtaposition of certain bodies<sup>1</sup>, but that the things which are blended do not themselves survive the separation, but are dissolved into their elements, i.e. the atoms composing each different stuff, wine, water, honey etc. ...

#### **V. Fire produces heat by means of light**

342a. (Not in DK) Giordano Bruno On the principles of things [De rerum princip.] p. 40v (Opera latine conscripta, Florence, 1891, vol. I, part 3, p. 415, lines 16ff.): So Democritus was right to say that light is a dry substance<sup>1</sup> which produces heat in moisture<sup>2</sup> and shines through heat, but when it is communicated and diffused by a shining body<sup>3</sup> it produces heat by means of light, as is seen from mirrors, which reflect light from their concave surface and cause heat in bodies opposite them, and from jars full of water, which send out light and fire from their convex surface onto neighbouring bodies.

#### **VI. There are innumerable worlds subject to destruction**

343. (Not in DK) Ar. De caelo I.10, 279b12: everyone agrees that [the world] came into being, , but some say that having come into being it is eternal, while others say that it is perishable like any other compound ... Alex. ap. Simpl. ad loc. 294.26: those, he (Alexander) says, who say that the world came into being and is perishable like any other compound would seem to be Democritus and his followers; according to them each of the infinite[ly many] worlds comes into being and perishes like everything else. Just as in the case of other

kinds of things the one that has come into being is not the same as the one that has perished, except in kind, so they say it is in the case of worlds ... the same atoms remain [throughout], as they are incapable of being affected ...

344. (not in DK) Ar. De caelo I.10, 280a23: if the world is one it is impossible that it should come into being wholly and then perish and never return<sup>1</sup> ... (26) but on the other hand if there are infinite[ly many] worlds it is possible. (DK 68 A 82): Alex. ap. Simpl. & Simpl. ad loc.310.5: 'its dissolution and destruction, which has the power of becoming a world ... to another world, and since there are infinite[ly many] succeeding one another it is not necessary to return to the same world'. That is what Leucippus and Democritus and their followers thought ... since Democritus' worlds change into other worlds ...

345. (DK 67 A 21)<sup>1</sup> Simpl. in De caelo I.5, 271b1, 202.16: Leucippus and Democritus say that there are infinitely many worlds in the infinite void, and that they are composed of the infinitely many atoms. Simpl. in Phys. II.4, 195b36, 331.18: According to Democritus and his followers there are many worlds, indeed infinite[ly many].

346. (Not in DK) Themist. in Phys. II.4, 195b36, 49.12: Democritus ... ascribes the infinite[ly many] worlds and the swirl ... to no other cause than simply chance and randomness. Simpl. in Phys. IV.10, 218b30, 701.30: there were, he (Aristotle) says, a plurality of heavens, i.e. worlds, as Democritus and his followers suppose. Philop. in Phys. II.4, 195b28, 262.2: supposing there to be infinite[ly many] worlds Democritus said that it was by chance that this world came into being in this part of the infinite void, and another in another. And indeed he goes so far as to say that chance is the cause of the ordering of things.<sup>1</sup>

347. (Not in DK) Ar. Phys. III.4, 203b25: and since what is outside [the world] is infinite, it seems that body too is infinite and worlds [infinitely many]; for why here rather than here in the void? (See no. 1, with the passages of Philoponus and Simplicius cited there; no. 139.)

348. (Not in DK) Ar. Phys. VIII.1, 250b18: ... those who say that there are infinite[ly many] worlds, and that some worlds are coming into being and others are perishing, say that change is always occurring. Simpl. ad loc. 1120.18: he says that the natural philosophers 'construct worlds'. That is how Democritus also 'constructs worlds' ... (1121.5) some, e.g. Anaximander and Democritus and their followers, and subsequently Epicurus and his followers, supposed that there are infinitely many worlds, and that they come into being and perish ad infinitum, some always coming into being and others perishing (see nos. 300, 329).

349. (Not in DK) Alex. in Meta. VI.15, 1040a33 (further, such as are possible in another instance, e.g. if another such [world] comes into being, it is clear that there will be a sun [in it]), 534.7: further, he says, such as are possible in another instance, i.e. if there were still other worlds outside this world, as Democritus said, it is clear that the suns in those worlds

would also go round the earth or be concealed at night, so that the definition of this sun would be common and would apply to them too. (DK 68 A 40) Hippol. Refut. I.13.2 (Dox. 565.16): he (Democritus) says the same as Leucippus about the elements, the plenum and the void; he calls the plenum 'what is' and the void 'what is not. And he said that things are in constant motion in the void, and that there are infinite[ly many] worlds differing in size.<sup>1</sup> In some there is neither sun nor moon, in others they are bigger than those in our world and in others there are more. (3) The distances between the worlds are unequal, and there are more in some parts of the universe and fewer in others, and some are growing, some are at their peak and some are decaying, and in some parts they are coming to be and in other ceasing to be. They are destroyed by collision with one another. Some worlds are devoid of animals and plants and any moisture.<sup>2</sup>

350. (Not in DK) Cic. De fin. I.6.21: For Epicurus and Democritus there are innumerable worlds, coming into being and perishing every day. (DK 68 A 81) Id. Acad. prior. II.17.55: You say that Democritus says that there are innumerable worlds, some of which are not merely similar to one another but so completely and absolutely alike in all respects, that there is no difference whatever between them.

351. (Not in DK) Philo On eternity [De aetern.] 3 (VI.75.5 Cohn—Reiter = De mundo, vol. II, ch. 8, p. 609 Mangeii): Now Democritus and Epicurus and the whole crowd of Stoics admit the coming into being and perishing of the world, but not in the same way. For some of them draw a sketch of many worlds, whose coming into being they ascribe to contact and entanglement of atoms, and their perishing to collisions and shattering of those which had come into being ...

352. (DK 12 A 17) Aet. II.1.3 (Dox. 327): Anaximander, Anaximenes, Archelaus, Xenophanes, Diogenes, Leucippus, Democritus and Epicurus say that there are infinite[ly many] worlds in the infinite in all directions ...<sup>1</sup> (= Cyril of Alexandria Against Julian [Contra Iulian.] II.46).

353. (DK 67 A 22) Aet. II.4.6 (Dox. 331): Anaximander ... and Leucippus say that the world is perishable. (DK 68 A 84) Aet. II.4.9 (Dox. 331): Democritus says that the world is destroyed when the larger overcomes the smaller.

354. (Not in DK) Plut. Quaest. conviv. VII.9.3, 733 C: and yet we know that the Democriteans say and write that plagues and unaccustomed diseases are often caused by encountering foreign bodies emitted by the destruction of worlds outside our own.

355. (DK 67 A 1) DL IX.31: Leucippus says that infinite[ly many] worlds are composed of these (i.e. the plenum and the void) and resolved into them (i.e. into the elements) (cf. DK 68 A 1).

356. (DK 68 A 1) DL IX.44: Democritus says that there are infinite[ly many] world which come into being and perish.

357. (Not in DK) Theodoret. IV.15 (Dox. 327): Leucippus, Democritus and Epicurus held that there are many, indeed infinite[ly many] worlds.

358. (Not in DK) Ambrose Hexaemeron [Hexaemer.] I.1.2 (PL 14, p. 123 C): For Pythagoras maintained that there is one world; others that there are innumerable worlds, as Democritus wrote, to whom the ancients ascribed the most authority among the natural philosophers ...

359. (Not in DK)<sup>1</sup> Aug. Contra acad. III.10.23 (PL 32, p. 945): For how shall we decide the dispute between Democritus and the earlier natural philosophers about whether there is one world or innumerable worlds, when he himself and his heir Epicurus could not agree on that?

360. (Not in DK) John of Salisbury Polycraticus [Polycrat.] VIII (PL 199, pp. 722-3): Alexander had an insatiable appetite for praise. When his friend Anaxarchus said, on the authority of his teacher Democritus, that there are innumerable worlds, 'Alas, how wretched am I', he said, 'since I have not yet conquered even one!' Elias On the Categories [in Categ.] 112.23: and once when Aristotle said that according to Democritus there are innumerable worlds, Alexander is said to have wept because he was unable to conquer the whole of a single world ...<sup>1</sup>

## VII. Whether there are weight and top and bottom even outside worlds

361. (DK 68 A 56) Cic. De fin. I.6.17: He (Democritus) ... in an infinite void, in which there is neither top, bottom nor middle, nor any ultimate limit ... (Not in DK) Ar. De caelo IV.1, 308a17: for it is absurd to think that in the world there is neither up nor down, as some say. For they say that there is no up or down, since it is everywhere alike.<sup>1</sup> Simpl.. ad loc. 679.1: in the course of saying ... what he himself thinks up and down are, he answers those who do not think that there is any up or down in the world. Anaximander and Democritus were of that opinion because they supposed that the universe is infinite. For in the infinite nothing is naturally up or down, for those are definitions and limits of distance. But others, such as Plato's Timaeus (63a), against which he is primarily arguing, think that there is no up or down in the world because of its uniformity. Epicur. Epist. I.60: and indeed one should not call any part of the infinite up or down<sup>2</sup>, any more than top or bottom.

362. (Not in DK) De caelo III.1, 299a25: now if it is impossible that, if neither part has weight both [together] should have weight, and either all or some perceptible bodies have weight, e.g. earth and water, as they themselves would say, if the point has no weight ... neither does any body ...<sup>1</sup> But then no weight can be composed of things without weight. For how, except by the merest fiction, will they specify the number and kinds of case in which that will occur? And if it is by weight that one weight is greater than another, the result will be that each of the partless things has weight. For if the four points<sup>2</sup> have weight, something composed of more [points] than that will be heavier than something which has



weight, and what is heavier than a heavy thing must be heavy ... so that the thing which is larger will be heavier by a single point when the common number [four] is subtracted. So a single point will also have weight ... Ar. Meta. I.4, 985b19: concerning motion<sup>3</sup>, how and from what source it belongs to things, they too (Leucippus and his associate Democritus) passed that over carelessly. Alex. ad loc. 36.21: He is speaking about Leucippus and Democritus ... for they do not say where the weight of the atoms comes from. For the partless things which they suppose to be parts of the atoms are, they say, weightless. But how could weight come from a combination of weightless things? He has said more about this in the third book of On the Heaven<sup>4</sup>(III.1.299a25).

363. (DK 68 A 135) Theophr. De sensu 68 (Dox. 513): it would appear to be absurd (for Democritus) to ascribe heaviness, lightness, hardness and softness to largeness, smallness, rarity and density ... [and] to postulate intrinsic natures of heavy and light, hard and soft (for largeness and smallness and the dense and the rare are not relative) ...<sup>1</sup>

364. = 313. (DK 68 a 58) Simpl. in Phys. VIII.9, 256b24, 1318.34: for these (i.e. the atomic bodies) are moved by their weight ... through the void which yields and does not resist; (Democritus and his followers) said that they oscillate.<sup>1,42</sup>

365. (DK 68 A 47) Aet. I.3.18 (Dox. 285) (= Eus. PE XIV.14): Democritus said that there are two [intrinsic properties of the atoms], size and shape, and Epicurus added a third, weight: for, he says, the bodies must be moved by the blow of weight. Id, I.12.6 (Dox. 311): Democritus says that the primary bodies (i.e. the solid bodies) have no weight, but are moved by mutual impact in the infinite [void]<sup>1</sup>. Cic. de fato 20.46: The atom swerves, he (Epicurus) says. First of all, why? They had from Democritus a certain other motive force which he calls a blow, but which you, Epicurus, call the force of heaviness and weight<sup>2</sup>.

366. (Not in DK) Philop. in Phys. II.4, 262.3: Democritus ... said that ... the air ... does not allow it (the earth) to fall down.<sup>1</sup>

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<sup>42</sup> [See translator's note on no. 313.]

### c. THE MECHANICAL OPERATION OF THE WORLD

#### I. Everything tends towards the centre of the swirl.

##### Weight

367. (Not in DK) Ar. De caelo I.8, 277a33: but again it is not the case that one is driven up and one down by another thing, nor does that occur by force<sup>1</sup>, as some say that it occurs by their being squeezed out. Simpl. ad loc. 267.30: after him Strato and Epicurus (276 Us.) were of that opinion, (268) thinking that every body has weight and moves towards the centre, and that as the heavier bodies sink down the lighter are forcibly squeezed out upwards, so that if earth were removed water would come into the centre, and if water, air, and if air, fire ... (269.4) one should know that it was not only Strato or Epicurus who said that all bodies are heavy, and that by nature they move downwards, but move upwards contrary to nature ... for besides them those who said that the atoms are solid said that they are heavy and the cause of heaviness in compounds, as the void is of lightness.

368. (DK 68 A 60) Ar. GC I.8, 326a9: yet Democritus says that each of the indivisibles is heavier in proportion to its greater [size]<sup>1</sup>. De caelo IV.2, 309a1: those who (say that the primary) things are solid are better able to say that the larger are heavier, but in the case of compounds, since that does not seem to be so in every case, but we see that many things are heavier though less in bulk, e.g. bronze than wool, some think and say that the cause is different; they say that the void enclosed in bodies makes them lighter and sometime makes the larger lighter [than the smaller], since they contain more void ... Now that is what they say, but people who say that must add<sup>2</sup> that something which is lighter contains not merely more void but less solid; if it exceeds that proportion it will not be lighter.<sup>3</sup> That is why they say that fire is the lightest thing, because it contains most void. So the result will be that a large amount of gold containing more void will be lighter than a small amount of fire, unless<sup>4</sup> it also contains many time more solid ... But if (matter is a) contrary<sup>5</sup> (310a) as in the case of those who postulate the plenum and the void, it will not be possible to say why the things in between<sup>6</sup> unqualifiedly heavy and unqualifiedly light are lighter or heavier than one another and lighter or heavier than the unqualifiedly light or heavy. Distinguishing things in terms of largeness and smallness seems more like a fiction than the views previously mentioned ... [according to that view] nothing is unqualifiedly light nor upward-moving, except what is passed by and squeezed up [by heavier bodies], and a large number of small things are heavier than a few large<sup>7</sup>. If that is so, the result will be that large amounts of air and fire will be heavier than small amounts of water and earth. But that is impossible. Simpl. ad loc. 684.20: He-proceeds to discuss Leucippus and Democritus and

their followers, who say that the cause of heaviness is the solidity of the atoms and of lightness the fact that [compounds] contain void ... (685.17) 'It is the void ... which makes bodies light' ... they think that in every case it is the presence of more void [in a body] which makes it lighter. (693.4) But not even those who made the void and the plenum the cause of the differences of lightness and heaviness of the elements could defend their account of the cause. (9) For since they cannot say why the void is light and the solid heavy, they cannot say what is the cause of the difference in the things composed of them. He brings against those who define it by largeness and smallness the accusation that, by positing a single substrate and a single nature of things of different sizes, they are open to the same objection as those who posit a single matter<sup>8</sup>; that objection was, that according to them there is nothing which is unqualifiedly light and upward-moving, or unqualifiedly heavy and downward-moving. According to them everything, larger and smaller alike, has the same single natural impulse, not different kinds, since there is a single substrate. But if there is nothing which naturally moves up, it is clear that things which now seem to be moving up either [merely] appear to be doing so because they are being overtaken<sup>10</sup> and left behind by heavier things in their downward motion, or are squeezed up by the heavier and so moved up forcibly, not by nature ... (25) and this, says Alexander, can also be brought as an objection against Democritus and his followers, who said that fire is composed of small, spherical atoms. (DK 68 A 61) Simpl. ad loc. 569.5: Democritus and subsequently Epicurus and their followers say that all atoms are of the same nature and have weight, but since some are heavier the lighter are pushed up by them as they sink down, and so moved upwards, and that is why, they say, some things appear to be light and others heavy. (712.27) Democritus and his followers think that all have weight, but through having less weight fire is squeezed out by those which overtake it, and so moves up and therefore appears to be light. They think that only what is heavy exists, and that it always moves towards the centre.

369. (DK 68 A 135) Theophr. De sensu 61ff. (Dox. 513): Democritus distinguishes heavy and light by size; for if they [the atoms] were separated, even if they differed in shape, nature<sup>2</sup> would have weight proportional to size.<sup>1</sup> But all the same in the case of compounds the one which contains more void is lighter<sup>3</sup>, and the one which contains less is heavier. That is what he said in some cases (62) but in others he says that light is simply the rare. Similarly with hard and soft; hard is the dense and soft the rare. He distinguishes degrees [of hardness and softness] chiefly by proportion. There are differences of position and inclusion<sup>4</sup> of void between hard, soft, heavy and light. That is why iron is harder but lead heavier; for iron is irregularly constituted, with large void spaces in many parts, but dense in other parts, and simply it contains more void, whereas lead contains less void and is uniformly constituted throughout. That is why it is heavier but softer than iron. (71) But when he defines heavy and light by size, all the simple things must have the same motive impulse,<sup>5</sup> so that they<sup>6</sup> have a single matter and the same nature.

370. (DK 59 A 88) Ar. De caelo II.13, 295a9: ... whether the earth now remains stationary through force, having come into the centre through being moved by the swirl; everyone says that that is the cause, on the basis of what happens in the case of liquids and air. For in those cases the larger and heavier always move to the centre of the swirl, which is why those who say that the world was generated say that it came into the centre.<sup>1</sup> (Not in DK) Simpl. ad loc. 526.34ff.: then he says in passing that all those who say that the world came into being (not only Empedocles, but also Anaxagoras and his followers and others)<sup>2</sup> say that the earth came into the centre through the swirl of the heaven, and that they were led to that view because swirls in water and air push the larger and heavier bodies towards the centre, and that the swirl was the original cause of their movement. (Not in DK) Simpl. ad loc. 530.29: those who say that the world came into being say that from the beginning the earth was pushed into the centre by the swirl, and that it remains stationary in the centre by force, like sticks in whirlpools. (Not in DK; see no. 18) Philop. in Phys. II.4, 196a24, 265.6: the swirl set the universe in the order which it now has, so that the air is carried round together with the heaven, and because of the speed of the rotation the earth is kept in the centre. Cf. nos. 288-9.

371. (DK 68 A 93a)<sup>1</sup> Sen. Nat. quaest. V.2: Democritus says 'When there are many corpuscles (which he calls atoms) in a confined void space, a wind arises. But on the other hand there is a quiet and peaceful state of the air when there are few atoms in a large void. For just as one can walk without fuss in a square or street so long as few people are about, but when a crowd gathers in a confined space quarrels break out when people bump into one another, so in this space which surrounds us, when many bodies fill a small space they necessarily collide, drive one another on, are driven back, and get tangled and pressed together, thus giving rise to wind, when the bodies which were clashing with one another and flowing back and forth for a long time combine and move in a single direction. But when a small number of bodies are in motion in a large space, they cannot ram one another or be driven along.' (Not in DK) Themist. in Phys. IV.9, 216b23, 135.15 (discussing those who think that there is a void, if there is to be locomotion): whenever anything changes place the adjacent bodies through which it moves draw together and make way for the things which are moving through them, as if for people walking through a crowd ... (Not in DK) Simpl. ad loc. 683.6: for they say that locomotion occurs only by bodies drawing densely together and making way for the things moving through them, as if for people walking through a crowd ... (Not in DK) Ar. De caelo II.14, 297a8:<sup>2</sup> each ... of the parts has weight only until it reaches the centre, and the smaller cannot move with a wavelike motion when it is pushed by the larger, but rather they are squeezed together, one making way for the other, till one reaches the centre. One must conceive what I am saying as the earth's coming into being in the way that some natural philosophers say, except that they assign the downward motion to constraint.<sup>3</sup>

372. (DK 67 A 24) ps-Plut. Epitome I.4.2 = Aet. 1.4 (Dox. 289): when these bodies gathered in the same place the bigger and heavier all sank to the bottom, but those which were small,

round, smooth and slippery were squeezed out and driven upwards as the atoms gathered together (see n. on no. 383).

373. (DK 67 A 17) Herm. Irris. 12 (Dox. 654): Leucippus ... says that the principles are infinite[ly many] tiny bodies in perpetual motion; the light rise up and become fire and air, and the heavy sink down and become water and earth.

374. (Not in DK) Alfonso<sup>1</sup> On squaring the circle, fol. 99a (my translation of the Hebrew): ... and each part seeks its appropriate place in the whole (i.e. 'the heavier a body is, the nearer it will approach the periphery of the circle, and the lighter it is, the nearer it will approach the centre'). This is the whole cause of lightness and heaviness, which was proposed by Plato, Democritus, Leucippus (?) and other men of old.

374a. (DK 68 A 12) Megasthenes ap. Strabo XV.703: [he says that] in the mountainous region (of India) there is a river Sila, in which nothing floats. [He says that] Democritus denies this ... and Aristotle denies it (= nos. XXII, 408).

## **II. The motion of a body depends on its shape and also on the nature of the medium in which the body moves. Friction.**

375. (DK 68 A 62) Ar. De caelo IV.6, 313a14<sup>1</sup>: the shapes [of bodies] are not the cause of upward or downward motion as such, but of faster or slower motion ... the question now arises why flat pieces of iron and lead float on water, but smaller, lighter things sink, if they are round or long, e.g. a needle, and it is also problematic that some things, such as shavings and other kinds of dust float in the air because they are so small. On all these questions it is wrong to think that the cause is as Democritus says. He says that it is hot bodies rising through the water which support the flat, heavy things, but the narrow ones slip through, as only a few bodies collide with them. But that should happen even more in the air, as he himself objects. But having raised this objection, he makes only a feeble reply, that the rush does not have a single direction, meaning by 'rush' the upward motion of the bodies. Simpl. ad loc. 730.9: Democritus had previously given as the solution of the problem the upward motion of hot bodies in the water; for there are seeds of everything in everythng<sup>2</sup>, which is why everything comes from everything; there are a lot of these in the larger volume of water under the flat body, and in colliding with it they 'support' it, i.e. hold it up, but the narrow ones encounter only a few hot bodies and avoid their impact by slipping between them ... (18) the reason why flat bodies are not held up by hot bodies rising through air is, he says, that the latter are not compressed in air, which is fine-textured and fluid, as they are in water, and as they are dispersed their motion does not have a single direction, so as to enable them to hold up a flat object above them. But in water, which is thicker and more solid, the rising hot bodies are more compressed and squeezed together; perhaps he would say that the cause of their being dispersed is the greater mobility of the air. Themist. ad loc. 246.38: <For Democritus thought that> the reason why flat bodies float while narrow ones sink is that indivisible corpuscles, fiery in nature, bubble up and are

released from the water. When a lot of these indivisibles meet a flat body they hold it up and carry it, but when they meet a narrow one, because there are fewer of them they cannot support it. He [i.e. Aristotle] says 'But if we ask Democritus why this does not occur in air, he gives a feeble mechanistic answer, saying that this does not occur in air because the indivisible corpuscles which bubble up do not move with the same degree of heat and force, since they are dispersed [in air]'. Simpl. in Phys. IV.8, 216a16, 679.4: nor do those who introduce the void identify the cause of the difference (of speed) in things of different shape. The problem is why a flat piece of iron or lead floats on water, while a round or long one does not, even if it is much smaller, which is easy for the others to explain ... but those who introduce the void cannot give that explanation. Simpl. in De caelo IV.5, 313a14, 729.23: since there were some who said that the natural motion of things is caused by their shapes, e.g. those who ascribed to [atoms of] fire the shape of the pyramid or the sphere<sup>3</sup>, he says that the shape is not the cause of motion as such ... Simpl. in De caelo III.4, 303a12, 610.18: they said that the shape of [atoms of] fire ... is spherical, which is why it is plausible [to say] that it penetrates and is mobile, and moves and divides things ... and because of the roundness and smoothness and also the small size of the elements (cf. no. 275).

376. (DK 13 A 20)<sup>1</sup> Ar. De caelo II.13, 294b13: Anaximenes and Anaxagoras and Democritus say that it is the flatness of the earth which is the cause of its remaining stationary<sup>2</sup>, for it does not cut the air underneath but sits on it like a lid, as flat bodies do, for they are not readily moved even by the wind, because of their resistance. They say that because of its flatness the earth does the same to the air underneath it, which stays packed together<sup>4</sup> underneath because it does not have sufficient room to move<sup>3</sup>, like the water is a clepsydra. They cite many bits of evidence<sup>5</sup> to show that enclosed air can support a great weight. Now first if the earth is not flat in shape that would not be the cause of its stability, and yet from what they say it is not its flatness which is the cause, but rather its size, since it is because the narrow space [between the edge of the earth and the surrounding sphere] affords no outlet that the great volume of air remains in place. That volume is great because it is enclosed by the great size of the earth. (DK 59 A 88) Simpl. in De caelo II.13, 294a11, 520.28<sup>6</sup>: the earth remains stable because it is supported by the air beneath it; since the earth is flat and drum-shaped it sits on the air like a lid and does not allow it to escape. That is what Anaximenes, Anaxagoras and Democritus seemed to say ... (33) the cause of its stability is its homogeneity and equilibrium ... as Anaximander and Plato say.

377. (Not in DK) Philop. in Phys. IV.8, 215a22, 644.25: This is another argument given by those who suppose that the void is scattered about in bodies, i.e. Democritus and his followers. Now, he says, you explain why things move more in air, less in water and not at all in earth, by the fact that, though everything consists of a complex of atoms and void, the complex is not identical in everything, but there are more or fewer empty spaces in bodies [of different kinds]. That is why things move more in air, because the empty spaces in air are bigger, so that when the atoms of air are pushed by the moving thing they move more easily into the empty spaces and make way for the moving thing<sup>1</sup>. In water the motion is

slower, since the empty spaces are smaller and it takes longer for atoms to be compressed into them. And in earth motion does not occur, because the empty spaces are extremely small; for the atoms cannot be compressed into them.

### **III. Motion caused by rotation**

378. (Not in DK) Ar. De caelo II.1, 284a24: The reason why the cosmos continues in motion for such a long time is not, as Empedocles says<sup>1</sup>, because it encounters a rotary motion which is faster than its own weight. Simpl. ad loc. 375.25: it is not because the proper motion of the cosmos and the earth, arising from their weight, is reduced by the fast rotation of the heavenly body that the circular motion of the cosmos goes on eternally and the earth remains stationary in the centre,<sup>2</sup> as Empedocles, Anaxagoras and Democritus seemed to say ... for even if both the heavenly body and the earth are heavy, if the faster circular motion predominates over their downward impetus both will remain in the same place, the earth stationary in the centre and the heaven moving at the periphery, as they say water in a ladle is not spilled when the ladle is whirled round, provided that the rotation of the ladle is faster than the downward motion of the water. Philop. in Phys. II.4, 196a24, 262.3: Democritus ... said ... that the ... atoms combine in their chance motions and form the heaven on the outside of the entire cosmos and all the rest [of the heavenly bodies] in order, and by chance the earth is stationary at the centre, since the rotation of the heaven carries round with it the air inside. This air is continuous with the earth, in contact with it everywhere, and its fast rotation does not allow it to fall downwards, but keeps it motionless, like people who whirl round jugs of water without spilling any, because of the speed of the rotation. For since the rotation of the container is faster than the natural motion of the contents it goes round before they can fall out.

### **IV. Why things lying in the centre of a swirl are stationary**

379. (DK 28 A 44) Aet. III.15.7 (Dox. 380): Parmenides and Democritus say that because the earth is equidistant in all directions [from the periphery of the cosmos] it remains in equilibrium, since there is nothing to cause it to incline one way rather than another; for this reason it merely vibrates, but does not change place.<sup>1</sup> (DK 12 A 26) Ar. De caelo II.13, 295b10: There are some, such as Anaximander among the early thinkers, who say that it remains stationary because of the uniformity [of its position], since it is not appropriate for something situated in the centre, at a uniform distance from the extremes, to move up or down or to one side or the other. And since it cannot move simultaneously in opposite directions, it necessarily remains stationary.

### **V. The movements of bodies are interconnected (the likeness to a lever is apparent in their movements)**

380. (Not in DK) Ar. De caelo II.7, 289b13: it is not plausible that the speeds of the stars and the sizes of their orbits should be in the same proportion. Simpl. in De caelo III.2,

300b8, 582.30: Leucippus and Democritus and their followers said that their primary bodies, i.e. the atoms, are in perpetual enforced motion in the infinite, and Timaeus ... so he [Aristotle] says in response to the former view, if one atom is always moved by another forcibly and unnaturally, what is their natural motion? For something which is forcibly moved is moved, as if by a lever<sup>1</sup>, by something which is moved ... (DK 68 A 88) Lucr. V.621-4: for first of all it seems possible that, as the sacred opinion of the great Democritus holds, the closer stars are to the earth the less [quickly] can they be carried round by the swirl of the heavens.

#### d. THE ORIGIN OF THE COSMOS

##### I. General

381. (DK 68 A 57) Ar. Meta. IX.2, 1069b22: and as Democritus says, all things were together potentially, but not actually. Cf. no. 221 with note. (Not in DK) Themist. in De caelo III.2, 300b8, 162.24: they say that before the cosmos there existed in an infinite void and for an infinite time innumerable, as it were indivisible bodies, as Leucippus postulated.

382. (DK 67 A 1 and 68 A 1) DL IX.31ff.: because of their number they can no longer rotate without disturbing their equilibrium<sup>1</sup>, but the small ones are as it were sifted out into the external void, while the rest remain together<sup>2</sup> and, becoming entangled with one another move round together, making a primary spherical structure. (32) This separates off like a membrane<sup>3</sup>, containing bodies of every kind; as these swirl round the surrounding membrane becomes thin through the resistance of the central mass, as the bodies on its inner surface are continually flowing off into the centre because of the contact within the swirl. In this way the earth comes into being, as the bodies which have been carried into the middle remain there, and on the other hand the surrounding membrane grows by separating off bodies from the outside, adding to itself any which it touches as it whirls round. Some of these fasten into a structure which is at first moist and muddy, but which dries as it rotates in the universal swirl, finally catching fire and constituting the nature of the stars. (33) The circle of the sun is outermost, that of the moon the nearest and the others in between (also in no. 389). All the heavenly bodies are set alight by the speed of their motion, but the sun is kindled by the stars as well. The moon contains a small amount of fire. The ecliptic, along which the sun and moon are eclipsed, occurs through the inclination<sup>4</sup> of the earth towards the south. In the north it is always snowy, cold and frozen. The sun is eclipsed rarely, the moon frequently because their cycles are unequal. Just like the coming into being of worlds, so do their growth, decay and destruction occur according to a certain necessity, the nature of which he does not explain ... (44) (Democritus') doctrines are as follows. The principles of everything are atoms and void, and everything else is conventional. There are infinitely many worlds which come into being and pass away. Nothing comes into being from what is not, or passes away into what is not. The atoms are infinite in size and number, and they are carried about in the totality in a swirl, and in that way they generate all the compounds, fire, water, air, earth. For they too are



complexes of atoms, which are incapable of being affected and changeless because of their solidity. The sun and the moon are compounded of round, smooth bodies of that kind ... (45) Everything comes to be by necessity, the swirl, which he calls necessity<sup>5</sup>, being the cause of the coming to be of everything. Cf. Diod. I.7.1 [part of DK 68 B 5.1, v. li, p. 135, lines 4-13]: (those who think that the cosmos comes into being and perishes said that) at the beginning of everything heaven and earth were a single entity of a mixed nature. Subsequently things separated from one another; the cosmos included everything which we see in it, the air was in continuous motion and the fiery part of it rose up to the highest points, being of a nature to rise because of its lightness, and because of that the sun and the other heavenly bodies were caught up in the entire swirl. The muddy, slimy and wet stuffs gathered together because of their weight, (2) and through their continual churning and rolling the sea was formed from the wet parts and the earth, muddy and altogether soft, from the more solid. (3) This was initially solidified by the heat of the sun.<sup>6</sup>

383. (DK 67 A 24) ps-Plut. Epit. I.4.2-4 [= Aet. I.4.2-4] (Dox. 289-91):<sup>1</sup> Once collected, all the larger and heavier [atoms] began to sink down, and the small, round, smooth, slippery ones began to be squeezed out by the pressure of the atoms and to travel upwards. And when the force which was driving them upwards began to be exhausted but they were prevented from travelling downwards they were pushed into places where there was room for them. These were at the circumference, and in these the mass of bodies became curved; and by tangling together in that curved shape they formed the heavens. (3) The atoms were varied but of the same nature<sup>2</sup>, as has been said, and those which were pushed upwards formed the nature of the stars. And the great number of bodies which was exhaled up struck the air and squeezed it, setting it in motion and turning it into wind, which caught up the stars and carried them round, thus preserving their present celestial motion. Then from the atoms which sank down the earth came into being, and from those which rose up came the heavens, fire and air. (4) There was a large amount of material contained in the earth, and when that was compressed by the blows of the wind and the exhalations from the stars<sup>3</sup>, the whole structure, composed of tiny parts, was squeezed together, giving rise to moisture, which, being liquid, flowed into the hollow places which could hold and contain it, or else the water flowed down and hollowed out the low-lying places. That is the way in which the principal components of the world came into being.

384. (DK 68 A 17) Pliny NH XVIII.373: (Democritus) was the first to understand and set out the association between heaven and earth.

## **II. Our cosmos is round.**

385. (DK 67 A 22) Aet. II.2.2 (Dox 329): Leucippus and Democritus say that the cosmos is spherical.<sup>1</sup>

## **III. The origin of the heavens**

386. (DK 67 A 23) Aet. II.7.2 (Dox. 336): Leucippus and Democritus stretch in a circle round the cosmos a covering and membrane woven together of hook-shaped atoms.<sup>1</sup>
387. (DK 59 A 78) Aet. II.16.1 (Dox. 345): Anaxagoras, Democritus and Cleanthes say that all the heavenly bodies move from east to west.
388. (Not in DK; see no. 17) ps-Alex. in Meta. XII.6, 1071b26, 690.29: Leucippus and Plato do not<sup>43</sup> say why some [heavenly bodies] have one motion and some the other ... they ought to have explained why the fixed [stars] move from east to west and the planets in the opposite direction; for not everything which moves does so by chance.<sup>1</sup>
389. (DK 67 A 1)<sup>1</sup> DL IX.30: from their [i.e. the atoms'] motion as they grow<sup>2</sup> [i.e. form bigger aggregates] the nature of the stars is formed. The sun travels round the moon in a larger circle ... (33) The circle of the sun is outermost, that of the moon nearest and the others in between.
390. (DK 68 A 86) Aet. II.15.3 (Dox. 344; on the order of the heavenly bodies): Democritus says that the fixed stars are first, and after them the planets, then the sun, the morning star<sup>1</sup> and the moon. (DK 68 A 88) Lucr. V.628 (see also no. 394 (on the sun)): because it [the sun] is much lower than the burning signs [the fixed stars]. (DK 68 B 5ab): Works on nature ... Description of the cosmos, On the planets ... (DK 68 A 92) Sen. Nat. quaest. VII.3.2: Democritus too, the subtlest of all the ancients, says that he suspects that there are more wandering stars<sup>2</sup> [sc. than are known to us], but he did not set down their number or their names, for at that time the orbits of the five stars<sup>3</sup> were not yet known.
391. (DK 68 A 40) Hippol. Refut. I.13.4 (Dox. 565): Democritus says that in our cosmos the earth came into being before the heavenly bodies, and the moon is lowest, then the sun and then the planets. The planets themselves are at different heights. A cosmos grows until it can no longer take in any more material from outside.
392. (DK 67 B 1) Achilles Introduction [Achill. Isag.] I.13 (from Eudorus): Neither Anaxagoras nor Democritus in the Great World-System accepts that the heavenly bodies are alive.
393. (DK 68 A 85) Aet. I.13.4 (Dox. 341: on the nature of the heavenly bodies): Democritus says that they are stones. [DK 67 A 1] DL IX.32 (the cosmos)<sup>44</sup> grows by separating off bodies from the outside ... some of these (atoms) fasten together into a structure which is at first moist and muddy, but which dries as it rotates ... and then catches fire and forms the nature of the heavenly bodies. All the heavenly bodies are set alight by the speed of their motion. Michael Glycas Annals [Ann.] I.20 (PG 158, p. 61 C = Theodoret. IV.17 (Dox. 341)): Anaxagoras gave this empty account of the nature of the heavenly bodies: he said that

<sup>43</sup> [L's translation (followed by the Italian version) omits 'do not'.]

<sup>44</sup> [In the text of DL the subject is not the cosmos as a whole, but specifically the membrane surrounding the cosmos.]

stones were drawn up<sup>1</sup> from the rotation of the whole, and when they were set alight and fixed above they were called the heavenly bodies. Democritus has the same view about this.

394. (DK 68 A 88) Lucr. V.621ff.:<sup>1</sup> First of all, it seems that this [i.e. the apparent movements of the sun and moon] can come about as the holy opinion of the great Democritus lays down. The nearer each of the heavenly bodies is to the earth the less can it be borne along by the swirl of heaven, for its fierce, rapid strength diminishes lower down, and therefore the sun is left behind with the hindmost signs<sup>2</sup> [of the zodiac], because it is much lower than the burning signs. More so in the case of the moon; the lower its course, near the earth and far from heaven, the less is it able to keep up with the signs. And the weaker the swirl by which, being lower than the sun, it is borne along the more quickly do all the signs catch it up and pass it. That is why it appears to come back to each sign more quickly, because the signs are returning to it.<sup>3</sup>

395. (DK 68 A 39) ps-Plut. Strom. 7 (Dox. 581): Democritus of Abdera ... says that the sun and moon came into being. They move separately, and their nature is not completely hot nor totally bright, but on the contrary they are similar in nature to the earth, for each came into being even earlier in the unfinished formation of different worlds<sup>1,45</sup>, and afterwards as the orbit of the sun grew larger fire became caught up in it. Epicur. Epist. II.90 (DL X.90): The sun and moon were <not> created individually and subsequently incorporated by the cosmos<sup>2</sup> (this against Democritus). See also no. 393.

396. (DK 68 A 87) Aet. II.20.7 (Dox. 349): Democritus (says that the sun is) a fiery mass or stone. Cic. De fin. I.6.20: Democritus, a learned man skilled in geometry, thinks that the sun is large, but he (Epicurus) thinks that it is two feet across.<sup>1</sup>

397. (DK 68 A 1) DL IX.44: the sun and moon are composed of smooth, round bodies of that kind.<sup>1</sup>

397a. (DK 68 B 25) Eustathius in Od. XII.65, p. 1713: ... the evaporations by which the sun is nourished, as Democritus thinks.<sup>1</sup>

398. (DK 59 A 77) Aet. II.25.9 (Dox. 356: on the nature of the moon): Anaxagoras and Democritus say that is a fiery solid, containing plains, mountains and ravines. Cf. Achill. Isag. 21 (p. 49.4 M): others say that the moon is earth which has been set alight, and contains solid fire, and that there are in it another<sup>1</sup> habitation [i.e. community or settlement] and rivers and other things as on earth.

399. (DK 68 A 89a) Plut. On the face in the moon [De fac.]19.929 C: but Democritus says that the moon is situated exactly opposite<sup>1</sup> its source of light in the sun and intercepts and receives<sup>2</sup> its light. So it was to be expected that the moon would be visible and the sun be

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<sup>45</sup> [I follow L's translation. See translator's note on no. 395.]

reflected in it.<sup>46</sup> (DK 67 A 1) DL IX.33: all the heavenly bodies were set alight by the speed of their motion, but the sun was also kindled by the heavenly bodies. The moon also receives a little of the fire.<sup>3</sup> [Not in DK] Olymp. In Meteor. I.8, 345a25, 67.34: the view of Anaxagoras and Democritus (see no. 417) ... this is shown by the moon. For its own light is different from the light it receives from the sun; its own light is of an ashen colour, as we see in a lunar eclipse.

400. (DK 68 A 90) Aet. II.30.3 (Dox. 361: Why does the moon look earthy?): Democritus says that it is the shadow cast by its high parts, for it has valleys and glens.<sup>1</sup>

#### IV. The earth

401. (Not in DK) Ar. De caelo II.13, 293b33: some think that the earth is spherical, others that it is flat and drum-shaped; they cite as evidence that when the sun is rising and setting it appears to be cut off by the earth in a straight line, not a curved one, but if it were spherical the cut-off ought to be curved. (294a8) they add that it must have this shape because it is stationary. Themist. in De caelo II.13, 294b13, 127.33: 'but Anaximenes, Anaxagoras and Democritus'; this was previously discussed in his treatment of the views of others on the shape of the earth<sup>1</sup> (which occurred only once, p. 293b34).

402. (DK 68 A 95) Aet. III.13.4 (Dox. 378): Democritus says that the earth was originally in irregular motion because of its smallness and lightness, but having become thicker and heavier in time it came to rest.

403. (DK 59 A 88) Simpl. in De caelo II.12, 293a15, 511.22: Most of those who say that the cosmos is finite say that the earth lies at the centre, e.g. Empedocles, Anaximander, Anaximenes, Anaxagoras, Democritus and Plato. Aet. III.15.7 (Dox. 380): Parmenides and Democritus say that because of its equidistance in every direction the earth remains in equilibrium, since there is nothing to cause it to incline this way or that; that is why it merely vibrates, but does not change place.

404. (DK 67 A 1) DL IX.30: the earth floats in the middle, swirling round, shaped like a drum.<sup>1</sup>

405. (DK 67 A 26, 68 A 94) Aet. III.10.4 ff. (Dox. 377; on the shape of the earth): Leucippus says that it is drum-shaped, Democritus that it is disc-shaped in width<sup>1</sup>, and concave in the middle. (DK 59 A 87) *Astronomical excursus*, Vatican ms. 381 (ed. E. Maas, Aratea, p. 143): the earth is neither hollow, as Democritus thinks, nor flat, as Anaxagoras thinks.

### c. GEOGRAPHY AND METEOROLOGY

#### I. Geography and geology

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<sup>46</sup> [I follow L's translation. The alternative rendering in Taylor 1999, no. 88, p. 99 'it [the moon] should be visible by letting it [the sun] shine through' appears at least as likely.

406. (DK 68 B 14c) DL IX.47-8: Mathematical works (of Democritus) ... Geography ...

407. (DK 68 B 15) Agathemerus I.1.2: then (after Anaximander, Hecataeus and Hellanicus) Damastes of Sigeum (FGH 5. T 4 I 153) wrote a Voyage, most of it taken from the writings of Hecataeus. Subsequently Democritus, Eudoxus and others wrote descriptions of journeys by land and sea. The early writers depicted the inhabited world<sup>1</sup> as round, with Greece lying in the middle and Delphi in the middle of Greece, since it contains the navel of the earth. Democritus, a man of much experience, was the first to be aware that the earth is oblong, one and a half times as long as it is broad. Dicaearchus the Peripatetic agreed with him. (DK 68 A 94) Eustathius in Il. VII.446, p. 690: Posidonius the Stoic and Dionysius (see Geographici Graeci minores II, p. 105 M.) say that the inhabited world is sling-shaped [i.e. broad and tapering at the ends], Democritus that it is oblong.

408. (DK 68 A 12) Strabo XV.703 (citing Megasthenes): in the mountainous part of India there is a river Sila, in which nothing floats. Democritus, who had travelled over a great part of Asia, does not believe this (= nos. XXII and 374a).

409. (DK 68 A 100) Ar. Meteor. II.3, 356b4: we must consider the saltiness of the sea, whether it is always the same, or whether it [the sea] did not exist at one time and will not exist at some later time, but will give out; for that is what some say. Now everyone agrees that it came into being, since the whole cosmos did, for they think that they came into being at the same time. So it is clear that if the universe is eternal the same must be true of the sea. To think that it is decreasing in size, as Democritus says, and will finally give out<sup>1</sup>, seems no different from the fables of Aesop.<sup>2</sup> He told how Charybdis twice gulped down the water, making the mountains appear the first time and the islands the second, and when she gulps it down for the final time she will make everything dry land. That was an appropriate tale to tell the ferryman when he was angry with him, but less appropriate for people who are seeking the truth. Whatever the cause was of its [the sea's] stability in the first place, whether its weight as some of those people say ... or something else, it is clear that because of that it will have to remain stable for the rest of time. (Not in DK) Alex. ad loc., 78.14: ... as Democritus thinks. He thinks that the sea is continually getting smaller through processes of separation and evaporation, and that it will eventually dry up and disappear. (Not in DK) Olympiod. in Meteor. II.2, 335b20, 143.10: Democritus opposed the general view about the sea; for everyone says that if the universe is eternal, the sea, being a part of the universe, will also be eternal, but if the universe will perish, so will the sea ... (19) he said this because he was deceived by seeing the sea turned to land every day and previously wet places drying up<sup>3</sup> because the flood in the time of Deucalion had occurred nearby<sup>4</sup> (for after the flood the land which was previously wet and flooded became dry again), so that if Heraclitus' fire had occurred nearby Democritus would have said that the dry land was turning into sea, not that the sea was being destroyed. Such is Democritus' supposition. (II.3, 356b9, 149.25) ... he speaks of Democritus' being deceived in that when he saw the sea turned to land in certain parts he thought that the whole of it was drying up.

410. (DK 68 A 99a) Hibeh papyrus 16.62 Grenfell—Hunt, col. 1<sup>1</sup>: there has been much disagreement about how it [the sea] came to be <salty>; some say that it is the residue of the original moisture <after most of the water has evaporated>, others <that it is the sweat of the earth. De>mocritus <seems to agree with those who say that it comes from the earth,<sup>2</sup> like salts and sod>as... (5 lines missing) (col. 2) he says that in liquids, as in the universe as a whole, like is sorted out together with like as a residue of putrefaction, and it is by this process of aggregation of like elements that the sea and other salty substances are formed<sup>3</sup>. That the sea is composed of elements of the same kind is clear from other cases; for frankincense, brimstone, alum, asphalt, or any other remarkable and unusual substance is not found in many places on earth. This, if none other, was an obvious theory for him to propose, since he makes the sea a part of the world, and says that the most astonishing and paradoxical works of nature come about in the same way, as there are not many differences in the elements composing the earth. Since he explains tastes through the shapes [of the atoms], and saltiness as produced by large atoms with many angles, it was perhaps not unreasonable <that saltiness should come about in the same way both on land and in the sea>.

411. (DK 68 A 99) Aet. IV.1.4 (Dox. 385: on the Nile flood): Democritus says that when the snow in the northern parts is melted and dispersed at the time of the summer solstice clouds are condensed from the vapour, and when they are driven to the south and to Egypt<sup>1</sup> by the Etesian winds they produce violent rains which fill the lakes and the river Nile. Diod. I.39: Democritus of Abdera says that snow does not fall in the southern region as Euripides and Anaxagoras say, but in the north, as is obvious to everyone. The volume of snow piled up in the northern parts remains frozen at the [winter] solstice, but when the ice is melted by the heat of summer there is a great thaw which produces much thick cloud in the higher regions with copious evaporation going up into the air. This is driven by the Etesian winds till it hits the highest mountains in the world, which are said to be those in Ethiopia. Colliding violently with those high mountains it generates enormous rainfall, which fills the river, especially at the season of the Etesian winds. It is easy for someone who observes the rise in the river accurately to calculate those seasons; for the Nile begins to rise around the summer solstice, after the Etesian winds have ceased, and it ceases rising after the autumnal equinox, long after those winds have stopped blowing. Anonymous collection after Athenaeus II (on the Nile flood, vol. 1, p. 131 Meineke): Democritus says that round about the winter solstice the northern regions are covered in snow; round about the summer solstice the snow is melted by the movement of the sun and clouds are formed by the evaporation, which are carried by the Etesian winds towards the south, and when they are driven towards Ethiopia and Libya there is much rain which falls and fills the Nile. This, Democritus says, is the cause of the flood. Cf. Sen. Nat. quaest. IV.22.

412. (DK 68 A 99) Scholiast on Apollonius Rhodius IV.269 Wendel: Democritus ... the natural philosopher says that the Nile receives the influx from the sea which lies to the

south, and that the water turns sweet because of the distance and the length of the journey and the evaporation in the heat, which is why, he says, it has the opposite taste.<sup>1</sup>

413. (DK 68 A 97) Ar. Meteor. II.7, 365a14: Next we must discuss earthquakes and movements of the earth ... up till the present three theories have been proposed, the earlier those of Anaxagoras of Clazomenae and before him Anaximenes of Miletus, and subsequently that of Democritus of Abdera. Anaxagoras says ... Democritus says that when the earth is full of water and receives a great deal more in rain it is shaken by that; for when it is over-full and its hollows cannot take any more the water which is forced back causes earthquakes, and when it dries out and draws water from the fuller parts into those which are empty, the impact of the water changing places causes motion.<sup>1</sup> But Anaximenes ... Alex. ad loc. 115.13 (merely repeats Aristotle, with the single change noted in the critical apparatus [i.e. the insertion of 'into a narrow space' after 'forced back']). (116.10) Aristotle does not make any objections to Democritus, perhaps because of his superficiality.

414. (DK 68 A 98) Sen. Nat. quaest. VI.20 (from Posidonius): Democritus thinks that there are several causes of earthquakes, which are sometimes caused by wind, sometimes by water and sometimes by both. He proceeds as follows: 'Part of the earth is concave, into which flows a great quantity of water. Part of this water<sup>1</sup> is thinner and more liquid than the rest. When this is driven out by the influx of what is heavier<sup>2</sup> it collides with the adjacent land and moves it, for it cannot flow without the movement of what it is in contact with ... When it masses in a single place and can no longer contain itself it falls down somewhere, forcing its way first by its weight and then by its impetus. For when it has been shut in for a long time it can only escape downwards, nor can it fall slowly, without banging against whatever is in its way. But if, once in motion, it is stopped somewhere and the force of the flood turns back on itself, it is driven back on to the adjacent land and shakes the parts which are most unstable. Moreover, when the earth is thoroughly steeped in water penetrating to the depths, it finally<sup>3</sup> sinks down, weakening its foundations, and pressing down on the part subject to the greatest weight of the converging waters. Sometimes the wind drives the waves, and if it blows fiercely it shakes that very part of the land on to which it forces the waves; sometimes it is forced to make its way through subterranean passages<sup>4</sup> and shakes everything as it seeks a way out. Just as earth can be penetrated by winds, so wind is too fine-textured to be kept out and too fierce to be resisted once it has been roused to its full speed'.

## II. Phenomena in the heavens

415. (DK 67 A 25, 68 A 93) Aet. III.3.10 (Dox. 369): Leucippus explains that thunder is caused by the violent discharge of fire trapped in the thickest clouds. Democritus says that thunder is caused by an irregular compound's forcing its way down through the cloud which contains it. Lightning is the collision of clouds, as a result of which the elements of fire are filtered through the interstices by friction and collect together. Thunderbolts occur when the violent escape of elements of fire consists of those which are purer, smaller, more

regular and 'close-fitted' to use his own term. Waterspouts occur when compounds of fire containing a particularly large proportion of void enclosed in places with a lot of void, and surrounded by membranes of a special sort, become solidified through their very mixed composition and gain impetus from their weight.<sup>1, 47</sup> (DK 68 B 152) Plut. Quaest. conv. IV.2.4, 665 F: The fire of the thunderbolt is marvellous in its precision and fineness, having its origin in a pure and unadulterated substance, which by the keenness of its motion throws off and thoroughly purges anything damp or earthy which it encounters. 'Nothing is hurled by Zeus', as Democritus says, 'but what comes from the aithēr contains a bright flash'.<sup>48</sup>

416. (Not in DK) Ar. Meteor. I.6, 342b27: Anaxagoras and Democritus say that comets are a 'joint appearance' [i.e. conjunction] of planets, when they seem to be touching as they approach one another ... (343b25) Democritus, however, insists on the truth of his view; he says that some heavenly bodies have been seen when comets dissolve. Alex. ad loc. 26.11: Regarding comets, Anaxagoras and Democritus say that what are called comets are a 'joint appearance' of the planets, which are Saturn, Jupiter, Venus, Mars and Mercury. When these are near one another they appear to touch and to be a single star, which is called a comet. 'Joint appearance' is the name for the appearance of a single star, produced when any of these approach one another. Philop. ad loc. 75.24: these are Saturn, Jupiter, Mars, Venus and Mercury; they did not count the sun and moon. The evidence for this is clear. When, they say, they approach this point and appear to touch one another (they do not actually touch, as they are not in the same plane) they produce a single large 'joint appearance', that is to say a single light appears to be emitted from them all. And I imagine that if they were asked why a comet appears larger and smaller at different times they would say that it appears smaller when the planets are more closely packed together, and larger when they are further apart, especially when some of the fixed stars approach them and make a single 'joint appearance' together with them. And if we ask why they [comets] have different shapes at different times they would say that the cause is their [the planets'] different positions and spatial relations to each other at different times, sometimes in a straight line, sometimes aslant, sometimes towards the south and sometimes towards the north, or however else they can be positioned and spatially related to one another. (DK 59 A 81) Aet. III.2.2 (Dox. 366): Anaxagoras and Democritus say that they are a conjunction of two or more stars shining together.<sup>1</sup> Scholiast on Aratus 545.20 Maas: Democritus and Anaxagoras say that comets arise from the conjunction of two planets [lit. 'wandering stars'] coming close together and shining on each other like mirrors, and they too wander [from the truth] in saying this; for comets are seen not only in the zodiac but in the north and south as well, and three are often seen in the same region. But as there are only five planets it is impossible for three comets to be seen.<sup>2</sup> (Diels vol. III, suppl. p. 653, line 44).<sup>49</sup>

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<sup>47</sup> [I translate L's emendation of the text of the last clause, tēn dia to baros hormēn labēi. DK reads tēn epi to bathos hormēn labēi, translated 'force their way down to the depths' in Taylor 1999, no. 94, p. 100.]

<sup>48</sup> [See translator's note on no. 281.]

<sup>49</sup> [I have been unable to locate this reference.]



Sen. Nat. quaest. VII.3.1ff.: The ancients must have collected observations of the rising of comets, but because they occur so rarely they cannot be tracked down or examined, to see whether they come round in turn at a fixed time. This new kind of observation of celestial phenomena has been recently introduced to Greece. Democritus too, the subtlest of all the ancients, says that he suspects that there are more wandering stars (remainder in no. 390).

417. (DK 59 A 80) Ar. Meteor. I.8, 345a25: Anaxagoras, Democritus and their followers say that the Milky Way is the light of certain stars; when the sun goes below the earth it does not shine on some of the stars. The light of those it does shine on is not seen, since the sun's rays prevent it, but in the case of those in the shadow of the earth, which prevents the sun from shining on them, their own light is said to be the Milky Way. (DK 68 A 91) Alex. ad loc. 37.23: Anaxagoras and Democritus say that the Milky Way is the light of certain stars. When the sun goes below the earth at night the light of those stars above on which the sun is shining is not visible because it is hindered by the sun's rays, but the light of those in the shadow of the earth is visible, since the interposition [of the earth] prevents the sun from shining on them, and that is the Milky Way. Olympiod. ad loc. 67.32: A third opinion is that of Anaxagoras and Democritus. They say that the Milky Way is the light of stars on which the sun is not shining. For, he says<sup>1</sup>, the stars have both their own light and light acquired from the sun (no. 399 follows). But not all, he says, receive the acquired light, and those which do not form the circle of the Milky Way.

418. (DK 68 A 91) Aet. III,1,6 (Dox. 365, on the Milky Way): Democritus says that is the combined illumination of many small stars which shine together with one another because they are closely packed together. Achill. Isag. 55.24ff. M., on the Milky Way: others say that it is the light of extremely small stars which are so closely packed together as to look like one thing, because of the distance from the heaven to the earth, like the scattering of many fine grains of salt.

### III. The ecliptic

419. (DK 67 A 27, 68 A 96) Aet. III.12.1-2 (Dox. 377, on the inclination of the earth): Leucippus says that the earth slopes towards the south because of the rarified texture in the south, since the northern parts are frozen by the cold, whereas those at the other extreme are burned up. Democritus says that because the southern part is weaker than its surroundings the earth increases in size and slopes there; for the northern parts are composed of a single substance, but the southern<sup>1</sup> are a mixture of different substances<sup>50</sup>, so they are weighed down in that region, which is larger because of its crops and vegetation. (DK 67 A 1) DL IX.33: The ecliptic, along which the sun and moon are eclipsed, occurs

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<sup>50</sup> [I follow L's translation; the thought is perhaps that a single substance, in this case presumably ice, is infertile, whereas a mixture of substances is fertile, thus accounting for the aridity of the north and the abundant vegetation in the south. Since the passive of kerannumi can have the sense 'be temperate', applied to climates (v. LSJ, s.v. 3) the reading 'the north is intemperate but the south is temperate', adopted in Taylor 1999, no. 97, p. 101, is not impossible.]

through the inclination of the earth towards the south. In the north it is always snowy, cold and frozen.

420. (DK 68 A 89)<sup>1</sup> Aet. II.33.7 (Dox. 353, on the solstices): Democritus says that they are caused by the swirl which carries it round.

#### IV. Descriptive astronomy and the reckoning of the seasons

421.<sup>1</sup> (DK 68 A 33) DL IX.47-8: Mathematical works: Projections<sup>2</sup>. The Great Year, or Astronomy, a calendar<sup>3</sup> ... Description of the Heavens. Description of the Poles.

422. (DK 68 B 14.5) Schol. Apollon. Rhod. II.1098 (see no. 424.5); in his Astronomy. (DK 68 B 13) Apollonius Dyscolus On pronouns 65.15 Schneider: Pherecydes in his Theology and also Democritus in his Astronomy and other writings frequently use the forms emeu and emeo (genitive singular of ego 'I'. DL V.43: Theophrastus' surviving works [include] On Democritus' astronomy, one book.

423. (DK 68 B 13) Censorinus 18.8: Philolaus has a ... [Great] Year ... as does Democritus; his consists of eighty-two years and twenty-eight intercalary months, like that of Calippus.

424. (DK 68 B 14) Fragments of a calendar from the Astronomy.

1. Vitruv. IX.6.3: Thales of Miletus, Anaxagoras of Clazomenae, Pythagoras of Samos, Xenophanes of Colophon and Democritus of Abdera have left accounts of the processes governing nature and their effects. Based on their discoveries the risings and settings of the stars and predictions of the weather<sup>2</sup> were discovered and bequeathed to posterity by Eudoxus, Euctemon, Callipus, Meto, Philippus, Hipparchus, Aratus and others, using astronomical calendars. Id. IX.5.4: I have expressed the figures of the constellations as they are shaped and formed in the heavens, designed by nature and the divine mind, according to the teachings of the natural philosopher Democritus, but only those whose rising and setting can be observed by the eye.<sup>3</sup>

2. Eudoxus Art of Astronomy 22.21 (p. 25 Blass): according to Eudoxus and Democritus the winter solstice occurs on the 19<sup>th</sup> or 20<sup>th</sup> of the month Athur. (23.3) From the autumnal equinox to the winter solstice there are ninety-two days according to Eudoxus, ninety-one according to Democritus ... from the winter solstice to the spring equinox there are ninety-one days according to Eudoxus and Democritus, ninety-two according to Euctemon.

3.<sup>4</sup> ps-Geminus Isag. (calendar of approx. 2<sup>nd</sup>. cent. BCE), p. 218.14: Scorpio[Oct.-Nov.]: on the fourth day<sup>5</sup> the Pleiades set at dawn, according to Democritus. Normally there are wintry winds, cold and heavy rain, and the trees usually begin to drop their leaves.

220.5 On the thirteenth day, according to Democritus, Lyra rises at sunrise; normally the air becomes wintry.

222.9 (Sagittarius) [Nov.-Dec.] On the sixteenth day, according to Democritus, Aquila rises together with the sun, normally indicating thunder, lightning, rain, wind or both.

224.5 (Capricorn) [Dec.-Jan.] On the twelfth day, according to Democritus, the south wind normally blows.

224.22 (Aquarius) [Jan.-Feb.] On the third day, rain, according to Euctemon; according to Democritus an unlucky day<sup>6</sup>; storm.

226.4 On the sixteenth day, according to Democritus, the west wind begins to blow and continues. Forty-three days from the solstice.

226.15 (Pisces) [Feb.-March] On the fourth day, according to Democritus, there occur changeable days called the halcyon days.

226.23 On the fourteenth day, according to Democritus, cold winds, called the bird winds<sup>7</sup>, blow generally for nine days.

228.23 (Aries) [March-Apr.] According to Democritus, the Pleiades set at sunrise and are not visible for forty nights.

232.16 (Gemini) [May-June] According to Democritus, rain on the tenth day.

232.21 On the twenty-ninth day, according to Democritus, Orion begins to rise; this usually gives a sign.

4. Pliny NH XVIII.231:<sup>8</sup> Democritus thinks that the weather on the winter solstice and the three days following will prevail for the rest of the winter, and similarly for the summer solstice (cf. ps-Theophr. On signs 57). (312) Then, as rarely happens, Philippus ... Democritus and Eudoxus agree that on 28 September Capella (the She-goat) rises in the morning, and the Kids on the 29<sup>th</sup>.

5. Scholiast on Apollonius Rhodius II.1098:

(Zeus roused the strength of the north win to blow

Signifying with rain the stormy arrival of Arcturus)

He says this because there are heavy rains at the time of the rising of Arcturus, as Democritus says in his Astronomy, and also Aratus (Phenomena 745.)

6. Calendar of Clodius, cited by John the Lydian On signs, p. 157.18 Wachsmuth (2<sup>nd</sup> edn): Clodius cites this verbatim from the Etruscan sacred books, and not only he, but also the voluminous Eudoxus, and Democritus first of all, and the Roman Varro ...

7. Ptolemy Supplement to the Signs cited by John the Lydian On signs, p.275.1 Wachsmuth (2<sup>nd</sup> edn): I have written down the signs indicating these things, arranging them

according to the Egyptians, Dositheus ... and Democritus. The Egyptians made their observations in our country ... Democritus in Macedonia and Thrace. So the Egyptian signs apply primarily to the regions round this latitude ...and those of Democritus ... to a latitude in which the longest day has fifteen equal hours [of daylight] [i.e. hours each of which = 1/24 of the 24-hour period].

p. 212.19      17 Thoth (14 Sept.): ... according to Democritus of Abdera <there is a sign and> the swallows disappear.

215.18          29 Thoth (26 Sept.): acc. Democritus rain and unstable winds.

217.12              8 Phaophi (5 Oct.): acc. Democritus it is wintry; seed-time.

220.13              2 Athur (29 Oct.): acc. Democritus cold and frost.

223.14          17 Athur (13 Nov.): acc. Democritus storms by land and sea.

227.5              1 Choiak (27 Nov.): acc. Democritus sky and sea generally disturbed.

229.10          9 Choiak (5 Dec.): acc. Democritus storms.

230.11          14 Choiak (10 Dec.): acc. Democritus thunder, lightning, rain, winds.

233.8              1 Tybi (27 Dec.): acc. Democritus a great storm.

233.15          3 Tybi (29 Dec.): acc. Democritus there is a sign.

234.17          9 Tybi (4 Jan.): acc. Democritus generally south wind.

237.17          25 Tybi (20 Jan.): acc. Democritus shoots appear.

238.6              29 Tybi (24 Jan.): acc. Democritus a great storm.

240.12          12 Mechir (6 Febr.): acc. Democritus the west wind starts to blow.

241.6              14 Mechir (8 Febr.): acc. Democritus the west wind blows.

243.5<sup>9</sup>          30 Mechir (24 Febr.): acc. Democritus changeable days, called the halcyon days.

245.1              11 Phamenoth (7 March): acc. Democritus cold winds; bird winds for nine days.

246.16          22 Phamenoth (18 march): acc. Democritus there is a sign; cold wind.

247.18          1 Pharmuthi (27 March): acc. Democritus there is a sign.

252.5              28 Pharmuthi (24 Apr.): acc. Democritus there is a sign.

258.10          3 Payni (28 May): acc. Democritus rain.

- 259.9            9 Payni (3 June): acc. Democritus rain comes on.
- 262.19           28 Payni (22 June): acc. Democritus there is a sign.
- 263.18           4 Epiphi (28 June): acc. Democritus west wind and rain in the morning, then harbinger<sup>10</sup> winds from the north for seven days.
- 267.4            22 Epiphi (16 July): acc. Democritus rain, squalls.
- 268.21           2 Messori (26 July): acc. Democritus south wind and heat.
- 271.22           26 Messori (19 Aug.): acc. Democritus there is a sign, rain and winds.
8.            John the Lydian On the months IV.16ff. (calendar)
- 78.15 (Wünsch.) (15 Jan.): Democritus says that the south-east wind starts to blow, bringing rain.
- 79.5            (18 Jan.): Democritus says that the [constellation of the] Dolphin sets, and there is usually a change in the weather.
- 79.16            (23 Jan): Democritus says that the south-east wind blows.
- 109.3            (17 March) Democritus says that Pisces sets on the day of the Bacchanalia.
- 159.16           (2 Sept.): Democritus says that on this day there occurs a change of winds, and prevailing rain.
- 163.10           (6 Oct.): Democritus affirms that the [constellation of the] Kids rise, and that the north wind blows.
- 169.3            (25 Nov.) Democritus says that the sun comes into Sagittarius.

## E. THE SENSES AND COGNITION

### a. GENERAL

#### I. History of the topic

425. (DK 68 A 135) Theophr. De sensu 57 (Dox. 513; after nos. 461, 478, 488): This is his account of sight and hearing; about the other senses he says much the same as the majority<sup>1</sup>.

426. (DK 68 A 135) Theophr. De sensu 59 (Dox. 513): The question of the nature of the of the objects of sense in general, and of what each one is in particular, is ignored by the

others. Among the objects of touch they speak about the heavy and the light and the hot and the cold, e.g. that the thin and fine is hot and the dense and thick cold, which is how Anaxagoras distinguishes air and aithēr. They distinguish the heavy and the light in much the same way and also by their upward and downward motions, and in addition they say that sound is a motion of the air and that smell is an effluence. Empedocles also discusses colours and<sup>1</sup> says that white is the colour of fire and black that of water.<sup>2</sup> Even Anaxagoras spoke about them [only] in general. (60) Democritus and Plato discussed them most fully, for they distinguish them individually.

427. (DK 31 B 109a) Oxyrhynchus papyrus 1609, XIII.94: 'image' (eidōlon) should not be understood in the sense in which Democritus and Epicurus use it, or as Empedocles says that effluences are emitted by all reflected objects, and fit into the eyes as images (eikonas).

## II. The senses are explained by the theory of atoms.

### 'Like is known by like' is demonstrated in no. 316.

428. (DK 68 A 119 and 126) Ar. De sensu 442a29: Democritus and the majority of the natural philosophers commit the most extreme absurdity in what they say about perception, for they make all the objects of sense objects of touch.<sup>1</sup> But if that is so, it is clear that each of the other senses is a sort of touch, and it is not difficult to see that that is impossible. Moreover, they treat <the> objects which are specific to particular senses <as> common to all senses.<sup>2,51</sup> For size and shape and rough and smooth as well as sharp and blunt as properties of bodies are common objects of the senses, if not of all, at least of sight and touch. That is why one can be mistaken about them, but cannot be mistaken about the specific objects, e.g. sight about colour and hearing about sound. But some reduce the specific objects to them, e.g. Democritus, who says<sup>3</sup> that white and black are the rough and the smooth, and reduces the flavours to shapes. (Cf. no. 496.) (Not in DK) Alex. ad loc. 83.3: and they made all the objects of sense objects of touch<sup>4</sup>, because they said that apprehension comes about through the effluence from the perceived objects and their impact on the sense-organs, which are affected by them and their differences of shape, size, smoothness and roughness. Further, Democritus and his followers say that white, sweet, sweet-smelling and all the other sensible objects differ from one another only in the shapes, sizes, roughness and smoothness [of their atoms]. For these [i.e. white, etc.] appear to those perceiving them as they do, in so far as the sense of touch is affected and put in a certain state by the things which impact on it in each perception. (93.12) They are not right in saying that there are effluences which are the causes of seeing, For necessarily, if such

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<sup>51</sup> [I follow L's translation. However, the ms. reading cited in L's n. 2 (adopted in Taylor 1999, no. 116, p. 119) fits the argument equally adequately. Democritus is being criticised for reducing objects of specific senses, e.g. colour (specific to sight) to properties such as size and shape, which are discerned by all senses (or at least more than one). Since that error may be described either as treating specific objects as common, or as treating common objects as specific, there is no compelling case for emendation.]

physical effluences are given off by visible things, the things which we see will not survive even for a little<sup>5</sup>, but will be dispersed.

429. (Not in DK)<sup>1</sup> Ar. De sensu 6, 445b3: One might ask whether, if every body is divided to infinity, the same is true of perceptible properties such as colour, taste, smell, weight, sound, cold, hot, light, hard and soft; or is that impossible? For each of these is productive of the perception; for they are all said to be such through being capable of activating it. So the perception must be divided to infinity, and every perceptible thing is a magnitude<sup>2,52</sup>; for it is impossible to see white unless it has some size. If that were not so it would be possible for there to be a body without any colour or weight or any other such property, so that it would not be perceptible at all,<sup>3</sup> since those are the perceptible things. So a perceptible thing will be composed not of perceptible things, but it is necessary<sup>5</sup> [for it to be composed of perceptible things]; for it is certainly not composed of mathematical objects. Further, by what [faculty] shall we judge or know these things? By thought? But they are not objects of thought, nor does thought think about external things without perception. At the same time, if this is so it seems to tell in favour of those who think that there are atomic magnitudes, for the problem would be solved in that way. But that is impossible. We have discussed this in our treatment of motion ... Alex. ad loc. 112.20: those who posit the atoms<sup>6</sup> say that the atomic bodies, which are incapable of being affected, generate sensations and similar properties by their various combination and relations to one another. (111.12) A natural, perceptible body must be divisible into natural parts, and every natural body has properties and is composed of things like that. For if it is not composed of, and divisible into, things like that, natural bodies would be composed of mathematical bodies; for mathematical things are incapable of being affected. But it is impossible for natural, perceptible bodies to be composed of such things, I mean mathematical bodies, nor can they [mathematical bodies] exist in their own right, but they are grasped as separated in thought<sup>7</sup> from sensible properties. (113.3) He says that he has discussed those who posit the atoms, showing that what they say is impossible, in his treatment of motion. By that he is referring to the final part of the Physics, in which he has shown that it is impossible for there to be atomic magnitudes.

430. (DK 68 A 135; see no. 504) Theophr. De sensu 63: (According to Democritus) what is concentrated has sufficient force<sup>1</sup> for each person, but what is spread out over a large space is not noticed. Ar. De sensu 6, 445b31ff.:<sup>2</sup> and it because of this (the difference between potentiality and actuality) that when one sees a grain of millet the ten-thousandth part is not noticed, but yet one sees the whole grain, and the sound of the smallest interval is not noticed, though one hears the tune as a continuous whole. The interval<sup>3</sup> between the extremes is not noticed.<sup>4</sup>

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<sup>52</sup> [I follow L's translation, but the alternative 'everything [produced by the division] is a perceptible magnitude' fits the argument equally well, and the Greek word order better.]

431. (Not in DK) Ar. De sensu 6, 446a20: One might ask, whether the sense-objects themselves or motions arising from the objects<sup>1</sup> (whichever way the actual perception occurs), arrive first in the intervening space, as seems to happen with smell and sound<sup>2</sup>; for someone nearby perceives the smell earlier [than someone further away], and the sound arrives after the strike. So is it the same in the case of something seen and light? It would seem plausible that, as Empedocles says, the light from the sun reaches the intervening space before it reaches the earth and our sight. For whatever moves moves from somewhere to somewhere, so that there has to be some time in which it is moving from one to the other. And every time is divisible, so that there was a time when the ray was not yet being seen but was travelling in the intervening space. Even if<sup>3</sup> whatever one hears one simultaneously has heard, and in general one perceives and simultaneously has perceived, and there is no coming into being of those things, yet<sup>4</sup> they are no less without coming into being, like the sound when the strike has already occurred<sup>5</sup>, though it has not yet reached the ear. The transformation of the letters<sup>6</sup> also shows that motion occurs in the intervening space; for what is said does not appear to be heard, because the air is transformed in moving. So is it the same with colour and light? For it is not in virtue of their being in a certain state that one thing sees and the other is seen, e.g. because they are equal<sup>7</sup>. For then there would be no need for either to be in any particular place, since it makes no difference to things' being equal<sup>8</sup> whether they are near or far from one another.<sup>9</sup> It is plausible that this is the case with sound and smell; for like air and water, they are continuous<sup>10</sup>, but their motion is divided into parts, so that in one sense the earlier perceiver and the later hear or smell the same thing, and in another not. Alex. ad loc. 123.15: he said 'if either the sense-objects themselves or motions arising from the objects reach us'<sup>11</sup> because some people thought that certain effluences travel from the sense-objects to the senses [i.e. to the sense-organs] and they are what are perceived (according to them it is the sense-objects themselves which reach the senses). Ar. De an. II.6, 418b13: ... we have said what the transparent and light are, that it is neither fire nor in general a body nor an effluence from any body<sup>12</sup> (for that too would make it a kind of body) ... (20) Empedocles, or anyone else<sup>13</sup> who said the same, was not correct in saying that light sometimes travels between the earth and [the heavenly sphere] which surrounds it, unseen by us.

432. (Not in DK) Ar. De sensu 6, 446b17: some think that there is a difficulty here too. They say that is impossible for anyone to see, hear or smell the same thing as someone else; for it is not possible for many different people to hear or smell a single thing. For [then] a single thing would be separate from itself. Or [perhaps we should say that] they do not all perceive the original source, e.g. the bell, incense or fire, one and the same thing<sup>2</sup>, but something private, the same in kind but numerically different, which is why many see or hear or smell simultaneously. These are not bodies, but they are<sup>3</sup> a property or a motion (otherwise this would not happen) but one which does not occur without a body. Light is another matter; it is something which exists [in its own right], not [just] a motion.



433. (Not in DK) Philop. in GC I.1, 314b15, 17.16: According to Democritus and his followers the kinds of elements are the shapes, which are incapable of being characterised by the other properties, such as heat and cold, white and black etc., and compound things merely appear to have those properties in virtue of their relation to us. Of these properties, which appear to us, but in reality do not belong to bodies, some follow from the combination of atoms of different kinds, e.g. heat appears in fire as a result of the combination of spherical atoms because of the mobility of the sphere (its ready penetration, because the sphere moves at a [single] point, produces the appearance of heat, just as in the opposite way the cube produces the appearance of cold by its density and immobility), while others appear to change, despite the stability of the compounds, by the repositioning and reordering of their atoms, which we count as analogous to qualitative change. For the same body appears now white and now black, now cold and now hot, according to the repositioning and reordering of the atoms in the compound. Of course, fire always appears the same, in that even if the atoms of which it is composed were repositioned, because they are spherical they always have the same spatial relation to us. But something composed of triangles will not, for instance, be the same if the bases are inwards and the apexes outwards, as it will be if they are in the opposite arrangement. Put simply, (18.1) they said that the properties, both those which are constant, e.g. heat in fire, and those which change from time to time, merely appear to us, but do not belong to things in reality.

434. (Not in DK) Philop. in GC I.2, 315b9, 23.2: since, he says, they [Democritus and Leucippus] say that every appearance is true, and each thing is as it appears, and the same thing often appears to people in opposite ways. Democritus and his followers are able, from their own principles, to preserve the truth of those appearances of the same thing, since they posit an infinite number of shapes of the elements. For as these change their arrangement and alter their position they present now one appearance of the same thing and now another, depending on their relation to the observer and the distance from him. This is how the pigeon's neck gives the appearance of different colours as the sun's rays fall on it. Depending on the different position of people's eyes it looks blue to some, golden to others, black to others and different again to others. And square things look round from a distance, and if we look edge-on at a circular object lying at a distance, it looks straight, and honey tastes bitter to someone feverish, but sweet to someone healthy, and according to the different position of the person looking at it Z looks like either Z or N. Cf. *Lucr.* II.801ff.:

As the feathers round the necks of doves look in the sunshine. Sometimes they look as red as bright garnet and sometimes on a certain view they seem to mix green emeralds with blue. (IV.353) When we see far off the square towers of a city, for this reason it often happens that they look round ...<sup>1</sup>

435. (DK 68 A 135) Theophr. De sensu 64 and 78 (Dox. 517 and 522): Of course, these too [states of observers] are, like everything else, ascribed to the shapes [of the atoms]. Except that he does not set out the shapes underlying them all, but rather those underlying

flavours and colours, and of those flavours are given the more precise account, in which the appearance is referred to [the state of] the individual. ... infinitely many colours and flavours are produced according to the mixtures<sup>1</sup>, adding and subtracting and mixing more of one [kind of atom] and less of another. None of these will be [exactly] like any other.<sup>2</sup>

436. (DK 67 A 30) Aet. IV.8.5 (Dox. 399): Leucippus and Democritus say that perceptions and thoughts are alterations of the body. Aet. IV.8.10 (Dox. 395): Leucippus, Democritus and Epicurus say that perception and thought<sup>1</sup> occur when images approach from outside; neither happens to anyone without the impact of an image.

437. (DK 68 A 115) Aet. IV.10.5 (Dox. 399; how many senses are there?): Democritus says that there are more sensations than sense-objects, but since the sense-objects do not correspond to the experience we do not notice<sup>1</sup> [them]. Aet. IV.9.6 (Dox. 397): Parmenides, Empedocles, Anaxagoras, Democritus, Epicurus and Heracleides say that the particular senses occur through the symmetry of the channels [connecting the individual sense-organs to the rest of the body] , each of which fits the appropriate sense.

438. (DK 68 A 116) Aet. IV.10.4 (Dox. 399): Democritus says that there are more<sup>1</sup> senses [than five], possessed by non-rational animals and sages and the gods.

439. (DK 67 A 14) Simpl. in Phys. I.2, 184b15, 36.1: Leucippus, Democritus and their followers call the smallest primary bodies atoms and say that it is in virtue of their differences of shape, position and arrangement that some bodies are hot and fiery, viz. those composed of primary bodies which are sharper, smaller and regularly arranged, and others cold and watery, viz.. those composed of the opposite<sup>1</sup> kinds, and some are bright and luminous, while others are dim and dark.

### **III. Which aspects of the senses are referred by Democritus to external things and which to internal according to Theophrastus**

440. (DK 68 A 119) Theophr. De caus. plant. VI.1.2: the first question is whether they [i.e. flavours] are to be ascribed to sensory experiences or, as in Democritus, to the shapes of which each thing is composed.

441. (DK 68 A 135) Theophr. De sensu 63ff. (Dox. 513): for there is no nature belonging to hot or cold, but the shapes bring about alteration in us by changing<sup>1</sup> [their position]; what is concentrated<sup>2</sup> has sufficient force for each person, whereas what is spread out over a large space is not noticed. ... (64) Further, people vary in their mixture<sup>3, 53</sup> according to their experiences and their ages, from which it is clear that their disposition is the cause of how things appear to them. That, omitting qualifications, is how one should regard the objects of sense ... (68) It would seem absurd<sup>4</sup> first of all not to give the same cause of everything alike, but to ascribe heaviness and lightness and softness and hardness to largeness,

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<sup>53</sup> [I translate L's reading tēi krēsei, also adopted by DK. The mss read tēi krisei ['in judgement'], which is the reading adopted in Taylor 1999, no. 113, p. 112.]

smallness, rarity and density, while distinguishing hot and cold and the rest by their shapes. And then it is absurd to postulate intrinsic natures of heavy and light, hard and soft (for largeness, smallness, rarity and density are not relative), and yet [make] hot, cold etc. relative to perception<sup>5</sup>, while reiterating that the shape underlying heat is the sphere. (69) But in general the greatest contradiction, which pervades the whole theory, is his both making them sense-experiences and at the same time distinguishing them by their shapes, and saying that the same thing appears bitter to some, sweet to others and different to yet others. For it is impossible for the shape to be an experience, or for the same thing to be spherical to some and differently shaped to others (yet perhaps that is how it has to be, if it is sweet to some and bitter to others), or for the shapes to change according to our dispositions.<sup>6</sup> It is simply the case that shape is intrinsic, but sweet and sensible qualities in general are relative and in other things<sup>7</sup>, as he says. And it is absurd to require that the same appearance should be presented to everyone who perceives the same thing, and to examine their truth, when he has previously said that thing appears differently to people with different dispositions, and again that none has more truth than any other. (70) It is reasonable that the better [should have more truth] than the worse and the healthy more than the sick<sup>8</sup>, for they are more in accordance with nature. Further, if there is no [intrinsic] nature of the objects of sense because they do not appear the same to everyone, it is clear that there will be no nature of animals or other bodies, for there is not [universal] agreement on those either. And again, even if the same things do not taste sweet and bitter to everyone, still the nature of sweet and bitter appears the same to everyone, as he himself would appear to testify. For how could what is sweet to us be bitter or sour to others, unless there were some determinate nature of those things? (71) Further, in what he says he makes it clearer that each<sup>9</sup> comes to be and is in reality, and it is only in the special case of bitterness<sup>10</sup> that he says that they have a share of understanding.<sup>11</sup> So for these reasons it would appear contradictory not to postulate any nature for the secondary qualities, and in addition there is the point made earlier<sup>12</sup>, that it is contradictory for him to ascribe a shape to bitterness and the other qualities, but to say that they have no intrinsic nature. For that should either be true of none or of those as well, since all have the same cause. Further, the hot and the cold, which they posit as principles<sup>13</sup>, ought to have a nature, and if they do, then so should the rest. But now he posits a nature of hard and soft and heavy and light, which appear to be predicated no less relatively, but none of hot and cold and the rest. But once he distinguishes heavy and light by size, necessarily all the simple bodies have the same motive impulse, so that they will all be of a single matter and the same nature.<sup>14</sup>

442. (DK 68 A 133) Theophr. On smell 64: Why does Democritus make flavours relative to taste, but smells and colours not relative to the senses underlying them? He ought to, [since they arise] from the shapes.

## **b. THE SOUL**

**I. The soul consists of atoms of fire. The soul is the principle of motion. The respective definitions of body and soul.**

443. (DK 68 A 33) DL IX.46: his works ... Books on nature ... On mind, On the senses: some regard these as one work, entitled On the soul.

443a. (partly in DK 67 A 28)<sup>1</sup>: Ar. De an. I.2, 403b28: some say that the soul is chiefly and primarily the cause of motion, and as they believed that what is not itself in motion cannot move anything else they conceived the soul as something in motion. Which is why Democritus says that it is hot, a sort of fire<sup>2</sup>; for while there are infinitely many shapes, i.e. atoms ... the universal seminal mixture he calls the elements of the whole of nature, as does Leucippus, but the spherical ones are the soul, because such 'rhythms' [i.e. shapes] can most easily penetrate through everything and move the others, being themselves in motion. They conceive that is the soul which gives motion to animals. (Not in DK) Philop. ad loc. 67.10: since Democritus thought that motion belonged to the soul, he said that it is fire because of its mobility<sup>3</sup>; he says that fire is composed of spherical atoms, since the sphere is the most mobile of shapes, as it touches a plane [only] at a [single] point<sup>4</sup>. So since the soul moves things, and what moves must be most of all subject to being moved (for the more it is moved, it moves), for that reason he says that the soul and fire are composed of the most mobile atoms, i.e. spherical. So in this respect, I mean his saying that the soul is identical with fire, Democritus says the same thing as Heraclitus; the difference is that Heraclitus said that that fire is a continuous body, but Democritus did not<sup>5</sup>. Cf. Philop. in GC I.1, 314b15, 17.16. (Not in DK) Simpl. ad loc. 25.26: first he mentions Democritus as clearly attributing bodily motion (i.e. locomotion) to the soul, since he supposed that it is something composed of spherical atomic bodies, which also compose fire. Mobility and the ability to penetrate everything if not prevented are attributes of fire and the soul, because the sphere is a shape with no angles.

444. (DK 68 A 101) Ar. De an. I.2, 405a5 (after no. 67): some thought that the soul is fire, which is the finest and most incorporeal of the elements<sup>1</sup>, and further is in motion and the primary mover of the others. Democritus' explanation of either attribute<sup>2</sup> is more subtle; he says that the soul is the same as the mind<sup>3</sup>, and this<sup>4</sup> is one of the primary indivisible bodies, which is a source of motion because of its smallness<sup>5</sup> and shape; he says that the sphere is the most mobile shape, and mind and fire are of that kind. Philop. ad loc. 83.27: he said that fire is incorporeal, not incorporeal in the strict sense (none of them said that) but incorporeal among bodies because of its rarity of texture. Themist. ad loc. 13.10: Democritus explained either attribute more subtly, the causation of motion by smallness of parts, mobility by their shape; he thinks that both attributes belong to spherical atoms. Philop. ad loc. 82.23: Democritus too would be one of them, as he introduced the void along with the atoms. Sophon. ad loc. 14.15: Democritus identified the cause more subtly, in that both attributes belong to fire, for the primary indivisible spherical bodies, which he

supposed to be fire and soul, are more productive of motion than the others, and are active because of their small size and their shape.

445. (DK 68 A 104) Ar. De an. I.3,406b15: Some say that the soul moves the body in which it is in the same way as it is itself moved, e.g. Democritus, who says much the same as the comic dramatist Philippus. He described Daedalus as making the wooden statue of Aphrodite move by pouring in quicksilver. Democritus says something similar; he says that the indivisible spheres are in motion because their nature is such that they are never still, and they move the whole body by dragging it along with them.<sup>1</sup> Sophon. ad loc. 18.25: This is how Democritus and his followers say that the soul is moved, by introducing the spherical atoms; they are in constant motion because their nature is such that they are never still, and they drag the whole body along with them, since they are the soul ... we may compare what Plato says in the Timaeus (34b ff.) about the soul of the universe; he would appear to be giving the same account there as Democritus or anyone else who says that it moves things by being itself moved, except that they shut it up in the body as if in a prison, whereas he interweaves it<sup>2</sup>. (DK 68 A 106) Ar. On breath 4, 417b30: Democritus ... says ... that the soul and the hot are the same thing, the primary shapes among the spherical ... for there are in the air a great number of these, which he calls mind and soul.<sup>3</sup> [Not in DK] Ar. PA II.7, 652b7: Some suppose that the soul of the animal is fire or some such power, a crude supposition.

446. (Not in DK) Ar. De an. I.5, 409b7: and it happens that the animal is moved by the number<sup>1</sup>, which is how we said that Democritus moves it. For what is the difference between talking of small spheres and large units, or in general units in motion? Either way one has to move the animal through the motion of those things. Simpl. ad loc. 64.12: and each unit and each of Democritus' spheres is a soul.

447. (DK 67 A 28) Aet. IV.3.7 (Dox. 388): Leucippus says that the soul is composed of fire. (DK 68 A 102) Aet. IV.3.5 (Dox. 388): Democritus says that the soul is a fiery structure of things grasped by the mind<sup>1</sup>, which have spherical shapes<sup>2</sup> and the power of fire; it is something corporeal.

448. (DK 28 A 45) Aet. IV.5.12 (Dox. 392): Parmenides, Empedocles and Democritus say that the mind and the soul are the same thing; in their view no animal would be altogether lacking in reason. (Not in DK) Porphyry On abstention from animal food [Porph. De abst.] III.6.195, 2 Nauck: Aristotle, Plato, Empedocles, Pythagoras, Democritus and everyone who was concerned to discover the truth about them (i.e. animals) recognised that they possess reason. (DK 68 A 117) Aet. IV.4.7 (Dox. 390): Democritus says that everything has some kind of soul<sup>1</sup>, including dead bodies<sup>2</sup>, which is why it is always apparent<sup>3</sup> that they have some warmth and perception, though most of it is breathed out. Aet. IV.9.20 (= Alex. in Top. 21.21) Dead bodies perceive, as Democritus thought. (DK 31 A 70) ps-Ar. On plants I.1, 815b16 = Nicolaus of Damascus p.6.17 Meyer: Anaxagoras, Democritus and Abrucalis (= Empedocles) said that plants have intellect and intelligence. (DK 68 A 164) Albertus Magnus

On stones I.1.4 (II.213b Jammy): Democritus and others say that the elements have souls and are themselves the cause of stones' coming into being; consequently he says that there is a soul in a stone just as in any other generative seed, which in bringing a stone into being moves the heat within the material itself in the way in which the hammer is moved by the smith in making an axe or a saw. (DK 31 A 89) Psellus On stones 26 (Ideler, Physici I.247.24; Mély, Lapidaire, p. 204.12): Many have ventured to explain the presence of these powers in stones, Anaxagoras, Empedocles and Democritus among earlier thinkers, and Alexander of Aphrodisias shortly before us.

449. (Not in DK) Cic. Tusc. I.11.22: Let us pass over Democritus, who, though a great man, constructs the soul by a chance collocation of light, round particles. According to them there is nothing which is not the effect of a crowd of atoms. (18.42) But let us totally reject that chance collocation of round, light, indivisible bodies, which Democritus thinks of as warm and breathing, that is to say alive.

450. (DK 68 A 103) Macrobius Commentary on Cicero, Somnium Scipionis [Macrob. In Somn. Scip.] I.14.9 9 (on the soul): Democritus says that the breath which characterises the atoms has such a power of mobility that it penetrates the entire body.

451. (Not in DK) Nemesius On the nature of man ch. 2 (28) Matthaëi: Democritus, Epicurus and all the Stoic school say that the soul is a body ... they say that it ... Democritus that it is fire, for a collection of spherical atoms composes fire, air<sup>1</sup> and the soul (= Gregory of Nyssa, On the soul I.188). Herm. Irris 2 (Dox. 651): Some of them, e.g. Democritus, say that fire is soul.

## II. Soul and intellect. Their location in the body. Thought.

452. (DK 68 A 106) Ar. On breath 4, 471b34: Democritus says ... that in ... the air there are a great number of such things, which he calls mind and soul. Ar. De an. I.2, 404a27: Democritus says simply that soul and mind are the same thing. For the truth is what appears ... he does not, indeed, treat the mind as a faculty concerned with truth. (405a8) Democritus' explanation is more subtle ... he says that soul is the same as mind.<sup>1</sup> (DK 68 A 1) DL IX.44: ... the soul ... which is the same things as the mind ... is composed of ... smooth, round bodies. See nos. 68 and 69.

453. (DK 68 A 104a) Ar. De an. I.5, 409a32: Democritus says that the body is moved by the soul ... for if the soul is in the whole of the perceptive body<sup>1</sup>, there must be two bodies in the same place, given that the soul is a body.

454. (DK 68 A 108) Lucr. III.370-373.<sup>1</sup>

On this topic you may by no means accept what the sacred opinion of the great Democritus maintains, that the elements of mind and body alternate, juxtaposed one after the other<sup>2</sup>, and so weave the web of our limbs.

455. (DK 68 A 105)<sup>1</sup> Aet. IV.4.6 (Dox. 390): Democritus and Epicurus say that the soul is bipartite, having the rational part situated in the chest and the non-rational distributed throughout the entire combination of the body. Aet. IV.5.1 (Dox. 391): Plato and Democritus [locate] (the controlling part) in the whole of the head. Theodoret. V.22 (Dox. 391): Hippocrates, Democritus and Plato say that the controlling part is located in the brain.

456. (DK 68 A 107) Sext. M VII.349: some say that the intellect is located in the whole body, e.g. some who follow Democritus.

457. (Not in DK)<sup>1</sup> Philop. in GC I.4, 793b33, 100.27: if someone says, as Democritus does, that the nutritive and productive faculty is not in the heart ... (30) so if someone says that that [part of the] soul is not in it [the heart] but outside as the sculptor is (for the sculptor is not in the statue) but enters the heart later, one would not only raise a difficulty but would ask whether it enters after the complete development of the whole body of the animal or not. If he were to say that it is after the complete development, that will be false; for in anatomical investigations we clearly see the heart moving and being nourished though only the heart, and no other part, is yet in existence ...

458. (Not in DK) Tertull. De an. 15: A certain Dicaearchus of Messenia and Andreas and Asclepiades among the physicians denied the existence of a controlling centre because they maintain that the senses, which the centre is supposed to control, are in the mind itself ... but Dicaearchus is opposed by the majority, including the philosophers Plato, Strato, Epicurus, Democritus, Empedocles, Socrates, Aristotle ...

459. (Not in DK) Alex. De sensu 27.5: that there are several faculties of the soul, not merely the same soul which appears to be a plurality because of its changes and diverse activities in relation to and by means of other things, as Democritus and some others think, is clearly shown by the conflict of faculties in self-controlled and uncontrolled people.

460. (DK 68 A 135) Theophr. De sensu 58: About thought he said merely that it occurs when the constituents of the soul are in the correct proportion<sup>1</sup>; when someone gets too hot or too cold, then he says change takes place. That is why it was a good idea of the ancients that one can 'think other things'. It is clear, therefore, that he explains thought by the proportion of the body, which is perhaps consistent on his part, because he makes the soul out to be a body.<sup>2</sup> These and similar opinions of his about perception and thought are more or less derived from earlier thinkers ...<sup>3</sup> (72) On this subject he seems to follow those who give a general account of thought as coming about by alteration, which is the most ancient view; for all the early thinkers, poets and philosophers alike, describe thought in terms of [the thinker's] condition<sup>4</sup>. For other passages explaining allophronein ['think other things'] see no. 67 w. comm.

461. (DK 68 A 135)<sup>1</sup> Theophr. De sensu 54: And it is absurd to ascribe the sense (of sight) not merely to the eyes, but to the rest of the body as well. (55) ... air ... penetrates the

entire body equally, but especially and most of all through the ears. (57) ... it has its own particular absurdity in having the sound penetrate the whole body, and in the case where it has come through the ears, in having it permeate the whole, as if perception was the work,, not of the organs of hearing, but of the whole body. (See also nos. 453, 456.)

### III. Breath

462. (DK 67 A 28) Ar. De an. I.2, 408a8: Leucippus and Democritus think that it is the soul which is the source of motion in animals. Which is why breath is the limit of life.<sup>1</sup> For when the surrounding environment compresses the bodies [of animals] and squeezes out the atoms which give them motion, being themselves never still, help arrives in the shape of other such atoms which are breathed in. They prevent the atoms already present in the animals from being separated out, helping to restrain the compressing and congealing force. And as long as they can do that, they stay alive. (Not in DK) Philop. ad loc., 68.20: Democritus and his followers tried to show that everything that happens to animals is consistent with their theory. He said that the surrounding environment is cold and compresses the bodies, and that as they are compressed the spherical atoms, from which derive the soul and life of the animal, are squeezed out like the stone of a fruit.<sup>2</sup> When the animal is in danger of destruction from the squeezing out of the atoms, breathing in comes to its aid ... (26) that is why we are alive as long as we are breathing, but when we have ceased to breathe we have ceased to live too. We stay alive not only by breathing in spherical atoms to replace those which have been emitted, but also because the greater force of those which we breathe in prevents others from escaping, and as their number increases they warm the body<sup>3</sup> through their mobility and thus repel the external cold which causes them to be squeezed out. And if someone were to ask why we breathe in only spherical atoms, they would say that even if those are not the only ones which we breathe in, they are the majority because of their mobility, just as it is particularly those which are squeezed out when the body contracts from the cold, since their lack of corners<sup>4</sup> makes them slippery, so that they are naturally mobile. The term 'breath' is applied both to breathing in and to breathing out, but here they have applied it to breathing in. (69.6) 'Being themselves never still'; by these words he is refuting an apparent objection. Someone might say 'What? Are the atoms present in the body from the beginning not sufficient to give life to the animal?' Well, then; are they the only ones which are squeezed out by the contraction?' 'Yes,' he says, 'since even if none are squeezed out they are dispersed because they are in themselves mobile, not at rest; that is why they need external help ...' (69.13) 'They prevent the atoms already present in the animals from being squeezed out'; these atoms, he says, which enter the body when we breathe in are not only themselves the cause of life, but they prevent the escape of those which would otherwise be emitted, by restraining the external cold through the warmth caused by their motion, and also by drawing along with them, through the greater force of their motion, atoms which are already being emitted. For given two opposite motions, the stronger draws the weaker along with it. That is how, since more atoms are breathed in than out, those which



are breathed in draw the others along with them. (Not in DK) Themist. ad loc. 9.13: and if the soul is not visible though it is a body it is not surprising (there follows the passage about the motes in the air cited under no. 201) ... smaller and faster ... and above all spherical atoms, of which the soul is composed. That is why he says that breath is the limit of life.

463. (DK 68 A 106) Ar. On breath 4, 471b30: Democritus says that the effect of breath is to prevent the soul being squeezed out. He does not, however, say anything to the effect that nature does this for the sake of that end, since along with the other natural philosophers he has nothing to do with that kind of causation.<sup>1</sup> He says that the soul and the hot are identical, and that their primary elements are spherical. When these are separated out by the squeezing of the surroundings, help comes from breathing. For in the air there are a great number of atoms of that kind, which he calls mind and soul; when one breathes in these come in along with the air and, by resisting the pressure, prevent the soul which is in the animal from slipping out. That is why life and death depend on breathing in and out.<sup>2</sup> For when the pressure of the surroundings gets the upper hand and there is no further external supply to resist it, i.e. when the animal cannot breathe in, then death occurs; for death is the loss of those atoms from the body through the pressure of the surroundings. But he gave no explanation of why everything must die, not in a chance fashion, but naturally of old age, or by violence contrary to nature. (Not in DK) Ar. On breath 3, 482a28:<sup>3</sup> concerning breath, some, e.g. Empedocles and Democritus, do not say for what purpose, but merely how it occurs, and some do not even say how, but treat it as obvious. But if it occurs for the purpose of cooling, that should itself be made clear.

464. (Not in DK) Ar. On breath 2, 470b28: Democritus of Abdera and some others who have discussed breath said nothing about the other animals [sc. than those with lungs], but seem to take it that all breathe.

465. (DK 68 a 148)<sup>1</sup> Ar. PA III.4, 665a30: None of the bloodless animals has any viscera. Democritus seems wrong to think that those parts of the bloodless animals are too small to be seen.

#### **IV. Souls are mortal.**

466. (DK 67 A 34) Aet. V.25.3 (Dox. 437, whether sleep and death are states of the soul or of the body): Leucippus says that sleep is a state of the body, but when there is loss of the fine-textured parts exceeding the access of psychic warmth, that excess causes death; these are things which happen to the body, not the soul.<sup>1</sup> (DK 68 A 109) Aet. IV.7.4 (Dox. 393): Democritus and Epicurus say that the soul is mortal, and that it perishes together with the body (= Theodoret. V.24). (DK 68 B 297) Stob. IV.52.40 (IV.34.62): Democritus: some people who are not aware of the dissolution of mortal nature ... inventing false tales of the time after death. (Not in DK) Lact. Inst. III.17.22: Souls indeed perish, Democritus says. For what is born together with the body must die together with the body ... This view of Epicurus,

whether it was that of Democritus or Dicaearchus ... (18.6) Some say the opposite, that souls survive after death ... For Democritus thought otherwise, but all the same (Lucr. III.1041) 'Of his own free will he offered himself to death'<sup>2</sup>. Lact. Inst. VII.7.9: Pherecydes and Plato argued that souls are immortal ... Therefore Dicaearchus was wrong, as was Democritus, who argued that the soul perishes and is dissolved together with the body.<sup>3</sup> Jerome Epist. 60.334: that the soul is immortal and that it exists after the dissolution of the body, as Pythagoras dreamed<sup>4</sup>, but Democritus did not believe. Lucian The lover of lies [Philops.] 32 (= no. 579a): he was so firmly convinced that souls no longer exist apart from their bodies.

### c. SIGHT AND THE THINGS PERCEIVED BY SIGHT

#### I. What images (eidōla) are in general

(cf. no. 483 below)

467. (DK 68 B 123) Etymologicum Genuinum, s.v. deikelon: in Democritus an effluence similar in form to the things [sc. from which it is emitted].

468. (DK 68 A 122)<sup>1</sup> Ar. De an. II.7, 419a15: Democritus was not right to think that if the intervening space were void an ant in the heavens would be clearly seen.

469. (DK 67 A 30)<sup>1</sup> Aet. IV.8.10 (Dox. 395): Leucippus, Democritus and Epicurus say that perception and thought occur when images approach from outside (cf. no. 436). (DK 67 A 29) Aet. IV.13.1 (Dox. 403): Leucippus, Democritus and Epicurus think that visual experience occurs in accordance with the penetration of images. (DK 68 A 1) DL IX.44: and we see in accordance with the impact of images.

470. (DK 68 A 118) Cic. ad fam. XV.16.1: Somehow when I write anything to you it seems almost as if you were with me, and not just 'in imaginative images', in the words of your new friends who think that their 'intellectual imaginations' are stirred up by Catius' spectres – for, don't forget, the Epicurean Catius, the Insubrian<sup>54</sup>, who died recently, called 'spectres' what the master from Gargettus<sup>55</sup> [i.e Epicurus] and Democritus before him called eidōla ['images']. Now though the eyes can be struck by those spectres, which meet you willy-nilly, I don't see how the mind can be. You must explain it to me when you come safe home, so that I can have your spectre in my power, so that it presents itself as soon as I want to think of you, and not only of you, whom I have in my heart, but if I begin to think of the island of Britain its image will come flying into my chest. (Not in DK) Cic. Acad. prior. II.40.125: Whom shall I choose? Democritus? Do you really think ... that if we seem to see something in our mind now, or even in a dream, images from outside are bursting through our bodies into our minds? Cic. ND I.38.107: What are those images of yours (i.e. of you

<sup>54</sup> [The Insubrians were a people from Cisalpine Gaul, beyond the Appenines.]

<sup>55</sup> [The Athenian deme to which Epicurus belonged.]

Epicureans) and where do they come from? This fantasy derives totally from Democritus, but he has been widely criticised. Cic. De fin. I.6.21: The images, which they (the Epicureans) call eidōla, by the penetration of which we not only see, but also think (are from Democritus).

471. (Not in DK) Aug. Letter 118, 29ff. (PL 33, p. 446): I am surprised that Democritus was not made aware of the falsehood of his views by this doctrine especially, that images of such size come into our little mind, and, if they are corporeal, as they maintain, they are enclosed in such a little body, but cannot, in their totality, come into contact with it... Democritus thinks that the mind is incorporeal ... nor can an incorporeal mind think by contact with corporeal images which impinge on it. Certainly both Epicurus and Democritus are equally in error about sight; the whole of such large bodies as those of the images cannot possibly come into contact with such little eyes. (30) Now when they are asked why, when innumerable images are flowing from some body, we see only a single image of it, they reply that precisely because there is a constant flow and transition of images, their being as it were densely packed together makes there seem to be a single image composed of many ... (31) They say that all natural things are nothing but bodies, void and their properties ... So let them say in which class they put images, which they think flow from more solid bodies but are themselves not solid at all, so that they cannot be felt except by contact with the eyes when we are seeing, and by contact with the mind when we are thinking, though they are themselves bodies. For this is what they think, that they can flow out from the body and reach the eyes or the mind, which they nevertheless say is corporeal.<sup>1</sup> Do images flow from the atoms themselves as well? If they do, how are they still atoms, when some bodies are being detached from them? If not, either some things can be thought of without images, which they vigorously deny, or else how do they know of the atoms which they cannot even think of? (Not in DK) Macrobius Saturnalia VII.14.3 (319 Us.): But Epicurus' investigation of the nature of sight itself was not inadequate, prompted primarily by Democritus; on this as on other topics their view is the same. So Epicurus thinks that certain images flow from all bodies in an uninterrupted stream without the smallest lapse of time, so that traces of bodies are emitted, cohering in an empty shape; these are received by our eyes.

## II. Images as the source of dreams and as emanations of gods

472. (Not in DK) Ar. On divination in sleep 2, 464a5: ... that would be a better explanation [sc. of certain kinds of dreams] than that given by Democritus, who cites images and effluences as the cause<sup>1</sup>. Just as when something sets water or air in motion, and after the original cause has ceased that motion continues for a time, though the origin of the motion is not present, similarly there is nothing to prevent a certain motion and sensation reaching people's souls when they are dreaming, starting from the things from which he produces his images and effluences. However they happen to arrive they are more readily perceptible at night because those which are transmitted by day tend more to be dispersed

(the air is less disturbed at night because the nights are calmer) and they produce perception in the body during sleep because when people are asleep they are more aware of minute internal motions than when they are awake. These motions produce appearances in the imagination, from which they foresee future events, which is why that happens to random people<sup>2</sup>, not to the most sensible. For they would occur by day<sup>3</sup> and to wise people as well, if it were god who was sending them<sup>4</sup> (cf. 463b13: dreams would be sent by god); this is why it is to be expected that random people should foresee things. For the mind of such people is not engaged in thought, but as it were empty and void of everything, and when it is set in motion it is affected according to the nature of what is moving it. The reason why some people who are out of their minds foresee the future is that their own motions<sup>5</sup> do not concern them, but are driven away [sc.by the external motions]; so they are particularly perceptive of those of others. The reason why some people have straightforward dreams and why people foresee things especially concerning people they know is that those who know one another are especially concerned about one another. Just as they recognise and perceive one another quickest at a distance, so it is with motions; the motions of people we know are better known [to us]. Melancholic<sup>56</sup> people hit the mark through their impetuosity<sup>6</sup>, like people shooting at a distance<sup>7</sup>, and because they are unstable they quickly imagine what is coming next<sup>8</sup> [in a chain of thought]. Like<sup>9</sup> the poems of Philaigides<sup>10</sup> insane people say and think<sup>11</sup> of things which resemble what immediately precedes, e.g. 'Aphroditēn phrouditēn'<sup>12</sup>, and so they proceed by stringing words together. Moreover, because it is so violent their motion is not driven out by another motion. The most skilled interpreter of dreams is the person who can notice similarities; anyone can interpret a straightforward dream. By similarities I mean that appearances in the imagination are like reflections in water<sup>13</sup>, as we said earlier. But in that case if the motion is violent the appearance and the image is nothing like the real thing. The best judge of images is the person who can quickly perceive and grasp as a whole the scattered and distorted fragments of those images, that it is a man, horse or whatever. The case of dreams is the same; for the motion drives out the straightforward dream. Michael of Ephesus [Mich. Ephes.] ad loc. 84.16: 'their own motions do not concern them'<sup>14</sup> means the same as 'they do not have motions of their own'. For those who are out of their minds (by 'out of their minds' I mean, not those who are totally mad, but those who are, so to speak, in between the sensible and the totally mad), are not concerned about anything and do not reason about anything, but if they have the opportunity to think about anything they reject it instead of accepting it, so how would they have any motions? Wise people do not see the future because their thought is concerned and as it were disturbed<sup>15</sup> by the images<sup>16</sup> and imprints<sup>17</sup> of things which it contains, but the thought of those who are out of their minds is empty and therefore unconcerned, and so it is to be expected that they perceive things coming from outside. What those things are and how they come to us is discussed by Alexander of Aphrodisias in his work On daimones. (DK 68 B 212, 128 N = no. 801) Stob.

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<sup>56</sup> [Lit. 'having an excess of black bile', an imbalance of humours which was liable to produce mental disturbance.]

III.6.27: Democritus: Sleeping during the day indicates bodily disturbance or distress of mind or idleness or lack of education.<sup>18</sup>

### The gods

472a. (Not in DK) Themist. (Sophonias) Comm. on Ar. On divination during sleep [in De divin. in somm.]<sup>57</sup> 464a5, 43.1: The truth is not as Democritus says. He thinks that images<sup>1</sup> and effluences are the cause [of dreams], some of which he says are beneficial, others harmful, and that they are enormous and hard to destroy, that they approach people and foretell the future to those who see them, and say things which are audible only in dreams by those who have [the necessary] knowledge; that is why he prays to come across favourable images. But we<sup>2</sup> totally refuse to say that images are transmitted, instead we introduce motions coming from the basic elements of what are going to be words and actions; the air is shaped by these motions, and when they come in via the ears or nostrils people foresee the future in their heart in dreams. (DK 68 B 166) Sext. M IX.19: Democritus says that certain images approach people and that some of them are beneficial and others harmful.<sup>3</sup> That is why he prayed<sup>4</sup> to encounter favourable images. These are enormously large and hard to destroy, but not indestructible, and they foretell the future to people who see them and hear them speak. It was from these very things that people of old got the idea that there are gods, though apart from these there is no god<sup>5</sup> with an indestructible nature. (= Mich. Ephes. in De divin. in somn. 464a3, 83.23.) Sext. M IX.42: Democritus is not to be believed, since he explains what is less problematic by what is more problematic. For nature gives a great many different indications of how people got the idea of gods, but that there should be in the environment gigantic images in human form and generally all the sorts of thing that Democritus tries to imagine is altogether unacceptable. Plut. Life of Aemilius Paulus I.4: Democritus says that we should pray to encounter favourable images, and that images which are useful and suitable for our nature should approach us from the environment, rather than bad and unlucky ones. Plut. On the cessation of oracles [De def. oracul.] 17, 419 A: moreover ... Democritus ... ignored ... bad ... daimones ... in praying to encounter favourable images, by which he clearly recognised<sup>6</sup> that there are others which are hostile, with wicked intentions and impulses (= Eus. PE V.17). (DK 68 A 78) Hermippus On astrology (Ioannes Catrares) I.16.122, p. 26.13 Kroll – Viereck: it would be wrong to ignore the view of Democritus, who calls them (i.e. daimones) images and says that the air is full of them.<sup>7</sup> (DK 68 B 10a) DL IX.46: On images, or On foreknowledge<sup>8</sup>. (Epicur. fr. 352 Us.). Aug. Letter 118,27-8 (= PL 33, p. 445):<sup>9</sup> How much better had I never heard the name of Democritus than to recall to my sorrow that someone who was accounted a great man in his day believed that the gods are images flowing off from solid bodies but not themselves solid, going about hither and thither with their own motion, slipping into people's minds and giving rise to the idea of divine force, when in fact that body from which the image

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<sup>57</sup> [This work, generally agreed to be by Sophonias (13<sup>th</sup>-14<sup>th</sup> cent. CE: see CAG v. XXIII), is ascribed by some mss. to Themistius.]

flows must be judged more substantial, to the extent that it is more solid. Therefore, as those people<sup>10</sup> say, he vacillated and changed his mind, sometimes saying that god is a certain substance from which images flow, who cannot however be conceived except by means of those images which he originates and emits, i.e. images which flow from that substance (which he thinks is some sort of eternal<sup>11</sup> body and therefore divine) in a continuous stream like vapour<sup>12</sup> and enter our minds, so that we can think of a god or gods. For they think that there is nothing to cause any thought of ours except images<sup>13</sup> which come from those bodies which we are thinking of and enter our minds ... though Democritus is said to differ from Epicurus on natural questions in this respect, that he feels that there is in the conglomeration of atoms a certain vital, animal force. It is because of this, I believe, that he said that the images themselves are endowed with divinity (not images of everything, but images of the gods), that there are principles of mind in everything, to which he attributes divinity, and living images, which are beneficial or harmful to us. Cf. DL Preface 7: the Magi practise sorcery and second sight, saying that gods appear to them. They say that the air is full of images, which flow off from things in exhalations and enter the eyes of seers. Ps-Hippocrat. Epist 10.3 (IX.322 Littré): Democritus says that the air is full of images. id. Epist. 18.1 (IX.380 Littré): Democritus says: in the organisation of the world we encounter things which deceive us, wandering through the air in the form of images. Sext. M IX.45: Some say in reply that the belief in the existence of god arises from images in sleep ... Irenaeus Contra haer. II.14.3, p. 133 (PL 7, p. 751): Democritus was the first to say that many different kinds of images and imprints entered our world from the [surrounding] universe. Cic. ND II.30.76: Or one must deny that there are gods, as both Democritus and Epicurus do in a way, the former by introducing replicas, the latter by introducing images ... <sup>15</sup> (DK 68 A 74) Cic. ND I.12.29:<sup>16</sup> What about Democritus? Does he not go completely astray in counting among the gods images and their wanderings, as well as that nature which grounds and emits the images, and then our thought and intelligence? Since he denies that anything at all is eternal, on the ground that nothing remains in the same state for ever, surely he eliminates<sup>17</sup> the divine so completely as to leave no room for any belief in it. (43.120) In my opinion even Democritus, a man of the first rank from whose springs Epicurus watered his garden, seems to vacillate about the nature of the gods. For sometimes he says that the universe contains images endowed with divinity, sometimes that the principles of mind in that same universe are gods, sometimes that the gods are living images which are beneficial or harmful to us, sometimes that they are images of such an enormous size as to embrace the entire world. All of this is worthier of Democritus' native city<sup>18</sup> than of Democritus. Apuleius Apologia XXVII: ... so as to regard as irreligious those who seek for pure and simple causes, and to say that they deny the gods, e.g. Anaxagoras, Leucippus, Democritus, Epicurus and the other champions of nature ... (DK 68 A 79) Clem. Strom. V.88 (II.383.25 ff. St.): In general Xenocrates of Chalcedon did not despair of belief in the divine even in non-rational creatures, and Democritus, even if against his will, has to agree that that follows from his theories; for he holds that humans and non-

rational animals receive the same images coming from the divine nature. (DK 68 A 33) DL IX.46: Works on nature ... On images, or On Foreknowledge.

473. (DK 68 A 136)<sup>1</sup> Aet. V.2.1 (Dox. 416): Democritus says that dreams occur through the arrival of images.

474. (in part in DK 68 A 137) Cic. De divin. II.58.120: So should we say that the minds of those asleep are self-stimulated in their dreams, or, as Democritus thinks, disturbed by sights coming from outside? (67.137) Which Marius do you think it was that I saw? 'An appearance of him, I think, and an image, as Democritus believes.' Where did that image come from? He thinks that images flow from solid bodies and definite forms. So [it came from] the body which was that of Marius. 'From that which had been his', he says. Everything is full of images ...<sup>1</sup> No appearance can be thought of unless through the impact of images ...<sup>2</sup> (Cicero's conclusion) So no images impinge from outside on the minds of sleepers, nor is there any flow of images at all; nor have I known anyone who talked nonsense with greater authority.

475. (Not in DK) Plut. Quaest. conviv. VIII.10, 735 C: 'I see', he said 'that you are ready to shadow-box with the images, and that you think that you can achieve something by touching up an ancient doctrine like a painting ... we are not unaware that in your wish to glorify Aristotle's view you have placed Democritus' alongside it like a shadow.'<sup>1</sup>

476. (DK 68 A 77) Plut. Quaest. conviv. VIII.10, 734 F: (Why do we place least credence in dreams occurring in autumn?): Favorinus found an old theory of Democritus', all black with smoke, and was able to clean and polish it (735 A), taking as his starting-point this familiar saying of Democritus' 'The images penetrate bodies through their channels and when they come up again cause people to see things in their sleep; they come from things of every kind, artefacts, clothes, plants, but especially from animals, because of the quantity of motion [sc.of the atoms] and heat<sup>1</sup> which they contain. They do not merely reproduce the shape of the body' (which is the view of Epicurus (362 Us.), who follows Democritus so far but departs from him subsequently) 'but they also pick up images of each person's<sup>2</sup> psychic motions, desires, habits and emotions, and when, accompanied by them, they collide with people they talk as if they were alive, and tell those who receive them the opinions, words and actions of those who emitted them, provided that they preserve the images articulated and distinct on arrival'. They do this most when they have a swift, unobstructed passage through smooth air. But in autumn the trees shed their leaves into the air, making it very rough and uneven, which distorts and deflects the images in all sorts of ways and weakens and obscures their clarity by slowing down their flight, just as on the other hand an abundant flow arriving quickly from things which are tumid and heated<sup>3</sup> produces clear and significant impressions. (V.7, 682 F): Are the images of Democritus, like the people of Aegium or Megara<sup>4</sup>, left entirely out of account? He says that malevolent people emit

them, so that they fly about, not totally lacking perception or impulse<sup>58</sup>, full of the wickedness and malignancy of their source, and as they get imprinted on people and fixed with that character, they disturb the body and mind of those who are subject to malign influence. This is what I think the man means, but his language is lofty and marvellous.<sup>5</sup>

### III. Appearances (emphasis)

477. (DK 67 A 29, 68 A 121) Ar. De sensu 2, 438a5: Democritus is right to say that it is water by means of which we see, but wrong to think that seeing is the impression [on the eye] ... but overall nothing, it seems, was yet clear<sup>1</sup> regarding impressions and reflection, and it was absurd that it did not occur to him to enquire why it is only the eye which sees, but none of the other things [e.g. mirrors] on which the images make an impression. Alex. ad loc. 24.14: Democritus says that seeing is receiving the impression from the things seen. The impression is the form which appears in the pupil of the eye, and also in other transparent things which are such as to preserve the impression. He, and before him Leucippus and later Epicurus and his followers, think that there flow from things images of the same shape as their sources (these are what are visible), and they impact<sup>2</sup> on the eyes of those who see, and thus seeing occurs. (54.12) They gave the cause of seeing as images flowing continuously from the things that are seen and impacting on sight [i.e. the organ of sight]. Leucippus, Democritus and their followers were of that view, who also explained the appearance of intermediate colours by the juxtaposition to one another of things which are so small as to be invisible. (24.21) As evidence he adduces the fact that the impression and image of the thing seen is always present in the pupil of the person seeing; that is what seeing is.

478. (DK 68 A 135) Theophr. De sensu 49ff. (Dox. 513): An attempt at a detailed discussion of each sense follows. (50) He makes sight occur by means of the impression; his account of this is original, for he says that the impression is not immediately produced in the pupil, but the air between the [organ of] sight and the thing seen is compacted by the thing seen and the person seeing<sup>1</sup> and an impression is made on it, as everything is always giving off an effluence. This mass of air, which is solid<sup>2</sup> and of a different colour, is then impressed on the eyes, which are moist. A dense body does not take the impression, but a moist one lets it pass through. That is why moist eyes are better at seeing than hard ones, provided that the outer coating<sup>3</sup> is as fine and dense as possible, and the interior of the strong, dense tissue<sup>4</sup> as porous<sup>5</sup> and empty as possible, consisting of thick, greasy liquid<sup>59</sup>, and the veins in the region of the eyes straight and free of moisture, so that they match the shape of the impressions; for everything most readily recognises things of the same kind<sup>6</sup> as itself. (51)

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<sup>58</sup> [Mistranslated in Taylor 1999, no. 133b, p. 127: 'and do not totally escape perception'. Taylor also omits 'or impulse'. L and the Italian version mistranslate by omitting 'not' before 'totally lacking perception'.]

<sup>59</sup> [Here I follow L's text and translation, which does not, however, seem to me to give an acceptable sense. For reasons in favour of the reading 'provided that the outer coating is as fine as possible, and the inside as porous as possible, without any dense, strong flesh or thick, greasy liquid' see Taylor 1999, no. 113, notes 97 and 98, pp. 108-9.]



First of all, the making of an impression on the air is absurd; for the thing on which the impression is made must be dense, and must not be scattered, as he himself says in comparing the making of this sort of impression to pressing something into wax<sup>7</sup>. Further, in so far as water is denser it is easier to make an impression on it; but one sees less in water, whereas one ought to see better. In general, why would someone who posits an effluence<sup>8</sup> of the shape of the object, as in the writings on forms, also posit the making of an impression? For the images are themselves imprinted. (52) But if this does happen, and the air is moulded like wax by being pressed and condensed, how does the impression come about, and what kind of impression is it? It is clear that the imprint will be facing the thing seen, as in other cases. But then it is impossible<sup>9</sup> for the impression to be reversed unless the imprint is turned round. He must show what will do that and how; for otherwise seeing cannot occur. Further, when several things are seen in the same place, how will there be several imprints in the same air? And again, how is it possible for us to see one another? For the imprints must necessarily collide, as each is face to face with its source. So that is a problem. (53) And in addition, why does each person not see himself? For the imprints would be impressed on one's own eyes as much as in those of others, especially if they are precisely face to face and the same thing happens as with the echo; for he says that the voice is reflected back to the speaker. Imprinting on the air is totally absurd. From what he says it follows necessarily that every body leaves an imprint and that many cross each other's paths, which would obstruct sight and is in general not reasonable. Further, if the imprint remains in the air, one ought to be able to see bodies which are not visible or near, if not at night, at least in daylight. Yet it is no less likely that the imprints should remain at night, since the air is colder.<sup>10, 60</sup> (54) But perhaps the sun makes the impression by as it were bringing the light to the [organ of] sight, as he seems to mean. For it is absurd to describe the sun as pushing the air away<sup>11</sup> and moulding and condensing it, as he does; rather, it naturally penetrates it. And it is absurd to assign a share<sup>12</sup> in the sense not only to the eyes, but to the rest of the body as well; for he says that the eye must contain empty space and moisture to be better able to receive it [pres. the imprint] and to pass it on to the rest of the body. And it is irrational to say that things of the same kind see best, but then to explain the impression by differences in colour<sup>13</sup>, since things of the same colour are not seen in an impression. And though he tries to say how size and distance are seen in an impression, his explanation is inadequate<sup>14</sup>. (55) So his attempt to say something original about sight simply creates more problems. Epicurus argues against this Epist. I.49: We must suppose that it is through the penetration of something from outside that we see shapes and think of them; for external objects would not stamp on us the nature of their colour and shape through the medium of the air between us and them.<sup>15</sup>

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<sup>60</sup> [So L's translation, which seems correct, but which requires Wimmer's emendation of empsuchoteros 'more alive' to empsuchroteros 'colder' (adopted by Taylor 1999, p. 110). L adopts that translation, despite retaining empsuchoteros in the Greek text; the Italian version does the same.]

479. (DK 67 A 31) Aet. IV.14.2 (Dox. 405): Leucippus, Democritus and Epicurus say that mirror images occur though the impact of images which travel from us and are collected in the mirror and reflected<sup>1</sup>. Cf. Ar. De sensu 2, 438a9 (no. 477): overall nothing, it seems, was yet clear regarding impressions and reflection.

480. (DK 68 a 126a) Porphyry On Ptolemy Harmonics [Porph in Ptol. Harm.], p. 32.6 D: Hearing is not like sight, which sends the vision out to the object in distribution<sup>1</sup>, as the mathematicians say, and gets the object back in exchange. Rather, as Democritus says ... sight is swifter than hearing. For though lightning and thunder occur simultaneously, we see the former as it happens, but do not hear the latter at all or only some time afterwards; the reason is simply that the light meets our vision<sup>2</sup>, whereas the thunder arrives at our hearing, which receives it<sup>3</sup>. (no. 489).

#### IV. Colours

481. (DK 68 A 126)<sup>1</sup> Ar. De sensu 4, 442b11: Democritus says that white and black are identical [respectively] with the smooth and the rough.

482. (DK 68 A 123) Ar. GC I.2, 316a1: that is why Democritus says that colour does not exist; for the colour of things is dependent on position<sup>1</sup> [sc. of their atoms].

483. (Not in DK) Ar. De sensu 3, 440a15: it is absurd to say, as the ancients<sup>1</sup> did, that colours are effluences and are seen by means of that sort of cause. They have to make the perception [of colours] occur in every case by touch<sup>2</sup>, so that it would be better to say<sup>3</sup> immediately that the perception occurs when what is between the sense-organ [and the sense-object] is set in motion by the sense-object, by touch and not by effluences. Now as in the case of things situated next to each other<sup>4</sup> one has to assume an imperceptible magnitude, so one has to assume an imperceptible time, so that the arrival of the [individual] motions is not perceived and they seem to be one thing because they are perceived simultaneously ... (30) ... for it will be shown later<sup>5</sup> that there is no invisible magnitude. But if mixture of bodies occurs not only, as some think, by the juxtaposition of bodies of minimum size, which are imperceptible to us ... Alex. ad loc. 56.13: ... such as Leucippus, Democritus and their followers, who derived the appearance of the intermediate colours<sup>6</sup> from the juxtaposition of bodies too small to be visible. (Similarly Alex. in De sensu 2, 438a5, 24.14 (no. 477).) (59..15) next he states the absurd conclusion<sup>7</sup> drawn by those who say both that the mixing of colours other than white, black <red and green> occurs by the juxtaposition of things too small to be visible and that effluence is the cause of seeing. (60.8) All those who say that seeing occurs in that way need imperceptible times [i.e. imperceptible stretches of time] ; but for those who attribute differences of colour to the juxtaposition of imperceptible bodies the absurdity is doubled, if they also say that seeing occurs through the effluence from the things that are seen. They have to say that there are not only imperceptible magnitudes, but also imperceptible times. He is able to describe having to say that there are imperceptible times as a specific conclusion of those who

attribute differences of colour to the juxtaposition of small bodies. In this way though many things are seen simultaneously they will be seen as one thing, if the effluence from each of them is not perceived as impacting separately on the eyes, and it seems like one single thing coming from a single thing seen. (61.3) that according to this view there are no invisible bodies; but he [i.e. Aristotle] said nothing to the effect that on this view there are no imperceptible times, because on this view there had to be, if someone were to say that seeing occurs through effluences from the things seen.

484. (DK 68 A 135)<sup>1</sup> Theophr. De sensu 73ff. (Dox. 520): On colours, he says that there are four simple ones. White is what is smooth. For whatever is not rough or shadowy or difficult to penetrate, anything like that is bright. Bright things must also have straight channels to let the light pass through. Hard, white things are composed of shapes like the inner surface of shells, so they are shadowless and shining, with straight channels. Those which are friable and brittle are composed of spherical atoms arranged obliquely<sup>2</sup> in pairs, in a maximally uniform arrangement overall. They are friable because their area of contact is small, brittle because they are uniformly arranged and shadowless because they are smooth and flat. They are whiter than one another<sup>3</sup> to the extent that their shapes are more precisely as described, unmixed with others, and that they adhere more strictly to that position and arrangement. (74) White consists of shapes like that, and black<sup>4</sup> of the opposite, rough, uneven and dissimilar, for that is why they cast shadows and their channels are not straight or easily passed through. Further, their effluences are dull and confused; effluences differ in their appearances, which differ because of the way they are received by the air. (75) Red consists of the same sort as hot, only bigger; for the bigger the combinations<sup>5</sup> of similar atoms are, the redder the thing is. The evidence that red consists of that sort of atoms is that we go red when we get hot, and so do other things that are burning, until they catch fire. And things composed of large atoms, such as flame and coal, are redder than green<sup>6</sup> or dry wood. And so are iron and other things when they are burning; the brightest are those which have the most and the finest fire, while those which have less [fire], and [fire which is] thicker in texture, are redder, as the fine-textured is hot. Green<sup>7,61</sup> consists of a mixture of solid and void, their colour varying according to their position and arrangement. (76) The simple colours use these shapes; the less each is mixed, the purer it is. Thus gold and bronze and similar colours come from red and white; they get their brightness from white and their reddish tinge from red; for when they are mixed the red falls into the gaps in the white. If one adds green then one gets the most beautiful colour, but the additions of green must be small; one cannot add large amounts to red and white combined in that way. Colours vary with larger or smaller additions. (77) Purple consists of white, black<sup>8</sup> and red, the largest proportion being red, the smallest black and the intermediate<sup>9</sup> one white. That is why it is pleasant to sense. That it contains black and red is obvious to the eye, and that it contains white is shown by its brightness and transparency, which are produced by white. Dark blue<sup>10</sup> consists of very black and green,

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<sup>61</sup> [i.e. light green, chlōron, the colour of fresh young plants.]

with a larger proportion of black; leek-green<sup>11</sup> of purple and dark blue, or of [light] green and purplish. Sulphur<sup>12</sup> is that colour, with a touch of brightness. Blue consists of dark blue and fiery colour, a mixture of round and needle-shaped atoms, so that you get a sheen on the black. (78) Nut-brown<sup>13</sup> consists of green and bluish, but if green and white are mixed, we get flame-colour; for the shadowy<sup>14</sup> and black are excluded. Red mixed with white more or less produces<sup>15</sup> a green which is bright<sup>16</sup>, not black; that is why growing plants are green at first, before they get heated and ripen<sup>17</sup>. That is as many colours as he discusses ... (79) First of all there is a problem in positing several principles<sup>18</sup>; for the others posit [only] white and black<sup>19</sup>, as the only simple colours. Then there is a problem in not assigning a single shape to white things, but different shapes to hard and friable things; for it is not plausible that there should be another cause [sc. of sameness of colour] in the case of things which differ in tactile respects, or that shape, rather than position, should cause the difference. For round things, and things of absolutely any shape, can cast shadows on one another, as we see from what he himself says about smooth things which look black. They look like that because they have the same structure<sup>20</sup> and arrangement as black things. And then there are rough things which are white; they are composed of large atoms whose combinations are not round but stepped<sup>21</sup>, and the shapes of the atoms are broken like an ascent<sup>22</sup> or a mound thrown up in front of a wall; that arrangement casts no shadow<sup>23</sup> and does not inhibit the brightness. (80) Moreover, how and from what principles<sup>24</sup> does he explain the fact that in some animals the white parts turn black, if they are so placed as to cast a shadow? In general he seems to describe the nature of translucency and brightness rather than of whiteness, since being easily penetrable and not having zigzag channels is a mark of the translucent, but how many translucent things are white? Further, that the channels in white things are straight and those in black zigzag has to be understood as assuming that nature<sup>25</sup> comes in [sc. to the perceived object through the channels]. He says that we see by means of the effluence and the impression on the eye; but if so, what difference will it make whether the pores are parallel to one another or zigzag? Nor is it easy to understand how there can be an effluence from the void; so he ought to explain that. He seems to explain white as caused by light or something else; that is why he cites the density of the air as a cause of things' looking black. (81) Further, it is not easy to grasp his account of black; a shadow is something black superimposed on white, so white is naturally primary. But at the same time he cites as causes not merely shadowing, but the density of the air and of the effluence which enters [the eye], and the disturbance in the eye. But whether that occurs because the object is not transparent, or whether things are black for some other reason, and if so what, he does not make clear. (82) And it is absurd not to ascribe a shape to green, but merely to explain it by the solid and the void; for they are common to everything of whatever shape, but he ought as in the other cases to have given some specific explanation. If it is the opposite of red, as black is of white, it ought to have the opposite shape; but if it is not opposite, it would be astonishing if he did not make his principles opposites, for it seems that way to everyone.<sup>26</sup> Above all he ought to have said precisely which colours are simple and why some are compound and some uncompounded, for the greatest problem is that of

the principles. But perhaps that is difficult; if someone were able to say which are the simple flavours, he would be better placed to solve it.

485. (DK 68 A 33) DL IX.46: Works of Democritus ... Works on nature ... On colours.

486. (DK 68 A 124) Aet. I.15.11 (Dox. 314): Some say that all the atoms are colourless. They explain perceptible qualities as arising from qualityless theoretical entities.

487. (DK 68 A 125) Aet. I.15.8 (Dox. 314): Democritus says that by nature there is no such thing as colour; for the elements, the solid things and the void, have no qualities. The things composed of them are coloured through 'contact, rhythm and turning'<sup>1</sup> i.e. arrangement, shape and position. Appearances are in according with those. There are four of these apparent colours, white, black, red and yellow.<sup>62</sup>

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<sup>62</sup> [See translator's note 78 on comm. on no. 484, n. 19.]

#### d. THE OTHER SENSES

##### I. Hearing

488. (DK 68A 135) Theophr. De sensu 55ff. (Dox. 515): His account of hearing is similar to that of the others. Air entering a void causes motion, except that it comes in all over the body alike, but especially and most of all through the ears, because there it travels through the most void and has the least delay. That is why one does not perceive with the whole body, but only there. And when it gets inside, it is dispersed by its speed; sound occurs when the air is condensed and penetrates with force. Just as he makes external perception come about through contact, so with internal. (56) One hears most clearly when the external coating is dense, and the veins are empty and as far as possible free of moisture and well bored throughout the body, and especially in the area of the brain and the organs of hearing, and in addition the bones are dense and the brain is properly constituted and its surroundings are as dry as possible; in those circumstances the sound is concentrated and it comes in through a large amount of void, which is free from moisture and well-bored, and is dispersed swiftly and uniformly through and does not escape. (57) In its unclarity of exposition this theory is like the others. But it has its own particular absurdity in having the sound come in all over the body, and, in the case where it has come in through the ears, in having it permeate the whole, as if perception was the work, not of the organs of hearing, but of the whole body. For even if something happens to it [the whole body] as a concomitant of hearing, it does not therefore perceive. He treats all the senses in the same way, and not only them, but the soul too.

489. (DK 68 A 126a)<sup>1</sup> Porph. in Ptol. Harm. p. 32.6 Düring: Hearing is not like sight, which sends the vision out to the object in distribution, as the mathematicians say, and receives the apprehension of the object back in exchange, but, as Democritus says, it is a receptacle of words, which awaits the sound like a container. The sound penetrates and flows in, which is why sight is swifter than hearing. For though lightning<sup>2</sup> and thunder occur simultaneously, we see the former as it happens, but do not hear the latter at all or only

some time afterwards; the reason for this is simply that the light meets our vision, whereas the thunder arrives at our hearing, which receives it. Ps-Democritus On the nature of man ap. Ps-Hippocr. Epist. 23.5, IX, p. 394 Littré: the ears are receptacles of words.

490. (Not in DK) Plut Quaest. conviv. VIII.3.2, 720 F (323 Us.): (A certain Boethus) said that when he was still young and engaged in academic pursuits he used to use geometrical assumptions and accept undemonstrated hypotheses, but that now he would make use of some things which had been previously demonstrated by Epicurus<sup>1</sup>. 'The things that there are travel about in that which is not; for there is a great deal of void interspersed and mixed with the atoms of air. Now when air is expanded and has breadth and mobility through its fine texture, the empty spaces left between the parts<sup>2</sup> are small and fine-textured, and the <empty spaces> scattered about the atoms<sup>63</sup> occupy a lot of room, but when it is compressed and <the atoms><sup>64</sup> are densely packed into a small space and are forced close together, they leave a wide space outside and large intervals. This happens at night, under the influence of cold. For heat loosens and separates and dissolves concentrations, which is why bodies which are boiling or softening or melting take up more room, while on the other hand things which are cooling and freezing join together and leave empty spaces in the vessels which surround them, and the places from which they have withdrawn. A voice which approaches and strikes a large number of bodies massed together is either completely muffled<sup>3</sup> or undergoes serious convulsions and many collisions and delays. But in an empty expanse, void of bodies, it has a smooth, continuous and uninterrupted path to the [organ of] hearing, through its speed preserving both its meaning and clarity. You notice too that when empty vessels are struck they respond more to the blows, and send out the sound a long way, and it is often distributed back in a circle. But a vessel full of solid or liquid is often mute and soundless, sine the sound has no way or room to escape. Among bodies, gold and stone are weak-voiced and unmelodious through their density, and their sounds are quickly extinguished, but bronze is euphonious and vocal, because it contains a lot of void and is light and fine-textured in its bulk; it does not have a lot of particles crowding one another, but a considerable element of yielding and intangible substance, which, besides allowing scope for the other motions, graciously receives and transmits sound, till someone seizes and detains and blindfolds the void like a highway robber. There it stays and ceases its forward motion because of the obstruction. This' he said, 'is what seems to me to make the night full of sounds, but the day less so, since through its heat and the expansion of the air it produces large distances between the atoms. Only', he said, 'let no-one object to my original assumptions'. Plutarch attempts to refute the above on the basis of Anaxagoras' theory, saying among other things (VIII.3.3., 721 F): so there was no need to trouble the night by contracting and increasing the tension of its air and by leaving empty spaces elsewhere, as if air were an obstacle to sound and something which destroys

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<sup>63</sup> [Supplementation by L. The mss. read 'the atoms scattered about', which gives a satisfactory sense.]

<sup>64</sup> [L inserts 'the atoms' here, but omits the phrase when the passage is repeated in no. 507. Since the things packed into a small space have to be the atoms, the meaning is unaffected.]

its substance. Air is itself the substance, body and power of sound. Ammonius objects (VIII.3.4, 722 B): We shall perhaps appear ridiculous if we not only think that we have refuted Democritus, but also try to correct Anaxagoras. Then Thrasyllus, after mentioning imperceptible movements of the air, grasped by the mind, and the gentle stirring of the smallest particles of air, and referring to Democritus, concludes as follows, in order to do justice to both views (VIII.3.5, 722 D): at night the air is mostly waveless and motionless, so when everything is at rest it naturally conveys sound to us unbroken and intact.

491. (DK 68 A 128) Aet. IV.19.13 (Dox. 408: on sound): Democritus says that the air is split into particles of the same shape which roll around together with the fragments of sound<sup>1</sup>. (more in no. 316). One might ask them how a few<sup>2</sup> fragments of air could fill a theatre of ten thousand people.

492. (Not in DK) Aul. Gell. Noct. Att. V.15.8 (321, p. 353 Us.): Democritus and later Epicurus say that sound is composed of indivisible bodies, and they call it, to use their very words 'a stream of atoms'.

493. (DK 68 a 127, 322 Us.). Scholiast on Dionysius Thrax, p. 482.13 Hilg.: Epicurus, Democritus and the Stoics say that sound is a body. Byzantine grammarian, cod. Paris. 2555, BAG, p. 1168: Democritus, Epicurus and the Stoics say that sound is a body, because whatever is active or passive, or in other words can act or be acted on, is a body.

493a. (DK 68 B 145; 105 N)<sup>1</sup>: Plut. On the education of children 14, p. 9 F: And we ought to discourage our sons from using bad language, for 'The word is the shadow of the deed' as Democritus says. DL IX.37: The maxim 'The word is the shadow of the deed' is also a saying of his (Democritus'). (Not in DK) Anonymous commentator on Ar. Rhet. II.6, 1384b19-20, 107.6: '(they are ashamed)... not only of doing disgraceful things, but even of saying them' For Democritus said 'the word is the shadow of the deed'. (DK 68 B 190; 107 N) Stob. III.1.91: Democritus. One should avoid even speaking of wicked deeds. Philo On change of names 243 (III.198.23-199.1 C.—W.): Wrongdoing is a worse fault than wrongful speech. For, as people say, 'The word is the shadow of the deed', but if the shadow is harmful must not the deed be more harmful?

## II. Taste

494. (Not in DK) Ar. De sensu 4, 414a4: ... necessarily, either the water must contain in itself the kinds of flavours, in amounts so small as to be imperceptible, as Empedocles says, or it must be matter in the form of a universal generative mixture of flavours, all of which come from the water, each one from a different part. Alex, ad loc, 68.13: he says that water is the matter of flavours in the same way, not that any random flavour emerges from any random part of the water, but that this [particular flavour] comes from this [particular part] because that part is suitable for that flavour, so that all come from the water, but each one from a different part. And the difference of flavours depends on the consistencies<sup>1</sup> and



compositions of the different waters, since there are in the water bodies which generate the different flavours, but not the same bodies in all [parts of the water], but in this [part] bodies which generate this flavour, and again in that bodies which generate some other flavour. And that is how all the flavours come from water as their matter; the flavours come from the constituents of water, but not a random flavour from a random [part of] water, since not every part of water contains bodies which generate all the flavours. In this he would seem to be referring to the view of Democritus and his followers, who posited the atoms as elements of everything, and it is clear that that view is different from that of Empedocles; according to the view of Empedocles the flavours are already actually present in the water, but according to this one they come into being in accordance with the suitability for the different flavours of the different parts of the water<sup>2</sup> Ar. De sensu 4, 441a18: ... similarly it is impossible for the water to be the matter of a universal generative mixture; for we see different flavours coming into being from the same [water], having it as their nourishment<sup>3</sup>.

495. (Not in DK) Ar. De sensu 4, 442b10 (after no. 428): some reduce the special sensibles to these, as Democritus ... reduces flavours to shapes. Alex. ad loc. 85.4: Democritus and his followers reduce flavours to shapes. They say that difference of flavours arises from difference of shape, that sharp flavours are composed of that kind of shape, and sweet of smooth, round shapes. For atoms of different shapes<sup>1</sup> produce differences in the flavours which arise from their interweaving. Once again the shapes, which are common sense-objects, are according to them peculiar to taste.<sup>2</sup>

496. (DK 68 A 135) Theophr. De sensu 65ff. (Dox. 517): (Democritus ... gives a more accurate account, [according to which]) sharp flavour is angular and zigzag in shape, small and fine-grained. Because these are pungent they penetrate everywhere, and because they are rough and angular they <expand rather than><sup>65</sup> compress and contract, thus creating empty spaces in the body and heating it; for the more void a thing contains the hotter it becomes. Sweet consists of round atoms which are not too small, and it therefore relaxes and permeates the entire body, but not violently or quickly. But it disturbs the others [i.e. the other flavours?]<sup>66</sup>, since as it permeates it moistens the other atoms and makes them

<sup>65</sup> [Insertion by L. It has no ms support, but is justified by L on the ground that according to Democritus heat results from expansion, whereas compression and contraction makes things cold (see no. 507).]

<sup>66</sup> [L (followed by the Italian version) takes 'the others' as the subject of the sentence, translating 'The other gustatory substances produce violent changes, since, penetrating the body, they set all others in motion and make all others moist'. That is, however, impossible, since the participle translated 'penetrating' (diadunōn), being singular, cannot qualify the plural phrase 'the others' (tous allous). Hence 'the others' must be the object of 'disturb', the subject of which is the masculine singular ho glukus [sc. chumos], 'sweet [sc. flavour]'. The reference of 'the others' is somewhat obscure; since the noun to be supplied must be masculine, the most obvious suggestion is that the expression refers to other flavours, chumoi (masc.), and that the sense of the sentence is that sweetness overpowers or blocks out other flavours. But the detailed description suggests a laxative process, which is how it is understood in Taylor 1999, p. 113, which takes 'the others' to refer to other people, i.e. people other than those who experience the gentle action of the sweet described in the preceding sentence.]

move about, and as they get moistened and moved from their respective positions they flow into the gut, which offers the easiest movement as it contains most void. (66) Sour consists of large, many-angled atoms with a minimum of roundness; when these enter the body they stop up the veins and prevent them from flowing, that is why the gut ceases to function. Bitter consists of small, smooth, round atoms with hooks on the circumference as well; that is why it is sticky and viscous. Salty consists of large atoms which are not round, in some cases uneven <but in most cases not>; that is why it is not composed of zigzag atoms (by uneven he means atoms which overlap and get entangled with one another). They are large because the salt comes to the surface; for if they were small they would be mixed in<sup>3</sup> with all the rest as they were knocked about by those around them. They are not round because salty things are rough and round things smooth. They are not uneven because they are not interlocked. That is why it [i.e. salt] is powdery. (67) Pungent is small, round and angular, but not uneven. For what is pungent has many angles and makes things hot by its roughness and expands them because it is small, round and angular<sup>67</sup>; for indeed the angular is of that kind.<sup>5</sup> He gives a similar<sup>6</sup> account of the properties of each flavour, referring them to the atomic shapes. None of the shapes is found pure and unmixed with the others<sup>7</sup>, but in each<sup>8</sup> there are many, and the same one contains smooth, round, rough, sharp and the rest. The shape which occurs most frequently among the constituents is the one which determines how the thing is perceived and what properties it has, though that also depends on the state of whatever observer it comes into contact with; for there are considerable differences there too, since sometimes the same feature produces opposite effects, and sometimes opposite features produce the same effect. (68) That is his account of flavours. (72) He ascribes a shape to each of the flavours, [thereby] assimilating it to a sensory capacity; but that ought to be produced not only by them but also by the sense-organs, especially if they [i.e. the flavours] are states of the latter. For it is not the case that everything spherical, or of any other shape, has the same capacity, so he ought to have distinguished them in terms of their subjects as well, i.e. whether they are produced by likes or unlikes, and how the alteration of the sense comes about, and should moreover have given the same account of all the tactile qualities, not merely those of taste. But either they have some difference from flavours, which he should have stated, or else an account of them as similar, which could have been given, has been omitted.<sup>9</sup>

497. (DK 68 A 129) Theophr. De caus. plant. IV.1.6: Democritus assigns a shape to each [flavour]: he makes sweet round and of a good size; sour large, rough and polygonal, but not round; sharp-tasting, as the name implies, sharp, angular, bent and fine-textured, but not

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<sup>67</sup>['angular' (*gōnioeidē*) is Diels' correction of the mss' *agōnioeidē* ('non-angular'), which directly contradicts the immediately preceding descriptions of the pungent as 'angular' and 'having many angles'. L (followed by the Italian version) retains the mss' reading, making in his translation a distinction of two kinds of atoms constituting pungent taste, one angular, the other non-angular (see comm. on no. 496, n. 5 and on no.503, n. 1). There is no independent support for that distinction in the Greek. Rather, round, angular atoms are polygons of many faces, approximating to spheres.]

round; pungent small, round, angular and bent; salty angular, of a good size, crooked and isosceles; bitter round and smooth, with crookedness and small size; oily fine-textured, round and small. These are the different kinds.

497a. [DK 68 A 99a] Hibehe papyrus 16 (p. 62 Grenfell & Hunt), col. 2: since he explains flavours by the shapes, and saltiness as produced by large, angular [atoms], it was perhaps not unreasonable ... (see no. 318).

498. (DK 68 A 130)<sup>1</sup>Theophr. De caus. plant. VI.2.1: These [shapes] would perhaps appear, as said above, to be posited for the sake of those [sc. flavours]; he thinks that by this account he can explain their powers, why one [flavour] contracts, dries and congeals, another smooths, settles and makes regular, another separates and permeates, and so on. Except that perhaps someone might ask those theorists also to say what the subject is like. For one has to know not only what is active, but also what is acted on, especially if the same flavour does not taste alike to everyone, as he says. For there is nothing to stop what is sweet to us being bitter to some other animals, and similarly for the rest.

499. (DK 68 A 132) Theophr. De caus. plant. VI.7.2: One might ask Democritus how they [sc. the flavours] come from one another. For either the shapes must be reformed, and become round instead of uneven and sharply angled, or all flavours, e.g. sour, sharp and sweet, are originally present and some get separated out (always those which are prior<sup>1</sup>, which are peculiar to each) while the rest remain, or thirdly some disappear and some are added. And since it is impossible for them to be reshaped (for the atom cannot be acted on), the remaining possibilities are that some disappear and some are added <or that some remain and others disappear><sup>68</sup>. But both are unreasonable; for one must in addition give some account of what it is active in bringing this about<sup>2</sup>.

### III. Smell

500. (DK 68 A 133) Theophr. On smells 64: Why does Democritus explain flavours by reference to the sense of taste, but not smells ... by a like reference to the underlying senses? He ought to, given the atomic theory.

501. (Not in DK) Ar. De sensu 5, 443a24: Since everyone reduces smell <to this (sc. to an exhalation)>, some to a moist exhalation, others to a dry ...<sup>1</sup> Further, the term 'exhalation' is applied in a similar way to 'effluences'. So if the latter use is not correct, neither is the former. Alex. ad loc. 93.11: He shows that smell is not an exhalation from the fact that an exhalation is a sort of effluence from the source of the exhalation. So just as those who say that there are effluences and that they are the causes of seeing are wrong ... similarly if some exhalation and effluence comes from things which are smelt, they (i.e. the exhalations L) ought themselves to be dispersed quickly, and not to persist even for a short time ...

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<sup>68</sup> [Supplementation by Diels.]

502. (DK 68 A 135) Theophr. De sensu 82ff. (Dox. 524): He omitted any discussion of smell, except to say that a fine effluence from heavy things produces smell; but he did not say anything more on what its nature is or what acts on it, which is perhaps the most important point. (83) So Democritus leaves some things out.

#### IV. Touch (cold and heat)

503. (DK 68 A 106)<sup>1</sup> Ar. On breath 4, 471b31: Democritus ... says ... that ... heat ... consists of spherical atoms, and when they are separated out by the squeezing of the surroundings ... Philop. in De an. I.2, 404a9, 68.20:<sup>2</sup> Democritus and his followers ... said ... that the surrounding environment is cold, and hence that it condenses bodies, and as they are being condensed the spherical atoms are squeezed out ... (27) the spherical atoms ... warm the body through their mobility ... they would say ... that it is particularly those which are squeezed out when the body contracts from the cold, since their lack of corners makes them slippery, so that they are naturally mobile.

504. (DK 68 A 135) Theophr. De sensu 63: for there is no nature belonging to hot or cold, but the changing shape<sup>1</sup> brings about alteration in us ... (65) Sharp flavour consists of atoms angular in shape ... because they are pungent they quickly penetrate everywhere, and because they are rough and angular they <expand rather than><sup>69</sup> compress and contract, thus creating empty spaces in the body and heating it; for the more void a thing contains the hotter it becomes ... (67) The pungent is small, round and angular ... for the pungent ... makes things hot ... and expands them by being, small, round, and angular<sup>70</sup> (see no. 496: for indeed the angular is of that kind).

505 = no. 171 (DK 68 A 120).

506. (Not in DK) Plut. On the primary cold 8, 948 B: Some attribute it [sc. cold] to the presence in the body of atoms shaped like triangles with twisted sides<sup>1</sup>, saying that cold, shivering and shaking<sup>2</sup> and similar states occur because of their roughness<sup>3</sup>. Even if they are wrong about the details, <at any rate> they have the right principle ... for the natural philosopher, who seeks the truth purely for the sake of understanding, the discovery of particular phenomena [lit. 'the last things'] is not the end, but the beginning of the journey towards the primary, highest principles. That is why Plato and Democritus were right, in their search for the causes of heat and weight, not to end their investigations with fire and earth, but to refer sensible phenomena to intelligible causes, until they reached the smallest things as the seeds.

507. (Not in DK) Plut. Quaest. conviv. VIII.3.2, 720 F (see no. 490): for there is much void scattered through and mixed with the atoms of air. When it is expanded ... the spaces left between the parts [i.e. atoms] are small and fine-textured and the <empty spaces> scattered

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<sup>69</sup> [See translator's note 65 on no. 496.]

<sup>70</sup> [See translator's note 67 on no. 496.]

about the atoms<sup>71</sup> occupy a lot of space, but when it [sc. the air] is compressed and they [sc. the atoms]<sup>72</sup> are densely packed into a small space and are forced close together, they leave a wide space outside<sup>1</sup> and large intervals. This happens ... under the influence of cold. For heat loosens and separates and dissolves concentrations, which is why bodies which are boiling or softening or melting take up more room, while on the other hand things which are cooling and freezing join together and leave empty spaces in the vessels which surround them, and the places from which they have withdrawn. Cf. Ar. De caelo III.7, 305b14: When liquid evaporates and turns to air the vessels containing the volumes [of liquid] are shattered because they are too small.

508. (DK 67 A 14) Simpl. in Phys. I.2, 184b15, 36.1: Leucippus, Democritus and their followers, who call the primary bodies atoms, say that some bodies become hot and fiery in virtue of their differences of shape, position and arrangement; these are composed of primary bodies which are sharper and finer-textured, all positioned alike, while those which are cold and watery are composed of the opposite kinds.

509. (Not in DK) Philop. in GC I.1, 314a19, 17.16: according to Democritus and his followers ... heat is apparent in fire through a concentration of spherical atoms because of the mobility of the sphere. (Because it penetrates things easily, since the motion of the sphere occurs at a point,<sup>1</sup> it makes things appear hot, just as the cube has the opposite effect, of making things appear cold by compression and immobility.)

### c. Miscellaneous

510. (DK 67 A 34) Aet. V.25.4 (Dox. 437: Do sleep and death belong to the body or the soul?): Leucippus thinks that sleep belongs to the body, but when the loss of the fine-textured [constituents of the body] exceeds the amount of psychic warmth coming in, that excess causes death; these are things which happen in the body, not the soul<sup>1</sup>.

511. (Not in DK) Plut. Quaest. conviv. III.6.4, 655 D: hence it is good to place a night's sleep in between, making a sufficient division and distance [between sex one day and the next day's activities], and get up purified, making as it were a new beginning, and thinking new things every day, as Democritus says. VIII.3.5, 722 D: for Zeus here, the great lord of heaven, does not move the least parts of the air secretly or silently, but is visible as soon as he rises and sets everything in motion

Giving a good omen, and rousing the people to their work.

And they follow him, 'thinking new things every day', as Democritus says, as if they were born anew, and their activity is not silent or fruitless ... (DK 68 B 158) Plut. On the maxim 'Live out of the public eye' (De lat. viv) 5, 1129 E: The light of the rising sun spurs everyone to thought and activity in common, and people, thinking new things every day, as

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<sup>71</sup> [See translator's note 63 on no. 490.]

<sup>72</sup> [See translator's note 64 on no. 490.]

Democritus says, set about their common tasks as if drawn together from all sides by a tight cord.

512. (DK 68 A 136) Tert. De an. 43: Democritus says that sleep is a deficiency of the soul.

513. (DK 68 A 21) Cic. De orat. II.53.235: But let Democritus deal with the basic question, what laughter is in itself, and what prompts it.<sup>1</sup>

## F. BIOLOGY

### a. ZOOGONY

#### 1. How animals arose from the earth

514. (DK 68 A 139) Censorinus 4.9: Democritus of Abdera thought that human beings were originally brought into being from water and mud. Aet. VI.19.6 (Dox. 431 = ps-Galen Hist. phil. 123 (Dox. 645)): Democritus said that animals were first generated through the coming into being of defective forms (?), through the action of generative moisture.<sup>73</sup> Lact. Inst. div. VII.7.9: The Stoics say that the world and everything in it were made for the sake of human beings, and the holy scriptures teach us the same; so Democritus was wrong to think that they poured from the earth like worms without any design or any creator.

515. (DK 68 B 5.1)<sup>1</sup>: Diod. I.7.3: then as the surface boiled in the heat some of the moist places swelled up, making putrid areas covered with thin membranes<sup>2</sup>, as can even now be observed in wounds and in marshy places, when from the cooling of the place the air suddenly becomes fiery hot rather than changing gradually. (4) And once the moist places had become generative in the way described, at night they received nourishment from the enveloping mist, and by day they solidified in the heat. And finally when their pregnancy was fully developed and the membranes burnt through and burst there were born all sorts of animals<sup>3</sup>. Those with most heat went up to the higher level and became birds, those of an earthy constitution were numbered among the reptiles and the rest<sup>4</sup> of the land animals, and those whose nature was primarily watery gathered in the place of the same kind<sup>5</sup> and were called swimming creatures. As the earth became more solid through the heat of the sun and the force of the winds it eventually became unable to generate any of the larger animals, but each kind began to be generated sexually. Hermippus On astronomy<sup>6</sup> (Ioannes

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<sup>73</sup> [L's conjectural restoration of the corrupt text; see comm. on no. 514, n. 1. Diels suggests 'unarticulated forms' where L has 'defective forms' (DK ii, p. 123, l. 24 n.)]

Catrares) II..1.6ff., p. 33 Kroll: but once the water had found its proper place on the earth, and that place, being thoroughly moist, had got its own form from the sun which shone on it and gradually dried it, first there came into being trees and plants and some membranes<sup>7</sup> resembling bubbles; they were dried by the sun during the day and warmed at night by the moon and the other heavenly bodies, and they eventually burst and gave birth to the animals. (7) Those which had been sufficiently baked became males, which were hotter, while those of the opposite constitution, lacking heat, were transformed into females. (8) And it was not at all surprising that the earth, mixed with water, first of all generated animals and plants<sup>9</sup> ... for it was to be expected that the water should contain spirit, and that that should contain psychic heat<sup>10</sup>, as is apparent from the animals which are generated in clefts in the ground and in suppurating wounds, all of which, though they come about in those [different] ways, reveal their single amazing original formation. (9) But even if things could no longer come into being in that way, I do not think that that would cause any difficulty; for the earth is no longer mixed with water to such an extent, nor do the heavenly bodies come together in the same conjunctions. (10) I leave aside the question of whether things have happened up to the present as the theory says, except to say that a weak reflection of that time is apparent<sup>11, 74</sup>; it [sc. the earth] can no longer give birth to larger animals, but plants, trees, vegetables and fruits, and when animals have been virtually killed and frozen<sup>12</sup> by the cold it fills them with warmth and activity. (11) The constitution of the animals, as was said earlier, was not uniform;<sup>13</sup> those which contained most earth became plants and trees<sup>14</sup>, with their heads rooted downwards in the earth, differing from the more bloodless<sup>15</sup> and footless animals in so far as the latter move about with their heads above ground. Those containing more liquid accepted life in the water, since their constitution was pretty similar to the others. (12) Those whose constitution is more earthy and hot became land animals, and the more airy and hot became winged, some with their whole body upright, others with their head above the body, according to their particular constitution. (13) As man has more heat than those others, it appears that the constituents of his body are as a whole purer and <more><sup>75</sup> receptive of heat. That is why he alone of the animals has an upright posture and is only to a small extent in contact with the ground; and something more divine<sup>16</sup> flowed into him, so that he possessed intelligence and reason and thought, and made discoveries. Tzetzes Scholia on Hesiod (Gaisford Poetae Graeci minores III.58):<sup>17</sup> those among the Greeks<sup>18</sup> who say that the world came into being say that after the breaking apart of the underworld and the formation of the air and the coming into being of the earth, muddy and totally soft, there arose from it putrid membranes like bubbles<sup>19</sup>. These grew by being heated by the sun during the day and nourished by the moisture of the moon by night, and when they burst there came from them humans and all kinds of animals according to their predominant elements, I mean water, air, fire and earth. And they say that when the earth could no longer generate them, having been dried up by the sun, sexual generation came into being.<sup>21</sup> (DK 68 B 27a)

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<sup>74</sup> [I render L's translation; see his n. 11 for an alternative, which is adopted in the Italian version.]

<sup>75</sup> [Supplementation by Diels.]

Columella IX.14.6: Democritus<sup>22</sup>, Mago and also Virgil said that bees can be generated from a slaughtered calf.

## II. Are changes determined by their cause or by their end?

### Instinct and intellect

516. (Not in DK) Ar. Phys. II.8, 198b23:<sup>1</sup> What prevents the parts from being thus (see no. 31) by nature, e.g. the front teeth grow up sharp and suitable for dividing the food, and the molars flat and suitable for grinding it, but that does not come about for the sake of that, but it merely falls out by chance? And similarly for the other parts, creatures which seem to be characterised by teleology, where everything came about as if for the sake of something, survived by chance, since their constitution was suitable, while those which were not like that perished and still perish, as Empedocles says<sup>2</sup> of the 'races of cattle with human faces'. This, or a similar argument, is what one would use to raise a difficulty ... but all the same all these things occur by nature, as those who say this would themselves acknowledge. Simpl. ad loc. 371.91: for the front teeth are sharp and the molars flat, not because that is useful, but from natural necessity. For, someone might say, the circumference of the jaw is thicker than its ends because of the curvature. Curved objects are thicker on the concave surface and <thinner><sup>76</sup> on the convex because the latter is stretched out and the former compressed where the curve is greatest, and things which penetrate what is thicker are sharpened and sharp things penetrate more.<sup>3,77</sup> And things which came about in that way from material necessity happened for other reasons to benefit the creatures, as if they came about for the sake of that. For why do some things perish because of their own parts, e.g. eagles which starve because of the curvature of their bills, while others survive, if these things did not happen by chance?<sup>4</sup> (There follows the passage of Empedocles quoted above.) (372.3) and things which combined with one another in such a way as to be able to survive became and remained animals by fulfilling one another's needs, the teeth by cutting and grinding the food, the stomach by digesting it, the liver by converting it to blood ... but those whose combination was not in accordance with their own organisation perished. And everything happens the same way even now.<sup>5</sup> It seems that that is the view of those early natural philosophers who say that it is material necessity which causes things to happen, and of the Epicureans among later thinkers. See no. 31.

517. (partly in DK 68 A 147)<sup>1</sup> Ar. GC V.8, 789b9: Democritus too spoke about them (teeth) ... he says that they fall out because they develop prematurely in animals; for when they are

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<sup>76</sup> [Supplementation by L.]

<sup>77</sup> [L (followed by the Italian version) translates 'Because of the greater thickness (of the inner surface) things that are enlarged become sharper and sharp things get more enlarged'. But a) dierchomai does not seem to be attested in the sense 'be enlarged, expanded' (see LSJ), and b) L acknowledges (see his n. 3) that his rendering does not give a satisfactory sense to 'sharp things get more enlarged'. I take dierchomai in its basic sense of 'go through, penetrate', and take the sense to be that the front teeth are sharpened by the impact involved in penetrating the greater thickness of the curve of the jaw.]



mature they develop naturally, so to speak, but their premature development is caused by suckling ... (24) so if it had come about as he says ... the work of nature would have occurred contrary to nature ... (789a4) suckling itself contributes nothing, but the warmth of the milk makes the teeth grow quicker. This is shown by the fact that the young of species whose milk is warmer grow their teeth more quickly, since warmth promotes growth. But once they have grown they fall out because it is better, because (there follows Aristotle's explanation in terms of final causes) ... (12) they fall out of necessity, because the roots of some are in a broad, strong jawbone, but the roots of the front teeth are in a thin one, which makes them weak and easily moved. They grow again because they were shed when the tooth was still growing and it was still the right time for teeth to grow. This is shown by the fact that the molars too grow for a long time; the last erupt when one is around twenty years old, and some people's last teeth develop completely only when they are old, because there is a lot of nutriment in the breadth of the bone. The complete development of the front teeth is quick, since they contain no surplus material, but the nutriment is used up in their development. Democritus leaves aside the final cause and attributes all natural processes to necessity; those processes are as he says, but all the same they are for the sake of something ... so that nothing prevents them [i.e. the teeth] from growing and falling out as he says, but not for the reasons he gives, but because of the end ... since it is reasonable to think that many things are brought about by air acting as a tool ... air acts in natural things like the hammer and the anvil in working with bronze. Saying that causes are necessary seems like saying that in a case of dropsy the water was let out only because of the lancet, not because of health, for the sake of which the lancet did the cutting. Philop. ad loc. 247.11: Democritus said that the teeth fall out because when they grow they do prematurely and contrary to nature. Perhaps Democritus did not simply identify suckling itself as the cause, but was indirectly referring to milk by mentioning suckling; for milk makes teeth grow because it is warm, as Aristotle himself said a little later.

518. (Not in DK) Ar. GA II.6, 741b37: the parts of animals are differentiated by air, not however that of [i.e. breathed by] the mother nor of the animal itself<sup>1</sup>, as some of the natural philosophers say. This passage is discussed by Philop., in GA V.8, 789b2, 249.6 : for he has said previously that Democritus said that the cause of the division of the lungs is air that is breathed, and in general he reduces everything that exists and comes into being to the organs. Ar. PA I.1, 640b4 (see no. 171): The ancients who were the first to theorise about nature investigated the material principle and that kind of cause, asking what and what kind of thing it is ... and what moves it, e.g. ... chance, since the underlying matter must have some such nature. That is also how they generate the cosmos, and that is the way they speak of the coming into being of animals and plants, e.g. that the stomach and every receptacle of nourishment and residue come into being from the flow of water in the body, and the nostrils were forced open by the passage of breath, and air and water are the material of bodies; they all construct nature from bodies of that kind.

519. (DK 68 A 149) Ar. GA II.8, 747a24: the entire breed of mules is sterile. The reason has not been correctly given by Empedocles<sup>1</sup> or Democritus, of whom the former expresses himself obscurely, the latter more intelligibly. They offer a single account applying to all cases of mating between animals of different species. Democritus says that the genital passages (poroi)<sup>78</sup> are spoiled in the uterus because the animals do not originate from parents of the same species. Philop. ad loc. 122.31: he [i.e. Democritus], he says, gives the following high-flown account in his attempt to explain the causes of the sterility of mules. The genital products (sporoi) of male and female mules (meaning by 'genital products' the seed (spermata) of both) are naturally spoiled in the initial process of their development because they come from parents of different species, not of the same species; that is to say, when the seed of the male enters the female it spoils the menstrual blood and makes it sterile, and similarly the female spoils the seed which it receives from the male and makes it sterile. Cf. Michael Glycas Annals I.17.21 [DK ii, p. 124, l. 29 n.]. (DK 68 A 151) Aelian NA XII.16: He says that mules do not breed, for their wombs are not like those of other animals, but of a different form<sup>2</sup>, not at all capable of receiving seed. For the mule is not a product of nature<sup>3</sup>.

520. (DK 68 A 116; see no. 438)<sup>1</sup> Aet. IV.10.4 (Dox. 399): Democritus says that the non-rational animals have more senses (than the five).

521. (DK 68 A 152) Aelian NA XII.17: Democritus says that more miscarriages occur in southern regions than in northern, and reasonably so; for the mothers' bodies are relaxed and expanded by the south wind. Now when the [mother's] body is relaxed and not in proper condition the embryo moves back and forth and as it is heated it more readily slips out and is aborted. But if it cold and the north wind is blowing the embryo is contracted<sup>1</sup>, and being hard to displace and not disturbed as by a wave, but in a sheltered and calm state it grows strong and firm and lasts out the natural term of pregnancy. Hence, says the Abderite, in cold weather it remains in place, but in hot weather it is generally rejected. And he says that as it gets hotter the veins and joints are necessarily distended.

### III. Embryology

522. (DK 67 A 35) Aet. V.4.1 (Dox. 417: is semen a body?): Leucippus and Zeno say that it is a body, since it is something detached from the soul.

523. (DK 68 A 140) Aet. V.4.2-3 (Dox. 417-418): Pythagoras, Plato and Aristotle say that the power of semen is incorporeal, like the moving mind, while the ejaculated matter is corporeal, but Strato and Democritus say that the power too is corporeal, since it consists of breath.

524. (Not in DK) Ar. GA IV.1, 764b10: regarding semen, if it is as we have said, and it does not come from the whole body ... we must give the same reply to Democritus and anyone

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<sup>78</sup> [See I's notes 1 and 2 on the readings poroi and sporoi in these passages.]

else who happens to say the same. (IV.3, 769a26) semen is as it were a single universal generative mixture with many components (see no. 533).

525. (DK 68 B 124) Galen On medical definitions 439 (XIX, p. 449 K.): semen is secreted, as Plato says<sup>1</sup> and Diocles too (fr. 170, p. 196 Wellmann) from the brain and the spine; Praxagoras, Democritus and Hippocrates say that it is from the whole body, Democritus saying 'Man issues from the whole man' .<sup>79</sup> (DK 69 A 141) Aet. V.3.4 (Dox. 417): Plato says that semen is an effluence of spinal marrow ... Democritus says that it comes from the whole body and the most important parts, such as bones, flesh and sinews.

526. (DK 24 A 13) Censorinus 5.2ff.: But this opinion (that semen is excreted by the brain) is rejected by some, e.g. Anaxagoras<sup>1</sup>, Democritus and Alcmaeon of Croton;<sup>2</sup> they point out that after the mating season the males have lost not only brain matter but fat and a great deal of flesh.

527. (partly in DK 68 B 32) Clem. Paedagogus I.94 (I.214.9 St.): the sage of Abdera used to say that sexual intercourse is 'brief epilepsy'<sup>80</sup>, regarding it as an incurable disease. For there is no recovery in proportion to the amount of the discharge (sc. of semen); for man grows out of and is detached from man ... the whole man is detached in the discharge during intercourse.<sup>1</sup> Hippol. Refut. VIII.14 (p. 234.5\_W.; see comm.):<sup>2</sup> everything is generated and bears fruit when it is beaten, e.g. vines; Man issues from man, he (i.e. Monoimus) says, and is detached from him, being separated by a kind of blow. Galen On Hippocrates Epidemics III, book I (XVII.A, p. 521 K.): intercourse is brief epilepsy. Ps-Galen Is the foetus an animal? XIX, p. 176: Democritus says that man issues from man and dog from dog and cow from cow. Galen On medical definitions 439 (XIX, p. 449 K (no. 525)) : semen is excreted ... from the whole body, Democritus saying 'Man issues from the whole man' ...<sup>3</sup> Pliny NH XXVIII.58: Democritus condemned sex as something in which another man is banished from a man. Aul. Gell. Noct. Att. XIX.2: But Hippocrates ... regarded sex as part of a most terrible disease, which our Latin authors have called 'the social disease'; that is how his own words 'intercourse is a brief epilepsy' are translated'. Stob. III.6.28: Eryximachus (a doctor, apparently of the Hippocratic school, mentioned in the Symposium and other works of Plato); Eryximachus used to say that intercourse is brief epilepsy, which is cured only by time. Plut. Quaest. conviv. III.6.1, 653 B (61 Us.): Epicurus was afraid of the wounds arising from intercourse because of the bodily shaking, leading to disturbance and tossing about on the part of those who engage in it. From all these passages the words of Democritus may be reconstructed very much as follows: Intercourse is brief epilepsy<sup>4</sup>; for man issues from the whole man (and dog from dog and cow from cow), and is detached, separated by a sort of blow.<sup>5</sup> For everything is generated and bears fruit when it is beaten<sup>6</sup>, e.g. vines.

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<sup>79</sup> [On the text and interpretation see Taylor 1999, D9, p. 7.]

<sup>80</sup> [The Greek is mikra epilepsia, lit. 'small epilepsy'. In view of the characterisation of sexual intercourse by Clement as an incurable disease, and by Gellius as part of a most terrible disease, L's translation 'brief' seems preferable to 'mild' (adopted by Taylor 1999) as a rendering of mikra.]

528. (DK 68 B 127) Herodianus, cited by Eustathius comm. on Od. XIV.428, p. 1766 (II.445.9 L.): when people scratch themselves they experience pleasure like that of sex. Cf. Ar. Probl. I.30, 953b33: Sex is breathy. The evidence is that the penis is quickly enlarged from a small size by the effect of breath. Further, before they can yet produce semen children approaching puberty experience pleasure from naughtily scratching their genitals. This [the enlargement of the penis] becomes obvious because breath passes through the channels through which moisture is later conveyed, and the emission and discharge of semen in intercourse clearly occur through the pressure of the breath.

529. (DK 68 A 142)<sup>1</sup> Aet. V.5.1 (Dox. 418): Epicurus and Democritus say that the female too emits semen; for she has displaced testicles, which is why she too desires intercourse. Nemesius On the nature of man 247 Matth.: Aristotle and Democritus do not admit that the woman's semen contributes anything to the generation of children; they think that what is emitted by women is sweat from the organ, rather than seminal fluid.

530. (DK 68 A 143) Ar. GA IV.1, 764a6: Democritus of Abdera says that the differentiation of male and female occurs in the womb. It is not, however, because of heat and cold<sup>1</sup> that one becomes female and another male, but it depends on which parent's seed predominates<sup>2</sup>, specifically the seed coming from the part in which male and female differ. Philop. ad loc. 167.33: he calls the particles 'seed'<sup>3</sup>, and we said in the first book (25.20) what he means by calling them 'seed'; he says that seed comes from the whole<sup>4</sup> body, but by 'seed' he is not talking about the sort of thing with which we are all familiar, but saying that from the head of the father there is emitted a tiny head, imperceptibly small, and similarly hands from the hands, feet from the feet, liver from the liver and so on, and much the same from the mother. Ar. GA IV.1, 764b20: and in general saying that the supremacy of the part makes the female through its predominance is better than thoughtlessly making heat the sole cause, but yet it needs to be explained why that [i.e. being as a whole female] always accompanies the different shape of the genitals. If it is because they are adjacent, the same ought to apply to each of the parts, for each of the predominant parts is adjacent to another, so that the female offspring ought to resemble the mother<sup>7</sup>, and the male the father. Further, it is absurd to suppose that only those parts have to come into being, rather than the whole body having changed. Philop. ad loc. 171.1: this is directed against Democritus. Philop. ad loc. 167.13: Democritus said that it is not because of heat and cold that males and females come into being, but purely through the predominance of the parts. He said that all the parts of the male and female come from all the parts [of the parents], but not half each, as Empedocles said, but entire, a complete head<sup>8</sup> from the male and a complete head from the female, and similarly a complete heart from the male and a complete heart from the female, and so on for the others. And there is first of all a struggle in the parts in which male and female differ, i.e. the womb and the perineos. The latter is a venous channel in which the semen of the male collects and through which it is conveyed to the penis. So he says that there is first of all a struggle in those parts, and if the womb prevails over the perineos<sup>10</sup> it changes it to its own nature, from which it grows.<sup>11</sup> And since

the female genitals are just next to the womb, through the victory of the womb the female genitals conquer the male and change them to their own nature. And since the thighs and pubis are near the genitals, the thighs [of the female] conquer the thighs [of the male] and the [female] pubis conquers the [male] pubis, and the [female] stomach conquers the [male] stomach, and it [the embryo] becomes female, but if the perineos is victorious, and thereby the penis, and through the penis the thighs and pubis, and through the pubis the stomach and the rest, it becomes male.

531. (DL 67 A 36, 68 A 143)<sup>1</sup> Aet. V.7.5a-6 (Dox. 420: how are males and females generated?): Leucippus says that it is through the difference of parts, in that one has a penis, the other a womb; that is all he says. Democritus says that the parts common to both come [sexes] come from either parent by chance, but the differentiating parts by predominance.

531a. (Not in DK)<sup>1</sup> Columella VI.28: Democritus asserts that in breeding horses it is up to us whether a male or female is conceived. He advises that when we want a male to be conceived we should tie up the left testicle of the stallion with a linen string or something similar, and if a female, the right, and he says that we should do the same in the case of virtually all animals (= no. 812).

532. (DK 68 A 143) Censorinus 6.5: Democritus maintained that whichever parent's seed first occupied the position, that parent's nature was reproduced.

533. (Not in DK) Ar. GA IV.3, 769a8: Some say that the offspring more nearly resembles the parent which contributed more seed, both as a whole and in respect of each part, on the assumption that the seed is emitted from each of the parts, but if the amount from both parents is equal, the offspring is not like either ... (17) those such as Empedocles and Democritus who explain the difference between male and female say what is for other reasons impossible; but those who say that more or less [seed] comes from the male or the female ... (26) But those who take the remaining view about resemblance have a better account both of that and of other things. There are some who say that semen, which is one thing, is a sort of universal seminal mixture of many things; so, as if one were to mix many flavours in a single liquid, and then drew some of it off, one might get, not always an equal quantity of every flavour, but sometimes more of one and sometimes of another, and sometimes more of one but none of another. That would also happen in the case of the seminal mixture; the character [of the offspring] would resemble the parent who had contributed most.

534. (DK 68 B 5.2; no. 515)<sup>1</sup> Hermippus On astronomy (Ioannes Catrares) II.1.7, p. 33 Kroll): those which had been sufficiently baked became males, which were hotter, while those of the opposite constitution, lacking heat, were transformed into females

535. (DK 68 A 144) Ar. GA II.4, 740a33: the veins connect to the uterus like roots, through which the embryo receives nourishment. This is why the animal remains in the womb, not,

as Democritus says, in order that its parts should be formed on the pattern of the parts of the mother. (II.7, 746a19): those who say that children in the womb are nourished by sucking some little fleshy part are wrong. Philop. ad loc. 102.20: for since, he [Democritus] says, the hand and every part of the mother is such and such, it [the embryo] remains in the womb in order that nature should shape and form the parts of the embryo by reference to those parts [of the mother] as a pattern.

536. (DK 68 A 144) Aet. V.16.1 (Dox. 426): Democritus and Epicurus say that the embryo in the womb is fed through the mouth, which is why as soon as it is born it moves its mouth to the breast. There are in the womb teats and mouths, through which it is fed.

537. (DK 68 148)<sup>1</sup> Plut. On love of offspring 3, 495 E: when the embryo is received in the womb and wrapped up once it has taken root (for the navel is the first part to be formed in the womb, as Democritus says, as an anchor to stop it from rolling and shifting about, and as a cable and a shoot for the fruit which is coming into being and is to come), nature shuts off the monthly cleansing flow, but uses the flow of blood to nourish and moisten the foetus as it is constituted and moulded, until, after growing in the womb for the appropriate time, it needs other nourishment and another place. Plut. On the fortune of Rome 2, 317 A: 'an anchor to stop it from rolling and shifting about', as Democritus says. Plut. On love of offspring 1, 493 D: (animals) 'ride at the anchor' of nature.

538. (DK 68 A 145) Ar. GA II.4, 740a13: those such as Democritus who say that the external parts of animals are differentiated first, and the internal parts later, are wrong.

539. (DK 68 A 145) Censorinus 6.1 (Dox. 190: On what parts are first formed in the infant): Democritus says that is the belly and the head, which contain the most void.

## **b. THE BODILY ORGANS**

### **I. The natural origin and functions of the organs**

540. (DK 68 B 135) Hesych. s.v. dexamenai: receptacles for liquids, and the veins in the body. Democritus. Erotianus 90.18 N.: he called 'veins' not those usually so called<sup>1</sup>, but arteries. And Democritus called the motion of the arteries 'beating of the veins'. Cf. Boethius On music I.1:<sup>2</sup> The pulse is driven by the motions of the heart, in accordance with the state of the body. Democritus is said to have told that to the physician Hippocrates, who had visited him in prison<sup>3</sup> to cure him from insanity, when all Democritus' fellow-citizens thought that he was mad.

541. (DK 68 A 153) Ael. NA XII.18: He says that the cause of the growth of antlers in deer is as follows. He acknowledges that their belly is extremely warm, and says that the veins throughout the whole body are extremely loose-textured, and the bone containing the brain extremely fine and loose-textured like a membrane, with very broad veins<sup>1</sup> going up from it to the top of the head. So the nutriment, especially the most generative element of this<sup>2</sup>,

flows up very quickly, and, as he says, the fat in them spills out<sup>3</sup>, and the force<sup>4</sup> of the nutriment rushes up<sup>5</sup> to the head through the veins. From there the horns grow outwards, as they are moistened with a great deal of liquid, whose continuous flow pushes the previous deposit out. The damp material projecting outside the body is dried and hardened by the air and becomes horny, while the stuff that is still shut up inside is soft. The former is hardened by the cold outside, the latter stays soft because of the heat inside. And the growth of new horn pushes the older growth out like something alien, as the inner material chafes and tries to thrust the other out, throbbing in pain in its eagerness to come to birth and come out. For the upsurge of solidified liquid cannot itself be at rest; it itself hardens and is pushed out on to the earlier ones. The greater part<sup>6</sup> are squeezed out by the force of the moisture inside, but some get caught in branches, hindering the speedy motion of the animal, and are broken off by the force of its charge. Some fall off<sup>7</sup>, and nature brings out those which are ready to appear.

542. (DK 68 A 155) Ael. NA XII.20: In the case of hornless bulls the forehead is not 'honeycombed', as Democritus calls it, meaning 'porous', but solid bone throughout, with no room for humours to flow in, and so is bare<sup>1</sup> of any defences, and the veins<sup>81</sup> above that bone are thinner and weaker<sup>2</sup> for lack of nourishment. Necessarily, the necks of hornless<sup>3</sup> cattle are also drier, for there too the veins are thinner, and consequently weaker. Some female Arabian cattle have well-developed horns, and in their case, he says, the abundant flow of humours nourishes the strong growth of the horns. The hornless ones are those where the bone which receives the liquid is too narrow to be capable of containing the humours. To sum up, it is the flow of humours which causes the growth of horns; this is channelled by large numbers of extremely broad veins full of moisture, which they are capable of containing.

543. (DK 68 A 154) Ael. NA XII.19 (castrated cattle): Democritus says that their horns grow long, thin and crooked, whereas those of entire cattle are thick at the root, straight and shorter, and they have much broader faces than the others, since they have many veins there, and hence their horns are well-developed. The thicker root<sup>1</sup> of the horns makes that part of the animal itself bigger<sup>2</sup> and broader. Castrated cattle, in which the circumference of the base of the horns is small, grow less broad [in the face], he says.

544. (DK 68 A 150) Ar. Historia Animalium [HA] IX.39, 623a30: spiders can<sup>1</sup> spin their webs as soon as they are born, not as excrement<sup>2</sup> from within, as Democritus says, but from their body like bark<sup>3</sup>, or like animals which shed their hair (in moulting), e.g, pigs shed their bristles<sup>4, 82</sup>. Pliny NH XI.80: A third sort of spider is conspicuous for its intelligent activity. It

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<sup>81</sup> [L's n. 2 asserts that the description of the phlebes as 'weaker' requires the word to be understood as 'muscles', not 'veins'. But LSJ does not cite any instances of the word with that sense. Further, the sentence immediately following, which clearly requires the sense 'veins', suggests that veins (and blood-vessels more generally) are described as weak in so far as they are incapable of sustaining an abundant flow of blood.]

<sup>82</sup> [I render L's text and translation, on which see his n. 4. DK retain the mss' text, translated by Taylor 1999, no. 144, p. 131, as 'like bark or those creatures which shoot their spines, such as porcupines'.]

spins webs, and its own body provides the material for such a great task, whether because, as Democritus thinks, at a particular time it suffers a gastric disorder of that sort, or because it is able to generate thread from its skin.

## II. Multiple births. Monsters.

545. (DK 68 A 151) Ael. NA XII.16: Democritus says that the pig and the dog have large litters, adding the explanation that they have several wombs and places to receive the semen. The seed does not fill all these at a single discharge, but these animals copulate two or three times, so that the continuity can fill up the places which receive the sperm. (Cf. DK 68 B 300.7a) Theophrastus Quaest. phys. p. 20 Boissonade:<sup>1</sup> The hare is especially fertile in nature ... so the hare gives birth to some of the offspring which it has conceived, and carries others around half-formed in its womb ... the poets tell that Aegyptus and Danaus had the most children, but the hare surpasses them, according to the Abderite, and there is no harm in believing him. (DK 68 A 151) Hippocrates On the nature of the infant 31 (VII.540 Littré): regarding twins being born as the result of a single copulation, it is a fact that the dog and the pig and other animals which bear two or more from a single copulation carry each of them in a pouch and a membrane in their wombs<sup>2</sup>, and we observe them being born, and generally these are all born in a single day. Ar. Probl. X.14, 892a38: Why do some animals, such as the pig, dog and hare, have large litters, while others, such as man and the lion<sup>3</sup> do not? Is it because the former kinds have many wombs and places which the semen seeks to fill and into which it is divided, while in the latter it is the opposite?<sup>4</sup>

546. (DK 68 A 146) Ar. GA IV.4, 769b30: Democritus says that monsters<sup>1</sup> are produced by the confluence of two discharges of semen, one earlier and one later. This is emitted and flows into the womb, so that the parts are fused together and intermingled. And since in birds copulation occurs quickly,<sup>2</sup> he says that the eggs and their colours are always intermingled<sup>3</sup>. Philop. ad loc. 185.33: Democritus said that in copulations occurring say today the semen from the male has entered the womb, and it will do so in copulations occurring tomorrow, and in general the semen in the first copulation is different from that in the second. So when the female copulates twice, and two amounts of semen enter her womb, the first forms and makes hands and feet and the other parts, and the second does the same. But since the menstrual blood is single and continuous, the results of both discharges are continuous and intermingled, i.e. acting jointly and mutually similar, and because of that a single human being is born with two heads and four feet. Democritus also said that birds' eggs are monsters; he says that in those cases copulation is quick, occurring several times in a single hour, and issuing in several discharges, which is why part of the egg is white and part yellow. If only a single discharge had entered, the whole would have been either white or yellow. So, he says, eggs are monsters, but they do not appear so because it always happens that way since copulation is quick, and he says the colours of eggs are always joint in their effects and intermingled, which is why every bird's egg is partly white and partly yellow. This is Democritus' opinion about the birth of monsters, citing the male semen as the cause ...



## c. THE CAUSES OF ANIMALS (ΑΙΤΙΑΙ ΠΕΡΙ ΖΩΙΩΝ)

### THE KINDS OF ANIMALS

547. (Not in DK)<sup>1</sup> Aet. V.20.1 (Dox. 432): Plato and Aristotle say that there are four kinds of animals, land animals, aquatic, winged and heavenly,<sup>2</sup> for they say that the heavenly bodies are living creatures and that the cosmos is a living creature which is divine, rational and immortal. Democritus and Epicurus <do not accept that> the heavenly bodies <are living creatures.><sup>83</sup>

548. (DK 68 A 148) Ar. PA III.4, 665a30: none of the bloodless animals has viscera. Democritus seems not to be correct in his discussion of them ...<sup>1</sup> See no. 465.

### PARTICULAR KINDS

#### I. Mammals

549. (DK 68 A 156) Scholium T on Hom. Il. XI.554: since it (the lion) contains much heat, it fears fire; hence it does not shut its eyes when it goes to sleep, nor, as Democritus says, when it is born. Eustathius ad loc. 862: ... faggots are bundles of brands, i.e. torches, which the lion fears, and they say that the cause of its fear is its natural heat<sup>1</sup> and as it were fieriness, which is why it fears fire, and for that reason it does not shut its eyes when it goes to sleep nor, as Democritus says, when it is born; it alone is said to be born with its eyes open. Ael. NA V.39: Democritus says that the lion is the only animal to be born with its eyes open, since it is in a way spirited<sup>1</sup> and from birth eager to do something noble.

#### II. Birds

550. (DK 68 A 157) Etymologicum Genuinum s.v. glaux [owl]: ... of all animals it has the keenest vision, which enables it to see at night. Democritus reports that alone of the taloned flesh-eaters<sup>1</sup> its young are not born blind, because it has a great deal of fiery warmth about its eyes, which is very sharp and cutting and separates<sup>2</sup> and confuses its sight. So that because of the fieriness of its eyes it sees even when there is no moonlight. Cf. schol. on Il. XX.172 (glaukioōn ['glaring']).

551. (DK 68 A 148) Cic. De divinat. II.26.57: Democritus gives an excellent explanation of why cocks crow before dawn; once their food has moved from the stomach to the whole body and has been digested they sing when they are rested and satiated. Cf. Michael Glycas Annals I.89.20 (from Alexander); Heliodorus Aethiopica I.18.

#### III. Fish and aquatic animals

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<sup>83</sup> [Supplementation by Usener.]

552. (DK 68 A 155b) Theophr. Fr. 171.12 W.: There is a problem about both kinds, those found on dry land and those obtained by digging<sup>1</sup>. If they were put into water would they live there, or would they seek that as their natural habitat, like those which live in the sea and in rivers? Only a few can survive those changes; for those which hide when the water dries up and those which are frozen in the ice<sup>2</sup> obviously live naturally in water, and it is more likely that that is true of those obtained by digging and the others, both those which are essentially so, and the amphibians, as Democritus says.<sup>3</sup> That is the case with others too; some species breathe air, as we have said previously.

553. (Not in DK) Ar.On breath 2, 470b28: Democritus of Abdera and others who have discussed breath said nothing about the other animals, but appear to say that all breathe. Anaxagoras and Diogenes, who say that all breathe, describe how fish and shellfish breathe.

554. (DK 68 A 155a) Ael. NA IX.64: Democritus ... says that fish are nourished not by salt water, but by the residue of fresh water in the sea.

#### IV. Bloodless animals

555. (DK 68 B 126) Galen On the difference of pulses I.25 (VIII.551 K.; on wavelike and wriggling pulses): the common feature, in virtue of which the name is applied in each case, is that in the case of the wavelike something like waves occur one after another in the artery, while in the case of the wriggling it is like the motion of a grub, moving with a wavelike motion, as Democritus somewhere describes such creatures as 'moving forward irregularly like a wave'. Ar. HA V.19, 551b6: the insects named spindles and pestles<sup>1</sup> are derived from similar caterpillars, which move in an undulatory way . progressing with one part and then pulling up the hinder parts by a bend of the body. (DK 68 A 148) Ar. PA III.4, 665a30: none of the bloodless animals has viscera. Democritus seems not to discuss them correctly, in saying that the viscera of the bloodless animals are too small to be visible<sup>2</sup>. (See no. 465.)

#### d. THE CAUSES OF PLANTS (ΑΙΤΑΙ ΠΕΡΙ ΦΥΤΩΝ)

556. (DK 68 B5, 2)<sup>1</sup> Hermippus On astronomy (Ioannes Catrares) II.1.11, p. 33 Kroll: the constitution of the animals<sup>1</sup> was not uniform; those containing most earth became plants and trees with their heads rooted in the earth, differing from the more bloodless and footless animals only in that the latter have their heads above ground as they move. (DK 31 A 70) ps-Ar. On plants I.1, 815b16 (p. 6.17 M.): Anaxagoras, Democritus and Abrucalis (= Empedocles)<sup>1</sup> said that they (i.e.plants) have mind and intelligence. (DK 59 A 116) Plut. Quaest. conviv. I.1.1, 911 D: plants are animals fixed in the earth, as Plato<sup>2</sup>, Anaxagoras, Democritus and their followers say.

557. (DK 68 A 162) Theophr. De caus. plant. II.11.7 ff. (on the growth of plants): Democritus explains the fact that straight plants are shorter-lived than crooked, and that they sprout earlier, as arising from the same causes (in the former case the nutriment

producing shoots and fruit is disseminated more quickly, but more slowly in the latter, because the part above the ground does not allow a quick flow, but the roots absorb it, for those plants have long, thick roots). That would not seem to be correct. (8) He also says that the roots of straight plants are weak, and hence that both causes contribute to the withering of the plant [text uncertain]; both heat and cold are transmitted quickly from above to the roots because the channels in the plant are wide, but because the roots are weak they do not withstand it. Overall, most such plants begin to wither from the bottom because of the weakness of their roots, and in addition the thin parts above ground are bent by the wind, thus shaking the roots. When that happens they [the roots] get damaged and broken, as a result of which the whole plant dies. That is what he says. (1.8.2): whether it should be understood as occurring because of the straightness of the channels, as Democritus says; for the flow is abundant and unimpeded, as he says.

## G. HUMAN SOCIETY

### a. THE HISTORY OF HUMAN SOCIETY

#### I. The beginnings of human society

558. (DK vol. II, Nachtrag, p. 423, l. 17 ff.) Galen On medical experience (Arabic translation):<sup>1</sup> Kitab Galinus fi-t-tagriba at-tibbija, edited by R. Walzer (Galen on Medical Experience. First Edition of the Arabic version with English translation and notes. London, 1944) IX.5, p. 145b = p. 19.99 Walzer: (Arabic text follows; trans.: 'For, as Democritus says, experience and vicissitudes have taught men this, and it is from their wealth of experience that men have learned to perform the things that they do'). (DK 68 B 5) Diod. I.8.1:<sup>2</sup> That concludes our discussion of the origin of the universe. The earliest humans are said to have lived scattered about<sup>5</sup> in a disorderly and bestial<sup>3</sup> state of life<sup>4</sup>; they wandered about looking for food, and gathered the tastiest plants and fruit that they found growing on trees. (2) When they were attacked by animals they came to each other's assistance, prompted by their own interest<sup>6</sup>, and once they had associated through fear they gradually began to recognise one another. (5) The first humans had a painful existence, for none of the things useful for life had been discovered; they were without clothing, shelter and the use of fire, and had no notion at all of the cultivation of food. (6) And since they were even ignorant of how to store their wild food they did not set aside any of the crops for times of scarcity; hence many of them perished in winter from cold and lack of food.<sup>7</sup> From this condition they gradually learned from experience to seek shelter in caves in the winter and to store up those crops which could be preserved, and once they had discovered fire and other useful things<sup>8</sup> they gradually devised the crafts and other ways of improving their communal life. In every case it was need which was the teacher of human beings; it showed the way to each discovery to naturally able creatures who had hands to assist them in everything<sup>10</sup>, together with reason and acuity of mind. Hippocr. On ancient medicine 3 (= Corp. medic. Gr. I.1, p. 38): ... I think that in the beginning people used that kind of food, and their present diet seems to me to have been discovered and devised over a long period. They suffered many dreadful afflictions from their strong, bestial diet ... it is probable that most of them died, having a weaker constitution, while the stronger lived longer ... this necessity seems to me to have made them look for a diet suitable to their nature and to find the one we now use. Diogenes of Oenoanda fr. 10 Chilton, col. II.1.4: neither these nor any of the

crafts should be ascribed to Athena or to any other divinity; all arose from need and the vicissitudes of time. Tzetzes Scholia on Hesiod (Gaisford, Poet. Gr. minores III.58): the people of that time, simple and inexperienced as they were, had no knowledge of crafts or agriculture or anything else, nor did they understand what sickness or death were, but lay down on the ground as if going to bed and breathed their last without knowing what was happening. Activated purely by mutual affection, they lived a gregarious life, going out to pasture like sheep and eating fruit and vegetables in common, and protecting one another from wild animals, fighting together naked, with their bare hands. Being thus naked, without shelter or possessions, they did not even know how to gather together the crops and fruit in stores, but simply ate the food they found each day, so that when winter came many died. But gradually, instructed by necessity, they began to creep into hollow trees, thickets, clefts in the rocks and caves, and with difficulty discovered which crops could be preserved, and once they had collected them they stored them in their caves and lived on them throughout the year. Living together in such conditions, they led a plain, simple life of mutual affection, without the knowledge of fire; they had no kings, rulers or masters, no wars, no use of force, no robberies, but all they knew was mutual affection and how to live this plain, free life. But when they had acquired a greater capacity for forethought and advance deliberation, and discovered fire, they wanted hotter, or rather more wicked things ...<sup>11</sup>

## II. Animals as a model for humans

559. (DK 68 B 154)<sup>1</sup> Plut. On the wisdom of animals 20, 974 A: perhaps we are absurd to praise animals for learning, when Democritus shows that in the most important things we have been their pupils<sup>2</sup>, learning spinning and weaving from the spider, housebuilding from the swallow and singing by imitation from songbirds, the swan and the nightingale.

560. (DK 68 A 150a)<sup>1</sup> Ael. NA VI.60: The Massagetai, as Herodotus relates (I.216)<sup>2</sup>, hang up their quiver in front of themselves, and then the man couples with the woman openly, and they think nothing of it, even if everyone can see them. But camels would never couple in the open nor, as it were, before witnesses. Whether that is to be ascribed to shame or to a secret natural endowment we may leave to Democritus and the rest to consider, who suppose that they are capable of stating the causes of things which are not attested or paralleled. Even the herdsman goes away when he observes that they are eager to mate, as if withdrawing from the bride and groom when they enter their bedroom.<sup>3</sup>

561. (DK 68 A 151) Ael. NA XII.16: He [Democritus] says that mules do not breed, for their wombs are not like those of other animals, but of a different form, hardly capable of containing semen. For the mule is not a product of nature, but a crafty contrivance<sup>1</sup> of human ingenuity and, one might almost say, of sexual violence. It seems to me, he says, that a mare once happened to give birth after having been raped by an ass, and men, getting the idea from [lit. having become pupils<sup>2</sup> of] this violent act, went on to develop that kind of breeding. And especially in Libya the asses, which are very large, mount mares which do not have their

manes but have been shorn; for a mare which was glorying in her mane would not endure such a match, the experts in breeding them say.

561a. (DK 68 B 198, 20 N = no. 761) Stob. III.4.72: The (animal) in need knows how much it needs, but the (human) in need does not know.

562. (DK 68 B 278)<sup>1</sup> Stob. IV.23.33: the same (i.e. Democritus). People think of having children as necessary because of their nature and their long-established way of life.<sup>2</sup> This is clear for the other animals too<sup>3</sup>; they all have young in accordance with their nature, not for any benefit. But when they are born each one takes trouble to rear them as best it can, and fears for them when they are little and grieves if anything happens to them. The nature of all living things is like that. But as far as mankind is concerned it has become accepted<sup>4</sup> that there is some advantage to be derived from one's offspring.

### III. The origin of language

563. (DK 68 B 26)<sup>1</sup> Proclus Comm. on Plato's Cratylus 16, p. 5.25 Pasquali: Pythagoras and Epicurus shared the view of Cratylus, Democritus and Aristotle that of Hermogenes ... (p. 6.10) by the assigner of names Pythagoras was hinting at the soul, which was subordinate to mind. It is not identical with things themselves as mind is primarily, but it has images of them and words which are explanatory of their nature like statues<sup>2</sup> of things, like the names which are likenesses of the intelligible forms, i.e. the numbers. So the being of everything derives from the wise and self-knowing mind, but their names from the soul which is a likeness of the mind. So, says Pythagoras, devising names is not a task for just anyone, but for someone who sees mind and the nature of things. Democritus supported his view that names belong to things by convention by four arguments. First, that from homonymy<sup>3</sup>: different things are called by the same name, so the name does not belong to them by nature. Then, that from polynomy: if different names fit one and the same thing, they must fit one another, which is impossible. Third, that from change of names: why was Aristocles' name changed to Plato, and Tyrtamus' to Theophrastus, if names apply by nature? Then, that from absence of similar terms: why do we form the verb 'think' from 'thought', but do not form any verb from 'justice'? Names, therefore, apply by chance, not by nature. He himself calls the first argument 'the ambiguous', the second 'the equivalent', <the third 'the name-changing'><sup>84</sup> and the fourth 'the anonymous'.

564. (DK 68 B 142) Olympiodorus Comm. on Plato's Philebus, p. 242 Stallbaum: Why has Socrates so much reverence for the names of the gods? Is it because the appropriate names were long ago consecrated to the appropriate things, and it is absurd to change what is unchangeable, or because they are by nature appropriate, according to the theory in the Cratylus, or because these too are speaking<sup>2</sup> images of the gods, as Democritus says? (cf. no. 563). Hierocles Comm. on Pythagoras Carmen aureum 25: the name of Zeus is a symbol and

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<sup>84</sup> [Supplementation by Diels.]

an image in speech of his nature as an artificer, since those who first assigned names to things showed surpassing skill, like excellent sculptors, in expressing the powers of things through their names as images.

565. (Not in DK) Aul. Gell. Noct. Att. V.15 (= no. 492):<sup>1</sup> Democritus and later Epicurus say that sound is composed of atomic corpuscles, and call it, to use their own words, a stream of atoms. (DK 68 A 128) Aet. IV.19.3 (= no. 493) (Dox. 408: on sound): Democritus says that the air is split up into bodies of similar shape, which are rolled up together with the fragments of sound. (DK 68 B 145) Plut. On the education of children 14, 9 F: for the word is the shadow of the deed, according to Democritus (see no. 493a). {Not in DK} Lact. Div. inst. III.17.23 (p. 232.14 Brandt):<sup>2</sup> Learning from him (Leucippus) Democritus says 'They (the atoms) come together in various orders and positions, like letters which, though few in number, nevertheless compose innumerable words when they are put together in different ways. These primary bodies are like that', he says (see no. 241). Isidore of Seville Etymologies XIII.2 (on atoms) 4.108 (PL 82, p. 473)<sup>2</sup>: An atom is what is indivisible. That is so in the case of the letter also. For you divide speech into words, words into syllables, and syllables into letters. The letter, which is the smallest part, is atomic and cannot be divided. Venerable Bede I.2 (PL 90, p. 1132)<sup>2</sup>: Hence letters are called elements by a simile, because they are totally similar parts, so that nothing is part of them. (DK 68 A 127) Scholium on Dionysius Thrax 482, p. 13 Hilg.: Epicurus, Democritus and the Stoics say that sound is a body (see no. 493).

566. (DK 68 B 5) Diod. I.8.3: their speech was [at first] meaningless and confused, but they gradually articulated what they were saying, and by laying down for one another symbols for each thing around them they communicated their meaning about everything. (4) And as communities of that kind grew up all over the world, they did not all speak the same language, but each constructed what they were saying in their own way. Hence all kinds of languages came into being, and the original communities became the forefathers of all nations.

567. (DK 68 B 122a) Etym. Gen. s.v. gunē; Etym. Gudianum, ed. Stefani 2, p. 326.25; Etym. Orionis p. 39.19: ...or, according to Democritus, that which receives the semen (gonē), a sort of race, seed, generation (gonē).

567a. (DK 68 A 159)<sup>1</sup> Soranus Gyaecology III.17, p. 105.1 Hberg: inflammation (phlegmonē) is so called from burning, not, as Democritus says, because it is caused by phlegm. See no. 805a.

#### IV. Music and culture in general arise not from want but from plenty

568. (DK 68 B 144)<sup>1</sup> Philod. On music IV.31, p. 108.29 Kemke [= pHerc. 1497, col. XXXVI.29-39]: Democritus, a man who was not only the most learned about nature of all the ancients, but no less industrious than any other inquirer, says that music is more recent<sup>2</sup>,

and identifies its cause, saying that it was not singled out by necessity<sup>3</sup>, but arose as a result of plenty

568a. (DK 68 B 16) Theodorus Mallius On metre VI.589.20 Keil: Democritus says that the dactylic hexameter was invented by Musaeus.

## **V. The origin of law**

569. (DK 68 A 1) DL IX.45: conventions are artificial, by nature there are atoms and void.<sup>1</sup>

570. (DK 68 B 245, 140 N)<sup>1</sup> Stob. III.38.53; Maximus Loci communes [Max. Loc.comm.] 54, p. 658 (PG 91, p. 961 A); Antonius Melissa [Ant. Mel.] I.62, p. 109 (PG 136, p. 969 A):Democritus. The laws would not prevent each individual from living as he pleases, if one did not harm another. Envy prompts the beginning of civil strife.

571. (DK 68 A 166, 3 N) Epiphan. Adv. haer. III.2.9 (Dox. 590): Democritus ... said ... that what appears just is not just, and what is unjust is the opposite of nature. He called the laws a wicked contrivance ... (Cf. no. 606: the law wishes to benefit the life of man, and it is able to do so when they themselves wish to be well treated ...)

## **b. THE WORSHIP OF THE GODS**

### **I. Explanation of the divine nature**

### **II. The divine force present in humans and some other animals, greater in some cases and less in others**



572. (DK 68 a 116)<sup>1</sup> Aet. IV.10.4 (nos. 86, 438): Democritus says that there are more senses (sc. than the five) in non-rational animals and in the wise and in the gods. Cf. Simpl. in De an. III.1, 424b22 (there are no senses other than the five), 173.8: besides the animals visible to us are the invisible<sup>2</sup> ones, some mortal and some supernatural (daimonia). (DK 68 A 79, no. 472a) Clem. Strom. V.88 (II.383. 25 St.): So overall Xenocrates of Chalcedon did not abandon hope that even non-rational animals have a conception of the divine. And Democritus will have to admit, even against his will, that that follows from his theories; for he makes the same images from the divine nature impact people and the non-rational animals<sup>3</sup>.

572a. (DK 68 B 5.2)<sup>1</sup> Hermipp. On astron. (Ioann. Catrares) II.1.13, p. 33 Kroll: ... since humans contain more heat ... so for that very reason they alone have upright posture and very little contact with the earth. Something more divine flows into them, so that they have intelligence, reason and thought, and remember what has happened. (See no. 515). Ar. PA II.10, 656a3: those creatures which have perception as well as life are extremely diverse in form, and some are more developed and longer-lived than others, and their nature is adapted not merely to living, but to living well<sup>2</sup>. The human race is such. Either alone of the animals known to us it participates in the divine, or does so most of all<sup>3</sup> ... Man is the only animal to walk upright ... (id. IV.10, 686a28): ... man ... has hands, for because of his nature and his divine being he is the only animal to walk upright. Thought and intelligence are the task of the most divine.

572b. (Not in DK; no. 472)<sup>1</sup> Ar. De divinat. in somn. 2, 464a24: the reason why some who are out of their minds foresee the future is that their own motions do not concern them ... so that they are specially perceptive of those of others ... (32) and melancholic people hit the mark because of their impetuosity, like people shooting at a distance, and because they are changeable they quickly imagine what comes next.

573. (DK 68 B 37, 8 N)<sup>1</sup> Democrates [Democrat.] 3 (Gnomologium Baroccianum [Gnom. Barocc.] ed. Bywater, Oxford, 1878, 17): The person who chooses the goods of the soul chooses the more divine things; the one who chooses the goods of the body chooses human things.

573a. DK 68 B 112, 37 N)<sup>1</sup>: Democrat. 79: It is the mark of a divine mind always to be thinking of something fine.

574. (DK 68 B 18) Clem. Strom. VI.168 (II.518.20 St.): Similarly (to Plato Ion 534b) Democritus says 'What a poet writes with divine inspiration and the breath of the gods is very fine'. (DK 68 B 17) Cic. De orat. II.16.194: No-one can be a good poet without mental inspiration and the inbreathing of a kind of madness; it is said that this is asserted by Democritus and Plato in their writings. Cic. De divinat. I.30.80: Democritus denies that anyone can be a great poet without madness. Horace Ars poetica 295: Democritus excludes sane poets from Helicon.

575. (DK 68 B 21) Dio 36.1 (II.109.21 Arnim): Democritus says the following about Homer: 'Homer, by getting a share in the divine nature ...', meaning that he could not have composed such fine and learned poems without a divine and superhuman nature. (= no. 816).

576. (DK 68 B 129) Herodianus On irregular forms [De affectibus], s.v. nenōtai (II.253 L.):Democritus; Divine things are thought by the mind.

### III. Popular religion

577. (DK 68 B 161) Schol. on Apollonius Rhodius III.533: In ancient times sorceresses<sup>1</sup> believed that they could extinguish the sun and moon, which is why up to the time of Democritus eclipses were called 'extinctions'.

578. (DK 68 A 138) Cic. De divināt. I.3.5 (Dox. 224):<sup>1</sup> While the learned Democritus expressed in a number of places his belief in the foreseeing of the future, Dicaearchus the Peripatetic rejected other kinds of divination, but accepted those which occurred in dreams and madness. (57.131): But Democritus holds that the ancients were wise to institute the inspection of the entrails of victims, since their state and colour could give signs of both health and disease, and sometimes also of whether the fields were going to be fertile or barren. (II.13.30): But Democritus was not merely engaged in silly trifling, at least for a natural philosopher; (no sort of people is more arrogant than they ...) But he, on the other hand, holds that from the condition and colour of the entrails there can be determined no more than this; he thinks that their kind of food and the abundance or sparceness of the crops, and also their health and disease can be indicated by the entrails.<sup>2</sup> O lucky man! I am certain that he was never at a loss for entertainment. Was this man so fascinated by trifles that he did not see that that was likely only if the entrails of all the animals assumed the same condition and colour at the same time? But if at the same time the liver of one animal was plump and shining, while that of another was thin and rough, what could be declared on the basis of the condition and colour of the entrails? ... But suppose that those views of Democritus were true ... . (DK 68 B 166, no. 472a) Sext. M IX.19:\_Democritus says that some images approach people ... and they foretell future events to people by appearing to them and speaking. (DK 68 B 10a) DL IX.47: Works on nature ... On images, or On forethought<sup>3</sup>. Cf. Stob. III.6.27 (no. 472, end).

579. (DK 68 A 77) Plut. Quaest. conviv. V.7.6, 682 F ff.: He (Democritus) says that malevolent people emit them [i.e. images], so that they fly about, not totally lacking perception or impulse, full of the wickedness and malignity of their source, and as they get imprinted on people and fixed with that character, the disturb the body and mind of those subject to malign influence. That is what I think the man means, but his language is lofty and marvellous. See no. 476.

579a. (Not in DK)<sup>1</sup> Lucian  Lover of Lies  32 (59): Tell me, whom do you consider the most reliable authority about such things (sc. the marvels of sorcery)? ... 'By heaven', I said, 'that most remarkable man Democritus of Abdera; he was so convinced that there can be no such thing that once, when he had shut himself up in a tomb outside the gates and was staying there writing his works night and day, and some young men who wanted to frighten him for a joke dressed up as corpses in black with masks like skulls, and danced round him in massed ranks, he was not frightened by their masquerade nor even so much as looked at them, but while continuing to write he said 'Stop playing the fool'. So firmly was he convinced that souls do not exist outside bodies.

#### IV. The origin of the worship of the gods

(cf. no. 472a)

580. (DK 68 B 30) Clem.  Protr.  68 (I.52.16 St.);  Strom.  V.103 (II.394.21); Eus.  PE  XIII.13.27, p. 204.20 Dind: A few of the learned<sup>1</sup> people, raising their hands to what we Greeks now call the air, said 'Zeus thinks of<sup>2, 85</sup> all things and he knows all things and gives and takes away, and he is king of all things'.  With 'learned' (logiōn) here cf. Philodemus pHerc. 1428, cited by Philippson Hermes 55, 1920, p. 368:  and all these things were called eternal and divine by people without understanding.

581. (DK 68 A 75)<sup>1</sup> Sext.  M  IX.24: Some people think that we arrived at the idea of gods from the remarkable things that happen in the world. Democritus seems to me to be of that opinion; he says that the people of ancient times were frightened by happenings in the heavens such as thunder, lightning, thunderbolts, conjunctions of stars<sup>2</sup>, and eclipses of the sun and moon, and thought that they were caused by gods. Philod.  On piety  5a, p. 69 Gomperz (Crönert  Kolotes und Menedemos , p. 130) [pHerc1428, fr. 16.2-11]: summer <on earth and> winter and <spring and> autumn and all these things are sent from above by the gods, and so they recognize and venerate their author. Democritus does not seem to me, like some ... Cf. Lucr. V.1186-93:

Therefore they had recourse to attributing everything to the gods and holding that everything is controlled by their will, and they located the dwellings and temples of the gods in heaven, because through the heaven are seen to revolve sun and moon, day and night and the stern signs of the night, the lights which wander by night in the heavens, flying flames, clouds, dew, rain, snow, winds, lightning, hail, and sudden roars and great threatening sounds.

581a. (DK 68 B 147) Plut.  Precepts for health  14, 129 A: for it is absurd to pay attention to the cawing of crows and the crowing of cocks and pigs going mad over rubbish<sup>1</sup>, as Democritus says, and to treat them as signs of wind and rain, but not to pay attention or be

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<sup>85</sup> [L, followed by the Italian version, translates 'gives a name to everything'. See l's n. 2. I follow DK's translation, which is also accepted by LSJ, s.v.  mutheomai  II.]

warned by bodily motions and trembling and advance signs, nor to treat them as internal signs of a storm to come. Clem. Protr. 92.4 (l. 68.7 St.): Like worms in mud and ponds they crawl in the streams of pleasure and indulge in )useless and mindless delights, swinish people. For according to Democritus swine prefer mud to clean water and go mad over rubbish. Id. Strom. I.2 (II.4.3. St.): pigs prefer mud to clean water. Cf. Orig, Contra Cels. IV.23, p. 292.18 Koetschau: Celsus compares (all Jews and Christians) to ants emerging from an anthill or frogs congregating round a pond or worms gathering in a muddy corner ... saying that god reveals and foretells everything to us (cf.no. 580): and he gives up the whole cosmos and the motion of the heavens ... and governs only for us ... and he never ceases sending ... earth and water and air and the stars ... are all for the sake of us ... (25) Celsus and Antiphon ... [who] reject providence ... [are] worms crawling in a muddy corner of stupidity and ignorance. Aug. Exposition of the Psalms 73.25.t. IV, p. 781e Ven. 1719 (= 336 Us.): This philosopher (i.e. Epicurus) was called even by the pagan philosophers a pig wallowing in carnal filth. Pl. Phaedo 109b: and we live in a small part [of the earth] between the Pillars of Hercules and the river Phasis, living round the sea like ants or frogs around a pond, and many others live elsewhere in many other similar places.<sup>2</sup>

#### V. Whether the stories of the Underworld are true

582. (DK 68 A 33) DL IX.46; Suda, s.v. tritogeneia: Ethical works ... On the things in Hades ... ps-Hippocr. Epist. 10.3 (IX.322 Littré): he (Democritus) also investigates the things in Hades. (DK 68 B 0c) Ath. IV.168b: The people of Abdera found Democritus guilty of having dissipated his inheritance, but when he read them the Great World-system and On the things in Hades and told them that he had spent the money on writing them he was acquitted.

583. (DK 68 B 297, 92 N) Stob. IV.52.40, IV.34.62; Apostolus VII.16c; Arsenius XXIII.47: Democritus: Some<sup>1</sup> people, ignorant of the dissolution of mortal nature, but conscious of their evil-doing in life<sup>2</sup>, trouble their time of life with terrors and fears, inventing false tales about the time after death<sup>3</sup>.

584. (DK 68 B 199, 96 N) Stob. III.4.73: The unwise hate their lives like <Hades><sup>1, 86</sup>, but want to live for fear of Hades.

585. (DK 68 B 1) Proclus Comm. on Plato Rep. II.113.6 Kroll:<sup>1</sup> many of the ancients have discussed people who came to life again after having apparently died, including Democritus the natural philosopher in his work On Hades. And the amazing Colotes, the enemy of Plato, ought not, being an Epicurean through and through, to have been ignorant of the opinions of his master Epicurus, nor through his ignorance of them to have enquired how someone dead could come back to life. For, it appears, death was not the extinction of all life in the body, but the person had perhaps fainted as the result of a blow and a wound, but there

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<sup>86</sup> [Supplementation by L. See his note.]

remained connections with the soul still rooted round the marrow and the heart retained a spark of life hidden in its depths. And through the persistence of these the body was still adapted for life and regained the life which had been extinguished.

586. (DK 68 A 160)<sup>1</sup> Cic. Tusc. I.34.82: for suppose that the mind perishes as the body does: is there then in the body any pain or any kind of sensation after death? No-one says so, though Epicurus insinuates that Democritus does (17 Us.). The Democriteans deny it. Tert. De an. 51: But in the Republic ... Plato says that a certain man's corpse lay unburied for a long time without any decomposition, preserved, so he says, by the individuality of the soul. On this point Democritus mentions the growth of hair and nails for some time after burial. Celsus II.6: Indeed the celebrated Democritus held that the signs of the cessation of life accepted by doctors are not sufficiently certain: he even went so far as to deny that there are any certain signs of death to come. (DK 68 A 117) Aet. IV.4.7 (Dox. 390): Democritus says that everything shares in some kind of life, even corpses ... (see no. 448). Alex. in Top. I.1, 100b23, 21.9; Aet. IV.9.20 (Dox. 398): as if one were to infer that, since corpses are changed and altered, and things that perceive are changed, therefore corpses perceive, as Democritus thought.

587. (DK 68 B 1a) Philod. On death 29.27 Mekler [pHerc 1050, col. XXIX.27-32]: according to Democritus putrefaction is the source of disgust at the smell and hideous appearance [of corpses]; for the shades of those who die when they are still beautiful and in good bodily condition are reduced to that state ... (30.1) and they ignore the fact that that all, even those in as good bodily condition as Milo, soon turn into skeletons, and are reduced finally to their original elements; one must pay attention to the similar things that are said about bad colour and hideousness in general. So it is altogether absurd to be distressed by the prospect of having not a fine and expensive tomb but a simple and ordinary one. (39.9) then when the prospect of it (i.e. death) becomes immediate, it strikes them as something unexpected, and for that reason they are struck with terror and do not even take time to write their wills and they are forced to stuff in double portions<sup>1,87</sup>, as Democritus says.

588. (DK 68 A 161) Varro Satires fr. 81 Buech.: That is why Heraclides of Pontus, who advises that corpses should be burned, is more sensible than Democritus, who says that they should be preserved in honey.<sup>1</sup> If people had followed his advice, I'd be damned if you could buy a glass of sweet wine for a hundred denarii.

588a. (Not in DK)<sup>1</sup> Pliny NH VII.55.189-90: Democritus made a similar empty promise about preserving corpses and bringing them back to life; he himself did not come back to life.

## VI. On divine providence and omnipotence

589. (DK 68 A 33; 28 A 32) DL IX.47: Works on nature ... On images, or On forethought ...<sup>1</sup> Aet. I.25.3 (Dox. 321): Parmenides and Democritus say that everything is by necessity, which

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<sup>87</sup> [See Taylor 1999, no. 215, p. 155.]

is the same as fate, justice, forethought and the world-maker. (DK 67 A 22) Aet. II.3.2 (Dox. 330): Leucippus, Democritus and Epicurus say that the world is not alive nor organised by forethought, but by non-rational nature, and that it consists of the atoms.

590. (DK 67 A 11) Cic. ND I.24.66, after no. 255: Leucippus says that heaven and earth were made, not by any natural necessity, but by a chance coming together [of atoms]; you, C. Velleius, have maintained that opinion up to the present.

591. (DK 68 A 70) Lact. Div. inst. I.2: To begin with what appears to be the fundamental question, is there a providence which looks after everything, or is everything created and ruled by chance? The latter opinion was introduced by Democritus and confirmed by Epicurus. (III.17.2) so when Epicurus considered those matters, he was as it were induced by the unfairness of things ... to think that there is no providence ... There is, he says, no order; for many things are other than they ought to have been ... There is nothing, he says, in the procreation of living things which is brought about by the rational disposition of providence ... by necessity everything happens of itself ... so, once he had accepted a false starting-point, the necessity of the consequences led him into raving. Where are those corpuscles, and where do they come from? Why did no-one apart from Leucippus alone dream of them? Instructed by him, Democritus left a legacy of stupidity to Epicurus ... Id. De ira dei 10: those who deny that the world was made by divine providence say either that it was put together by the chance coming together of primary things, or that it suddenly came into existence by nature; but nature, as Strato says, possesses the power to make things larger and smaller, but has neither sense nor ideas, so that we have to understand that everything is as it were self-generated, without any artificer or creator ... The first question I ask is where are those tiny seeds whose chance coming together is said to give rise to the whole world, and where do they come from? Who has ever seen them? Who feels them? Who has heard them? Was Leucippus the only person to have eyes? ... Divine providence rules the world ... nor is there anyone who ... is bold enough to prefer Leucippus' empty theory or the frivolity of Democritus and Epicurus ...

592. (Not in DK) Nemesius On the nature of man 44, p. 347 Matth.: Democritus and Heraclitus deny that there is any providence, either in the universe as a whole or in particular things. They are following their own principles, for since they think that this entire universe has come to be by chance, they say that everything happens without providence ... for it is clear that necessity conducts by chance the things that originally came to be by chance.

593. (DK 68 B 234, 21 N) Stob. III.18.30; Max. Loc. comm. 27.612 (PG 91, p. 875 A); Ant. Mel. I.39.79 (PG 136, p. 913 D); Corpus Parisinum Profanum (Codex Parisinus Graecus 1168) [CPP], no.. 691: Democritus: People pray to the gods for health<sup>1</sup>, but they do not know that the control of this lies with them; through lack of self-control they act in opposition to it and so themselves betray their health to their desires.

## **VII. The worship of the gods. Mythology. Oracles.**

594. (Not in DK, 390 Us.)<sup>1</sup> Orig. Contr. Cels. VII.66: not only is it foolish to pray to images, but also to accommodate oneself to popular opinion by pretending to pray to images, as the adherents of the doctrines of Epicurus and Democritus do. (391 Us.) I.43: We shall say first that if someone who does not believe the story of the Holy Spirit in the form of a dove were called an Epicurean or Democritean ... the epithet would fit the characterisation. (VIII.45): Are not the proclamations of oracles by interpreters... mere made-up tales? Not even the pagan philosophical schools believed them, e.g. the schools of Democritus or Epicurus ...

### **VIII. How the Stoics, Christians and other enemies of the atomistic doctrine interpreted Democritus' views on religion**

Pronouncements purporting to be statements of Democritus' views, falsely attributed to him by authors aiming to refute him, are to be found in the notes, under the heading 'Excursus'.

## **THE STATE AND THE PHILOSOPHER**

### **a. THE DEMOCRATIC STATE**

#### **I. The duties and rights of the citizen**

595. (DK 68 B 252, 134 N): Stob. IV.1.43: One should attach the greatest importance of all to the city's being well run, and not indulge in inappropriate rivalry or increase one's own power against the interest of the community<sup>1</sup>. For the city's being well run is the greatest good; everything is contained in that, if that is preserved everything is preserved, if that is destroyed everything is destroyed.

596. (DK 68 B 51, 137 N) Stob. IV.1.42: Democritus: Poverty in a democracy is as much more desirable than what is called prosperity under tyrants as freedom is more desirable than slavery<sup>1</sup>.

597. (DK 68 B 226, 111 N) Stob. III.13.47: Democritus: Free speech belongs to freedom, but there is danger in choosing the right time.

598. (DK 68 B 44, 225 N) Stob. III.12.13: Democrates [Democrat.]<sup>10</sup>: One should tell the truth, where better.<sup>88</sup>

599. (DK 68 B 47, 141 N)<sup>1</sup> Stob. III.1.45; Democrat. 13; Max. Loc. comm. 58, p. 667 (PG 91, p.997 B); Ant. Mel. 67.113 (PG 136, p. 977 B); AED sent. 39: Sayings of Democritus in CPP: It is proper to yield to the law, to the ruler and to the wiser<sup>2</sup>.

600. (Not in DK) Ant. Mel. II.8, p. 146 (PG 136, p. 1037 B): When the judge finds the accused guilty, he must be silent.<sup>1</sup>

601. (DK 68 B 225, 156 N) Stob. IV.2.14: Justice is doing what one should, injustice is not doing what one should, but turning aside.<sup>1</sup>

## II. What is appropriate for the citizen

602. (DK 68 B 215, 46 N) Stob. III.7.31; CPP no. 595: Democritus: The glory of justice is boldness and an untroubled mind, but the end of injustice is fear of disaster.<sup>1</sup>

603. (DK 68 B 62, 38 N) Stob. III.9.29; Democrat. 27: It is good, not to do no wrong, but not even to wish to do it.<sup>1</sup>

604. (DK 68 B 244, 43 N)<sup>1</sup> Stob. III.31.7: Democritus: Even if you are alone, do not say or do anything base, and learn to feel shame before yourself much more than before others. (DK 68 B 84, 43 N) Democrat. 50: Someone who does shameful things should first of all feel shame in his own eyes. (DK 68 B 264, 43 N) Stob. IV.5.46: the same: Do not feel shame before other people rather than before yourself, nor be more willing to do wrong if no-one will know of it<sup>2</sup> than if everyone will. But feel shame before yourself above all, and set up this law in your soul<sup>3</sup>, so that you will never do anything discreditable.

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<sup>88</sup> [In his note L defends the mss' reading hopou lōion, 'where better', translating 'where that is appropriate'. The Italian version has 'where that is preferable', pres. understanding 'to not telling the truth'. Taylor 1999, no. D89, pp. 30-31, translates DK's text alēthomutheein chreōn, ou polulogeein 'One should tell the truth, not talk a lot'.]



605. (DK 68 B 41, 45 N) Stob. III.1.95; Democrat. 7, Max. Loc. comm. 24, p. 606 (PG 91, p. 864 C); CPP nos. 493, 563: Democrates: Refrain from wrongdoing not from fear, but because one should.<sup>1</sup>

606. (DK 68 B 67-8, 224, 40 N)<sup>1</sup> Democrat. 32, 33: Do not trust everyone, trust reputable people; the first is silly, the second prudent. A man is reputable or disreputable on the strength not only of what he does, but also of what he wants. (DK 68 B 89, 39N) Democrat. 55:<sup>2</sup> One's enemy is not the person who does one wrong, but the one who wants to.

607. (DK 68 B 181, 44 N)<sup>1</sup> Stob. II.31.59: [from] the same [author]: One will seem to promote virtue better by using encouragement and verbal persuasion than law and necessity<sup>2</sup>. For it is likely that someone who is held back from wrongdoing by law will do it in secret, but someone who is urged by persuasion towards what is right is not likely to do anything wrong either in secret or openly. Therefore he who acts rightly from understanding and knowledge proves to be at the same time courageous and right-minded.

608. (DK 68 B 248, 130 N) Stob. IV.1.33; Max. Loc. comm. 58.667 (PG 91, p. 977 B); Ant. Mel. 67, p. 113 (PG 136, p. 977 A); CPP: Democritus: It is the aim of law to benefit people's lives, and it is able to do so, when they themselves wish to have good fortune; for to those who obey it it is evidence of their own virtue<sup>1, 89</sup>. (Cf. no. 571)

609. (DK 68 B 193, 153 N)<sup>1</sup> Stob. III.3.43 (Democritus); Max. Loc. comm. 2, p. 535 (PG 91, p. 733 B-C): Democrat(es): It is the task of prudence to guard against wrongdoing to come, but a mark of insensibility not to retaliate when it has been done..

610. (DK 68 B 268, 222 N)<sup>1</sup> Stob. IV.7.13: Democritus: Fear begets flattery, but has no goodwill.

### III. The duties and rights of magistrates

611. (DK 68 B 153, 150 N)<sup>1</sup> Plut. Political precepts 28, 821 A: The statesman will not despise true honour and gratitude, based on the goodwill and disposition of those who remember his actions, nor despise reputation and avoid pleasing his neighbours, as Democritus said he should. Philod. On flattery, pHerc. 1457, ch. 10 [fr. 21 Bassi X.4-12] (Crönert Kolotes und Menedemos, p.130): Private individuals, as we see, gain more without that sort of servility. When Nicasicrates<sup>2</sup> praises Democritus for criticising the attempt to please one's neighbours, on the ground that ingratiating oneself in that way is harmful, I do not see how he agrees with Epicurus and his followers.

612. (DK 68 B 253, 165 N) Stob. IV.1.44: It is not advantageous for good people to do other things while neglecting their own affairs, for then their own affairs go badly.<sup>1</sup> But if someone neglects public affairs he acquires a bad reputation, even if he does not steal or do

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<sup>89</sup> [I translate L's rendering. An alternative is DK's 'only to those who obey it does it reveal its own goodness', i.e. only those who obey the law see the advantage of so doing (followed by Taylor 1999, no. D.112, pp. 38-9).]

any injustice. For even if one does not neglect those things or do injustice, one risks being slandered or harmed. One is bound to go wrong, and it is not easy to gain people's forgiveness.<sup>2</sup>

613. (DK 68 B 266, 167 N)<sup>1</sup> Stob. IV.5.48: the same: There is no way in the present organisation of society<sup>2</sup> not to do wrong to rulers, even if they are entirely good. For a ruler is like nothing so much as an eagle among snakes<sup>3,90</sup>. But things should somehow be arranged so that someone who does no wrong, even if he vigorously prosecutes wrongdoers, will not become subject to them, but some law or other device will protect the person who does right.

614. (DK 68 B 254, 151 N) Stob. IV.1.45: When bad people assume official positions<sup>1</sup> the more unworthy they are the more heedless<sup>2</sup> they become, and the more they are filled with folly and boldness. (DK 68 B 49, 143 N) Stob. IV.4.27; Democrat. 15: Being ruled by an inferior is hard. Max. Loc. comm. 9.561 (PG 91, p. 781 D): It is dangerous to give a sword to a madman and power to a wicked man.<sup>3</sup> (DK 68 B 267, 142 N) Stob. IV.6.19: Democritus: Rule belongs by nature to the superior (see no. 688 w.comm.).

615. (DK 68 B 262, 157 N)<sup>1</sup> Stob. IV.5.44: Democritus: Those who do things which deserve exile or imprisonment, or who deserve a penalty, should be condemned and not let off; and if anyone lets them off illegally<sup>1</sup>, deciding for gain or for pleasure<sup>2</sup>, he does wrong, and this must be something which grieves his heart.<sup>3,91</sup> (See no. 625.)

616. (DK 68 B 265, 166 N) Stob. IV.5.47: the same: People remember bad deeds<sup>1</sup> more than good, and rightly so, for just as someone who returns a deposit should not be praised, but someone who does not should be reviled and punished, so it should be with a ruler. For he was not chosen for that office to do harm, but good.

617. (DK 68 B 302, 177 N)<sup>1</sup> Max. Loc.comm. 9, p. 560 (PG 91, p. 779 B); Ant. Mel. II.1, p. 128 (PG 136, p. 1005 B-C): Sayings of Democritus (in CPP): A ruler must appraise the moment correctly, and show boldness against his opponents and goodwill towards his subjects.

618. (DK 68 B 302, 178 N) Max. Loc. comm. 9, p. 560: Sayings of Democritus (in CPP): Someone who is going to rule others must first rule himself.<sup>1</sup>

619. (DK 68 B 263, 148 N) Stob. IV.5.45: the same: He has the greatest share of justice and goodness who distributes honours according to merit.<sup>92</sup>

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<sup>90</sup> [This translates L's conjectural restoration of the corrupt ms text. See his n. 1.]

<sup>91</sup> [L's comm. on no. 615 contains a single note, with the index no. <sup>1</sup>, reading 'See comm. on no. 625'. The notes corresponding to the index nos. <sup>1-3</sup> in the text of no. 615 are found in the comm. on no. 625.]

<sup>92</sup> ['who distributes honours according to merit' translates L's interpretation of the text, reading (following one ms) ho timas axias tamnōn. (Most mss read ho timas axias tas megistas tamnōn.) For the understanding of tamnōn lit. 'cutting' as 'distributing' see L's n. 1. Taylor 1999, no. D127, pp. 42-3 translates Gomperz'

#### IV. Penal law

620. (DK 68 B 257, 158 N)<sup>1</sup> Stob. IV.2.15: the same: Concerning the killing and not killing of some living things it stands thus; whoever kills those which do or wish to do wrong<sup>2</sup> is free of punishment<sup>3</sup>, and doing this contributes more to well-being than not.

621. (DK 68 B 258, 160 N) Stob. IV.2.16: One should kill in every case everything which causes unlawful harm, and whoever does this shall receive in every form of community<sup>3</sup> a greater share of cheerfulness<sup>1</sup> and justice and confidence and pride<sup>2,93</sup>.

622. (DK 68 B 259, 159 N)<sup>1</sup> Stob. IV.2.17: As it has been written<sup>2</sup> concerning hostile beasts and reptiles, so it seems to me that one should do in the case of people. According to the ancestral laws one may kill an enemy in any form of community<sup>3</sup>, provided that the law does not prohibit it; prohibitions are made by the religious enactments of each state, by treaties and by oaths.

623 (DK 68 B 260, 161 N)<sup>1</sup> Stob. IV.2.18: Anyone who kills any highway robber or pirate, whether with his own hand or by his order or by his vote, would be free from punishment.

624. (DK 68 B 261, 155 N)<sup>1</sup> Stob. IV.5.43: One should assist to the best of one's ability those who are suffering wrong and not overlook it (cf. no. 601: injustice ... is not doing what one should, but turning aside); to do so is right and good, not to do so is wrong and bad.

625. See no. 615.

#### V. Rich and poor

##### 1. The rich should not be avaricious or greedy or extravagant, but upright, just and generous.

626. (DK 68 B 222, 200 N) Stob. III.10.64: Democritus: Piling up too much wealth for one's children is a pretext for covetousness, which exposes itself.

627. (DK 68 B 227, 80 N) Stob. III.16.17: Democritus: The thrifty share the fate of the bee; they work as if they were going to live for ever.<sup>1</sup>

628. (DK 68 B 160) Porphyry On abstention from animal food [De abst.] IV.21: Democrates used to say that living badly, not with prudence and self-control and holiness, was not living badly, but taking a long time to die. (Not in DK) Max. Loc. comm. 29.616 (PG 91, p. 881 B): Democrit(us): Keep awake in your mind; for being asleep there is close to real death.

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conjecture (tentatively endorsed by DK, v. II, p. 199, l. 4 n.) ho timas axiōs tas megistas tamieuōn ('who administers the greatest offices worthily'.)]

<sup>93</sup> ['pride' translates Gomperz' emendation ektaseōs of the mss' ktaseōs, which is meaningless. DK's emendation ktēseōs gives the sense 'ownership, possessions', adopted by Taylor 1999, no. D122, pp. 40-1.]

629. (DK 68 B 228, 202 N)<sup>1</sup> Stob. III.16.18: the same: If the children of the thrifty turn out ignorant, they are like people dancing on swords; if they miss even one<sup>2</sup> place in putting their feet down, they are lost (and it is difficult to find the one place, for only the size of a footprint is left free). In the same way, if they fail to acquire their father's cautious and thrifty character, they are apt<sup>3</sup> to be ruined.<sup>4</sup>

630. (Not in DK) Max. Loc. comm. 12, p. 573 (PG 91, p. 801 C): Democrit(us) or Theoc(ritus): He said that many of the rich are stewards of their wealth, not masters of it.<sup>1</sup>

631. (DK 68 B 219, 70 N) Stob. III.10.43: the same: The desire for wealth, if not limited by satiety, is much harder to endure than the most extreme poverty; for greater desires cause greater lacks.

632. (DK 68 B 281, 72 N)<sup>1</sup> Stob. IV.31.49: Democritus: As cancer is the worst of diseases, so in matters of property is the constant urge to annex what belongs to one's neighbour. Nos. 680-681 on mutual help should be added to the excerpts which follow.

633<sup>1</sup>. (DK 68 B 255, 146 N) Stob. IV.1.46: When those who can venture to contribute to those without means and to help and favour them, that shows pity, so that they are not abandoned, and they become comrades and take one another's part and the citizens are in concord, and many other good things which one could not count.

634. (Mull. 156)<sup>1</sup> CPP f. 59 v.; Apostolius VI, 38b (Corpus Paroemographorum Graecorum [CPG] II, p. 373); Ant. Mel. I.29, p. 59 (PG 136, p. 877 B): Democritus: If you can do a favour do not delay, but give, since you know that things are not stable.

635. (Mull. 243)<sup>1</sup> Max. Loc. comm. 7, p. 555 (PG 91, p. 769 D); Ant. Mel. I.27, p. 56 (PG 136, p. 871 D); Munich Collection [Florig. Monac.] 56; Apostolius XII, 21b (CPG II, p. 548): Democritus: (Max.: Democritus, Isocrates and Epictetus): If you wish to receive, give from what you have to those who ask; for he who does not give to the person who asks will not himself receive when he asks.

636. (DK 68 B 282, 78 N)<sup>1</sup> Stob. IV.31.120: Democritus: Using wealth intelligently helps one to be liberal and a public benefactor, but if one does it foolishly it is mere public debauchery. In order to interpret this, cf. the dictum attributed by some (Max. Loc. comm. 8.56 = PG 91, p. 773 B, and the Old Russian translation) to Democritus, by others (Stob. IV.15.8) to Socrates: The same person, seeing someone giving lavishly to everyone and assisting them indiscriminately, said 'May you come to a bad end, for having turned the Graces from virgins to prostitutes'.

637. (DK 68 B 77, 78 N)<sup>1</sup> Stob. III.4.82: Democrat. 42: Reputation and wealth without understanding are unsafe possessions.

638. (DK 68 B 78, 74 N)<sup>1</sup> Stob. IV.31.21: Democrat. 43; Max. Loc. comm. 22, p. 602 (PG 91, p. 855 C); Ant. Mel. I.35, p. 71 (PG 136, p. 900 C); id. 29, p. 59 (PG 136, p. 878 D); CPP no.

202: Acquiring wealth is not a useless thing, but doing it by wrongdoing is worse than anything.

639. (DK 68 B 50, 73 N) Democrat. 16: Someone totally enslaved to wealth would never be just.

640. (DK 68 B 220, 76 N)<sup>1</sup> Stob. III.10.44: Democritus: Wicked gains bring loss of virtue.

641. (DK 68 B 221, 77 N) Stob. III.10.38: Democritus: The hope of wicked gain is the beginning of loss.<sup>1</sup>

642. (DK 68 B 218, 75 N)<sup>1</sup> Stob. III.10.36; Max. Loc. comm. 22, p. 602 (PG 91, p. 885 C); Ant. Mel. I.36, p. 71 (PG 136, p. 899 C); CPP no. 194: Democritus: Wealth obtained by wicked deeds makes one's shame more conspicuous.

643. (DK 68 B 302)<sup>1</sup> Corpus sententiarum Frobenianum, p. 208; Ant. Mel. I.31, p. 62 (PG 136, p. 883 C); CPP No. 184; DEI no. 193: Democrit(us): Everyone desires wealth all the time; when you have not acquired it you are distressed, when you have acquired it you are tortured with worry and when you have lost it you are tortured with regret.

643a. (DK 68 B 302)<sup>1</sup> Max. Loc. comm. 12, p. 569 (PG 91, p. 795 D); CPP no. 745: Never congratulate anyone on his wealth and reputation, for all such goods are less dependable than the winds.

643b. (Not in DK)<sup>1</sup> Max. Loc. comm., 12, p. 569 (PG 91, p. 795 D); AED; CPP f. 84 r: It is not the rich man, but the one who has no need of riches, who is blessed.

643c. (Not in DK)<sup>1</sup> Max. Loc. comm. 12, p. 569 (PG 91, p. 797 A): when the same man was asked how someone might become rich he said 'If he becomes poor in desires'.

643d. (Not in DK)<sup>1</sup> Max. Loc. comm. 12, p. 570 (PG 91, p. 797B): The person who is content with the wealth which naturally accrues to him is much richer than the one who has acquired much but wants more; the former lacks nothing, the latter lacks much more than he has acquired.

## **2. The poor should not envy the rich, but be content with little.**

644. (DK 68 B 231, 61 N) Stob. III.17.25; Max. Loc. comm. 28, p. 614 (PG 91, p. 879 A); Vienna Excerpts; Democritus: A person shows good judgement if he is not grieved by what he does not have, but is pleased with what he does have.

645. (DK 68 B 224, 59 N) Stob. III.10.68: Democritus: The desire for more destroys what one has, as with the dog in Aesop's fable.

645a. (DK 68 B 238, 145 N)<sup>1</sup> Stob. III.22.42: Democritus: Someone who contends with a superior ends up with a bad reputation.

646. (DK 68 B 285, 84 N)<sup>1</sup> Stob. IV.34.65: Democritus: One should recognise that human life is feeble and short and heaped up with all sorts of evils and disasters, so as<sup>2</sup> to aim at moderate acquisition and measure one's trouble against what is necessary.

647. (DK 68 B 287, 135 N)<sup>1</sup> Stob. IV.20.40: Democritus: Helplessness on the part of all is worse than the helplessness of each individual; for there is left no hope of assistance.

648. (DK 68 B 80, 164 N)<sup>1</sup> Democrat. 45: It is disgraceful to neglect one's own affairs while busying oneself<sup>2</sup> with those of others. (DK 68 B 253) Stob. IV.1.44 (see no. 614): It is not advantageous<sup>3</sup> to good people to deal with the affairs of others while neglecting their own; for their own go badly.<sup>4</sup>

**3. If the common people are incapable of great deeds, they should at least imitate the deeds of good men, for they generally have regard not to the truth, but to common opinion.**

649. (DK 68 B 39, 196 N)<sup>1</sup> Stob. III.37.25; Democrat. 5: One should either be a good person, or imitate one.

650. (DK 68 B 79, 195 N) Democrat. 44: It is bad to imitate the wicked, but not even to want to imitate the good.

650a. (Not in DK) Ant. Mel. II.69, p. 221 (PG 136, P. 1165 C): Be on guard against slanders, even those which are false; for the mass of people do not know the truth, but consider reputation.

**4. The doctrine of cheerfulness is of the greatest benefit to the poor.**

651. (DK 68 B 286, 71 N) Stob. IV.39.17: Democritus: Lucky is the person who is happy with moderate wealth, unlucky is the one who is unhappy with great wealth.

652. (DK 68 B 283, 68 N) Stob. IV.33.23: Democritus: Poverty and wealth are names for lack and superfluity; so the person who lacks something is not rich, nor is the one who lacks nothing poor.

653. (DK 68 B 284, 69 N) Stob. IV.24.25; Max. Loc. comm. 12, p. 569 (PG 91, p. 797 A); Ant. Mel. I.33, p. 67 (PG 136, p. 189 D); CPP no. 748: the same: If you do not want much, a few things will seem many to you; having few wants gives poverty equal power with riches.

654. (DK 68 B 291, 83 N)<sup>1</sup> Stob. IV.44.70: the same: It shows soundness of mind to bear poverty well. (DK 68 B 46, 218 N) Democrat. 12; Stob. IV.34.69: It is greatness of soul to endure offences easily.

655. (DK 68 B 45, 48 N)<sup>1</sup> Democrat. 11; CPP no. 203: The wrongdoer is more unfortunate than the one who is wronged. (DK 68 B 75, 144 N) Democrat. 40; Stob. IV.2.13: It is better for the unintelligent to be ruled than to rule. Cf. no. 599.

656. (DK 68 B 38, 154 N) Democrat. 4: It is a fine thing to prevent someone from doing wrong; but if not, not to take part in the wrongdoing.

657. (DK 68 B 191, 52 N)<sup>1</sup> Stob. III.1.210: Democritus: People achieve cheerfulness by moderation in pleasure and by proportion in their life<sup>2</sup>; excess and deficiency are apt to fluctuate and cause great changes in the soul. And souls which change over great intervals are neither stable nor cheerful. So one should<sup>3</sup> set one's mind on what is possible and be content<sup>4</sup> with what one has, taking little account of those who are admired and envied and not dwelling on them in thought, but one should consider the lives of those who are in distress, thinking of their grievous sufferings<sup>5</sup>, so that<sup>6</sup> what one has and possesses will seem great and enviable, and one will no longer<sup>7</sup> suffer in one's soul through the desire for more. For one who admires those who have and are congratulated by others and is always dwelling on them in his memory is continually obliged to get up to new tricks and, in his desire to achieve something, to attempt some wicked deed which is forbidden by law. Therefore one should not seek those things<sup>8</sup>, but should be cheerful at the thought of the others, comparing one's own life with that of those who are faring worse, and should congratulate oneself when one thinks of what they are suffering, and how much better one is doing and living<sup>9</sup> than they are. For by maintaining that frame of mind<sup>10</sup> one will live more cheerfully and will avert not a few evils<sup>11</sup> in one's life, jealousy, envy and malice.

657a. (Mull. 40)<sup>1</sup> CPP no. 752; DEI 200; Max. Loc. comm. 12, p. 570 (PG 91, p. 798 B); Ant. Mel. 33, p. 67 (PG 136, p. 803 A); Apostolius 16.10e: Democritus: The poor escape the greatest evils, plots, envy and hatred, with which the rich live every day.

## **VI. True and false friends; pretence**

658. (Not in DK)<sup>1</sup> Ant. Mel. I.24, p. 46 (PG 136, p. 849 D); CPP no. 169; DEI 165: Democritus: A good friend should be present at celebrations when invited, but come on his own initiative when there is a crisis.

659. (Not in DK)<sup>1</sup> Ant. Mel. I.24, p. 46; CPP no. 171: True friends make celebrations pleasanter and disasters easier to bear, participating in the enjoyment of the former, and sharing the latter.

660. (DK 68 B 98, 211 N)<sup>1</sup> Democrat. 64: The friendship of a single intelligent person is better than that of all the unintelligent.

661. (DK 68 B 97, 210 N) Democrat. 63; Vienna Excerpts 20 (Stob. Florilegium IV, p. 291 Meineke); AED sent. 70; Max. Loc. comm. 6, p. 548 (PG 91, p. 760 A): Many who seem to be

friends are not, and many who do not seem to be are. It is up to the good person to recognise each.<sup>1</sup>

662. (DK 68 B 99, 209 N) Democrat. 65: Someone who does not have a single good friend does not deserve to live. (DK 68 B 103, 208 N) Democrat. 69; Ant. Mel. I.24, p. 46 (PG 136, p. 85 B); AED sent 74: Someone who likes no-one does not seem to me to be liked by anyone.

663. (DK 68 B 100, 216 N) Democrat. 66: Someone whose tried friends do not remain such for a long time is a difficult person.<sup>1</sup>

664. (DK 68 B 115, 118 N) Democrat. 83: If you do not recognise the praise, think that you are being flattered.

665. (DK 68 B 101, 215 N) Democrat. 67; AED sent. 71: Many turn their friends away when they fall from prosperity into poverty; for most people are friends of wealth, not of those who possess it. (DK 68 B 106, 214 N) Democrat. 72; Ant. Mel. I.25, p. 46 (PG 136, p. 852 A): In prosperity it is easy to find a friend, but in misfortune it is the most difficult thing of all.<sup>1</sup>

666. (Not in DK)<sup>1</sup> Max. Loc. comm. 6, p. 549 (PG 91, p. 760 D); Ant. Mel. I.25, p. 47 (PG 136, p. 853 B); CPP no. 170: Democrit(us): Being unable to help one's friends is a sign of incapacity, being unwilling a sign of wickedness.

666a. (DK 68 B 302)<sup>1</sup> Ant. Mel. 48, p. 87 (PG 136, p. 929 B); CPP no. 181; AED sent. 22; Homoeomata no. 19a; In a mirror the likeness of the face is seen, but in one's relations with others the likeness of the soul.

666b. (DK 68 B 302, Mull. 154)<sup>1</sup> Max. Loc comm. 10, p. 563 (PG 91, p. 755 A); CPP no. 189; Homoeomata I, p. 41: Democrit(us): The sword cuts, but slander separates friends.

667. (DK 68 B 82, 123 N) Democrat. 47: People who do everything in word but nothing in deed are fraudulent hypocrites.

668. (DK 68 B 177, 124 N) Stob. II.15.40: Democritus: Fine words do not hide a bad act, nor is a good act spoiled by the calumny<sup>1</sup> of words.

669. (DK 68 B 55, 121 N)<sup>1</sup> Stob. II.15.36; Democrat. 21: One should strive for acts and deeds of virtue, not words.

670. (DK 68 B 63, 106 N) Stob. III.14.8; Democrat. 28: A good reputation based on fine deeds is a fine thing; one based on bad deeds is the work of a fraudulent deceiver.

671. (DK 68 B 192, 115 N) Stob. III.2.36: Democritus: It is easy to praise and censure what one should not, but either is the mark of a bad character.



672. (DK 68 B 87, 152 N) Democrat. 53: One must be on one's guard against the bad man, lest he seize his opportunity.

672a. (DK 68 B 53a, 122b N) Democrat. 19; Stob. II.15.33: Many who do the most shameful things produce the finest words.

### VII. The right way of living with friends and neighbours

673. (DK 68 B 186, 212 N) Stob. II.33.9: Democritus: Like-mindedness makes friendship.

674. (DK 68 B 302)<sup>1</sup> CPP no. 174; Ant. Mel. II.1, p. 128 (PG 136, p. 1005 B); Max. Loc. comm. 9, p. 560 (PG 91, p. 779 A): Democrit(us): Choose to be loved rather than feared in your life; the person whom everyone fears, fears everything.

675. (DK 68 B 66, 101 N)<sup>1</sup> Democrat. 31: It is better to think before acting than to repent. (DK 68 B 43, 99 N) Democrat. 9: Repentance of shameful deeds saves one's life.

676. (DK 68 B 91, 223 N) Democrat. 57: Do not be suspicious of everyone, but be cautious and safe.

### VIII. Envious detractors

677. (DK 68 B 60, 140 N) Stob. III.13.46; Democrat. 25; CPP no. 185: It is better to criticise one's own faults than those of others. (DK 68 B 109, 217 N) Democrat. 76: Detractors do not make good friends.

678. (DK 68 B 293, 220 N)<sup>1</sup> Stob. IV.48.10: Democritus: those who take pleasure in their neighbours' misfortunes do not realise that fortune is common to all, and are incapable of finding their own enjoyment. (DK 68 B 107a, 219 N) Democrat. 74: As we are humans, it is right that we should not laugh at the disasters of humankind, but grieve.

679. (DK 68 B 237, 221 N) Stob. III.20.62: Democritus: All rivalry<sup>1</sup> is stupid; it looks to the harm of one's enemy instead of one's own advantage. (DK 68 B 88, 82 N) Stob. III.38.47; Democrat. 54: The envious person distresses himself as if he were an enemy.

679a. (DK 68 B 302) CPP no. 710; Gnomologion Baroccianum 190; Max. Loc. comm. 54, p. 658 (PG 91, p. 961 A); Ant. Mel. I.62, p. 109 (PG 136, p. 969 A); cf. Stob. III.38.52 (?): Democritus called envy an ulcer of truth. Stob. III.38.53; Max. Loc. comm. 54, p. 658; Ant. Mel. I.62, p. 109 ) (= no. 570): envy ... prompts the beginning of civil strife.

### IX. Mutual assistance

(add nos. 633-6)

680. (DK 68 B 92, 228 N)<sup>1</sup> Democrat. 58: One should receive favours with the intention of giving greater ones in return. (DK 68 B 93, 227 N) Democrat. 59: When you do a favour be

careful that the recipient is not a deceiver who will return evil for good. (DK 68 B 94, 225 N) Democrat. 60; Vienna Excerpts p. 291; Ant. Mel. I.29, p. 59 (PG 136, p. 877 B); Codex Parisinus 1169, f. 59 r; CPP no. 179: Small favours at the right time are the greatest for the recipients.<sup>2</sup>

681. (DK 68 B 96, 226 N) Democrat. 62: The person who does a favour is not the one who looks for a return, but the one who chooses to do good<sup>1</sup>.

681a. (Not in DK, Mull. 155)<sup>1</sup> Ant. Mel. I.29, p. 50 (PG 136, p. 877 B); Codex Parisinus 1169, f. 59: If you do anyone a favour, do it quickly; delay spoils the gift. (DK 68 B 302, Mull. 157)<sup>2</sup> Ant. Mel. I.29, p. 59 (PG 136, p. 877 B); CPP no. 192: Choose to make small gifts rather than pledge large amounts;<sup>3</sup> for there is no risk, and the recipient needs actions, not words.

## X. Noble birth and education

(see also nos. 771-4)

682. (In part in DK 68 B 33, 187 N)<sup>1</sup> Clem. Strom. IV.151 (II.314.12 St.); Stob. II.31.65; Theodoret. IV.1, p. 100 Räder: Nature and teaching are similar, for teaching re-shapes<sup>2</sup> the person, and in re-shaping makes his nature and renews the original traits which nature imparted from the beginning. Cf. Max. Loc. comm. 17, p. 586 (PG 91, p. 828 A): the same (after 682b; i.e. Democritus, or Demades)<sup>3</sup>: The same person said that someone who is being educated needs these three things, nature, practice and time.

682a. (DK 68 B 59, 188 N)<sup>1</sup> Stob. IV.46.8; Democrat. 24: Neither skill nor wisdom is attainable if one does not learn.

682b. (Not in DK, Mull. 229) Max. Loc. comm. 16, p. 586 (PG 91, p. 827 A); Ant. Mel. I.50, p. 91 (PG 136, p. 935 C): The same person (Democritus) said that it is not right for an educated person to converse with the uneducated, just as it not right for a sober person to converse with drunks.

683. (DK 68 B 183, 185 N)<sup>1</sup> Stob. II.31.72: the same: There is sometimes understanding among the young and lack of understanding among the old; for it is not time which teaches one to be prudent, but proper upbringing and nature.

684. (DK 68 B 242, 193 N) Stob. III.29.66: Democritus: More people become good by practice than by nature.

685. (DK 68 B 53, 122a N)<sup>1</sup> Democrat. 19: Many who have not acquired learning live according to learning.

686. (DK 68 B 56, 186 N)<sup>1</sup> Democrat. 22: Fine things are recognised and striven for by those who are naturally attracted to them.

687. (DK 68 B 208, 199 N)<sup>1</sup> Stob. III.5.24; Codex Parisinus 1169, f. 25 v; Ant. Mel. I.14, p. 25 (PG 136, p. 811 D): The self-control of the father is the best exhortation to the children.

688. (DK 68 B 267, 142 N)<sup>1</sup> Stob. IV.6.19: Democritus: Rule belongs by nature to the superior.

689. (DK 68 B 254, 151 N)<sup>1</sup> Stob. IV.1.45: When bad people assume official positions the more unworthy they are the more heedless they become, and the more they are filled with folly and boldness (= no. 614). (DK 68 B 95, 149 N) Democrat. 61: Honours have great weight in the case of sensible people, who understand<sup>2</sup> that they are being honoured.

690. (DK 68 B 113, 116 N) Democrat. 81: People who praise the unintelligent do great harm.

691. (DK 68 B 280, 184 N)<sup>1</sup> Stob. IV.26.26: the same: One can without much expense educate one's children and build a wall round them to safeguard their wealth and their persons.

692. (DK 68 B 179, 197 N) Stob. II.31.57: the same: Without being accustomed <sup>1</sup> to toil children would not learn letters or music or athletics or respect, which above all maintains virtue; for it is from those things especially that respect tends to arise.<sup>2</sup> (DK 68 B 141, 44 N) Stob. II.31.59: One will seem to promote virtue better by using encouragement and verbal persuasion than law and necessity. For what follows see above no. 607; cf. no. 35.

693. (DK 68 B 180, 183 N)<sup>1</sup> Stob. II.31.58; Max. Loc. comm. 16, p. 585 (PG 91, p. 823 C); Ant. Mel. I.50, p. 90 (PG 136, p. 935 A); CPP no. 180: Democritus (or 'the same'): Education is an adornment in good fortune and a refuge in misfortune. Cf. Stob. II.31.35: Aristotle said that education is an adornment in good fortune, and when one has had a fall it is a refuge appropriate to a free person. DL V.11.19: He (Aristotle) said that education is an adornment in good fortune, and a refuge in misfortune ... (21) he said that education is the finest 'provision for old age'. Whence Cic. Pro Archia VII.16: These studies spur on youth, and delight old age, they adorn good fortune and provide a refuge and solace in misfortune, they amuse us at home and do not hinder us away from home, they stay with us, travel with us and go into the country with us.

From all these passages (see comm.) the following dictum of Democritus may be approximately reconstructed: Education is <a guide for youth, and provision for old age>, an adornment in good fortune and a refuge in misfortune, <it amuses us at home and does not hinder us away from home, it is with us night and day, at home and abroad>.

694. (DK 68 B 51, 114 N) Stob. II.4.12; Democrat. 17: Speech is often more persuasive than gold.

695. (DK 68 B 178, 198 N) Stob. II.31.56: Democritus: Frivolity<sup>1</sup> is the worst of all things to educate<sup>2</sup> the young; for it is that which gives birth to those pleasures from which wickedness arises.

696. (DK 68 B 83, 28 N) Democrat. 49: Ignorance of the better course is a cause of error.

697. (DK 68 B 185, 201 N)<sup>1</sup> (Stob. II.31.94); CPP no. 190; AED sent. 9 (cf. no. 799): Democritus: The hopes of the educated are better than the wealth of the ignorant.

698. (DK 68 B 184, 194 N) Stob. II.31.90: Democritus: Continuous association with the wicked will promote a bad state of character.

### **XI. Young and old**

699. (DK 68 B 183, 185 N)<sup>1</sup> Stob. II.31.72 (= no. 683): the same: There is sometimes understanding among the young and lack of understanding among the old; for it is not time which teaches one to be prudent, but proper upbringing and nature.

700. (DK 68 B 294, 205 N) Stob. IV.50.20; CPP no. 875; Max. Loc. comm. 41, p. 636 (PG 91, p. 920 B), Gnom. Barocc. 190: Democritus: Strength and beauty are goods of youth, old age is the flower of prudence.<sup>1</sup> Stob. IV.50.22; Moscow codex 309, f. 248: Democritus: The old man was once young, but the young man is uncertain whether he will reach old age; so the good which is complete is better than that which is still to come, and uncertain.

701. (DK 68 B 104, 206 N) Democrat. 70: A wheedler who talks eloquently is [like] an old man with charm.

702. (DK 68 B 296, 207 N)<sup>1</sup> Stob. IV.50.76: Democritus: Old age is being totally crippled; it has everything and lacks everything. (Not in DK) Stob. IV.50. 80-81 (Democedes cited by Democritus?): Democritus: The mind grows together with the body and ages together with it, and becomes totally enfeebled. (= Hdt. III.134: Having learned from Democedes Atossa said to Darius when they were in bed 'The mind ... enfeebled.')

(Not in DK)<sup>2</sup> Max. Loc. comm. 41, p. 636 (PG 91, p. 920 B); Ant. Mel. II.17, p. 155 (PG 136, p. 1056 A); AED sent. 63: Democritus: Old age and poverty are two wounds which it hard to heal.

### **XII. Women, marriage, neighbours**

703. (DK 68 B 274, 171 N) Stob. IV.23.38: Democritus: Having little to say is an ornament for a woman, and it is a fine thing to be sparing of ornament. (DK 68 B 110, 173 N) Democrat. 77: Let a woman not practise speech, for that is terrible.

704. (DK 68 B 111, 170 N)<sup>1</sup> Democrat. 78; Stob. IV.23.39; CPP no. 204; Max. Loc. comm. 39, p. 631 (PG 91, p. 912 B); Ant. Mel. II.34, p. 175 (PG 136, p. 1089 D): The worst insult to a man is to be ruled by a woman.

705. (DK 68 B 273, 174 N) Stob. IV.22.199: Democritus: A woman is much sharper in abuse than a man.

706. (DK 68 B 214, 63, 169 N)<sup>1</sup> Stob. III.7.25; CPP nos. 200 + 591; Max. Loc. comm. 3, p. 539 (PG 91, p. 744 A): Democritus: The courageous man is he who overcomes, not only his enemies, but also pleasures. But some are masters of cities, but slaves to women. Cf. Ant. Mel. II.35, p. 176 (PG 136, p. 1092 A): Someone said to Democritus ‘Why did you, a tall man, marry a small woman?’ And he said ‘Having a choice of evils I chose the least’<sup>2</sup>

707. (DK 68 B 271, 175 N) Stob. IV.20.33: Democritus: Only Love<sup>1</sup> can bring an end to lovers’ quarrels (?).

708. (DK 68 B 272) Stob. IV.22.108; CPP no. 183; Max. Loc. comm. 18.159 (PG 91, p. 831 D); Ant. Mel. II.11, II.15, pp. 152, 154 (PG 1049 B, 1053 A): Democritus: Democritus said that if someone is lucky in his son-in-law he has gained a son, but if he is unlucky he has lost a daughter too.

709. (DK 68 B 90, 137 N) Democrat. 56: The enmity of one’s relatives is much harder to bear than that of strangers. Cf. no. 712.

### **XIII. Slaves**

710. (DK 68 B 270, 177N) Stob. IV.19.45: Democritus: Use slaves like parts of the body, each for a different task.

### **XIV. Factions**

711. (DK 68 B 107, 213 N) Democrat. 73: Not all one’s relatives are one’s friends, but those who agree about what is advantageous.<sup>1</sup> (DK 68 B 186, 212 N) Stob. II.33.9: Democritus: Like-mindedness creates friendship (no. 673).

712. (DK 68 B 249, 138 N) Stob. IV.1.34: the same: Strife among kindred is an evil for both sides; to victors and vanquished it brings like destruction.

713. (DK 68 B 250, 136 N) Stob. IV.1.40: Democritus: From concord come great deeds and for cities the ability to win wars, otherwise not.

714. (Not in DK, Mull. 148)<sup>1</sup> CPP no. 191; Max. Loc. comm. 54, p. 658 (PG 91, P. 961 A): Democrit(us): A contest between good people benefits the competitor without harming the opponent.

### **XV. Whether or not family property should be divided**

715. (DK 68 B 279, 203 N)<sup>1</sup> Stob. IV.26.30: Democritus: People should as far as possible divide their wealth among their children, and at the same time keep an eye on them, to make sure that they do not do anything foolish when they get their hands on it. For at the

same time they become much more thrifty over money and eager to get it, and they compete with one another. For what is spent in common does not hurt so much as what one spends for oneself, nor does profit made in common gladden one so much, but much less. Cf. Epicurus fr. 543 Us. (DL X.11): Epicurus did not think that property should be held in common, as Pythagoras did, who said 'Friends have everything in common'.

716. (DK 68 B 151, 230 N) Plut. Quaest. conviv. II.10, 643 E: ... Agias is suffering from a strange disease, if he is angry at receiving an equal portion ... for there are no bones in a shared fish, as Democritus says.<sup>1</sup> Cf. Zenobius V.23 (CPG I, p. 125): a portion does not choke. I give a fuller context of these passages in the commentary.

## **b. THE PHILOSOPHER IN THE STATE**

### **I. The repudiation of asceticism**

717. (DK 68 B 289, 91 N) Stob. IV.44.64: Democritus: It is folly not to accept the necessities of life.

718. (DK 68 B 230, 229 N) Stob. III.16.22: Democritus: A life without festivals is a long road without an inn.

### **II. The philosopher and the family**

719. See no. 804a.

720. See no. 804.

721. (DK 68 B 275 182 N)<sup>1</sup> Stob. IV.24.29: Democritus: Bringing up children is risky; even if successful it is full of strife and worry, and failure is not exceeded by any other woe.

722. (DK 68 B 276, 180 N) Stob. IV.24.31: Democritus: I do not think that one should have children<sup>1</sup>; for in having children I see many great dangers and much distress, and few blessings, and those meagre and weak.

723. (DK 68 A 170) Clem. Strom. II.138 (II.189.15 St., 17 N): Democritus deprecates marriage and having children because they cause much distress and distraction from more necessary things; Epicurus agrees with him. (Not in DK) Theodoret. XII.74, p. 317 Räder: We strongly disapprove of Democritus and Epicurus for telling people to reject marriage and having children, for once they had defined pleasure as the end they totally denounced things that cause worries of whatever kind (= 526 Us).

724. (DK 68 B 277, 181 N) Stob. IV.24.32: the same: If anyone needs to have a child, it seems to me better that he should choose from his friends' children. That way he will get the sort of child he wants, for he can choose the one he likes; and the one that seems suitable will follow his bidding as far as nature allows. And this is a great difference, in that he can choose from many the one that he prefers, according as he thinks it should be. But if

he has one of his own, there are many dangers; for he has to make do with the one that is born to him.

### III. The philosopher and the state

725. (DK 68 A 166, 3 N)<sup>1</sup> Epiphan. Adv. haer. III.2.9. (Dox. 590): Democritus ... said ... and that what seems just is not just, and the unjust is what is the opposite of nature. He called the laws a wicked contrivance and said that ‘the sage should not obey the laws, but live like a free person’<sup>2</sup>. Cf. DL IX.46: conventions are artificial (no. 569). See Epicurus fr. 196 Us, in comm.

726. (DK 68 B 0b) Title of an ethical work: DL IX.46 (Thrasyllus I.2) On the state of the sage. Cf. ps-Hippocr. Letter 17, p. 330.15-16 Littré: they are misanthropes ... since they are entirely immersed in wisdom.

727. (DK 68 B 302a)<sup>1</sup> Sen. Letter 7.10: Democritus says ‘One man is worth as much as the people in my view, and the people as much as one’<sup>94</sup>. Cf. Democrat. 64 (DK 68 B 98): The friendship of a single intelligent person is better than that of all the unintelligent (no. 660).

728. (DK 68 B 157, 133N)<sup>1</sup> Plut. Col. 32, 1126 A; Ant. Mel. II.45, p. 194 (PG 136, p. 1124 B); CPP f. 164 r.: let such charges be brought against me by men who in their lives have managed their households and served the state. All those whom Colotes has abused are people like that, from whom<sup>2</sup> Democritus urges us to learn the art of politics<sup>3</sup>, the greatest of the arts, and to pursue labours, from which great and noble rewards accrue to mankind. Cf. Plut. Epicurus makes a pleasant life impossible [Non posse] 19, 1100 B: But do not those who are so keen on praise and reputation confess that they let slip great pleasures through their weakness and softness when they avoid office and political power and the friendship of kings, from which<sup>4</sup>, Democritus says, great and noble rewards accrue to people’s lives.

729. (DK 68 A 16) Ael. VH IV.20: The story goes that Democritus of Abdera, who was wise in other respects, had a particular desire to live in obscurity, which he put into effect with vigour. (Not in DK) Macarius V.47 (CPG II, p. 183): Live in obscurity; the word is ‘Stick to your own affairs’. This is from Democritus.<sup>1</sup> Cf. DL IX.36: I came ... to Athens, and no-one knew me. Dionysius of Alexandria ap. Eus. PE XIV.27.4: Democritus himself, so they say, said that he would rather discover a single explanaton than acquire the kingdom of the Persians (no. 29). [Not in DK] Cic. De orat. III.15.56: Others showed the same degree of prudence but made a different choice of their way of life by seeking quiet and leisure, and by totally giving up politics in favour of theoretical study, for instance Pythagoras, Democritus and Anaxagoras. Through its tranquillity and the enjoyment of knowledge itself, which is the most delightful thing of all for people, that life contributed more to their happiness than to the public good.

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<sup>94</sup> [See Taylor 1999, no. D9, p. 7.]

#### IV. The philosopher is a citizen of the world.

730. (DK 68 B 247, 168 N)<sup>1</sup> Stob. III.40.7; Arsenius 55.19; Apostolius 18.55a (CPG II, p. 272): the same (i.e. Democritus): To the wise man every land is to be travelled; for the whole world is the native land of the good soul.

731. (DK 68 B 303) Greco-Syrian sayings, trans. Ryssel (RhM 51, 1896, 539), no. 33: Democritus said: 'When they go to a foreign country which is not their own, wise people must make enquiries, peacefully and quietly, in order to see and learn of the reputation which the wise have there, what sort of people they are and whether they can match them, by secretly weighing their words against their own in their own minds. And when they have weighed them and seen which party has prevailed over the other, then they should proclaim the riches of their wisdom, so that they should be honoured for the treasure they possess, from which they enrich others. And if their own riches are too small to enable them to expend anything, then they should take from the others and go away'.

732. (DK 68 B 246, 66 N) Stob. III.40.6; CPP no. 201: Democritus: Foreign travel teaches self-sufficiency; barley-bread and straw are the pleasantest remedies for hunger and weariness. See comm. on no. 750a.

#### I. MORAL INSTITUTIONS, OR THE ACHIEVEMENT OF TRANQUILLITY OF MIND

##### a. THE MEANINGS OF THE WORDS ΕΥΕΣΤΩ, ΕΥΘΥΜΙΑ AND ΑΘΑΜΒΙΑ, AND THE SENSES IN WHICH THEY ARE USED BY DEMOCRITUS

###### I. Democritus' own definitions

733. (DK 68 B 2 C) DL IX.46: the ethical works are these ... On cheerfulness.

734. (DK 68 B 4, 3 N)<sup>1</sup> Clem. Strom. II.130 (II.184.10 St.): The Abderites too teach that there is an end; in his work On the end Democritus says that it is cheerfulness, which he also called well-being, and he frequently says 'Enjoyment and unenjoyment are the distinguishing mark of those who have <attained full wisdom and those who have not><sup>95</sup>attained full wisdom. Hecataeus says that it is self-sufficiency (DK 73 A 4) and Apollodotus of Cyzicus that it is calm of soul (DK 74 A 1), similar to Nausiphanes' freedom from terror (DK 75 B 3); that, he says, is what Democritus called 'unastonishment'. (DK 68 B 188 2 N) Stob. III.1.46: Enjoyment and unenjoyment are the distinguishing mark of beneficial and harmful

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<sup>95</sup> [Supplementation by L. On the text see his note.]



things.<sup>96</sup> (DK 68 A 111) Sext. M VII.140: according to him (Democritus) ... the criteria ... of choice and avoidance are the feelings; what we feel attracted to, as belonging to us, is to be chosen, and what we feel alienated from is to be avoided (see no. 81). (DK 68 B 107) Democrat. 73: Friends ... are those who agree about what is advantageous (no. 711).

735. (DK 68 A 1) DL IX.45 = Suda s.v. euestō: the end is cheerfulness, which is not the same as pleasure, as some have incorrectly understood, but a calm and stable state of the soul, undisturbed by any fear or superstition or any other feeling. He (i.e. Democritus) also calls it well-being [euestō] and many other names. Conventions are artificial<sup>1</sup>, atoms and void by nature.

736. (Not in DK) Suda, s.v. euestoi [dative of euestō, = 'in well-being']: in prosperity (euthēniai), in stability (katastasei). (DK 68 B 140) Hesych. s.v. euestō: ... happiness, from one's house standing well.<sup>1</sup>

737. (DK 68 B 3, 163 N) Plut. De tranq. an 2, 465 C: the person who said that someone who is going to be cheerful should not do much either privately or in a public capacity, first of all makes cheerfulness very expensive for us, since it is gained at the price of inactivity ...Stob. IV.39.25: The person who is going to be cheerful must not do many things<sup>1</sup>, either in private or in public life<sup>2</sup>, and in his choice of what he does must not exceed his own nature and capacity, but must be watchful, so that even when fortune seizes him and urges him further<sup>3</sup> in his imagination<sup>3</sup>, he sets it aside and does not attempt more than what is possible. For a good amount is safer than a great amount. Paraphrase by Diogenes of Oenoanda fr. 40 Chilton: there is nothing more productive of cheerfulness than not to do many things or undertake unpleasant things or force oneself to attempt something beyond one's power; all of those things bring troubles to one's nature. Latin version in Sen. De tranq. an. 13.1: After that I think that Democritus began by saying 'Someone who wants to live in tranquillity should not do much either privately or in public life'. Id. De ira 3.6.3: We will benefit from that salutary advice of Democritus', which shows us how to achieve tranquillity by not doing much, or attempting things beyond our strength, either privately or or in public life. See also nos. 614, 648.

738. (DK 68 A 166, 3 N) Epiphan. Adv. haer. III.2.9 (Dox. 590): Democritus ... said that there is a single end of everything and that cheerfulness is the supreme end, but distress is the distinguishing mark of wickedness.

739. (DK 68 B 191, 52 N) Stob. III.1.210: Democritus: People attain cheerfulness by moderation in pleasure and proportion in their lives.<sup>1</sup> Excess and deficiency are apt to fluctuate and cause great changes in the soul. And souls which change over great intervals are neither stable nor cheerful. For the rest see no. 651. (DK 68 B 286, 71 N) Stob. IV.39.17: Lucky is he who is made cheerful by moderate wealth, unlucky he who is discontented with

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<sup>96</sup> [L. translates 'the boundary between what is akin to our soul and what is not akin'. For reasons for preferring the traditional translation 'beneficial and harmful' see translator's notes 165 and 166 on no. 794.]

great wealth. (DK 68 B 102, 51 N) Democrat. 68: In everything the equal<sup>2</sup> is fine; excess and deficiency do not seem so to me. Cf. no. 739.

740. (DK 68 B 174, 47 N) Stob. II.9.3: The cheerful person who undertakes right and lawful deeds rejoices sleeping and waking and is strong and free from care<sup>1</sup>, but someone who takes no heed of what is right and does not do what he should<sup>2</sup> is distressed by all those things, whenever he remembers any of them, and is frightened and reproaches himself.

741. (DK 68 A 169, 4 N) Cic. De fin. V.8.23 (from Antiochus): Now Democritus' freedom from care, which is a sort of tranquillity of mind, which they call 'cheerfulness' (euthumia) had to be kept separate from that dispute [sc. about what produces the happy life], since that tranquillity of mind is the happy life itself. (29.87) Democritus ... is said (whether truly or falsely I shall not enquire) to have blinded himself; certainly he neglected his inheritance and left his fields uncultivated, so that his mind should be distracted as little as possible from its thoughts. What was he looking for, if not the happy life? Even if he located that in the knowledge of things,<sup>1</sup> all the same he wanted his investigation of nature to lead to his happiness; he called that highest good 'cheerfulness' and frequently 'unastonishment' (athambia), i.e. a mind free from terror. (88) But while that is splendid, it lacks the finishing touches; for he went on to say only a few things about virtue, which were not sufficiently clear.

742. (DK 68 A 167, 2 N) Stob. II.7.31, p. 52.13 W. (from Arius Didymus): Democritus and Plato both locate happiness in the soul. The former writes as follows: 'Happiness and unhappiness belong to the soul' (no. 777) and 'Happiness does not reside in herds or in gold; the soul is the dwelling-place of the guardian spirit' (no. 780). And he calls happiness cheerfulness and well-being and harmony, as well as proportion and freedom from disturbance, and says that it arises from the distinction and discrimination of pleasures, and that this is the finest and most beneficial thing for people.

743. (DK 68 B 216,34 N) Stob. III.7.74: Democritus: Wisdom is unastonished freedom from disturbance<sup>97</sup>, which is the most valuable of all things. (DK 68 B 215, 46 N) Stob. III.7.31: The glory of justice is boldness and unastonishment of mind ...<sup>1</sup> (= no. 602). (DK 68 B 4, 3N) Clem. Strom. II.130: cheerfulness ... that, he (Nausiphanes) says, is what Democritus called 'unastonishment' (= no. 734). (DK 68 A 169, 4 N) Cic. De fin. V.29.87: He called that highest good ['cheerfulness' and] frequently 'unastonishment', i.e. a mind free from terror (= no. 741). Cf. no. 735.

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<sup>97</sup> [L accepts Friedländer's supplementation <atar>axiē instead of the mss' axiē. Retaining the mss' reading gives the sense 'Untroubled wisdom is worth everything, since it is most valuable' (adopted by Taylor 1999, no. D80, pp. 28-9). DK retain axiē, but accept Gomperz' deletion of 'since it is most valuable' (timiōtatē ousa) as a gloss. There seems insufficient reason to depart from the mss' reading.]

744. (DK 68 A 168, 4 N) Strabo I.3.21: They mention in addition the changes consequent on migration, in order to build up our freedom from astonishment, which Democritus and the other philosophers celebrate.

745. (= nos. 620-621) Stob. IV.2.15-16: the person who kills those who do or wish to do wrong is free of punishment, and doing this contributes more to well-being than not. One should kill in every case everything which causes unlawful harm, and the person who does this shall receive ... a greater share of cheerfulness.

## II. How the atomistic doctrine was interpreted by its opponents

See also the notes where there are collected dicta of Democritus, either invented by his opponents or misinterpreted. [Refs. the Excursus following notes on no. 494.]

746. (Not in DK) Cic. De fin. II.22.74: for what consideration then would you say that all your actions while in office will be done for the sake of pleasure, and that you have never done anything in your life if not for the sake of pleasure? ... (23.75) You ... are always saying that we do not understand what you mean by pleasure. You regard it as something difficult and obscure. When you talk of atoms, and spaces between worlds, none of which exist or can possibly exist, we understand you; can we not understand pleasure, which is familiar to every sparrow? Id. Acad. post. I.2.5-6: But now I could write about nature as clearly as Amafinius, if I were to accept the doctrines of Epicurus, which is to say of Democritus. For, once you have got rid of the causes which bring things about, what is so remarkable in talking of the chance concatenation of corpuscles (for that is what he calls the atoms)? ... For these people simply hold that the good of an animal and of a human being are the same.

747. (Not in DK) Theodoret. XI.5, p. 273 Räder: Epicurus defined the good as the pleasantest life, for he thought that the only complete good is pleasure, but Democritus of Abdera, the father of these doctrines, stated that it is cheerfulness, rather than pleasure; in so doing he made a change, not of doctrine, but of terminology ...

### a. HOW WELL-BEING IS TO BE ACHIEVED

(see also nos. 33-5)

#### 1. By seeking only what is necessary, and by avoiding everything superfluous

(see also nos. 651-57a)

748. (DK 68 B 189, 7 N)<sup>1</sup> Stob. III.1.47: The best thing for a human being is to live his life as cheerfully as possible, and with the least distress. And that would come about if one did not take pleasure in mortal things.

749. (DK 68 B 102, 151 N)<sup>1</sup> Democrat. 68: In everything the equal is fine; excess and deficiency do not seem so to me (= no. 739).

750. (DK 68 B 235, 53 N) Stob. III.18.35, III.6.65: Democritus. To all those who take their pleasures from their belly, exceeding what is appropriate in food or drink<sup>1</sup> or sex, their pleasures are brief and meagre, lasting just as long as they are eating and drinking, and their pains are many. For this desire for the same thing is always with them, even when they get what they want, but the pleasure soon passes, and they have no profit except brief delight, and then they need the same things again. (DK 68 B 223, 19 N)<sup>2</sup> Stob. III.10.65: the same: The things the body needs are easily available to everyone without labour and trouble; things that need labour and trouble and burden life are desired, not by the body, but by the dullness of the mind.<sup>3</sup>

750a. (DK 68 B 246, 66 N) Stob. III.40.6; CPP no. 201: Democritus (see no. 732): barley-bread and straw are the pleasantest remedies for hunger and weariness. (Not in DK)<sup>1</sup> Max. Loc. comm. 12, p. 569 (PG 91, p. 797 A); Ant. Mel. I.31, p. 62 (PG 136, p. 884 C); Codex Parisinus 1169, f. 84 r.; AED sent. 81: Democritus: Natural wealth is completed by bread and water and any kind of covering for the body; excessive wealth makes the torture of desire boundless in the soul.

751. (DK 68 B 211, 56 N) Stob. III.5.27: Democritus: Self-control increases joys and makes pleasure greater.

752. (DK 68 B 61, 14 N)<sup>1</sup> Stob. III.37.25; Democrat. 26; Max. Loc. comm. 57, p. 665 (PG 91, p. 973 A); CPP f. 21 v: Those whose character is properly ordered have their lives in order as well.

753. (DK 68 B 233, 55 N)<sup>1</sup> Stob. III.17.38; III.6.60: the same: If someone were to exceed the appropriate measure, the most delightful things would become most unpleasant.

754. (DK 68 B 70, 62 N) Democrat. 35: Immoderate desire is the mark of a child, not of a man.

755. (DK 68 B 71, 54 N) Democrat. 36: Inappropriate pleasures give rise to distress.

756. (DK 68 B 74, 5 N) Democrat. 39: Do not admit anything pleasant if it is not advantageous.<sup>1</sup>

757. (DK 68 B 232, 57 N) Stob. III.10.37; III.6.59: Democritus: Those pleasures which occur most rarely give the greatest delight.

758. (DK 68 B 209, 67 N) Stob. III.5.25; Ant. Mel. I.36, p. 72 (PG 136, p. 901 A); Max. Loc. comm. 13, p. 574 (PG 91, p. 805 A); CPP, no. 164: Democritus: To one who is self-sufficient in respect of food [i.e. content with what is readily available, cf. no 750a], the night is never long.<sup>98</sup>

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<sup>98</sup> [L adopts the reading of Maximus makrē nu1x 'a long night', in preference to the reading of the mss of Stobaeus smikrē (or mikrē) nux 'a short night'. On the former reading the point is presumably that the

759. (DK 68 B 210, 65 N) <sup>1</sup>Stob. III.5.26; CPP no. 588; Max. Loc.comm. 13, p. 575 (PG 91, p. 805 C); Ant. MeI. I.14, p. 25 (PG 136, p. 812 D): Democritus: Chance provides a lavish table, self-control a sufficient one.

759a. (Not in DK) CPP no. 197; Max. Loc. comm. 27, p. 612 (PG 91, p. 875 A):<sup>1</sup> Just as a good medicine is not one which is pleasant or abundant, but one which is healthy, so good food is not that which is pleasant or abundant, but that which is healthy.

760. (DK 68 B 229, 81 N)<sup>1</sup>Stob. III.16.19: the same: Thrift and hunger are useful <at the right time>, and expense too at the right time. It is the mark of the good person to discern.<sup>2</sup>

761. (DK 68 B 198, 20 N) Stob. III.4.72: The thing (i.e. animal) that is in need knows how much it needs, but the human being in need does not.<sup>1</sup>

## **II. By inhibiting excessive emotions (anger, despair, sadness, lust etc.)**

762. (DK 68 B 236, 88 N) Stob. III.20.56; Max. Loc. comm. 19, p. 594 (PG 91, p. 811 C): Democritus: It is hard to fight against spirit; but mastering it is the mark of the prudent person.<sup>1</sup>

763. (DK 68 B 290, 89 N) Stob. IV.44.67 : Democritus: Drive out by reasoning distress which is unmasterable<sup>1</sup> when one's soul is torpid.

764. (DK 68 B 213, 127 N) Stob. III.7.21: Democritus: Courage makes disasters small.

765. (DK 68 B 196, 100 N)<sup>1</sup>Stob. III.4.70: Forgetting one's own misfortunes makes one bold.

766. (DK 68 B 42, 90 N) Democrat. 8; Stob. IV.44.68: Democritus: It is a great thing to think as one should amidst disasters.

767. (DK 68 B 72, 58 N)<sup>1</sup> Democrat. 37: Intense desires for anything blind one's soul to the other things.

768. (DK 68 B 46, 218 N) Stob. IV.44.69; Democrat. 12: It is greatness of soul to endure faults easily.

769. (DK 68 B 48, 119 N) Stob. III.38.46; Democrat. 14: The good person takes no account of the reproaches of the bad.

770. (Not in DK, Mull. 244)<sup>1</sup> Max. Loc. comm. 27, p. 612 (PG 91, p. 876 B); Ant. MeI. I.39, p. 79 (PG 136, p. 913 D); CPP no. 196: Do not eat quickly and hurriedly; that is dog-like, more suitable for an animal than a human being.

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moderate person is not kept awake by indigestion etc. Acc. L's note 2 some commentators interpret 'a short night' as 'a sleepless night', giving the dictum the same sense as on Maximus' reading; that, however, is a most implausible interpretation of 'a short night', which does not appear to give a satisfactory sense.]

770a. (Not in DK)<sup>1</sup> CPP f. 25 v: Do not be quick to pride yourself on passing up the prospect of some pleasure; for we often fail to notice that we have not conquered the desire, but have instead succumbed to it.

### III. By habitually enduring toil, from which we are confident of a fortunate outcome

771. (DK 68 B 243, 130 N) Stob. III.29.88: Democritus: All labours are pleasanter than ease, when people achieve the goal of their labours or know that they will reach it. But there is one remedy for every failure<sup>1</sup>, to <regard><sup>99</sup> everything as equally unpleasant and troublesome.

772. (DK 68 B 240, 131 N)<sup>1</sup> Stob. III.29.63 and 83a; Max. Loc. comm. 32, p. 621 (PG 91, p. 892 B): Democritus: Labours undertaken voluntarily make it easier to endure those which come unbidden.

773. (DK 68 B 241, 132 N) Stob. III.29.64: the same: Continuous labour becomes easier to bear as one gets used to it.

774. (DK 68 B 182, 189 N) Stob. II.31.66: the same: Learning achieves fine things<sup>1</sup> through taking pains, but evils one acquires of themselves without taking any pains (= no. 35).

775. (DK 68 B 81, 125 N) Stob. III.29.67; Democrat. 46: Always putting things off makes one's actions incomplete.

### IV. By preferring the pleasures of the soul to those of the body

776. (DK 68 B 159, 22 N)<sup>1</sup> Plut. Do distress and desire belong to the soul or to the body?, fr. 2: This dispute between the body and the soul about the passions seems to be an ancient one. Democritus, attributing our wretchedness to the soul, says: 'If the body brought a suit against it (i.e. against the soul) for all the sufferings it had endured throughout its whole life, and one had oneself to judge the case, one would gladly condemn the soul for having not only ruined the body through heedlessness and made it soft through drunkenness, but also for having brought it to rack and ruin through love of pleasure, just as if a tool or a utensil were in a bad state one would hold responsible the person who had used it carelessly'<sup>2</sup>. Id. Precepts for health 24, 135 E: ... abusing others or acting maliciously or ambitiously or pursuing sterile and empty reputation. It was those people especially, I think, that Democritus had in mind when he said that if the body brought a suit against the soul for ill-treatment, it would not be acquitted.

776a. (DK 68 B 149, 49 N) Plut. Are the affections of the soul worse than those of the body? 2, 500 D: so let us agree, sir, that your body naturally gives rise to many illnesses and passions from itself, as well as receiving them from outside; and if you open up your inner self you will find a varied store and treasury of all sorts of evil passions<sup>1</sup>, as Democritus says,

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<sup>99</sup> [Supplementation by L; see his note. Taylor 1999 translates Diels' text (see L's note), no. D107, pp. 36-7.]

which have not come in from outside, but have their natural and original sources there, which wickedness opens up lavishly and abundantly to the passions. Cf. Diogenes of Oenoanda I, col. I-II Chilton [fr. 2 Smith] (speculative supplementation)<sup>100</sup>: the dispute described by Democritus ... when the body brings against the soul important (?) and just charges, that it has been unjustly maltreated and oppressed by it (the soul) and dragged along after unnecessary<sup>2</sup> things; for the wants of the body are small and easily supplied, and the soul prospers by enjoying them too, but the wants of the soul are great and hard to supply, and as well as bringing no advantage to our nature they bring dangers.

777. (DK 68 B 170, 9 N) Stob. II.7.3 (see no. 780): Happiness and wretchedness belong to the soul.

778. (DK 68 B 105, 16 N) Democrat. 71: Beauty of body is animal-like<sup>101</sup>, if there is no intelligence behind it.

779. (DK 68 B 31, 50 N)<sup>1</sup> Clem. Paed. I.6 (I.93.15 Stählin): According to Democritus medicine cures the ills of the body, while wisdom frees the soul from passions<sup>2</sup>. Cf. CPP f. 95 r.: Democritus: Swallows foretell fine weather, but the words of philosophy<sup>3</sup> [bring?] freedom from distress.

780. (DK 68 B 171, 10 N)<sup>1</sup> Stob. II.7.3 (after no. 777): Happiness does not reside in herds or in gold; the soul is the dwelling-place of the guardian spirit.

781. (DK 68 B 40, 15 N) Democrat. 6: People are happy not in body or in wealth, but in uprightness and intelligent versatility.

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<sup>100</sup> [L acknowledges that his restoration is speculative. The following points are problematic. a) The words translated 'the dispute ascribed to Democritus' (hē para tōi Dēmokritōi diadikasia) are not in the text; the name 'Democritus' does not occur anywhere in this fragment (though the reference to charges brought against the soul by the body is doubtless a recollection of the argument reported by Plutarch in no. 776). b) More seriously, L's translation (followed by the Italian version) represents the charges brought by the body as 'not convincing', though it is clear that those charges are supported by the Epicurean principle cited by L in his note 2, which must be assumed to have been endorsed by Diogenes. L restores the text as tou sōmatos aitia antilegein t]ēi ps[ulch]ēi ouk eupor]ous kai dikaias; given that the charges are 'not convincing' they can hardly be described as just. Hence dikaias must be within the scope of ouk, giving the unitary description of the charges as 'not euporos and just', which is presumably to be understood as 'neither euporos nor just'. This raises a number of difficulties. First, ouk is not in the text. Secondly, it is not clear what euporos means when applied to the charges brought by the soul. It ought to mean something like 'easy' or 'plentiful', but the application to accusations requires some more specific sense. Given L's understanding of the passage the intended sense would seem to be something like 'easy to accept', or 'easy to prove', giving the description of the accusations as 'neither easy to accept (prove) nor just'. But, finally, that interpretation would be more naturally expressed as ouk euporous oude dikaias.

Given all these problems, it is preferable to accept a restoration and interpretation which endorses the charges brought by the body. Smith restores tēi psuchēi di[a]ph[o]rous epipherontos kai dikaias ('when it brings important and just accusations against the soul'); Chilton leaves the first adjective unrestored 'bringing against the soul its ... and just accusations.'

<sup>101</sup> [See n. in Taylor 1999, p. 237.]

782. (DK 68 B 37, 8 N) Democrat. 3; Gnom. Barocc. 17: The person who chooses the goods of the soul chooses more divine<sup>1</sup> things; the person who chooses the goods of the body chooses human things

783. (DK 68 B 57, 17 N)<sup>1</sup> Stob. IV.29.18; Democrat. 23: In animals good breeding is strength of body, in humans goodness of character.

784. (DK 68 B 36 & 187, 18 N)<sup>1</sup> Stob. III.1.27; Democrat. 2; Max. Loc. comm. 53, 656 (PG 91, p. 957 A); Ant. Mel. I.55, p. 99 (PG 136, p. 951b); Apostolius XVIII.54a; Arsenius LV.21: Democritus: It is appropriate for people to take account of the soul more than of the body; for the perfection of the soul rectifies<sup>2</sup> the defects of the body, but strength of body without thought makes the soul no better.

785. (DK 67 A 37) Clem. Strom. II.129 (II.183.19 St.): Indeed Lycus the Peripatetic said that the end of the soul is true joy, as Leucippus<sup>1</sup> said that it is joy in fine things.

786. (DK 68 B 207, 4 N)<sup>1</sup> Stob. III.5.22; Apostolius VIII.42a; Arsenius XVIII.36 (with the lemma 'Hippocrates'); Ant. Mel. I.14, p. 26 (PG 136, p. 812 D) (without a lemma, after the lemma 'Epictetus' = Epictet. fr. 100 Schweigh.); AED sent. 79 (without a lemma); CPP f. 27 r. (with the lemma 'from the writings of <I>s<O>crates and Democritus'): Democritus: One should not choose every pleasure, but pleasure in what is fine.

787. (DK 68 B 73, 87 N)<sup>1</sup> Stob. III.5.23; Democrat. 38: Lawful love is desiring fine things without violence.

788. (DK 68 B 191, 36 N) Stob. III.2.46: Democritus: Great joys come from beholding fine deeds.

#### **V. By freely preferring justice to injustice, and seeking the highest pleasure from doing so**

789. (DK 68 B 41, 45 N) Stob. III.1.95; Democrat. 7; Max. Loc comm. 24, p. 606 (PG 91, p. 864 C); CPP, nos. 493, 563: Abstain from wrong-doing, not from fear, but because it is right (see no. 605).

790. (DK 68 B 146, 13 N) Plut. On progress in virtue 10, 81 A: Someone at ease with himself, who does not despise himself, but is glad and content to be both an adequate witness and observer of fine things, shows that reason is already growing and rooted in him, and as Democritus says is accustomed to derive his joys from himself.

#### **c. BAD AND UNWISE PEOPLE, WHO HAVE EMBRACED 'ILL-BEING'**

(on the false-wisdom of pseudo-philosophers, see nos. CVII-CXIV)

791. (DK 68 B 239, 162 N) Stob. III.28.13: Democritus: The wicked do not keep the oaths they swear in extremities once they have escaped from them.



792. (DK 68 B 302)<sup>1</sup> CPP no. 166; Max. Loc. comm. 67, p. 184 (PG 91, p. 1007 C); Ant. Mel. I.72, p. 118 (PG 136, p. 985 D): Through changes of circumstances even the very powerful become inferior to the weaker.

793. (DK 68 B 200, 93 N)<sup>1</sup> Stob. III.4.74: The unwise live without enjoying their life. (DK 68 B 201, 94 N) Stob. III.4.75: The unwise desire a long life without enjoying their long life.<sup>2</sup>

794. (DK 68 B 202, 60 N) Stob. III.4.76: The unwise desire the things that they do not have, but the things they have they neglect, though<sup>1</sup> they are more profitable than the things that are gone.

795. (DK 68 B 204, 98 N) Stob. III.4.78: The unwise please no-one<sup>1</sup> in their entire life. (DK 68 B 98, 211 N) Democrat. 64: The friendship of a single intelligent person is better than that of all the unintelligent (= no. 660). (DK 68 B 99, 209 N) Democrat. 65: Someone who does not have a single worthy friend does not deserve to be alive (= no. 662).

796. (DK 68 B 199, 96 N) Stob. III.4.73: The unwise hate their life like Hades, but want to live for fear of Hades (= no. 584).

797. (DK 68 B 205, 35 N) Stob. III.4.79: <In desiring><sup>102</sup> life, the unwise desire old age through fear of death. (DK 68 B 206, 95 N) Stob. III.4.80: The unwise wish to grow old through fear of death. (DK 68 B 203, 97 N) Stob. III.4.77: In fleeing death people seek it.

798. (DK 68 B 197, 33 N) Stob. III.4.71: The unwise are shaped by the gifts of fortune, but those who understand such things by the gifts of wisdom. (DK 68 B 119, 29 and 30 N). Eus. PE XIV.27.5; Stob. II.8.16: Democritus: People fashioned an image of fortune as an excuse for their own folly (= no. 32).

799. (Not in DK) Persius I.1 and scholium ad loc.: How empty are people's hopes<sup>1</sup>. (DK 68 B 58, 102 N) Democrat. 23a; Stob. IV.46.18: the hopes of those who think correctly are attainable, but those of the unintelligent are impossible. (DK 68 B 292, 103 N) Stob. IV.46.19: The hopes of the unintelligent are unreasonable. (DK 68 B 185, 201 N) Stob. II.31.94: Democritus: the hopes of the educated are better than the wealth of the ignorant (= no. 697).

800. (DK 68 B 54, 31 N) Democrat. 20: The unintelligent learn prudence through misfortune. (DK 68 B 76, 32 N) Democrat. 41: The foolish are taught not be reason but by misfortune. Codex Parisinus 1169, f. 155 v; AED sent. 89:<sup>1</sup> The foolish are freed from distress by time, the wise by reason.

## K. ARTS

### a. MEDICINE

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<sup>102</sup> [Supplementation by L. I propose an alternative supplementation in Taylor 1999, no. D69, p. 26.]

801. (DK 68 B 300.10) Celsus I, preface, p. 2.11 Dar. (Corpus Medicorum Latinorum [CML] 1.18): We learn that many philosophers were skilled in medicine; the most famous of them were Pythagoras, Empedocles and Democritus.

801a. (DK 68 A 159) Soranus, Gynaecology III.17, p. 105.1 Ilberg: see no. 567a.

Each of the following titles is taken from those listed in Thrasyllus' catalogue (DL IX.48 Technical works ...)

801 b. Prognosis (DK 68 B 212, 128N)<sup>1</sup> Stob. III.6.27: Democritus: Sleeping during the day is a sign of bodily disturbance or distress of mind or idleness or lack of education.

802. On diet or Dietetics.

803. Medical judgement [or 'opinion'].

804. Causes of suitable and unsuitable times. Cf. Plut. Quaest. conviv. III.6.1, 653 B: Epicurus ... about the right time for intercourse. Ibid. III.6. 3, 654 B: someone else says that the right time for intercourse has other inopportune aspects. See Oribasius Medical collections VI.38.

804a. (DK 68 B 32, 86 N) Clem. Paed. I.94 (I.214.9 St.); Hippol. Ref.VIII.14 (p. 234.5 W.); Stob. III.6.28: intercourse is brief apoplexy ...See further under no. 527.

804b. (Not in DK, Epicurus 62 Us.) DL X.118; Metrodorus in Gnomologium Vaticanum; Epicurus fr. 51 Bailey (Epicurus, The Extant Remains, Oxford, 1926, p. 114) = Berlin Papyrus 16369 (see Studi Italiani di Filologia Classica NS 13, 1936, 267); Archiv f. Papyrologie 13, 1938, 110; Clem. Paed. II.101; Porphyry De abst. I.52; Galen De arte med. 24 (I.371 K, cf. V.911 K); Galen, Comm. on Hippocrates Epidemics III.1.4 (XVII, p. 521): intercourse has never benefited anyone, it is enough if it has not harmed them.

805. (DK 68 B 120 = no. 828) Erotianus p. 90.18 N: Democritus calls the motion of the arteries 'pulsing of the veins' (phlebopaliē).

805a. (DK 68 A 33) DL IX.48: Some authorities list separately the following titles from the Notes ... On fever and coughs.

## **b. AGRICULTURE**

806. (DK 68 A 33) DL IX.48 (Thrasyllus' catalogue): Technical works ... On agriculture or Land-Measurement.

806a. (DK 47 B 8) Varro De re rustica I.1.8: Those who wrote in Greek (on agriculture) ... among the philosophers Democritus the natural philosopher, Xenophon the Socratic and Aristotle and Theophrastus the Peripatetics ... (cf. Columella [Col.]II.1.7). (Not in DK) Isidore of Seville Etymologies XVII.1.1, p.308: Hesiod of Boeotia was the first of the Greeks to

introduce writing on agriculture into humane studies, followed by Democritus. Col.I, preface 32: Further, it will benefit the man whom we want to be a perfect farmer, if indeed he has mastered the art in total and has followed the wisdom of Democritus or Protagoras concerning the whole of nature, if ...

807. (DK 68 B 27) Col.III.12.5: there is an ancient dispute about which region of the heavens the vines should face ... Democritus and Mago recommend the northern region, because they think that vines which face that way become most productive, though others produce better wine.

808. (DK 68 B 27a) Col. IX.14.6: But Democritus and Mago, and Virgil too, have maintained that at that same time (i.e. between the solstice and the rising of the Dog star) bees can be generated from a slaughtered calf.

809. (DK 68 B 28) Col. XI.3.2: In his book entitled On agriculture Democritus maintains that it is not sensible to build walls round gardens, because brick walls do not last long, being generally damaged by wind and rain, while stone costs too much for such a modest purpose. Indeed, if anyone wants to fence a garden on a grand scale, he will need a fortune. (Not in DK) Id XI.3.3: The earliest authors preferred a living hedge to a wall, not only because it costs less, but because it lasts much longer.

810. (Not in DK) Col. XI.3.61: Some ancient authors, including Democritus, advise treating all seeds with the juice of the herb called sedum [= houseleek] and also using it against insects; experience teaches us that this is true.

811. (Not in DK) Col. VIII.8.7: There is an old piece of advice by Democritus (about how to stop doves from abandoning their nests). There is a fierce kind of hawk which the peasants call tinnunculus [= kestrel] which nests on buildings. The chicks of this bird are put singly into pottery vessels, and while they are still alive those vessels are covered with lids fixed on with gypsum and hung up in the corners of the dovecote. This makes the birds so fond of the place that they never abandon it.

812. (Not in DK) Col. VI.2.8: Democritus asserts that it is up to us whether (In the mating of horses) the offspring will be male or female. His advice is that, when we want a male, we should tie up the stallion's left testicle with a linen cord or something similar, and when we want a female, the right. He advises doing the same with virtually all kinds of animals (= no. 531a).

813. (DK 68 B 122) Etymologium Genuinum s.v. alapaxai: to empty, from the plant lapathos [= monk's rhubarb], which is a laxative. Democritus calls the pits dug by hunters lapathoi because they are emptied. Anecdota Graeca, ed Bekker, Lex. VI.374.14: Democritus calls lapathoi the pits dug by hunters, which they cover with sticks and fine dust, so that hares will fall into them. Eustathius on Od. IV.176, p. 1490.61: Democritus calls the

pits which hunters dig and cover with sticks and dust, so that animals will fall into them, lapathoi, because after they have been dug they are emptied ...

### c. ARCHITECTURE

814. (DK 68 B 300.14) Sen. Letter to Lucilius 90.32: According to Posidonius, Democritus is said to have invented the arch, so that the gradual curvature of the stones could be locked together by the stone in the middle. I say that that is false. For before Democritus there must have been bridges and gates curved at the top ...

## L. POETRY AND THE LIBERAL ARTS

### a. THE ORIGIN OF SPEECH, MUSIC AND CULTURE IN GENERAL

(see nos. 563-568a)

### b. POETIC INSPIRATION

(see nos. 573a-576)

### c. HOMER

815. (DK 68 A 33) DL IX.48 (catalogue of Democritus' writings): Works on music: On Homer, or On correct speech and on words. On song.

816. (DK 68 B 21) Dio 36.1 (II.109.21 Arnim): Democritus says of Homer 'Homer, having a share of the divine nature, accomplished the ordering of all kinds of verses', meaning that he could not have composed such fine and learned poems without a divine and superhuman nature. See no. 575.

817. (DK 68 B 22) Porphyry Homeric questions I.274.9 Schrad. (on II. XXI.252: aietou oimat' echōn melanos, tou thērētēros 'with the swoop of a black eagle, the hunter'): Some have falsely said that Homer wrote menalostou ['black-boned'] as one word instead of melanos tou, since Democritus reports that the bones of the eagle are black.

818. (DK 68 B 23) Homeric scholia A on II. VII.390: Whether the herald's words [about Paris] 'would that he had perished before' [abducting Helen] are said aloud to the Greeks to reconcile them with the rest of the Trojans, who are also angry [with Paris], or quietly to himself, as Democritus thinks on the ground that saying it out loud would be unseemly, either way they should be separately punctuated.

819. (DK 68 B 24) Eustathius on Od. XV.376, p. 1784: One should know that this kindly slave Eumaeus was so celebrated among the ancients that they even identify his mother; Democritus says she was Penia, Euphorion Pantheia and Philoxenus of Sidon Danae.

820. (DK 68 A 101) Ar. De an. I.2, 404a27: as Democritus ... [says that] Homer was right to say that Hector 'lies thinking other thoughts'; he does not treat the mind as a capacity to

achieve the truth, but says that soul and mind are the same. Theophr. De sensu 58 (Dox. 513): (Democritus says that) the ancients were right to suppose that one can ‘think other thoughts’ (see no. 444).

821. (DK 68 B 25) Eustathius on Od. XII.62, p. 1713: Others think that Zeus is the sun ... and that ambrosia is the vapours by which the sun is nourished, as Democritus thinks. (Not relevant to Democritus’ interpretation of Homer, see no. 397a.)

#### **d. CORRECT SPEAKING AND WRITING**

822. (DK 68 B 2) Etymologicum Orionis p. 153.5: According to Democritus Athena, conceived as wisdom, is called Tritogeneia. From wisdom come these three things, deliberating well, speaking without mistakes and doing what one should. Geneva scholia I.111 Nic.: In giving the etymology of the name (Tritogeneia) Democritus says that these three things result from wisdom, calculating well, speaking well and doing what one should. Homeric scholia BT on Il. VIII.39; DL IX.46: Ethical works (of Democritus) Tritogeneia (that means that she produces three things which contain everything human).

823. (DK 68 A 33) DL IX.48 (catalogue of Democritus’ writings): Works on music: On rhythms and harmony. On poetry. On beauty of diction. On euphonious and cacophonous letters. ... On song. On words. Names.

824. (DK 68 B 19) Eustathius on Il. III.1, p. 370.15: The Ionians, especially Democritus, call the letter gamma ‘gemma’; he also calls the letter mu ‘mō’. Photius s.v. mō: the letter mu (Democritus).

825. (DK 68 B 20) Scholia on Dionysius Thrax, p. 184.3 ff. Hilg.: The names of the letters are indeclinable ... but they are declined by Democritus, who says ‘deltatos’ [‘of delta’] and ‘thētatos’ [‘of theta’].

#### **M. DEMOCRITUS’ OWN KIND OF SPEECH**

##### **a. THE ART OF SPEAKING (‘STYLE’)**

826. (in part in DK 68 A 34) Cic. De orat. I.11.49: If the natural philosopher Democritus spoke in an ornate manner, as is reported and as it seems to me, the material he discussed was that of the natural philosopher, but he himself is to be counted as adorned with the words of an orator. Id. Orator 20.67: Whatever is heard to have a regular measure, even if it is not verse (which is indeed a fault in an oration) is called ‘number’ (‘rhythm’ in Greek). Hence I see that some consider that the diction of Plato and Democritus, though not verse, is still to be considered more poetic than that of the comic poets, in view of its greater drive and the distinction of its vocabulary. Id. De divinat. II.64.133: Heraclitus is extremely obscure, but Democritus hardly at all. Id. Acad. priora II.23.73: What shall I say about Democritus? Whom may we compare with him in greatness, not merely of talent, but of soul? Timon cited by DL IX,40: Timon praises Democritus as follows:

Among the first I recognised the wise Democritus

Shepherd of words and many-sided chatterer.

827. (DK 68 A 34): Dionysius of Halicarnassus De compositione verborum 24: in my opinion, among the philosophers (the best are) Democritus, Plato and Aristotle; it is hard to find anyone who blended their diction better than they did.

#### **b. DIALECT FEATURES IN VOCABULARY AND SYNTAX**

828. Democritean words in alphabetical order.

(DK 68 B 29): Apollonius of Cyzicus on Hippocr., p. 6.29 Schöne: Democritus is also recorded as having called the rim of a shield surrounding the concavity ambē. Cf. Erotianus p. 23.8 Nachmanson.

(DK 68 B 138) Hesychius s.v. ameipsikosmiē: cosmic change [or 'change of order' (metakosmēsis)] (see no. 325).

(DK 68 B 139) Hesychius s.v. ameipsirusmein: to change the constitution (sugkrisis), or to reform (see no. 326).

(DK 68 A 33) DL IX.47: Peri ameipsirusmiōn (On changes of shape).

(DK 68 C 5) ps-Hippocr. Epist. 18.1 (IX.380 Littré): ameipsirusmiēs.

(DK 68 B 139a) Hesychius s.v. ameipsichr<o>on: changing the <colours> (see no. 327).

(DK 68 B 130) Hesychius s.v. amphidētioi: in Democritus, empty rings.

(DK 68 B 144a) Photius Lexicon s.v. anabēsomai (p. 106.23 Reitz.): Democritus 'I shall go back to the beginning'. (Cf. Hesychius s.v. anabēsomai.)

(DK 68 B 131) Hesychius s.v. apatēton; in Democritus, irregularly constructed.

(DK 68 B 132) Hesychius s.v. askalēres: in Democritus, equilateral (see no 136).

(DK 68 B 133) Hesychius s.v. brochmōdes: something moist and tender; Democritus.

(DK 68 B 134) Hesychius s.v. brochos: crooked; Democritus.

(DK 68 B 123) Etymologicum Genuinum s.v. deikelon: in Democritus, an effluence similar to the things in form (see no. 467).

(DK 68 B 135) Hesychius s.v. dexamenai: receptacles for liquids, and veins in the body; Democritus.

(DK 68 B 136) Hesychius s.v. duochoi: in Democritus, covers with a lid. Cf. duochōsai: pōmasai ['to cover with a lid']

(DK 68 C 4) ps-Hippocr. Epist. 17.40 (IX.368 Littré): empelazontai [‘they approach’]. (Cf. no. 472a).

(DK 68 C 3) ps-Hippocr. Epist. 17.11 (IX.352 Littré): enthousōdōs [‘with divine inspiration’].

(DK 68 B 140) Hesychius s.v. euestō ... happiness, blessedness (see no. 736).

(DK 68 B 141) Hesychius s.v. idea: likeness, shape, form, and the smallest body (see no. 198).

(DK 68 B 128) Herodianus On universal accentuation ap. Theodosius, p. 79 (I.355.19 L.): No adjective ending in -ōn, -ēn, -an, -en, -in or -un has the same form for all genders.

Democritus’ expression to ithutrēn [‘bored straight’] violates this rule.

(DK 68 C 5) ps-Hippocr. Epist. 18.1 (IX.380 Littré): things which baffle us by altering their images (indalmoisi) in the air (where indalmoisi is assumed to be Democritus’ term).

(Not in DK) Hesychius s.v. kakestō: bad state of being, or failure.

(DK 68 C 3) ps-Hippocr. Epist. 17.25 (IX.360 Littré): nēpiazonta [‘being foolish’]

(DK 68 B 137) Hesychius s.v. suggonē: constitution, composition: Democritus.

(DK 68 B 120) Erotianus p. 90.18 N: He applied the name ‘veins’ not to what are usually so called, but to the arteries; and Democritus calls the motion of the arteries ‘pulsing of the veins’ (phlebopaliē)(see no. 805 w comm.).

(Not in DK) Erotianus s.v. phlenodōdē [‘chatterer’] (p. 52.10 Klein, and preface).

829. Idiosyncratic usages in Democritus.

(DK 68 B 129a) Herodianus On Homeric parsing 396.11 (II.224 L.): From [the verb] klinō [‘cause to lean’] Democritus forms [the perfect passive] keklitai, without the n.

(DK 68 B 121) Eustathius on Od. II.190, p. 1441 (from Philoxenus On matters of exposition): Democritus says ‘epitēdeiestaton’ [‘most suitable’].

(DK 68 B 13) Apollonius Dyscolus On pronouns p. 65.15 Schneid.: Pherecydes in his Theology and Democritus in his On astronomy and his surviving treatises consistently use the forms emeu and emeo [variant forms of the genitive ‘of me’, standardly emou.]

(DK 68 B 29a) Ibid. P. 92.20 Schneid.: The plurals are commonly expressed in the Ionian and Attic dialects by the nominative forms ‘we’ ‘you’ and ‘they’, but we have evidence from Democritus and his followers that contracted forms of the nominative are also used by the Ionians.

(DK 68 B 298) Suda s.v. a: when short and aspirated (= ha), it means ‘whichever’ (hatina) in Hippocrates, ‘personal, one’s own’ (idia) in Democritus, and ‘one’s own’ (ta heautou) in Homer.

(DKK 68 B 129) Herodianus De affectibus [On variant forms] (II.253 L.): Democritus has the form nenōtai ['has been thought'] and contracts chrusoontai ['are gilded'] to chrousountai and noontai ['are thought'] to nountai (see no. 576)

## COMMENTARFY

### LIFE OF DEMOCRITUS

#### a. Time and provenance

##### 1. Time when he lived

I

<sup>1</sup>On the question of the dating of Democritus see my articles 'Towards the chronology of Democritus', Bulletin of the Russian Academy of Sciences, 1918, coll. 2286 ff. and 'Wann hat Demokrit gelebt?', AGPh 28, 1928, pp. 205 ff. Apollodorus' date (460), which is followed by Soranus (see no. IV), was arrived at on the basis of combining certain bits of information, which is why Apollodorus says gegonoian ['would seem to have been born'], not gegone ['was born']. The date of Thrasyllus, Cicero and Aulus Gellius (around 470) should be preferred, since its source is Aristotle, who wrote a special commentary on Democritus and had further abundant evidence about him. See Regnbogen, Scientia 25, 1931, p. 351.



V

<sup>1</sup>ēn gar: Undoubtedly this ēn is substituted for the original source's gegone. In the original source gegone was evidently used in the sense 'was born' but the Suda understood it in the sense normal in the later era, viz. 'was alive' (i.e. had reached his akmē).

VI

<sup>1</sup>Diodorus' date is the result of an obvious misunderstanding. We do not know the date assigned to the destruction of Troy in the time of Democritus, so his date 'about 730 years after the destruction of Troy' yields no results. One would be quite entitled to conclude on the basis of this date that Democritus dated the destruction of Troy in 1160. In the time of Diodorus, as we know, the destruction of Troy was dated to 1184. Therefore he takes the date of Democritus' birth to be 494 (1184-730+40). See F. Jacoby, 'Apollodors Chronik', Philologische Untersuchungen [Philol. Untersuch.] 16, 1902, p. 202.

So three datings have come down to us from classical antiquity:

	Birth	Akme	Death
	about	about	about
Apollodorus	460	420	356
Thrasyllus	470	430	366
Diodorus	494	454	404

In the Christian chronicles, whose ultimate source is Eusebius, all these datings may be found. But through the incredible illiteracy, confusion and lack of understanding of the sources these dates have all been subject to perversions, and at the present time the dating in Christian sources of the birth of Democritus oscillates between 1250 and 358 BCE.

	Birth	Akme	Death
Theophilus <u>Chronographus</u> V: Joannes Malalas IV,			

p. 85 D; Georgius Cedrenus Compendium of Histories p. 121 CD

Pelops was king ... and at the same time Democritus was alive. 1250 BCE<sup>103</sup>

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<sup>103</sup> The occasion of the origin of this strange dating may have been the legend that the Phoenician Mochus, who lived 'before Trojan times' was the founder of the atomistic theory; see no. 169.

Ekkehard. Universal Chronicle (Patrologia Latina [PL] 154, p. 554)

At that time (a.u.c. 24-5) the historian Hellanicus and 728  
the philosopher Democritus were famous [i.e. flourished].

Eusebius [Eus.] Praeparatio Evangelii [PE] X, 9, p. 487

Round about the 50<sup>th</sup> Olympiad were famous 580-578  
[i.e. flourished] Pythagoras and Democritus and their (or 485)  
successors, about 700 years after the Trojan war.

Chronicon Paschale (II, p. 274 Dind.), 14

67<sup>th</sup> Ol. Hellanicus the historian and Democritus the 512-508  
philosopher and Heraclitus... and Anaxagoras the natural philosopher  
were known [flourished].

Freculphus Chronicle, 4, 2 (PL 106, p. 997)

In the 9<sup>th</sup> year after the expulsion of the kings [from Rome] 501  
Hellanicus the historian and Democretius [sic] the philosopher  
were famous [flourished].

Jerome Chronicles Ol. 94

404-1

Eus. Chronicle (Armenian version) 1613

403

(DK 68 A 4) Cyril Alex. Contra Iulian. I, p. 13 Spannheim

(= Patrologia Graeca [PG] 76, p. 521 B)

They say that in the 70<sup>th</sup> Ol. were born Democritus and 500-497  
Anaxagoras the natural philosopher and at the same time  
Heraclitus, nicknamed the Obscure.

Isidore of Seville Chronicle 81, A. 4774 (PL 83, p. 1034 B)  
(= Syncellus [Sync.] Chronography 253)

Artaxerxes, also called Long-Hand, reigned for 40 years. 464-425  
During his reign ... Hippocrates the physician and Socrates the  
philosopher and Democritus were famous.

(DK 18 A 11) Eus. Chron. Armenian version, a. Abr. 1581;  
Jerome Ol. 86; Sync. Chron. Ol. 86

Then Democritus of Abdera the natural philosopher was 436  
known and Empedocles of Acragas and Zeno and Parmenides  
the philosophers and Hippocrates the physician.

(DK 68 A 4) Chron. Pasch. 317, 5

Democritus died aged 100. (Ol. 105.2) 359

Honorius De imagine mundi 3 (PL 172, p. 175)

Sogdianus reigns for eight months. Democritus is 425-404  
famous. Darius son of Artaxerxes reigned for nineteen  
years.

Sync. Chron. 248b (Ol. 102)

Democritus of Abdera the natural philosopher flourished. 372-368

Cyril Alex. Contra Iulian. I, p. 13 Spanheim (= PG 76, p. 521 B)

They say that in the 86<sup>th</sup> Ol. were born (genesthai) the Abderite Democritus, Empedocles and Hippocrates.

(genesthai apparently here too in the sense 'were alive, were flourishing'.)

436-433<sup>104</sup>

Euty chius of Alexandria Annales 267 (PG 111, p. 968)

After the death of Arthusus king of the Persians ... his son Arses reigned ...

There flourished in the city of Athens Censalon (Xenophon?), Democritus,

Apollonius and Socrates.<sup>105</sup>

358-337

## 2. Democritus' place in the history of philosophy

### VII

<sup>1</sup>By the 5<sup>th</sup> century the distinction between Ionian materialism and Italian idealism was clearly perceived. In Athens Anaxagoras, who had settled there, was regarded as the ideological leader of the former school and Pythagoras of the latter. Cf. Dissoi Logoi (DK 90, 1, p. 405): 'In Greece arguments on either side are proposed by the philosophers about the good and the bad'; (6, p. 414): 'For what do the sophists teach other than wisdom and virtue? Or what were the followers of Anaxagoras and Pythagoras if not acknowledged teachers?'. See my History of ancient social thought. Moscow, 1929, p. 362; Aegyptus 7, 1926, pp.. 254-5; Archiv für Geschichte der Philosophie [AGPh] 38, 1929, p. 225, n. 1.

In the 3<sup>rd</sup> century questions in the natural sciences were pursued in Alexandria mainly by members of the Peripatetic school, who had actually adopted in a somewhat simplified version a number of the principal aspects of Democritus' philosophy, but thought it inappropriate to speak of that openly. For that reason the Alexandrian scholars were

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<sup>104</sup>[In the light of L's parenthetical note, it seems that the dates '436-433' should be in the akme column, rather than the birth columnas in L's text.]

<sup>105</sup> Translation from the Arabic.

interested in showing that the immediate predecessors of the Peripatetics were the Ionian philosophers. For this purpose they made use of reports that Socrates had in his youth attended the lectures of Archelaus (DK 60 A 3), a follower of Anaxagoras, whereas Leucippus had heard the lectures of Zeno (see no. VIII). It was easy to deduce this from the fact that Leucippus and Democritus knew the Eleatic theory well, expounded it in detail and argued against it, and that Democritus wrote a treatise on morals entitled Pythagoras, which set out Pythagoras' doctrine very precisely, whence Glaucus of Rhegium drew the conclusion that Democritus had studied with some Pythagorean or other, while Apollodorus concluded that he had studied with the Pythagorean Philolaus.

In the 4<sup>th</sup> century, continuing into the Alexandrian epoch, there were formed esoteric philosophical schools, in which the post of the director of the school ('scholarch') was passed on from teacher to student. On that model they represented the organisation of the philosophical schools of the 6<sup>th</sup> and 5<sup>th</sup> centuries. If Socrates 'heard' the Ionian Archelaus that meant that he was his student and lover (DK 60 A 1, 3), and after his death he became the head of the Ionian school whose first scholarch was Thales. If Leucippus 'heard' Zeno and Democritus 'heard' Philolaus, that meant that Leucippus was an 'Eleatic' (see no. VIII, Epiphanius) and after the death of their teachers Leucippus or Democritus became scholarch of the Italian school whose first scholarch was Pythagoras. This is precisely how the history of philosophy was set out in the works of the Alexandrian Sotion, who wrote his Successions of the Philosophers between 200 and 170 BCE. This work has not, it is true, come down to us, but this kind of schema is found in passages cited by Diogenes Laertius and Christian writers. Diogenes frequently cites Sotion, and from these citations it is clear beyond doubt that, with the exception of some particular details which do not concern us, Sotion's scheme is the same as that in Diogenes. Most probably, Diogenes' immediate source was in the majority of cases Philodemus of Gadara, who wrote his Collection of the Philosophers in the 1<sup>st</sup> century BCE and whose source in turn was Sotion.<sup>106</sup>

This is the source of that absurd distortion of the second part of the history of the two warring schools, with which we have to do in Diogenes Laertius and the Christian writers. But even in that distorted schema there is present the sharp opposition of two warring tendencies, those of the Ionians and the Italians, the Anaxagoreans and Pythagoreans, characteristic of the 5<sup>th</sup> century BCE.

## VIII

<sup>1</sup>See comm. on no. IX, n. 1.

<sup>2</sup>See comm. on no. IX, n. 1.

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<sup>106</sup> Cf. F. Susemihl, Geschichte der griechischen Litteratur in der Alexanderzeit, vol. 1, Leipzig, 1891, pp. 496-8; W. Nestle, Ed. Zellers Grundriß der Geschichte der griechischen Philosophie, 13<sup>th</sup> edn., Leipzig, 1928, p. 8.

<sup>3</sup>In the ms. reading Leucippos Mēlios [Leucippus the Melian] , if this is not a simple mistake for Milēsios [Milesian], as Menaghi and Diels suppose [no refs. given], we must see a reference to the similarity of the views of Leucippus to those of Diagoras of Melos. Cf. Aristoph. Clouds 830 Sōkratēs ho Mēlios [Socrates the Melian], with the scholium : ‘unhistorical. For Socrates was an Athenian, but since Diagoras, who was a Melian, was accused of being an enemy of the gods, and he is accusing Socrates of being an atheist, that is why (Aristophanes) calls him a Melian ... they make fun of the Melians for their irreligion; others say that this Diagoras was the teacher of Socrates’. Cf. No. LXXVI: ‘Diagoras (the Melian) whom Democritus made his pupil’ with comm.

<sup>4</sup>‘having been a philosophical associate of Parmenides’: Here it is stated not that Leucippus was an immediate student of Parmenides, but that Leucippus, who had ‘heard’ Zeno, continued the tradition of the philosophy of Parmenides, i.e. Eleatic philosophy.

### 3. Place of birth

IX

<sup>1</sup>‘Democritus, an Abderite or, according to some, a Milesian’: All of this is the later confusion based on the two senses of the words ‘Eleatic’, ‘Milesian’, and ‘Abderite’; on the one hand they refer to the birthplace, on the other to adherence to a particular philosophical school, Eleatic, Milesian or Abderite. Here what is thus indicated is simply that Leucippus ‘heard’ the Eleatic Zeno, that he went to Abdera and there founded the Abderite school, and that Democritus continued the tradition of the Milesian school, in particular that he was a student of the Milesian Leucippus.

<sup>2</sup>‘Democritus of Cos’. Here the same comment applies. To the extent that Democritus was regarded as maintaining the same doctrines as Hippocrates or as being his teacher (see nos. LXXVII-LXXIX) he was regarded as belonging to the school of Cos.

#### b. Life

##### 1. Childhood and youth

XI

<sup>1</sup>‘As Herodotus says’. According to Diels [DK II, p. 81, l. 13 n.] this story was fabricated on the basis of two reports by Herodotus, VIII.120 and VII.109, to which one ought to add the even more interesting passage VII.120. But I think that it is unnecessary to imagine these later authors freely inventing stories about Democritus and subsequently attributing them to Herodotus. For example, Diogenes Laertius’ source may have written ‘he was entertained by him, when he took a meal in Abdera, as Herodotus also says’ (VII.120). In abbreviating his source Diogenes may have omitted the words ‘when he took a meal’, as superfluous to his story. It is evidently this prototype that is the source for the report by Valerius Maximus and John of Salisbury (no. XI) ‘his father was able to feed Xerxes’ army’.

This source may have been Dinon of Colophon, who wrote Persika [Persian History] at the end of the 4<sup>th</sup> century. From the same Dinon was perhaps taken the story of Xerxes being the guest in Abdera of Maiandrius, the father of Protagoras, supposedly the teacher of Democritus. Magi play an important role in Dinon's Persika (DK II, 255, 20 n.). DL IX.50 : 'Protagoras ... as Dinon says in the 5<sup>th</sup> book of the Persika, from Abdera, the son of Maiandrius'; Philostratus, Lives of the Sophists I.10; see no. LXXI, which continues as follows: 'and in return for receiving Xerxes in his house and giving him gifts he secured his son's education by the magi; for the Persian magi do not educate non-Persians unless the king commands it'. Dinon of Colophon had among the Greeks the reputation of being the most reliable historian of Persia. See Nepos Conon 5: 'the historian Dinon, whom we trust the most on matters to do with Persia...'. Cf. Ed Meyer, Geschichte des Altertums, v. 3, p. 111, vol. 4, p. 10. On the other hand Ed. Schwarz (RE V, col. 654, s.v. Dinon) sees in Dinon 'the connecting link between Ctesias and the fictional History of Alexander'. It is possible that Diogenes used Dinon through the medium of Demetrius of Magnesia.

Philippson (Rheinisches Museum [RhM]. N.F. 77, 1928, p. 311) regards these testimonia as a neo-Pythagorean invention. For the Pythagoreans, in his opinion, it was characteristic to derive the whole of Greek science from the East; the genuine relation of Ionian scholars to the Persians is revealed in the 6<sup>th</sup> ps-Hippocratic letter, where Hippocrates replies as follows to an invitation from Artaxerxes to migrate to his court for a large sum of money: 'It would not be right for me to enjoy the wealth of the Persians, nor to heal the diseases of foreigners who are enemies of the Greeks'. Philippson regards the story of Democritus' presence at the Persian court (no. XXIII) as a similar neo-Pythagorean invention. However, the tendency to derive the whole of Greek culture from that of Persia was precisely characteristic of Ionian thinkers of the time of Democritus, e.g. Herodotus; see my Herodotus, Leningrad, 1947, p. 52. On the contrary, a strong feeling of antagonism between Greeks and barbarians and enmity towards barbarians are characteristic of the Roman period, when the ps-Hippocratic letters were written (ibid., p. 155; my preface to Plutarch, Select Lives, 1941, pp. 5-14. See also R. Herzog, Historische Zeitschrift 125, pp. 219-20. For this reason Philippson's view cannot be accepted.

<sup>2</sup>Demetrius: cf. no. XVII. 'Demetrius says in his book on people of the same name' (nos. XXVIII, XIII). The reference is to Cicero's contemporary Demetrius of Magnesia, the author of a work On poets and prose-writers with the same name, containing extensive biographical material. See Susemihl, op. cit., p. 508.

XII

<sup>1</sup>See comm. on no. XI, n. 1.

XIII

<sup>1</sup>Antisthenes: Peripatetic philosopher, author of Successions of the Philosophers, discussed below (no. XVII), generally identified by scholars with Antisthenes of Rhodes, who lived in the 1<sup>st</sup> half of the 2<sup>nd</sup> century BCE and wrote a history of his time. Antisthenes and Demetrius (just mentioned) are the main sources used by Diogenes Laertius. The citations of both authors together (see no. XVII) perhaps show that they in their turn used the same source when speaking of Democritus. See Susemihl, *op. cit.*, p. 500; Ed. Schwartz, RE I, col. 2536, s.v. Antisthenes, no. 9; Wilamowitz, Philol. Unters. 4, p. 91; V.E. Alfieri, Gli atomisti, Bari, 1936, p. 44, n. 12. Here the reference is to Fragmente der Griechischen Historiker [FGH] 3, p.173, with notes.

<sup>2</sup>phantasias: here concretely, not ‘imagination’ (Alfieri) but ‘various products of the imagination’, which is why the word poikilōs [in a variety of ways] occurs. Makovelski makes the opposite mistake, understanding phantasias too concretely and narrowly as ‘ghosts’. But where the context mentions tombs it is, of course, ghosts which are primarily in mind. It is this investigation of phantasiai which gave rise to the story of the young men who dressed up as ghosts and tried unsuccessfully to frighten Democritus (see no. 579a)

XIIIa

<sup>1</sup>with their state (diathesios) of wisdom’: this is in any event a genuine expression of Democritus; cf. in DL IX.46 the title of a work of Democritus’ On the state [or ‘condition’] (diatheseōs) of the sage (no. 726).

<sup>2</sup>From this example of a logical mistake it is easy to draw the following conclusion: In the source used by the author of the paraphrase it was reported that Democritus fled to a deserted place, and was therefore regarded as mad. Our logician demonstrates the logical mistake committed here. In fact Democritus fled to a deserted place not because he was mad, but because he was fascinated by contemplative philosophy, and hence sought peace and the quietest places; that is a sign, not of madness, but, on the contrary, of the greatest wisdom. Exactly the same story, with the same explanation, is contained in the ps-Hippocratic letter, and it would have been right to maintain that the interpreter of Aristotle had that passage of ps-Hippocrates in mind, if we did not know from no. XIII that the same story is also in Antisthenes, who lived in the first half of the 2<sup>nd</sup> century BCE.

## 2. Journey to the East

XIV

<sup>1</sup>This particularly important fragment of Democritus was judged spurious by Diels (DK 68 B 299) and M. Wellmann, Hermes 61, 1926, p. 411, and ‘Die Phusika des Bolos, Demokritos und der Magier Anaxilaos aus Larissa’, Abhandlungen der Preussischen Akademie [Abh. d. Preuss. Akad.] 7, 1928, p. 9, followed by other scholars, e.g. Alfieri. A number of other



major commentators, however, consider this excerpt genuine. See e.g. Burnet, Early Greek Philosophy, 4<sup>th</sup> edn., 1920, p. 20; Th. Gomperz, 'Beiträge zur Kritik und Erklärung griechischer Schriftsteller', Sitzungsberichte der Wiener Akademie der Wissenschaften [Sitzb. d. Wiener Akad. d. Wiss.] 152, 1905, pp. 23 ff.; Th. Gomperz, Griechische Denker, vol. I, 3<sup>rd</sup> edn., p. 255; Christ – Schmidt – Stählin, Geschichte der griechischen Literatur I.5, Munich, 1948, p. 240, n. 5; Ed. Mayer, Der Papyrusfund von Elephantine, 1912, pp. 123ff.; R. Eisler, 'Zu Demokrits Wanderjahren', AGPh 31, 1918, pp. 139ff., 187; Eisler, 'Babylonische Astrologenausdrücke', AGPh 31, 1918, pp. 52ff.; Capelle, Hermes 60, 1925, p. 389; S. Gandz, Quellen und Studien zur Geschichte der Mathematik I.3, 930, p. 256.

The grounds adduced by Diels and Wellmann seem to me unconvincing for the following reasons:

1. Diels supposed that this passage comes from Democritus' work On the sacred writings in Babylon and considered it 'methodologically unjustified' to separate the question of the authenticity of this passage from that of the authenticity of that work of Democritus.<sup>107</sup> But the ancients supposedly regarded the work On the sacred writings in Babylon as not genuine. If one compares the title of that work with that of the work which follows it in the list [of Democritus' writings] Peri tōn en Meroēi [On the ... in Meroe] (in Wellmann's opinion 'sacred writings' has to be inserted there too), then in these works the subject is the allegorical interpretation of Babylonian cuneiform and Ethiopian hieroglyphics, both characteristic of the Alexandrian era. This work, according to Wellmann, belongs to Bolus Democritus of Mendes. It follows that the passage cited is also spurious; it belongs to Bolus (on Bolus see in more detail comm. on no. XCI).

I do not wish to get involved with the question of who was the author of the collection of Babylonian and Ethiopian writings. First and foremost I call attention to the lack of precision in Wellman's arguments. The insertion of hierōn grammatōn ['sacred writings'] after the words Peri tōn en Meroēi is totally arbitrary. Rather Peri tōn en Meroēi means simply On the things in Meroe (cf. Democritus' title Peri tōn en Haidou [On the things in the underworld]), and it contained a description of noteworthy things in Meroe<sup>108</sup>. Further, it is also wrong to say that the ancients held these works to be spurious. In D.L. IX.48-9 it is said only that they were not included in the tetralogies of Thrasyllus, but that some people included them in the list of the writings of Democritus in addition to the tetralogies. On the contrary, these works are contrasted with spurious works of Democritus and compilations from his works ('The other works which some attribute to him are in some cases

<sup>107</sup> But in 1926 (Hermes 61, p. 474) Wellmann himself maintains that the passage cited has nothing to do with the work On the sacred writings in Babylon. He thinks that it is taken from the work Ethical notes, which is also, in his opinion, along with the terms eudaimonia [happiness] and euestō [well-being], characteristic of Bolus and the Pythagoreans. There is no point in spending time on this conjecture; see comm. on no. XCI.

<sup>108</sup> [Capital of a territory including part of Ethiopia and Sudan Misspelled 'Merope' in Taylor, 1999, no. 40 (49), p. 68.]

compilations from his works, in others acknowledged to be spurious'). But this has nothing to do with the question which concerns us. The work On the sacred writings in Babylon was evidently devoted to Babylonian cuneiform. In Clement-Eusebius' remark on the source of the passage which interests us it is said only that Democritus 'plagiarised', (a common accusation in antiquity)<sup>109</sup> Babylonian works on morals, and that in particular some people said that some of his ethical works<sup>110</sup> were merely translations of writings of Achiceres inscribed on a stele. In this case I shall not discuss the question of how ancient the fiction of the stele and the work inscribed on it is. Let us assume that this kind of story makes its first appearance only in the Alexandrian period. Obviously the source for Clement and Eusebius had a collection of the works of Achiceres with a typical late preface about a stele on which those works were supposedly found. He compared them with the works of Democritus and found exact correspondences, from which he drew the conclusion that Democritus merely 'translated' Achiceres. Can one draw from that the conclusion that the passage of Democritus which he cited was spurious? First, the resemblances may have been simply of a general character, and the late scholar's deduction incorrect. Secondly, Democritus may actually have used the works of Achiceres (which were already known in Egypt at the beginning of the 5<sup>th</sup> century and were also used in the 5<sup>th</sup> century, I believe, for the biography of Aesop). In any case this has nothing to do with the authenticity of Democritus' work On the sacred writing in Babylon.

2. Diels and Wellmann regard as characteristic of Alexandrian scholarship the tendency to see the source of Greek wisdom in Eastern science. But precisely this tendency is in the highest degree characteristic of Herodotus (see my Herodotus, p. 52) and without doubt not only of Herodotus, but of the whole of Ionian science, with which he was closely connected (cf. comm. on no. XI).
3. Diels [DK II, pp. 209-10, note 3] sees in this passage 'boastfulness', which is inconsistent with no. XXIV. However, he himself characterises this reason as 'not decisive'. Actually in no. XXIV itself Democritus is filled with consciousness of his own merits, and his words express 'humility which is rather pride'. From the ancient point of view there is no boastfulness in the cited passage, just as there is none in his contemporary Thucydides, who describes his work as ktēma eis aei ['a possession for ever'].
4. The concluding sentence 'For he went etc.' which is repeated word for word in various accounts of Democritus' journeys, seems simply to be a commentary on his own words 'I saw very many lands and I heard very many famous men'. Why one

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<sup>109</sup> Thus, the Peripatetics accused the same Democritus of having 'plagiarised' Leucippus, and later maintained that he plagiarised the most famous authorities on magic, Apollonbeches (see Preisendanz, RE Hlbbd. 39, col. 1312) and Dardanus (Pliny NH XXX.9). Of course, all these accusations are of the same kind, of later origin and of the same worth, but it is incomprehensible why comparison of Clement's words with those of Pliny (Wellmann, Hermes 61, p. 474) is supposed to show the spuriousness of the words of Democritus cited by Clement.

<sup>110</sup> In Wellmann's opinion (Hermes 61, p. 474) there were the Ethical Notes. But that work was included in the tetralogies (no. CXV: II.4), and there is therefore no reason to agree with Wellmann in judging it spurious.

has to connect it with the the title of the work On the sacred writings in Babylon I cannot understand. Here the subject is not just Babylon but Persia and Egypt as well. Even if the story of his stay with the magi and all the commentaries on it are of later provenance, why should that cast a shadow on the whole passage?

5. In Diels' opinion [DK II, p. 210, note 6] the expressions epi pasin and epi xeinēs sound bad in Greek. This is wrong: the expression epi pasin in the sense of 'finally' is totally correct Greek (see Plut. Thes. 29, Lyc. 2; Luc. On writing history 31, Sale of lives 22. True, Plutarch and Lucian are later writers, but in our passage we read not the adverbial locution ['last'] but the substantival locution hoi epi pasin ['the last'] (see Xen. Cyropaed. 6.3.24 'I shall place at the end those who were summoned last', 27, 'you, who are in command of the last' and Inscriptiones Graecae [IG] XIV, 1296, 'the last battle, the third fought against Darius' (i.e. the battle of Gaugamela). Hence in the passage cited sun tois epi pasin means 'together with that last event' (ta epi pasin), i.e. his journey to Egypt.

Similarly the expression epi xeinēs (omitting gēs) ['in a foreign (country)'] is common in the literature of the 5<sup>th</sup> and 4<sup>th</sup> centuries. See Soph. Oed. Col. 184 'boldness is foreign in a foreign (land)', Eur. Andr. 136 'know that you are a slave in a foreign (land)', Xen. Rep. Lac. XIV.4 'being eager not to cease ruling as harmosts in a foreign (land)' etc.

6. In Diels' view [DK II, p. 210, note 7] the non-classical form egenēthēn appears decisive. In fact the form egenēthēn (in the koinē) comes into general use only in the 3<sup>rd</sup> century, but we meet it occasionally earlier. In the best MSS, B and T, of Plato Phil. 62d we have exegenēthē, as Ten-Brink points out (Philologus 7, 1852, pp. 355ff.); in Archytas (DK 47 B 1, p. 433, 1), mē genetheisēs plēgas ['though no wound has occurred'] as Kranz points out; in Hippocrates, Epidem. 7.3, p. 370 Littré, genētheiē instead of genoito. Cf. Hippocr., Epidem. 6.8, p. 356 Littré.
7. The passage cited cannot belong to Bolus, since the latter wrote, as is seen from all the citation of of him, in the koinē, whereas the passage cited is in faultless neo-Ionic dialect.
8. When Megasthenes (Strabo XV.38, 703c, see comm. on no. XXII), writing in the 4<sup>th</sup> or 3<sup>rd</sup> century, describes Democritus as 'having travelled over much of Asia' he is not, of course, referring to Bolus, who lived 300 years later than Democritus, but to the great Democritus. Obviously, as Ten-Brink correctly remarks, at that time citations of the words of Democritus, which Megasthenes has in mind here, were generally known.

<sup>2</sup>Ten-Brink (Philologus 7, pp. 355ff.) has drawn attention to the resemblance between this passage and the beginning of the Odyssey, 'He saw the cities of many people and got to know their mind', and this resemblance, as he correctly remarks, did not remain unknown to the ancients, e.g. Theophrastus; cf. Ael. VH IV.20 (no. 20), 'Theophrastus praises him for having made on his travels a better collection than Menelaus and

Odysseus'. On the basis of this Ten-Brink read aneras ['men'] instead of the obscure aeras ['airs, climates']. I have incorporated this correction in my text with some hesitation. This kind of form is common in neo-Ionian poetry; see e.g. Demodocus 3 Diehl, Phocyllides 16.2 Diehl, Xenophanes DK 21 B 7.4 , etc. along with the forms andres etc., but in Democritus there occur only forms of the andres type. We notice, however, that in Hdt. III.34 the poetic form pateri occurs parallel to the form patri. So it is not impossible that in our passage, which has a somewhat poetic sound, Democritus may have used the form aneras as equivalent to andras. The reading remains, however, disputed.

<sup>3</sup> oudeis kō me parēllaxen ['no-one ever surpassed (?) me']: Since parallattein is here understood as 'surpass', the genitive sunthesios appears inappropriate; it is corrected either to sunthesi (Dindorf) or to sunthesesi (Sylburg) or to peri sunthesios (Ed. Schwartz). I regard such corrections as unjustified. Let us pay attention to the fact that parallattein can have either a transitive or an intransitive sense. On the one hand, in the intransitive sense parallattein with the genitive can have the sense 'miss one's target', e.g. Pl. Tht. 194a, 'like a bad archer, shoot past the target and miss'. The corresponding transitive sense will be 'prevent someone from hitting their target' or 'expose someone as having missed their target'. That is how I understand the quoted passage: 'No-one ever knocked me down (i.e. showed that I had made a mistake) in my construction of lines with a demonstration, even those who are called surveyors'.

<sup>4</sup>surveyors: for detail on this see S. Gandtz, *op. cit.*, p. 256.

<sup>5</sup>The reading ogdōkonta, 80, found in all the manuscripts, is of course absurd. Democritus cannot have spent 80 years on his travels. Since it was supposed that this passage deals only with his stay in Egypt, and the passage was translated 'together with them (the surveyors, i.e. including his stay with the surveyors) I spent after all the others 80 years abroad' 80 was corrected to pente, 5, on the following grounds. 1) Diodorus I.98.3 (no. 16) reports that Democritus spent 5 years in Egypt. 2) In Attic numeration Π is the sign for 5, but in later Greek for 80. Because the old significance of the figure was not understood it was decoded as 80. Diels correctly points out that there is no ground for assuming that Democritus used Attic numeration. He proposes a complicated conjecture, viz. that ep' etea pente xunos egenēthēn ['I was with them for five years'] was read as ep' etea epi xeinēs egenēthēn ['I was abroad for years'], and that since on that reading the number had totally disappeared the number 80 was arbitrarily added. The implausibility of such an insertion leaps to the eye. Since I translate as 'together with this last (event)' (i.e. together with his stay in Egypt), and since according to Diodorus Democritus spent five years in Egypt alone, a larger number must be restored here. In fact, as we see from the report of Sozomenus (no. XV), the ancients understood these words in the sense that Democritus spent on his travels eighty years in total, but here, specifically with reference to Egypt, nothing at all is said. I suggest that ogdōkonta

came about as the result of a misunderstanding of the Ionic form oktō kote [‘eight’] in the manuscripts, which was taken as a corruption of ogdōkonta. On that reading Democritus spent in all eight years abroad, of which according to Diodorus five were spent in Egypt. On the form kote cf. oudeis kō [‘no-one ever’] above; no. 613 ; no. 692.

<sup>6</sup> epi xeinēs: ‘Quasi in exilio fui [‘I was as if in exile’], cf. Eur. Androm. 136’ (Ten-Brink, Philologus 7, 1852, pp. 355ff.).

As regards the question of places visited by Democritus, one must bear in mind the following. The fact of his long journeys, similar to the travels of Menelaus and Odysseus, is further confirmed, apart from this passage, by the testimony of Theophrastus (no. XX), who had at his disposal all the genuine works of Democritus and Aristotle’s work on him. In particular, our excerpt puts Democritus’ stay in Egypt beyond doubt. His stay in Babylon and Persia seems to me highly probable, though it is based on late and not very reliable reports from an era of fascination with oriental astrology, magi and Chaldeans, when Democritus was turned into a magus. If the work On the things in Meroe, known to us only by its title, is genuine, then we have to believe that Democritus was in Ethiopia. As far as his stay in India is concerned (nos. XVII-XX, the earliest testimony is from Diogenes Laertius), it is implausible; as we shall show, it is impossible to see in no. XXII evidence of Democritus’ having been in India.

XV

<sup>1</sup>‘Of Cos’: see comm. on no. IX.

XVII

<sup>1</sup>Demetrius: see comm. on no. XI.

<sup>2</sup>Antisthenes: see comm. on no. XIII. See Philippson RhM 77, 1928, p. 311. He is right in thinking that the story of Democritus’ stay in India and of his association with the naked sages is purely from a later period. But his insistence that Democritus could not have studied geometry with Egyptian priests is unconvincing. Contrary to his view, Wellmann did not succeed in showing that the work On the things in Meroe was written by Bolus.

XVIII

<sup>1</sup>‘astrologoi and magi in Babylon’: This formula, especially the transfer of the magi from Persia to Babylon, more than anything else testifies to the influence of the fictional account of Democritus the magus. But in this particular case, as at an earlier period astrologos means ‘astronomer’, not ‘astrologer’; see the title of Theophrastus’ Peri tēs tou Dēmokritou astrologias [On the astronomy of Democritus ]

XIX

<sup>1</sup>'pupil of ... Magi and Persian Chaldeans': It is possible that this refers to Democritus' having studied as a young man with sages sent to Abdera by the king of Persia, not to his journeys.

XX

<sup>1</sup>'had a desire to live in obscurity' see no. 729 with comm.

<sup>2</sup>Alfieri supposes (op. cit., p. 63, n. 19) that Aelian, writing here in the spirit of the Second Sophistic, when the word 'sophist' had lost its pejorative sense, understands by 'sophists' sages and philosophers generally. I think that in this case that is not so: sophistas ['sophists'] is simply an abbreviation of the usual term gumnosophistas ['naked sages'], applied universally to the Indian sages.

<sup>3</sup>Theophrastus: see comm. on no. XIV.

<sup>4</sup>Menelaus and Odysseus: Od. III.301, IV.80-9. See comm. on no. XIV.

XXII

<sup>1</sup>As Ten-Brink and Diels observe, Strabo's source in this instance was Megasthenes. In fact Megasthenes is cited twice by Strabo (XV.35.702, XV.37.702), and our excerpt continues a whole series of accusatives and infinitives grammatically dependent on 'Megasthenes says', extending to '... there is a river Silas... but Democritus does not believe this'. It is only after these words that direct speech begins, with 'Aristotle too disbelieves this', which obviously presents an addition by the author, either taken immediately from Aristotle or from another source. This testimony cannot be used to demonstrate that Democritus was himself in India. He simply denies the assertion of his contemporaries that there is in India a river in which the water is so thin that no objects float on its surface, but everything sinks to the bottom. He, like Aristotle, maintained that according to the laws of physics there could be no such water. True, the expression 'having travelled widely in Asia' indicates that his statement was the result of his travels. But he may not have gone to India, but have heard of this Indian river, let us say, in Persia or in Babylon.

XXIII

<sup>1</sup>This legend grew up on the basis of the false assertion of the Epicureans that Democritus thought it possible to revive corpses, even if they had no spark of life. But works dealing with Democritus' stay in Persia also served as a basis for the growth of this legend. As far as the content of the legend is concerned, it belongs to the cycle of stories about the 'laughing philosopher' (see Alfieri, op. cit., p. 66, n. 99) who laughs at the folly of people who value things from a worldly viewpoint and do not understand how ephemeral they are; there neither is nor can be anyone who is happy in the ordinary sense. To see a later Pythagorean tendency in this story (Philippson, RhM 77, p. 311) has no foundation.

XXIIIa

<sup>1</sup>When Democritus was subsequently transformed into a founder of magic and alchemy, these stories of his journeys were used in a magico-alchemical fiction about him, which preserved to a certain extent some historical reminiscences. I give some samples of these romances: Pliny NH XXX.1.9 (=DK 31 A 14) 'Certainly Pythagoras, Empedocles, Democritus and Plato voyaged to learn this (i.e. magic), undertaking exile rather than journeys, and on their return they proclaimed some of it and kept other parts secret'; XXV.2.13 (= DK 68 B 300.6) 'Democritus ... travelled among the magi of Persia, Arabia, Ethiopia and Egypt, and the people of old were so astonished at this that they affirmed incredible things'; Syncellus, Chronography 1.471 Dindorf (= DK 68 B 300.16) 'Democritus of Abdera the natural philosopher was flourishing. He had been initiated in Egypt by Ostanos the Mede, who had been appointed in Egypt by the Persian king of that time to rule the priests in Egypt; he was initiated in the temple at Memphis along with other priests and philosophers, among whom were Maria, a wise Jewish woman, and Pammenes. He wrote obscurely about silver, gold, stones and purple, as did Maria. These two, Democritus and Maria, were praised by Ostanos for concealing their art by many clever enigmas, but they condemned Pammenes for writing openly'; Philostratus Life of Apollonius I.2. Kayser (= DK 31 A 14) 'Empedocles and Pythagoras himself and Democritus associated with the magi and said many remarkable things, but they were not yet instructed in the art (i.e. magic)' (= Photius Bibliotheca Codex 241 (1017 CE, 540H; Suda, s.v. Apollonius); ps-Synesius ad Dioscorum comm. in Democritum I.56.7 Berthelot (= DK 68 B300.17) '... who (i.e. Democritus) was initiated in Egypt by the great Ostanos in the temple at Memphis'.

### 3. Journey to Athens

XXIV

<sup>1</sup>in a certain book': It is not known from which work this quotation is taken. From comparison with no. I one may conjecture that this quotation is also taken from the Lesser World-System.

### 4. Return home, prosecuted, achieves fame

XXVI

<sup>1</sup>Antisthenes: see comm. on no. XIII.

<sup>2</sup>As Philippson points out (RhM 77, p. 313), the story of the neglected fields directly contradicts the report of Aelian (no. XX), according to whom Democritus received only money from his father's legacy, while the land went to his brothers. But Philippson is wrong to see Pythagorean influence here for some reason. Horace's 'he gave away his flocks' [Epist. I.12.12, DK 68 A 15] is a standard theme in the biography of a great sage. See on Anaxagoras [Plut. Per. 16, DK 59 A 13]: 'He abandoned his home, and left his land idle as pasture for sheep, through his enthusiasm and greatness of mind'.

<sup>3</sup>If things had not been so, i.e. if he had not taken delight in things of the mind': This can in no way mean 'If blindness were a misfortune', as Philippson maintains, obviously through carelessness (RhM 77, p. 315).

## XXVIII

<sup>1</sup>I am not inclined to assert categorically with Alfieri (op. cit. p. 48, n. 29) and others that the story of the trial of Democritus is simply a legend, containing a reworking of the story of the trial of Sophocles (e.g. Cic. Cato M. De senectute 7.22: 'When Sophocles seemed to be neglecting his domestic affairs because of his enthusiasm for his work he was sued by his sons ... Then the old man is said ... to have read the Oedipus at Colonus to the judges'; Plut. Long-lived people 23: 'He read the Oedipus at Colonus to the jury, showing by means of the play that he was of sound mind, so that some of the jurors were absolutely astonished ...'). I am not convinced that the story of Sophocles appears to be a simple invention. According to a more plausible story of Plutarch's (Whether an old man can rule a state 3, 758b) Sophocles read to the judges not the whole play but only the entry of the chorus: 'He read the entry which begins ... and as the song seemed wonderful ...'. That was fully in accord with the usage of an Athenian court (see Aristoph. Wasps 579 'And if Oiagros is on trial he doesn't get off until he picks the best speech from Niobe and recites it to us'). There is nothing incredible in Democritus' having read in court excerpts from his book. Trials of this kind were common in antiquity, so that a certain resemblance between the stories about Sophocles and Democritus does not show that one is borrowed from the other, all the more because in the story about Democritus there is no mention of his children, nor of an allegation of senility (he was simply indicted on ground of madness). See my article 'Väter und Söhne in den neuen griechischen Papyri', Aegyptus 7, 1926, pp. 243ff.

<sup>2</sup>Antisthenes: see comm. on no. XIII.

<sup>3</sup>Bronze statues: also in no. XLIX (Herculaneum papyrus). See comm. on that passage.

<sup>4</sup>Demetrius: of Magnesia (see comm. on no. XI).

<sup>5</sup>Hippobotus: a writer who lived, most probably, in the first half of the 3<sup>rd</sup> century BCE, one of the earliest historians of philosophy. He wrote a work On the philosophical schools and a List of philosophers. One of the major sources for Diogenes Laertius.



XXIX

<sup>1</sup>This is another version of the fiction about Democritus. Here a prosecution of him is combined with the visit of Hippocrates to Abdera, known from the epistolary novel.<sup>111</sup> Similar stories about Thales and Aristotle have come down to us.

XXIXa

<sup>1</sup>From nos. XXVIII and XXIX we learn that Democritus was threatened with posthumous prohibition of burial in his native soil. Such a punishment implies banishment for life. Hence the testimony of Athenagoras is in complete agreement with the previous one. Since the trial concluded in favour of Democritus, obviously ēlauneto has to be understood not as 'he was exiled', but as the imperfect signifying an attempt, 'he was exposed to the danger of being sentenced to banishment'.

XXX

<sup>1</sup>Damastes: apparently a corruption of 'Damasus'. See nos. XXVI and XXXV.

XXXI

<sup>1</sup>Diels and Alfieri think that the Democritus whose name is inscribed on this coin has nothing to do with the philosopher Democritus. For evidence they appeal only to Fritze, 'Die autonomen Münzen von Abdera', Nomisma 3, 1909, p. 24. But all Fritze's arguments reduce to the following: the coins with the inscription 'Democritus' are attributed approximately to the period 450-430 BCE.<sup>112</sup> If we assume that Democritus was born in 460, then at that time he was too young to take on the office of archon. To this Fritze himself adds 'The identification would be possible if one put his birth further back, with Aristotle (PA 642a24, Meta. 1078b17) and Thrasyllus'. In fact these and the other testimonies which we compared under nos. II, III and V show that Democritus was born between 475 and 470 (see comm. on those passages), so that they do not cast doubt on, but confirm the fact that the archon who issued the coins which have come down to us was the philosopher Democritus. The emblem of the lyre represented on the coin also speaks in favour of this. That is why the numismatist Seltman, the most recent investigator of this coin, rightly regards it as belonging to the philosopher Democritus.

##### 5. Fables about Democritus' wisdom. Sayings of his.

XXXII

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<sup>111</sup> Philippson (RhM 77, p. 321) suggests that this combination of the two versions is the work of Philo himself.

<sup>112</sup> [J.F. Procopé, CQ N.S. 39, 1989, 307-31, at 309 cites J.M.F. May, The Coinage of Abdera, London, 1966 (described as 'the most recent study of the Abderite coinage') as dating a group of coins with the legend ΕΙΙΙ ΔΗΜΟΚΡΙΤΟ to about 414 BCE.]

<sup>1</sup>foretelling some things that were going to happen': refers to the anecdote set out in no XXXIV.

<sup>2</sup>'Wisdom': cf. no. XXXV. Alfieri, op. cit., p. 58, n. 72, discusses the origin of this nickname. He cites the view of Covetti, who suggests, in a work inaccessible to me ('La posizione storica di Democrito', Soc. Reale di Napoli, 1932, p. 6), that this nickname is taken from some satirical poem. Alfieri, who associates this passage with no. XXXV, suggests that this nickname appeared first in very late literature, and that it has, as appears from Clement's work, its source in tales of Democritus' ability to predict the future (nos. XXXII, XXXIV, XXXV, XXXVI).

XXXIII

<sup>1</sup>'plague': cf. Philippson, RhM 77, p. 324.

XXXIV

<sup>1</sup>This is a widespread subject of anecdotes. Virtually the same story was told of Thales (Ar. Pol.1259a6, DK 11 A 10).

<sup>2</sup>'from the rising of the Pleiades' [mistranslated by Taylor 1999, no. 23, p. 63]: Diels remarks on the fact that in Democritus' astronomical calendar (no. 424) [= DK 68 B 14] the position of the Pleiades is repeatedly noted: DK 68 B 14.3 [calendar from 2<sup>nd</sup> cent. BCE], p. 218.14 setting, 'On the 4<sup>th</sup> day according to Democritus the Pleiades set at dawn'; p. 228.23 disappearance, 'According to Democritus the Pleiades disappear at sunrise and are invisible for 40 nights', and afterwards rising.

XXXVII

<sup>1</sup>As Diels rightly observes [DK II, p. 87, l. 15 n.] this represents a parody of the method of enquiry into causes. Hē aitia ['cause'] is a characteristic Democritean term; cf. his works Celestial Causes, Aerial Causes, Terrestrial Causes etc. (10 titles), and nos. 497-8, where precisely Democritus' account of flavours is set out, and where one encounters the same characteristic expressions 'giving the causes' and 'flavour'. The question at issue is what the cause of sweetness consists in. H. Gomperz (see Nachtrag to the 4<sup>th</sup> edn. of VS) translates apeknaisas as 'you have scraped off' (i.e. scraped off the honey from the sides of the container). The meaning as a whole is understood thus: 'though you have scraped off the honey, I immediately determined that a flavour of honey is found in cucumbers'. In that case there would be no parody, but the anecdote would have the aim of showing Democritus' scientific acuteness. But as Alfieri rightly points out (op. cit., p. 65, n. 95), such an interpretation would conflict with the general sense and character of the passage.

Ruhnken (comm. on Pl. Tim., p. 42) followed by Diels [ibid., l. 22 n.], is right to understand 'me' after apeknaisas: 'you have skinned me', i.e. 'you have exposed my naiveté'.<sup>113</sup>

XXXVIII

<sup>1</sup>The anecdotes encountered in nos. XXXVIII-XXXIX have of course no historical value. They are of interest only as grounds for judgement of how Democritus was subsequently regarded on the basis of his works and reliable evidence about him, which is lost to us. But no more reliable are other anecdotes of this kind, which are always included in collections of passages of Democritus, solely because they were preserved, not in 'The Bees' but in other collections. Hence it is more logical to include these anecdotes too in a collection of testimonia on Democritus, all the more so because they appear to be illustrations of the authentic passages CX and CXI.

<sup>2</sup>Cf. Antonius Melissa [Ant.Mel.]l.74, p. 121 (PG 136, p. 993A) = Mull. 178. [Adds the Old Russian translation from the collection entitled 'The Bee', ed. V. Semenov, St. Petersburg, 1893, p. 200.]

XXXIX

<sup>1</sup>[Gives the Old Russian translation of the fragment (ed. Semenov, op.cit., p. 171).] This anecdote seems to me to be an illustration of Democritus' dictum that one should strive, not for much learning, but for much understanding (see no. CXI and comm.).

XL

<sup>1</sup> The naming of Democritus by Maximus (Loci communes [Max. Loc. comm.] 31, p. 619 =PG 91, p. 877c) is notoriously anachronistic and mistaken. There he appears conversing with Philip [of Macedon]: 'Democritus was once serving as an ambassador of the Athenians to Philip. When he spoke freely Philip said "Are you not afraid that I shall order your head to be cut off?" "No," he said; "If you take it from me my country will consecrate it for all time"'. In the Gnomologium Vaticanum (Wiener Stud. 10, 1888, p. 227, no. 251) the author of this dictum is named not Democritus, but Democrates ho Parrēsiastēs [the Free-spoken]. Sternbach (op. cit., pp. 224-7) showed on the basis of a number of testimonia (Demosthenes 18.29, Curtius Rufus VI.5.9, Seneca De ira III.22 (in the last-mentioned place instead of 'Democrates Parrhesiastes' 'Demochares Parrhesiastes' is written by mistake) that the person referred to is Democrates son of Sophilus, an Athenian politician of an anti-Macedonian tendency in the time of Philip and Demosthenes, who actually took part in an embassy to Philip. Gnom. Vat. contains five dicta ascribed to this politician (nos. 248-52), of which four are directed against Philip and prominent supporters of Macedon, and only one contains a comparison of rich people with sheep who are sheared by sycophants. On this ground, of course one might suggest that nos. XXXVIII and XXXIX refer to Democrates, and

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<sup>113</sup> [In his translation of no. XXXVII L translates apeknaisas as Ты доняла меня, 'You've worn me out, exasperated me'.]

that 'Democritus' is an error of the tradition, but since the tradition unanimously names Democritus there are no reliable grounds for that. As for the remarkable dictum of Stobaeus (III.13.50)<sup>114</sup> the text there reads Dēmokratos (sic! corrected from Dēmokara); the reading is equally close to Dēmokritos and Dēmokratēs, but in view of the mention of the Athenian Eleven and the political character of this fine, deep dictum one ought to attribute it to Democrates son of Sophilus. The Sayings of Democrates have nothing to do with Democrates son of Sophilus, since they are written in Ionic dialect and are lacking in freedom of speech.

XLII

<sup>1</sup>Here we have an earlier version, in which there is no report of Democritus' having blinded himself. It is possible that this whole story is completely legendary, founded on some aphorism of Democritus', similar to the one we find later in Epicurus (DL X.119): 'In the second book of his Lives Epicurus says that the wise man will participate in life even if he has lost his sight'; Cic. Tusc. V.38.110ff.: 'Epicurus was bold enough to say that the wise man is always in possession of the greatest number of goods. ... Even if he lacks the use of his eyes ...? Even then, for he despises those very things'. This dictum of Democritus' may have been something like: 'Even if deprived of sight, the wise man is happier than the fool who sees darkly'. Cf. P Natorp, Die Ethika des Demokrits, Marburg, 1893, pp. 100-1: 'It is not far-fetched to suspect that Democritus had said that compared to the blindness of the body that of the soul was a greater evil, and that that was the source of the story, in any case an ancient one, of his blindness and even of his having intentionally blinded himself'. ('Blindness of the mind', see comm. on no. 594, excursus; 'they blind the soul' no. 767.) Usener (Epicurea, Leipzig, p. 336, n. 599) suggests on the basis of the general course of the reasoning in Cicero that there are expressed the views either of Epicurus himself or of some early Epicurean philosopher. But the expression 'And this man considered that the force of the mind was itself hindered by looking with one's eyes' cannot express the actual views of Democritus, in so far as for Democritus all our knowledge rests on the data of the external senses and cannot manage without them. Hence one of two alternatives must be the case. Either [1] in this as in some other cases the Epicureans did not understand Democritus and give a distorted version of his thought: Philippson (RhM 77, p. 315) considers this unlikely. Or [2] this phrase was not taken by Cicero from his Epicurean source, but was added by him from another, Academic source. That source probably spoke of Democritus' blinding himself; the natural continuation of this phrase would have been 'and so of his own free will he deprived himself of his eyes', but Cicero omitted it as inconsistent with the whole Epicurean context. On the other hand Natorp (Die Ethika des Demokrits, p. 101) suggests that even the Epicurean dicta cited above have their source in Plato, who considered that external sensations merely hinder the correct comprehension of the world around us. See

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<sup>114</sup> Democrates, seeing a thief being taken off to prison by the Eleven, said 'You poor fellow, why did you steal small things, not big ones? Then you would have had others taken off to prison.'

Pl. Phaedo 65c-d: '(the soul) reasons best when none of these things (i.e. external things) disturbs it, neither hearing nor sight nor pain nor any pleasure ... Do we say that the just is something ... or not anything? And the beautiful and the good? ... How have you ever seen any such thing with your eyes?' But in the Epicurean dicta cited above nothing is said about 'pure thought', independent of external sensations. An Epicurean (and an atomist) despises those sensations only in so far as the picture which they give requires correction. Epicurus' source here, as in other places, is not Plato but Democritus. The Platonists gave a similar explanation, also with an ethical tone, of Democritus' blinding himself. See comm. on no. XLIII.

<sup>2</sup>When others often could not see what was in front of them, he journeyed over the whole of infinity': This is undoubtedly atomistic or Epicurean polemic, together with the very ancient story of the sage (Pl. Thet. 174a: 'When Thales had fallen into a well while looking up at the stars, a clever, witty Thracian servant-girl is said to have made fun of him because he was keen to know about the things in the heavens but didn't notice what was right at his feet in front of him'. Also in DL I.34.) In another passage (De div. II.13.30) Cicero applied this dictum to Democritus himself: 'Democritus' jest is not without insight ... "No-one inspects what is right in front of them; they study the expanses of the heavens"' (It is, however, possible that this popular joke about the sage who pursues abstract sciences called forth a polemic from Democritus himself.) The expression 'he journeyed over the whole of infinity' is transferred by Lucretius (I.72-4) to Epicurus: 'He went far off to the flaming ramparts of the world and journeyed in his mind and intellect through the measureless whole': (III.16-17) 'the ramparts of the world fall apart'.

XLIII

<sup>1</sup>Here is a further development of the legend; Democritus blinded himself. This version differs from the older ones to the extent that the sources for Cicero (no. XLIII) and Plutarch (no. XLV) treat it with distrust. On the origin of such legends cf. comm. on no. LXI. E. Zeller (Philosophie der Griechen [Philos. d. Gr.], 6<sup>th</sup> edn., p. 1050 n.) suggests that the occasion of the springing up of the legend of self-blinding was provided by Democritus' remarks on the unreliability of our senses. He also appeals to expressions of Cicero's concerning Empedocles, which are undoubtedly copying technical terms of Greek philosophy (Acad. post. II.23.74: 'He blinds us or deprives us of our senses'. Cf. the quotation from Plato above, comm. on no. XLII (no. 767) 'they blind the soul'). Further, Alfieri, op. cit., p. 68, n. 104, points to the Democritean expression skotiē gnōmē ['dark knowledge']. In so far as knowledge acquired via the senses is blind (skotiē) while knowledge acquired immediately by the mind without the help of the senses is legitimate (gnēsiē), then the sage who has put out his eyes will begin to see better, not worse. But a deduction of this kind from this terminology can only have been made at a time when the Democritean contrast between 'dark knowledge' and 'legitimate knowledge' was seen as a contrast between pure reason, which acquires its knowledge without the aid of the senses and a lower level of cognition

which relies on the senses. In fact Plato thought that way, as we have seen (comm. on no. XLII), and Democritus was frequently interpreted in the same way subsequently. But from Democritus' own point of view all knowledge can be acquired only with the aid of the senses. See N.A. Lyubimov, History of Physics, St. Petersburg, 1892, p. 156: 'It is difficult to restore an image of the philosopher which is to any degree accurate on the basis of such passages, of legendary sayings ... Democritus ... gives genuine value to observation and experience, and in opposition to a world-view based on reasoning with the windows of the senses shut ... he strives to base his own on reasoning with the windows of the senses open ... On the other hand ... Cicero reports the legend that Democritus put out his eyes the better to devote himself to reasoning ... It is hard to give a more decisive invitation to reasoning with the windows of the senses shut. One must put out one's eyes in order to study nature!'

One must observe how the story of Democritus' blinding himself changes step by step. In Cicero (XLIII = Aulus Gellius, no. XLIV) his aim is to protect the activity of the mind from deception by the senses ('so that his mind should be distracted as little as possible from its thoughts ... Because he considered that the thoughts and activities of his mind would be more vigorous and more exact if he had freed them from the allurements and hindrances of sight'). The same in Plutarch (no. XLV '... so that sight should not disturb his thought by frequently summoning it outside'). In Laberius the reasons are moral; Democritus did not wish to see the sufferings of the just and the prosperity of the wicked (no. XLIV 'so as not to see the good fortune of wicked fellow-citizens'), and finally the Christian ascetic Tertullian sees the reason for Democritus' blinding himself in the fact that he could not look at women without desire and 'was distressed if, seeing a woman, he could not possess her' (no. XLVII).

XLIV

<sup>1</sup>Cf. comm. on nos. LXI-LXIV (here the shield functions as a concave mirror).

XLV

<sup>1</sup>into burning mirrors': In this case too the occasion for the origin of the legend was obviously a statement by Democritus himself, specifically his account of incendiary mirrors (see no. 342a). On legends which grow up in this way see comm. on nos. LXI-LXIV. Since the mirror does not catch fire, Diels emends purōthenta ['burning'] to puri t' antethen ['placed opposite a fire']<sup>115</sup>. But M. Pohlenz (Plutarchi Moralia III, 1929, p. 327, n. on p. 17), correctly observes that here purōthenta means not 'set on fire' but 'subjected to the activity of fire'. In this connection Pohlenz cites two passages of Plutarch. [1] De facie in orbe lunae 21, 934b: 'for coal seems to be, not fire, but a body subject to fire (pepurōmenon) and affected by fire'. Coal contains particles of 'the fiery element', but none the less it does not burn, for

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<sup>115</sup> [DK records Diels' suggested emendation (II, p. 89, l. 19 n.) but keeps purōthenta in the text.]

flame is not fire, but only 'an ignited state and streams of broken fuel (for the flame) and material'. In just the same way when a concave mirror reflects bright objects it takes into itself particles of fire, though it is not itself set on fire, for, by increasing the strength of the rays that fall upon it, it is able to emit flames from itself ([2] *ibid.* 23, 937a: 'Concave mirrors make the brightness reflected in them more intense than it was before, so as often to emit flames'). Note that both light and heat are merely reactions of the 'damp matter' (i.e. all kinds of matter, except fire) to the penetration into it of atoms of 'the fiery element', but in and of itself fire is neither bright nor hot (see comm. on no. 342a).

#### XLVIII

<sup>1</sup>Democritus' longevity was probably in itself a historical fact, but the figure 104 is most probably a reflection of a legend of the exceptional longevity of the genuine sage. Thus in Lucian he is mentioned in a long list of centenarian sages, Xenophilus, Solon, Thales, Pittacus, Zeno and Cleanthes (the Stoics) and others. If the sage can even raise others to life, then of course he is bound to know the means of giving himself a long life. Cf. no. L, where Democritus is also mentioned in a long list of long-lived sages. See Alfieri, *op. cit.*, p. 59, n. 77

### 6. Old age and death

#### XLIX

<sup>1</sup>Crönert is certainly correct in establishing on the basis of the correspondence with the passage of Diogenes Laertius which precedes that the missing subject in this papyrus fragment from Herculaneum was 'Democritus'. But between the word philopolis ['patriotic'] and the surviving words ... ē hupo tōn polei(tōn) ['by the citizens'] there is missing more than a line, hence the addition eklēth(ē) ['he was called'] is completely arbitrary; some other form of the passive may have stood here. Hence it is likely that philopolis is not at all a nickname of Democritus, as Crönert thinks, but a predicative description of him, e.g. philopolis d' (ēn) ['and he was patriotic']. Cf. Alfieri, *op. cit.*, p. 48, n. 29. I do not understand the grounds on which Alfieri and Crönert conclude that this papyrus gives us a purer and more ancient tradition, which does not yet have any knowledge of the trial of Democritus ('a tradition much purer than that of Antisthenes, in so far as in it the mention of the honours ... is not mixed up with the story of the trial' [Alfieri]). But how do Alfieri and Crönert know that in the earlier parts of the papyrus there was no mention of the trial?

#### L

<sup>1</sup>See comm. on no. XLVIII.

LI

<sup>1</sup>Lucretius' source was probably the physician-atomist Asclepiades (see no. LIV with comm.), who was close to Epicureanism and who in his turn may have used Hermippus. But Lucretius' report differs from the stories of Hermippus and Asclepiades, since in Hermippus Democritus dies a natural death, and in Asclepiades at the end he is still among the living. The story of Democritus' suicide (nos. LI, LII, LIV, LVI) maintains, it seems, a further development of the original story told by Hermippus (see no. LIII with comm.) according to which Democritus deferred the moment of natural death by breathing the steam rising from bread. According to this later version Democritus postponed his suicide in this way; he had decided to starve himself to death. The occasion for the origin of the legend of breathing steam as a means of postponing death was, according to Diels' acute suggestion [DK II, p. 89, l. 33 n.] Democritus' dictum (see no. 463) 'life and death depend on breathing in and out'. Alfieri, op. cit., p. 70, n. 107, thinks there is here also a reflection of Democritus' theory of effluences. On the origin of such stories, see comm. on nos. LXI-LXIV.

LII

<sup>1</sup>[Old Russian translation cited from V. Semenov, op. cit., p. 409.]

LIII

<sup>1</sup>See Hermippus FGH III.43, fr. 29. On a possible source for Hermippus see comm. on nos. LXI-LXIV. Hermippus of Smyrna, of the school of Callimachus, published about 200 BCE his work containing a large collection of legends and historical anecdotes. See comm. on no. LI.

<sup>2</sup>The identity of this Hipparchus, mentioned by Diogenes Laertius, is unknown.

LIV

<sup>1</sup>Asclepiades: Alfieri, op. cit. p. 69, n. 96, remarks about this Asclepiades as follows: 'This note, taken from the Physiological selections, which in the Anonymous follow the Medical writings of Menon, points as its source to the physician Asclepiades of Prusa, who lived ... after Hermippus'. Asclepiades, one of the most famous physicians of antiquity, lived at the beginning of the 1<sup>st</sup> century BCE (he was a friend of L. Crassus). Asclepiades adhered to atomistic doctrine, which inspired the hostility of his opponents, who accused him of being a charlatan. It is therefore easy to understand why he frequently cited Democritus. This view of Asclepiades as a charlatan persists even in modern scholarship; it was only in 1908 that M. Wellmann ('Asklepiades', Neues Jahrb. Klass. Alt. 11, pp. 684-703) showed for the first time that he was a brilliant thinker, who worked on the basis of a single scientific system in medicine and employed the most advanced methods in practical medicine. He was close to the Epicureans; hence Lucretius (LI) may have made use of his story of the death of Democritus. See G. Senn, Die Entwicklung der biologischen Forschungsmethode in der Antike, Aarau, 1933, pp. 174-7.



<sup>2</sup>'and lived on': So in Asclepiades' version Democritus, having already decided on suicide, in the end decided to remain among the living.

LV

<sup>1</sup>See comm. on no. LI.

LVI

<sup>1</sup>The legend about breathing the vapour of honey probably originated from two dicta of Democritus': first, in view of the preservative action of honey he recommended that those who wanted their corpses preserved should have themselves buried in honey (no. 588 with comm.); second, as appears from his dictum cited here, he thought that honey was the most wholesome food.<sup>116</sup>

LVII

<sup>1</sup>M. Aurelius confuses Democritus with Pherecydes (6<sup>th</sup> century BCE), about whom the corresponding legend was reported by Diogenes Laertius (I.116ff., = DK 7 A 1).

### c. DEMOCRITUS THE SEEKER FOR KNOWLEDGE

#### 1. Learning the highest joy in life

LVIII

<sup>1</sup>As Diels correctly remarks [DKII, p. 166, line 9 n.] hoi as dative of autos is an impossible form in the later language of aphorisms; hence this is a genuine quotation from Democritus.<sup>117</sup> But if Democritus was speaking of himself hoi is impossible; he would have said moi. Hence Democritus is not speaking of himself, and consequently the subject of the accusative and infinitive construction is omitted by Dionysius as unnecessary in his context. The subject may have been either the noun phrase ton sophon ['the wise man'], or, as I suggest in my article 'Demokrit, Demokedes und die Perser' ( Proceedings of the Academy of Sciences of the USSR, 1929, pp. 137ff.), Democedes. Either way, in fact, one and the same dictum is here attributed to Democritus and in another passage to the physician Democedes of Croton: see Himerius XXXIV.33 Colonna [= DK 19.2c]: 'And they say that Democedes of Croton, who was the first to introduce Greek medicine to the barbarians, went to stay with Pythagoras after visiting Susa and the Medes, and that he admired the riches of his [Pythagoras'] wisdom more than the king's wealth'. Obviously Democritus knew Democedes and cited him frequently; it is curious that whereas Herodotus names the

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<sup>116</sup> We find a curious parody of Democritus' dictum 'Moisten the inside with honey and the outside with oil' in Kozma Prutkov, Complete Works, 7<sup>th</sup> edn., 1899, p. 116, no. 18 'The reply of an old Italian': 'That is why from a child I have used oil internally and honey externally'.

<sup>117</sup> Philippson, Hermes 59, p. 369, despite Diels' argument, is not convinced of the authenticity of the testimonium: 'If not from Democritus, it is certainly totally in his spirit'.

doctor who treated Atossa the wife of Darius as Democedes (III.123), Julian (no. XXIII) introduces Democritus himself in the role of Atossa's doctor.

<sup>2</sup>'causal explanation': Diels [DK II, p. 166, line 9 note] rightly compares with this Democritus' various Causes (no. CXV, sec. VI).

LIX

<sup>1</sup>Kratunteria: 'Strengthenings, Reinforcements' (trans. I.A. Borichevski), 'Critical Books' (Alfieri).

LX

<sup>1</sup>In this passage of Petronius there are many details which are late and impossible for the authentic Democritus, but the report that 'Democritus spent his whole life in experiments' is undoubtedly based on a good tradition and refers to the real Democritus.

## 2. The fable of the laughing philosopher

LXI

<sup>1</sup>Comm. on nos. LXI-LXIV. It was a characteristic feature of Alexandrian biographies that because of the lack of sound testimony they attempted to construct the biographies of major figures by means of artificial and arbitrary interpretation of various hints contained in their works (see Leo, Die griechisch-römische Biographie, 1901, pp. 124ff.). These scholars took a special interest in the circumstances of the deaths of great men; they thought that great men ought to die in extreme old age and in altogether extraordinary circumstances. Diels (Heraclitus, 2<sup>nd</sup> edn., p. 3, n. 16) thinks that there existed a special work On Deaths, devoted to the descriptions of the deaths of great men, from which Hermippus, our principal source on this question, drew his material. (A collection of Deaths, described in the Lives of Hermippus, is given in the dissertation of Körtge, Dissertationes Hallenses XIV, pp. 274ff.) We shall cite a number of examples illustrating how the descriptions of the circumstances of the life and death of Heraclitus, Protagoras and Democritus were compiled on the basis of hints in their works. In DL IX.13 it is reported that Heraclitus played at knuckle-bones with children. Probably the source for this is was Heraclitus' dictum (DK 22 B 52) 'Time is a child playing, moving pieces; kingship belongs to a child'. Protagoras, who was the son of one of the most prominent citizens of Abdera, was said to have risen from poverty and to have been a wood-cutter, most probably simply because in his work On Crafts (Pl. Soph. 232d) he described the construction of a device for carrying wood (see n. on no. LXIV). The legend of Democritus' blinding himself probably arose, as we said above (comm. on no. XLII) on the basis of some such dictum of his as the following: 'Even if

deprived of sight, the wise man is happier than the fool who sees darkly'; cf. his expressions 'blindness of the mind', 'they blind the soul', 'dark knowledge', etc.

The story that Democritus blinded himself with the help of a burning mirror is probably connected with his study of burning glasses (no. 342a), and, perhaps, with his having noticed that they can cause blindness. The stories that he raised the dead to life are undoubtedly based on misunderstanding of a remark in his work On the things in Hades about people who had been buried prematurely, and about the fact that in corpses there is a small spark of life (that is, of atoms of fire), from which the Epicureans drew the mistaken conclusion that Democritus thought that corpses could have sensations (comm. on no. XXIII). In the same way, as A.Kiessling pointed out (Horaz III, Berlin, 1889, p. 183), the legend that Democritus was always laughing may have arisen on the basis of his investigation of the physiology of laughter (no. LXI): 'The image of the philosopher who was always laughing ... has less connection with his famous major ethical work On Cheerfulness than with a physiological investigation On Laughter which Cicero appears to mention'.<sup>118</sup>

But of course a major role in the growth of the legend may have been played by the many particular ironical attacks on his predecessors in passages of Democritus which have used the form of words characteristic of artistic Ionian prose, 'I laugh when I hear' or 'I laugh when I see' (see e.g. Hdt. II.20; III.115; IV.8 etc.). True, of the number of different things which were supposedly an occasion for 'Democritean laughter', according to the ps-Hippocratic letters, some undoubtedly bear the stamp of the late-Hellenistic or the Roman epoch, but something is taken from authentic works of Democritus.

In fact, as can be seen from the excerpts from the ps-Hippocratic letters cited under no. LXIII, where the legend of the laughing philosopher is given in greatest detail, the occasion of his laughter seems to have been the vanity of the concerns and hopes of the great mass of people, and we find the same in Horace (no. LXII, Epist. II.1.94; NB the context as a whole). But the dicta which we have put together under nos. 791-800 have exactly the same sense. If the subject of ps-Hippocrates is the folly of mankind, then in a similar context the same expression is used for the senseless mass of people in no. 636, and in nos. 791-800 these people are sometimes called 'men' and sometimes 'fools'. To the ps-Hippocratic expression nēpiazontes ['behaving foolishly' no. LXIII, IX.360 Littré] used in attacking them there precisely corresponds nēpioi ['fools'] in Democritus (no. 800, Democrates 41); ametriē epithumiēs ['immoderation in desire'] in ps-Hippocrates [ibid.] corresponds precisely to ametrōs epithumein ['desire immoderately'] (no. 754); to the [ps-Hippocratic] expression 'those who enclose a lot of land ... and want to be master of a lot'

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<sup>118</sup> The suggestion of Philippson (RhM 77, p. 377) that Julius Caesar Strabo here refers the audience to Democritus ('let him see to it', i.e. 'let Democritus deal with the question of laughter') because Democritus was famous as the laughing philosopher does not fit the context in Cicero. There Caesar Strabo refers to Democritus because he was a famous scientist, but Strabo himself is not interested in questions about the physiology of laughter. Hence from this passage of Cicero it is impossible to draw the conclusion that the legend of the laughing philosopher was already in existence at the beginning of the 1<sup>st</sup> century BCE.

[no. LXIII, IX.362 Littré] there corresponds in Democritus (no. 68) 'as cancer is the worst disease, so in possessions is always grasping what is adjoining'. The [ps-Hippocratic] expression 'they want to marry ... they have children and then drive them away' [ibid.] corresponds to the report of Clement (no. 723): 'Democritus deplores having children because of the many distresses which arise from it'. And finally as Philippon points out (RhM 77, p. 307) to the [ps-Hippocratic] expression 'the order of the seasons of the year sets a limit to the couplings of the animals, but he [i.e.man] has a continual impulse of unchastity' [no. LXIII, IX.372 Littré] there corresponds no. 761 'the animal in need knows how much it needs, but (the man) in need does not know'.

Finally, one should add an interesting observation of Reitzenstein's [no reference given]. The first satire of Persius begins with the words 'O cares of men! O how much emptiness there is in things!' These words are taken from Lucilius, as is apparent from the following pieces of evidence: Life of Persius II.52-4 Clausen: 'Having read Lucilius Book X he began furiously to compose satires. Imitating the beginning of that book ...': Scholiast on Pers. I.1: 'How much emptiness there is in things. The Greek is hoson to kenon. He transferred this verse from the first (verse) of Lucilius and begins his castigation of the faults of human life with wonder'. Juvenal and Horace imitated the same, obviously famous passage of Lucilius: Juv. 10.51ff.: 'He laughed at the cares and the joys of the people, and sometimes their tears'; Hor. Sat. I.2.111-13: 'Would it not be better to ask what limit nature assigns to desires, what she will take for herself, what privation will cause her pain, and so to separate the empty from the solid?'

Here there is a reference to Democritus, who, obviously, contrasted and separated from one another 'empty desires (or hopes)' from 'sensible, solid', investigating what was the boundary between them, what nature can do without and on the other hand what will cause real suffering if nature is deprived of it. In fact no. 799 presents the opposition to one another of these two kinds of hopes. Undoubtedly, Lucilius is here referring to Democritus and his laughter. Following Lucilius, the whole satire of Persius is devoted to the opposition between the ancient Greek sages, as worthy objects of imitation, and the inferior modern Roman poets. In lines 122ff., after the words 'This laughter of mine, so insignificant, I shall not sell you for an Iliad', there follow authorities of the classical epoch, Cratinus, Eupolis and Aristophanes. And in fact the scholium previously cited begins with the Greek original of the passage of Lucilius. Obviously, these are authentic words of Democritus, but then the first half of the line is also taken from him, all the more so because he frequently uses 'men' as a synonym for 'fools' (no. 797, Stob. III.4.77; no. 798, Stob. II.8.16). So (no. 799) I restore this dictum of Democritus' as tōn anthrōpōn hai elpides hoson to kenon ['How much emptiness there is in the hopes of men!']. To this dictum there corresponds in ps-Hippocrates Letter 17 'man ... is empty ... of right things ... what empty and irrational zeal' [no. LXIII, IX. 360 and 362 Littré]. So the famous Democritean laughter is not an invention of his followers; it is actually derived from authentic works of Democritus. This is shown also by the fact that we find the same laughter in Epicurus and the early Epicureans; see fr. 600 Usener: 'Epicurus

says that the sage will often laugh, though suffering the extremes of bodily illness'; Gnomol. Vat. 41: 'One should laugh and philosophize at the same time'; Metrodorus fr. 32 Körte: 'It is right that the free man should laugh at all men with genuine laughter'; Polystratus, On irrational contempt, col. 21a11 Wilcke: 'really to laugh at what is said by fools'.<sup>119</sup> It is true that from the ps-Hippocratic letters one can draw the conclusion that Democritus was a misanthrope who maliciously ridiculed everything that constitutes the content of the life of man, his joys and sorrows. That is inconsistent with Democritus' words (no. 678): 'those to whom their neighbours' misfortunes are a pleasure do not understand that the effects of chance are common to all ... it is right that as men we should not laugh at the calamities men, but grieve'. But the author of the letters feels the same; when ps-Hippocrates (IX.358 Littré) objects to Democritus that he decisively ridicules everything, so as to eliminate any distinction between good and bad, Democritus replies (IX.366 Littré) that he does not in any way ridicule reasonable people who understand the changeableness and instability of whatever happens, but only fools who clutch at temporary and changeable goods as if they were something durable and eternal.

Consequently, the legend of the laughing philosopher has as its source authentic sayings of Democritus about fools, and his contrast of empty hopes, which are worthy of laughter, with other hopes, good ones. Given that it was known by Lucilius (2<sup>nd</sup> century BCE) it has, apart from the ps-Hippocratic letters, another more ancient source. A characteristic mark of this more ancient version of the story was the contrast between the laughing Democritus and the weeping Heraclitus, a theme absent from ps-Hippocrates. A second characteristic mark of this version was the play on two senses of the word kenon, 'void' in the physical sense and 'void' in the moral. On the passage of Horace cited above (Sat. I.2.111-13) A. Kiessling, Q. Hor. Flaccus II, Berlin. 1886, p. 27, correctly remarks: 'What follows amounts to the recommendation to (atomistic) wisdom, as the key words of the system 'separate the empty from the solid' show. 'Solid' is the physical, the external material, 'empty' is empty space. But at the same time the extended meaning of 'empty', i.e. 'vain', and of 'solid', i.e. 'sound', has a role to play; separating the real and the reliable from empty illusion leads to happiness'. A rudiment of this word-play appears in ps-Hippocrates (Letter 17, IX.360 Littré) in the remark directed against Democritus 'I am taking care that you don't begin to laugh even when you pass through infinity', which is clearly seen in a later version in Lucian (no. LXVI): 'everything is void and the movement of atoms and infinity'. Cf. the same remark of Aelian (V.29.72, no. LXV): 'hearing that there are infinitely many worlds ... how Democritus would have laughed at him'.

LXII

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<sup>119</sup> Philippson, RhM 77, p. 320; Alfieri, op. cit., p.58, n. 73: 'The legend, even if exaggerated, nevertheless expresses the spirit of the philosophy of Democritus'. Alfieri cites DK 68 B 191, 231,233, 237, 238, 283, but inappropriately.

<sup>1</sup>Sotion: the teacher of Seneca. See Nietzsche, RhM 23, 1868, p. 639; Diels, Doxographi Graeci [Dox.], 256; article by Stenzel, RE series II, Hlbbd. 5, 1927, col. 1238. Here too laughing Democritus is contrasted with weeping Heraclitus.

LXIII

<sup>1</sup>The ps-Hippocratic letters are an epistolary novel: some excerpts have been found in papyri (Pap. Ox. No. 1133, p. 195, 1<sup>st</sup> half of 1<sup>st</sup> century CE; Pap. Berol. 6934 and 7904 = Berliner Klassikertexte III.5, 3<sup>rd</sup> century CE); it was written at the beginning of the 1<sup>st</sup> century CE. Herzog ('Nikias und Xenophon von Kos', Historische Zeitschrift [Hist. Zeitschr.]. 125, 1922, pp. 219-20) maintains that by the middle of the 1<sup>st</sup> century CE there existed two different editions of these letters. He thinks that their author was Xenophon of Cos, a physician of the 'spiritual' school, and that they were written in 23 CE. His grounds do not, however, appear sufficiently convincing. See further M. Pohlenz, Hermes 52, 1917, p. 353. Of the materials cited in no. LXVIII, the great part, if not all, probably has its source in these letters (as I indicate in the commentary on no. LXI there existed independently of those letters an older version of the legend of Democritus' laughter). I cite the corresponding passages from these letters here, and not just because it seems to me illogical of Diels to insert among authentic testimonia on Democritus passages such as those from the Suda (DK 68 A 2) and Hippolytus (DK 68 A 40) whose proper source is these letters (e.g. 'to laugh at the empty enthusiasm of men' (Suda) = ps-Hippocr. Letter 17, IX.362 Littré 'what is the empty enthusiasm', etc.). This novel was composed from the genuine writings of Democritus by a person who knew those writings well. In addition to the resemblances pointed out in the commentary on no. LXI see in the cited passages such a characteristic Democritean expression as 'things that happen and things that do not happen' [IX.368 Littré].

LXIV

<sup>1</sup>See comm. on no. LXI.

<sup>2</sup>'then, even then': i.e. even at a time when manners were not as corrupt as in Rome.

<sup>3</sup>'in a city of oafs': Abdera was regarded as a city of fools, like Poshechon in Russia (see Philippson, RhM 77, pp. 323ff.). Abdera was first mentioned in this sense at the end of the 3<sup>rd</sup> century BCE by Machon, a poet of New Comedy (Athen. VIII.41, 349b).

<sup>4</sup>'in a thick air': cf. Curtius Rufus VIII.9.20 (31): 'people's intelligence is shaped by their [geographical] situation'. The dullness of the people of Abdera was regarded as the result of the heavy climate of their country. It is possible that this whole legend grew up out of some remark by Democritus himself [DK II, p. 88, l. 19 n.]. The Abderites accused Democritus of madness, at a time when they themselves were mad.

<sup>5</sup>'he laughed at their worries': Juvenal's source is Lucilius (see comm. on no. LXI).

<sup>6</sup>'he himself to threatening fortune': At a time when everyone honours fate and trembles before it, Democritus laughs at fate, since it has no power on earth and cannot harm the sage, who is himself in control of his own life.

<sup>7</sup>'recommended the noose': See Rupert., Comm. in Iuvenalis Satiras, ad loc.: 'One is said to recommend the noose to someone when one so despises him as to tell him to go and hang himself'.

<sup>8</sup>'put out his middle finger': See Rupert. *ibid.*: 'Someone who stretches that finger out while bending the others makes an indecent shape; hence that finger is shameful and improper (Pers. II.33, Martial VI.70)'.

<sup>9</sup>'to wax the knees of the gods': Prayers to the gods were written on wax-covered tablets, which were laid on the knees of the gods. Probably these two lines also relate to Democritus.

LXV

<sup>1</sup>See comm. on LXI; here the ps-Hippocratic letters seem clearly to be the source.

<sup>2</sup>The statement that ps-Hippocrates wrote in Ionic dialect as a favour to Democritus is historically incorrect. As we see from the inscriptions from the Doric city of Halicarnassus, the literary language of the Doric cities of Asia Minor was Ionic.

### 3. Friends and colleagues

LXIX

<sup>1</sup>The report that Protagoras was a pupil of Democritus does not seem chronologically impossible, but unlikely, in view of the fact that Protagoras was much older than Democritus. There are no grounds for appeal to the authority of Epicurus here, for the testimony cited here has as its source the Platonist Diotimus and others, who forged letters of Epicurus with the aim of discrediting him (see no. CIII). Diels (DK 80 A 1 comm.) explains the appearance of these stories as follows: 'The fable that Protagoras was a porter and that he invented a pad for carrying wood and a clever means of tying logs together probably originates from comparisons in his writings by means of which he tried to explain the concept of craft itself. The practice of the time of illustrating abstract concepts by examples from the area of crafts can be seen, not only in Socrates, but e.g. in the Hippocratic De victu (I.186.4ff.) and in the Dissoi Logoi (DK 90.7). Crönert compares Philodem. Rhet. I.43 (col. 19.2): "We often misuse the term 'craft' in ordinary usage, talking for instance of tying up wood craftily, and carrying it craftily, and playing the scoundrel craftily". Similar passages are I.59 (col. 30.30) and I.74 (col. 41.19)'. This explanation seems to me excessively artificial and inconsistent with the testimony of Aristotle, who describes Protagoras as the inventor of the shoulder-pad [DL IX.53 = Ar. fr. 63 Rose]. Apparently in one of his Crafts (Pl. Soph. 232d) Protagoras described the construction of such a shoulder-pad (and perhaps suggested

improvements to it). In the 4<sup>th</sup> and 3<sup>rd</sup> centuries knowledge of such low-level experience was regarded as demeaning for the practitioner of liberal science; it could be explained only by Protagoras' having risen from poverty, and having at some time been himself a carrier of wood. The enemies of Epicurus who forged his letters used this story.

LXX

<sup>1</sup>Artemon: according to another report (no. LXXI, D.L. IX.50 = DK 80 A 1) the father of Protagoras was called Maiandrios.

<sup>2</sup>We first encounter the detailed story springing from this soil in Aulus Gellius; later it served as the subject for a painting by Salvator Rosa, to be found in the Hermitage, reproduced in my Essays in the history of ancient science, Leningrad, 1947, p. 120. As appears from no. LXXI, Protagoras belonged to a prominent family, and cannot therefore have been a wood-carrier.

<sup>3</sup>adulescentem ['a youth']: this is obviously a fictional detail, since Protagoras was probably 20 to 30 years older than Democritus. According to Plato, Prot. 317b, Protagoras was old enough to have been the father of any of those present at the conversation described in the dialogue, including Socrates, and Socrates was the same age as Democritus.

LXXII

<sup>1</sup>Here Protagoras as described as an associate (hetairoi) or companion of Democritus.

<sup>2</sup>Here Protagoras is described as a contemporary of Democritus, and as having taken his doctrine from him. Probably, the basis for transforming Protagoras into a disciple of Democritus was the similarity of a number of aspects of their doctrines. Since Democritus was a much more celebrated thinker than Protagoras, it was natural to transform Protagoras into a disciple of Democritus.

LXXIII

<sup>1</sup>On the precise nature of the disputes and disagreements between Democritus and Protagoras see nos. 76-8, with commentary.

LXXIV

<sup>1</sup>dieprepe means 'excelled' and requires the genitive case after it. So here nothing is said about a connection between Democritus and Protagoras, but the very fact that he is compared with Protagoras in parallel with the contrast of the Italian philosophers Gorgias and Philolaus indicates that their contemporaries to some extent grouped Democritus and Protagoras together..

LXXV



<sup>1</sup> sumpephormenōs: ‘eclectically’ [DK II.52, n. on line 31 (64 A 5)].

<sup>2</sup> according to Leucippus: In so far as the Peripatetics regarded virtually all Democritus’ scientific doctrines as belonging to Leucippus, one can understand why they regarded Diogenes of Apollonia, who had acquired from Democritus only scientific doctrines, as ‘teaching according to Leucippus’. In my opinion this tells in favour of the earlier dating for Democritus, since Diogenes of Apollonia, who had achieved the highest celebrity around 425 BCE (in 423 his doctrine is parodied in Aristophanes’ Clouds) was by that time familiar with Democritus’ works and made use of them.

LXXVI

<sup>1</sup>Alfieri, op. cit., p. 61, n. 74, considers this report chronologically impossible, for, as reported there, the akme of Diagoras is assigned to the 70<sup>th</sup> Olympiad<sup>120</sup> (i.e. 468-5); consequently, by the time of Democritus’ akme he [i.e. Diagoras] must have been not less than 80 years old. Eusebius gives the same date for Diagoras (Chron. Ol. 78), and finally in a scholium to Aristophanes Frogs 320 it is said that he lived kata (i.e. at approximately the same time as) Simonides and Pindar. So, our passage of the Suda would appear to contain internal contradictions. But that is not the case, for there it is said only that Diagoras lived after Pindar and Bacchylides, and since Pindar lived until 438 and Bacchylides was still alive in 428 (Euseb. Chron. Ol. 87.2; Sync. Chron. 257), nothing prevents Diagoras from having been a contemporary of Democritus. This is in complete agreement with the statement that he was older than Melanippides, for Melanippides was living at the court of Perdiccas II, who died in 413.<sup>121</sup> Probably all these reports are based on an ancient list of dithyrambic poets, in which Diagoras was placed between Bacchylides and Melanippides. The final words of the Suda passage ‘Hence (toinun) his akme is assigned to the 70<sup>th</sup><sup>122</sup> Olympiad’ are probably taken from another source, which, like the scholium to Frogs 320, probably read not ‘after Pindar and Bacchylides’ but ‘at the same time as Simonides and Pindar’, and since the akme of those poets was assigned to an earlier date, that of Diagoras was assigned to the same date. One should correct the scholium to the Frogs by reference to the Suda, not the other way round; one should prefer the more precise chronological indication in the Suda.<sup>123</sup>

On the other hand, a scholium on Aristophanes Birds 1073 gives a clear and exact report, which there is no reason not to accept: meta tēn halōsin Mēlou ōikei en Athēnais

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<sup>120</sup> [‘70<sup>th</sup>’ is clearly a slip by Luria for ‘78<sup>th</sup>’, which is the date in the Suda passage, = 468-5. The 70<sup>th</sup> Olympiad =500-497.]

<sup>121</sup> See R.C. Jebb, Bacchylides, Cambridge, 1905, p. 47.

<sup>122</sup> [See preceding translator’s note.]

<sup>123</sup>It is also possible that there is a mistake in the MSS: οη [78<sup>th</sup>] instead of πη [88<sup>th</sup>], (i.e. 428-5).

['after the capture of Melos (i.e. after 416) he was living in Athens'], for the destruction of Melos in 416 was the most appropriate occasion for Diagoras to settle in Athens, especially since the scholiast cites such ancient and reliable sources as the work by Melanthius On the Mysteries and the collection of decrees by Craterus. The scholiast on Clouds 830 also speaks of Diagoras in connection with the capture of Melos; here his source is none other than Aristarchus.<sup>124</sup> As appears from all these passages, shortly after this (before 415, the date of the production of the Birds) Diagoras was accused of dishonesty and fled from Athens to the people of Pellene, who were unwilling to surrender him (schol. on Birds 1073 tous <mē> ekdidontas Pellēneis ['the people of Pellene who are < not> surrendering him'], see Wilamowitz, Aristoteles und Athen, vol. 1, Berlin, 1893, p. 287, n. 37). Then the Athenians appealed to the Peloponnesian league (schol. on Birds 320). It seems that Diagoras had to flee, and in the course of his flight he may have been captured by pirates (war had already broken out) and sold into slavery, from which Democritus may have ransomed him (however, he may have been sold into slavery and ransomed in 416, when Melos was taken and all its inhabitants killed or sold into slavery). So there is no chronological or historical improbability in the report in the Suda. None the less it is suspicious for the following reason. As we noted in the commentary on n. VIII, both philosophers who were regarded as atheists, Leucippus and Socrates, are given the epithet 'the Melian', and the scholiast on Clouds 830 explains 'since Diagoras, who was a Melian, was condemned as an enemy of the gods, for that reason he called him (i.e. Socrates) a Melian'. Socrates even becomes a disciple of Diagoras: in the same passage we have 'others say that Diagoras was the teacher of Socrates'. It is perfectly understandable that in these circumstances Democritus himself is turned into the teacher of Diagoras. This is an instance of the same tendency to construct successions, here to construct a 'teacher-pupil' succession of the famous atheists, the Melians: Leucippus -> Democritus -> Diagoras -> Socrates. No less interesting is the fact that a work entitled The Phrygian Treatise, containing a description of oriental cults (Cic. ND III.16.42; Tatianus 28; schol. Apoll. Rhod. I.558; Plut. De Is. et Osir. 29, 362b; Damascius II.157.17, Ruelle) was ascribed, perhaps with the intention of ridiculing some Greek cults, both to Diagoras (Suda, s.v. Diagoras) and to Democritus (D.L. IX.49)<sup>125</sup>

So this testimonium may have been a later fabrication with a tendentious purpose, but it is instructive in this sense, that it shows that Democritus was regarded as a prominent atheist. See Wilamowitz, 'Textgeschichte der griechischen Lyriker', Abhandlungen der Göttinger Gesellschaft der Wissenschaften, Phil.-hist. Klasse, Neue Folge IV, 1990, pp. 80-84.

<sup>124</sup> Instead of Aristagoras egeneto Mēlios dithurambopoiος ['Aristagoras was a Melian dithyrambic poet'] one should read Aristarchos legei hoti Diagoras egeneto etc. ['Aristarchus says that Diagoras was etc.']; cf. schol. on Frogs 320: kai ho men Aristarchos Diagorou nun mnēmoneuein phēsin ['and Aristarchus says that he is now referring to Diagoras'].

<sup>125</sup> See R. Reitzenstein, 1) Poimandres, Leipzig, 1904, p. 164, 2) Zwei religionsgeschichtliche Fragen, Strassburg, 1901, p. 94: DK notes to 68 A 10a and B 299e.

<sup>2</sup>Melanippides : see Nestle, RE XV, 1931, col. 422ff.

LXXVII

<sup>1</sup>neōi presbutēn [‘in his [i.e. Hippocrates’] old age, when he [i.e. Democritus] was young’]: there is no good ground to follow Diels in changing this reading to neon presbutēi [‘in his youth when Democritus was old’]<sup>126</sup>, since it appears that both are in fact improbable, and we have no historical grounds for according a preference to one or other of these readings. We must suppose that the fable of Democritus (in The Correspondence of Hippocrates and Democritus), which treats Democritus and Hippocrates as contemporaries, is based on a sound tradition (see Hippocrates, RE VIII, 1913, col. 1803f.; Alfieri, op. cit., p. 60, n. 82).

#### 4. Plato and Democritus

LXXX

<sup>1</sup>This report is generally regarded as a libel on Plato. But it is in complete agreement with what Plato says in his writings about Democritus and thinkers close to him. See Laws 888e-890c: ‘Many people regard this doctrine as the wisest of all theories ... These theories, one can say, are already widespread among everyone ... That is why the young people despise religion and say that the gods whom the law commands us to believe in do not exist (see comm. on no. LXXVI, from which it is apparent that Democritus was regarded as one of the most prominent atheists!). That is the cause of revolution! ... (Of those who spread such doctrines) some should be put to death, others flogged and imprisoned, a third lot deprived of their civic rights and a fourth punished with poverty and banishment beyond the frontiers of the state’. These measures are no less forceful than the burning of books! Windleband’s attempt to transfer Democritus to the 4<sup>th</sup> century is unsustainable: Democritus was not a contemporary but a predecessor of Plato. Plato is silent about him not because he was unaware of him, but intentionally, and therefore we are right to look for polemic against Democritus not only in Plato’s later writings, but also in his early works. See my article ‘Wann hat Demokrit gelebt?’, AGPh 38, 1928, pp. 205ff., my book The theory of infinitesimals in the ancient atomists, Leningrad, 1935, pp. 91-4, 143-5, 164-72 and Quellen und Studien zur Geschichte der Mathematik, II.2, 1932, pp. 158ff. Among the foreign literature there is an important commentary on the Timaeus, Plato, Timaios, ed. R.D. Archer-Hind, 1888; J. Hammer-Jensen, Den aeldste Atomlaere, Copenhagen, 1908 (= AGPh 23, 1910, pp. 92ff., 211ff.); Kranz, Hermes 47, 1912, p. 137; Reinhardt, Hermes 47, 1912, p. 504; Hartmann, Platos Logik, pp. 65, 246, 316, 397, 431; E. Sachs, Die fünf platonischen Körper, 1917, p. 187; Stenzel, ‘Platon und Demokritos’, Neue Jahrb. 23, 1920, p. 89; Wilamowitz, Platon, 2<sup>nd</sup> edn., vol. I, pp. 587, 620, 664, vol. II, p. 252. Hirzel, followed by Natorp (Ethika des Demokrits, p. 157), notes the influence of Democritus on Plato (in the field of ethics) even in the latter’s early works; the same view is taken by E. Frank, Plato und

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<sup>126</sup> [DK 68 A 10 reads neōi presbutēn, and describes Diels’ emendation as incorrect, II, p. 86, l. 2 n.]

die sogenannten Pythagoreer, Halle, 1923, passim, who is criticised by P. Friendländer, Platon, v. II, p. 20. See also E. Hoffmann, Socrates, 1921; Alfieri, op. cit. p. 49, n. 33.

<sup>2</sup>Aristoxenus: from Tarentum, a Pythagorean, with affinities to the Peripatetics, lived in the first half of the 3<sup>rd</sup> century BCE, author of a series of Lives, including a life of Plato. See FGH II, p. 290, fr. 83.

<sup>3</sup>Amyclas and Cleinias: the evidence about them is collected at DK 54 (I.443-4).

<sup>4</sup>Timon: fr. 46 Diels [Poetarum philosophorum fragmenta].

## 5. Pupils and followers

### Democriteans

LXXXI

<sup>1</sup>Nessos: Diels [DK I. 230, n. to line 14] connects this name with the river Nessos, at the mouth of which Abdera is situated. Hence he drew the conclusion that Nessos came from Abdera, where he studied with Democritus, and that he went from there to Chios (see D.L. IX.58, 'Nessos of Chios') where he taught Metrodorus of Chios .

LXXXV

<sup>1</sup>also the Abderites': Since the word 'Abderite' means both 'someone who comes from Abdera' and 'an adherent of the philosophical school of Abdera', a number of scholars, e.g. Dalman, maintain that Hecataeus of Abdera was not a follower of Democritus, and hence that the significant conclusions concerning Democritus drawn by Reinhardt, Hermes 47, 1912, pp. 491ff. from the remains of the works of Hecataeus are unsound. The present passage, first appealed to by W. Uxkull-Gyllenband, Griechische Kulturentstehungslehren, Berlin, 1924, p. 25, n. 1, shows beyond doubt that Hecataeus was a follower of the Abderite school, i.e. of Democritus.

LXXXVIII

<sup>1</sup>This passage most probably comes from the forgeries of Epicurus by Diotimus and others: see below, comm. on n. CIII.

<sup>2</sup>the mutilators of the Hermai': not 'brawlers', but 'jeunesse dorée'.

XCI

<sup>1</sup>The passages cited here show that Bolus was regarded as a follower of Democritus (though another source for the Suda [DK 68 B 300.1] itself calls him a Pythagorean); so it seems to me that Diels was right to emend Dēmokritos to Dēmokriteios in the third passage on the

basis of the first two.<sup>127</sup> It is true that works by Bolus are often cited as works by Democritus, but it still does not follow from that that Bolus was called Bolus Democritus, as Wellmann thinks, or that an entire book of his was pseudonymous, published under the name of Democritus. Wellmann is wrong to believe (Die Georgika des Demokritos, Abhandlungen der Berliner Akademie der Wissenschaften [Abh. d. Berl. Akad. d. Wiss.], 1921, Abh. 4, p. 16) that a double name of this kind was common in the Hellenistic era. In such cases the words ho kai [‘also called’] were inserted; if we come across a double name, then one of the names is an adjectival determination or a family name, e.g. Arius Didymus (Arius the twin) or Flavius Josephus. Diogenes Laertius is a special case, being a parody of the Homeric expression diogenes Laertiadē [the Zeus-descended son of Laertes (i.e. Odysseus)] (Il. IX.308). In any case this is impossible at the turn of the 3<sup>rd</sup> and 2<sup>nd</sup> centuries [BCE]. Hence Kroll is certainly right to assert that the name Bolus Democritus is in general impossible and in no circumstances round about 200 BCE. It is equally inappropriate to follow Wellmann in speaking of a pseudonymous work of Democritus, forged by Bolus. Bolus was never once accused of forgery; if he had wanted to forge he would not have called himself Bolus Democritus, nor mentioned in those works writers who lived long after Democritus. On the contrary, the reading Dēmokriteios is perfectly possible; even if we suppose that round 200 BCE there was no longer an atomistic school in existence, then equally, as Kroll points out, it was perfectly understandable that an author who continually cited Democritus as his supreme authority should have been called Dēmokriteios. Nor is there anything surprising in the fact that in one place the Suda calls Bolus Dēmokrit<ei>os and in another Pythagoreios; at that period the word ‘Pythagorean’ had acquired the very vague sense ‘philosopher-mystic’. Further, we may add that at that time Pythagorean doctrine was undergoing a considerable influence from the ideas of Democritus. Thus, for example, the Pythagorean Ecphantus asserted that the origin of everything was ‘indivisible bodies and void’, and that ‘the cosmos is composed of atoms’ [DK 51, 2 and 4], and the Pythagorean Hipparchus wrote a work Peri euthumias [On Cheerfulness] containing so many thoughts and turns of phrase characteristic of Democritus that Diels classifies it as an ‘imitation’ of Democritus [DK 68 C 7]. This is all the better understood because Democritus himself had rated Pythagoras highly in his work Pythagoras, and had given occasion to the assimilation of his ideas to those of the Pythagoreans (see Wellmann, Die Georgika des Demokritos, p. 17). As Kroll correctly pointed out, all the far-reaching conclusions which Wellmann drew from the Pythagoreanism of Bolus are arbitrary and should be rejected. But if we reject both these mistakes, then, asks Wellmann (p. 16) ‘How could Varro, Columella and Pliny have regarded his utterances as utterances of Democritus himself?’ Even if all those authors actually confused Bolus with Democritus, there could have been many reasons for that, provided that we do not reject the tradition that Bolus and other later authors actually borrowed from the real Democritus, and that Democritus wrote a work On Agriculture. Thus, we know from Tatianus (16.17, p. 18, 17 Schw.) that the work of Bolus On

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<sup>127</sup> [DK prints Dēmokritos in the text (ii, p. 212, l. 2, but records Diels’ emendation in the notes (l. 2 n.).]

sympathies had the title Bolus on sympathies and antipathies according to Democritus: Democritus, of course, never wrote such a work, but some particular prescriptions could have been taken from Democritus, who, like all writers of his time, was not totally alien to sympathetic magic. The insufficiently profound scholars of a later time could have cited that work sometimes as the work of Bolus and sometimes as the work of Democritus, just as we call the Euangelion kata Maththaion 'The Gospel of Matthew' or 'St Matthew's Gospel', though that title is simply 'The Gospel according to Matthew', i.e. a reworking of a lost Gospel of Matthew.

So Bolus may, for example have published his work on agriculture under the title Bolus' agriculture according to Democritus, or Bolus' epitome of Democritus on agriculture, (which could have been corrupted through misunderstanding into the absurd 'Bolus Democritus', cf. e.g. *Iustini Trogi Pompei Historiarum Philippicarum epitoma* [Justin's epitome of the Philippic Histories of Trogus Pompeius]), or in the work itself Democritus may have appeared as a speaker in a dialogue, or it may have contained a number of references to Democritus, etc.

The circumstance that some citations of Bolus also appear in the guise of citations of Democritus prompted Wellmann to re-examine from this perspective the collection of statements about Democritus. Unfortunately he got carried away, and attributed to Bolus also a certain number of authentic passages of Democritus, as Kroll showed (see above).

Literature on Bolus: M. Wellmann: 1) Die Georgika des Demokritos [see above]; 2) Die Φυσικά des Bolos Demokritos [Abh. d. Berlin. Akad. 1928.7]; 3) Der Physiologos, Philologus Suppl. XXII, 1931; 4) Marcellus von Side, Philologus Suppl. XXVII, 2, 1934.

Sceptics

XCII

<sup>1</sup>Since, in the situation in which they were working, the sceptics were obliged for the most part to combat idealistic dogmatism, the arguments of the atomists were especially useful for them. That is why Pyrrho spoke so sympathetically about Democritus, and why the works of the Empiricist sect which followed him are one of the principal treasures of sayings of Democritus.

Epicureans

XCIV

<sup>1</sup>Epicureanism is clearly a modification of atomism; the Epicureans disagreed with atomism on a number of questions, but none the less they regarded themselves as followers of Democritus and treated him with the greatest respect. An insulting and contemptuous attitude towards Democritus and other predecessors of Epicurus is characteristic of the

forged pamphlets put out under the names of Epicurus and his students with the aim of discrediting his doctrine. This fact, attested by Diogenes Laertius (no. CIII with comm.), is persistently ignored in all works on Epicurus, including in part those of Crönert, who, however, himself refers to this important testimony of Diogenes in his work Kolotes und Menedemos. See my article 'Zur Leukipp-Frage', Symbolae Osloenses XV, 1936, p. 19.

XCVIII

<sup>1</sup>a splendid and fitting fee': the reference is to a rude insult directed against Democritus in the (spurious) letters of Epicurus.

XCIX

<sup>1</sup>Even if in the area of experiment, observation and their scientific generalisations Epicurus actually added nothing to Democritus, yet in the area of philosophy and ethics he moved very far from Democritus and took his stand on principled positions opposed to his (Democritus is a determinist, Epicurus an indeterminist), and here Cicero is, of course, mistaken. See Marx's dissertation The difference between the natural philosophy of Democritus and that of Epicurus (K. Marx and F. Engels, Works, 1<sup>st</sup> edn. , vol. 1, pp. 17-67), and also my articles 1) 'Karl Marx and Democritus' , Essays in the history of ancient science, Moscow, 1947, p. 391; 2) 'Democritus, Epicurus and Lucretius', Lucretius, On the nature of things, vol. II, Publ. of the Academy of Sciences of the USSR, Moscow, 1947, p. 121.

CI

<sup>1</sup>Even Democritus' mistakes must be treated with understanding, since they are mistakes by Democritus!

CII

<sup>1</sup>Democritus' works were constantly consulted by Epicurus, to such an extent that while on a journey he asks to be sent, along with a letter, something of Democritus' to read.

CIII

<sup>1</sup>Chs. 3 and 4 of Diogenes Laertius X are very instructive. They begin with the statement that the Stoic Diotimus slandered Epicurus by putting out under his name a number of forged letters, as did some other s who shared Diotimus' views. This whole episode concludes with the words 'but they were talking nonsense'. In between these two statements there occur a number of clauses in the accusative and infinitive; this form of words clearly shows that everything mentioned within this episode is regarded by Diogenes (or his source) as low slander. Now virtually all the material on Epicurus' contemptuous attitude to his predecessors comes precisely from this episode. Contemporary scholars, whether intentionally or unintentionally , forget the environment in which that material was

produced, and treat it with total seriousness. See e.g. C. Bailey, The Greek Atomists and Epicurus, Oxford, 1928, p. 226: 'When (Epicurus) does name another philosopher, it is only to cover him with abuse, which increases in violence, the more Epicurus is really in his debt ... Democritus he nicknamed Lerocritus ('Nonsense') ... It may [have] appeared to Epicurus necessary for his own dignity to preserve his independence even by these very undignified means'. Alfieri, op. cit., p. 97, n. 222: 'It seems as if insulting people was a physical need for Epicurus, and we should not be surprised that he gave Democritus too a nickname'.

It is curious that this trick of showering one's philosophical opponents with vulgar abuse and giving them insulting nicknames is actually characteristic of the Stoics; this characteristic of their own they slanderously attributed to the Epicureans. See the excerpt from Chrysippus (Stobaeus [Stob.] IV.20.1.31) where he uses that sort of expressions against the leading philosophers of the Garden: 'Alexinus the uneducated and Epicurus the senseless and Menedemus <the fool>'.

<sup>2</sup>From this passage it is apparent how much passion Diotimus aroused among Epicureans by his production of anti-Epicurean forgeries. If I understand the passage correctly Diotimus fell into slavery (perhaps as a prisoner of war or as a captive of pirates). The Epicurean Zeno demanded that he be produced for torture and tortured him to death.

CIV

<sup>1</sup>See comm. on no. XCVIII.

CVI

<sup>1</sup>See comm. on no. XCIX; from the viewpoint of Epicurus and his moral philosophy, the changes he had made in the theory of Democritus were not at all 'syllables and serifs'.

#### 6. Democritus against the dilecticians (Eleatics or Socrates or certain sophists)

CVII

<sup>1</sup>Comparison of the passages cited here shows that they are all directed against the 'disputers', the so-called dialektikoi [dialecticians] or eristikoi [eristics], i.e. against those philosophers who thought that the most important thing in the activity of demonstration was not the accumulation of material provided by experience and observation, but the construction of a chain of conclusions and the ability to conduct a dispute convincingly. That tendency starts with the Eleatics and goes via the earlier sophists and Socrates to the Socratics (above all to the representatives of the Megarian school and Plato) and the later sophists. Characteristically, the term eridantai [wranglers] applied to them by Democritus was later used specially in application to Euclides, a representative of the eristic Megarian school: see Timon (H. Diels', Poetarum Philosophorum Fragmenta, fr. 28 =no. XXXI Kinkel) 'nor of the wrangler (eridanteō) Euclides, who infected the Megarians with the madness of



disputing'. Clement lists the characteristic methods of these people: slander of one's opponent, eristic inquiries, the quest for improvements in technical manoeuvres and for definitions. At the time of Democritus the only people who could be meant by this were the Eleatics or the sophists, e.g. Hippias, or Socrates (cf. end of comm. on no. CVII). Democritus noticed above all their characteristic feature, a love of disputes, calling them wranglers.<sup>128</sup>

<sup>2</sup> himantelikeōn: this means 'people who wind straps (round any thing)'. Obviously one must compare with this word a passage of Plato (Prot. 342b) about admirers of Sparta: 'they get cauliflower ears and wind straps [round their hands for boxing] and are keen on exercise and wear short cloaks'. Hence these straps are normally understood as the meilicha mentioned by Pausanias (VIII.40.3), which boxers used to wind round their hands. In that case himanteliktai would mean 'boxers with words'.

But there may be a different explanation of this passage of Plato. It is known that one of the works attributed to Anaxagoras was entitled Himas [The Strap], because the reader could understand its content only with great difficulty. Cf. Cod. Monac. 490, s. xv f. 483v = DK 59 A 40: 'Some say that Anaxagoras wrote a treatise on insoluble questions ([zētēmatōn], cf. zētēseis ['inquiries'] in the text!) and called it The Strap because, he thought, it tied the reader up with its difficulties'. Diels' citation in VS 3<sup>rd</sup> edn. (p. 377.12) [not in DK] of the magic girdle (himas) of Aphrodite, which aroused erotic desire ([IL.] ɛ 214), is completely inappropriate; but equally the boxers' strap is not relevant here. On the contrary, it seems to me likely that the title of this work, which was understood in the sense of 'tying the reader up with its difficulties', was intended as a reference to the strip which was wrapped around the Spartan message-staff. Cf. Suda, s.v. skutalē: 'The Spartans took a white strip and wound it round the staff and wrote on the strip, then unwound the strip and gave it to the messenger; they did this so that the messengers should not know what was said on it, but the general who received the strip wound it round his own staff and read what was written'. Plut. Lys. 19: 'When they want to convey some great secret, they make a papyrus strip like a long, thin strap and wrap it round their staff, and the person who receives it ... can read nothing, because the letters are not connected together, but are scattered'.<sup>129</sup> Spartan officials proudly carried this 'Spartan staff' everywhere when they went abroad: see Plut. Lycurg. 30; Xen. Hell. V.2; Plut. Nic. 19; Aristoph. Lys. 991. Aristophanes' Birds shows that those same admirers of Sparta who are mentioned in the

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<sup>128</sup> In the excerpt from Democritus we have the genitive plural in the Ionic form eridanteōn. Clement's source, who obviously did not understand that eridanteōn and himantelikeōn are the genitives of the words eridantai and himanteliktai (cf. the genitive eridanteō in the passage of Timon cited above) formed on the basis of those genitives the impossible nominatives eridantees and himanteliktees. In exactly the same way in Hesychius (or his source) from the genitive amphideōn (amphideai = bracelets (Ionic form)) there was formed the nominative amphidees (see Passow, Wörterbuch der griechischen Sprache, 5<sup>th</sup> edn., 1847). The manuscripts of Strabo read erin diaitōntōn instead of eridanteōn. This is not a mistake by Strabo himself, since in the same passage, a few lines later, he writes hina ... arxōmai diaitōn tēn erin, mē kata Dēmokriton, obviously thinking that Democritus' text read erin daitōntōn. Consequently, this mistake was made by predecessors of Strabo.

<sup>129</sup> Cf. Athen. X.451d; Aulus Gellius Noct. Att. XVII.9; Pindar, Olymp. 6.91; Thuc. I.131; Xen. Hell. III.3; Plut. Alc. 38; Cic. ad Att. X.10; Nepos Paus. 3.

Protagoras also carried that staff everywhere (and of course they wound straps round it!), and, in particular, that that was normally attributed to Socrates; see Birds 1281ff.: ‘they were mad about Sparta ... they wore their hair long ... they imitated Socrates ... they carried staves’ (conj. Porson). So there is reason for thinking that ‘wind straps’ in Plato has the same meaning as ‘carry staves’ in Aristophanes. True, the fact that in Plato this word comes between ‘get cauliflower ears’ and ‘are keen on exercise’ would seem rather to indicate that in Plato the reference is to boxers. But the Democritean expression himanteliktai (‘people who wind straps’), in the sense of ‘speak darkly, confusedly, paradoxically’, can be explained only by the above proposal.

CX

<sup>1</sup>[Gives the Old Russian translation (V. Semenov, op. cit, p. 310).]

CXI

<sup>1</sup>Here Democritus repeats the saying of Heraclitus (DK 22 B 40) ‘Much learning does not teach one to have intelligence; for it would have taught Hesiod and Pythagoras, and again Xenophanes and Hecataeus’, i.e. it is necessary to catch some general sense or ‘rhythm’ of what is going on and assemble facts in correspondence with those presuppositions, rather than collecting facts from the most distinct areas. The person who knows a lot of facts without having generalised them in the last resort knows nothing (no. CXII): he is like someone who regards himself as rich solely because he knows a lot of rich people (no. XXXIX). See Archilochus fr. 67a Diehl: ginōske d’ hoios rusmos anthrōpous echei [‘Know what rhythm possesses (?= governs) men’]. This is the age-old dispute between ‘the learned’ and ‘the creative’ in science, which continues to this day. See the fragment of Democritus’ follower Anaxarchus (DK 72 B 1), the sense of which is that one should not display one’s erudition on every occasion, but use it only when it is appropriate and useful for making the truth clear: ‘Being learned is very useful, and very harmful to its possessor; it is useful to the resourceful man, and harmful to the person who readily says everything, no matter who his audience is ... those who sing out their tale at the wrong time, even if what they sing out is learned, have not placed their mind in wisdom, but are guilty of folly’. This was written at the time of the supremacy of the Socratics, when learning was universally honoured as the most valuable quality; Anaxarchus’ attack is directed simply against the inappropriate demonstration of one’s erudition. Alfieri is wrong (op. cit. p. 224, n. 567). See also A. Lingerbeck, Δόξις ἐπιρυσμῆ, Neue philol. Untersuch. 1925, pp.73, 77.

CXIII

<sup>1</sup>Since the subject of this sentence has not survived, there have been various mutually exclusive attempts to restore its sense. The most unsatisfactory seems to me that of W.

Nestle, Die Vorsokratiker, Jena, 1929, p. 182, no. 126; p. 258, n. 29,<sup>130</sup> who thinks that the subject of this sentence was ‘women’. The fact is that the heart was not regarded by the Greeks and Romans, as it is by us, as the seat of feelings and tenderness, but as the seat of the intellect. aneu kardiēs cannot be translated ‘they have no heart’ or ‘heartless’ (Alfieri), and if so the parallels cited by Nestle (Semonides fr. 7 Diehl, Eur. Hippol. 630ff.) are unconvincing, since there the reference is not to the stupidity of women but to their heartlessness in our sense. A more appropriate interpretation is that of Merlan, Hermes 68, 1933, p. 206, who understands eidōla as ‘idols, statues of gods’ (the word is used in this sense in no. 32), since kardiē can mean not only ‘heart’ but also ‘internal organs’. Finally, Langerbeck correctly points out (op. cit., p. 70) that ‘kardiē is nothing other than reason’ and sees here ‘a very striking representation of the rich’ (cf. e.g. Xenophanes, DK 21 B 3). Much more convincing, it seems to me, is the interpretation of Crusius, RhM N.F. 49, 1894, p. 305, which I can reinforce with additional material. The passage of Aristides which I have cited, directed against the Cynics, seems in essence to be simply a restatement of the saying of Democritus which we are considering, and it indicates that Democritus’ words were also directed against his philosophical opponents. F. Lortzing correctly remarks in this regard (‘Über die ethischen Fragmente Demokrits’, Progr. Berlin. 1873, p. 23): ‘We have merely to do with a comparison by means of which Democritus meant to indicate those who seek to hide their inner emptiness and hollowness under external decoration and glitter’. See e.g. the sophist Hippias in Plato, Hipp. Min. 368. From the fact that Aristides alters the word eidōla to the Homeric expression brotōn eidōla kamontōn [‘images of dead men’], we can see that Diels was wrong to translate that word by the German word ‘Bilder’ [‘pictures, images’]; these are ‘spectres’, nekuōn amenēna karēna [‘feeble corpses’], (‘feeble’=‘lacking heart’), which according to the atomistic theory can appear to us in sleep, since Democritus describes dream images as eidōla (see e.g. nos. 476, 579: eidōla ... poiein tas kata ton hupnon opseis [‘images ... make the appearances which occur during sleep’]). It is also possible that by the eidōla with which the philosophers are compared one should understand Democritean ‘forms’ (eidōla, images, spectra) generally, which resemble people only as an external shell, hollow inside ‘without a core’. See esp. no. 472a: ‘Democritus regarded them [i.e. the gods] as images which flowed from solid bodies but were not solid themselves’ [Augustine Letter 118]. Subsequently Epicurus expressed himself in the same way: see e.g. DL X.46 ‘they are the same shape as solid things, but far finer than things that are observed, and these ... they call eidōla’.

<sup>2</sup>‘empty of heart’: as we have already said, this means not ‘heartlessness’ but ‘stupidity’ (or in the literal sense ‘hollow inside, lacking internal organs’. See e.g. Babrius fable 95 (Aesop 243 Halm), where a stag, beautiful to look at but stupid and lacking in foresight, is described as ‘not having a heart’.<sup>131</sup> Cf. Archilochus fr. 60 Diehl, where a handsome general (‘proud of

<sup>130</sup> Nestle is followed by Alfieri, op. cit., p. 257, n. 648, and Makovelski [no ref. given].

<sup>131</sup> Exactly the same expression ‘without a heart’ is used in the same sense in fables with similar content, Indian (Panchatantra IV.2) and Hebrew (Midrash, Yalkut Shimoni, 182), but there the reference is not to a stag,

his curls') is contrasted with one who is small and ugly but firm in his decisions and wise ('full of heart'); see P. Natorp, Ethica des Demokritos, p. 66. For kardia in the sense of 'Inside, internal organs' see e.g. Aristotle, Probl. 16.8.

CXIV

<sup>1</sup>Langerbeck (op. cit., p. 70) is wrong in seeing here a demonstration of the lack of a morality of conscience ('Gewissensethik') in Democritus. Democritus is not talking here about the necessity of seeking the praise of others; that would be inconsistent with his own statements (no. 729). Here he is simply coming out against the objectionable self-praise and lack of modesty of the 'eristics'.

## 7. Writings of Democritus

CXV

<sup>1</sup>In the Alexandrian epoch there was established (by Callimachus, in the opinion of Diels, which it is hard to justify; see no. CXXIV with comm.) the Democritean corpus, to which were assigned the works of Democritus, arranged in tetralogies. Thrasyllus simply took over that arrangement of the works of Democritus; therefore, if he calls this or that work authentic, that means simply that it was regarded as authentic by the Alexandrian editors. But, as Diels supposes, in the Democritean corpus, as in the Hippocratic, there could previously have been included many works written by Democritus' students. As far as the titles are concerned, as Diels himself points out, in antiquity they generally underwent frequent variation and cannot be considered authentic. See DK II, p. 90, line 17, note, p. 130 top; H. Usener, 'Altes Lehrgebäude der Philologie', Münch. Sitzb. 1892, pp. 582ff., 'Unser Platontext', Kl. Schr., III, pp. 157ff.; H. Diels, Didymus Commentar zu Demosthenes, Berlin, 1904, intr. pp. XXlff.; M Wellmann, Die Georgika des Demokritos, p. 3.<sup>132</sup> One should add that the possibility of the insertion into the Democritean corpus at an early date of works by his successors changes nothing for us; given the lack of the works themselves and of the possibility of comparing one with another we are obliged, until the opposite is proved, to treat them all indifferently as genuine, all the more so because only works close to Democritus could have been included in the corpus. Further, we have no right to treat as spurious<sup>133</sup> the Miscellanea and Notes, which were regarded as authentic in antiquity, since we do not know on what grounds the predecessors of Thrasyllus did not include them in the tetralogies. The concluding phrase 'The other works attributed to him by various sources are either compilations of his own writings, or are acknowledged to be by other hands'

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but to an ass. Cf. in the Old Testament (Proverbs 7.7; 17, 18 etc.) the expression hasar leb, (lit. 'lacking a heart') 'stupid person'.

<sup>132</sup> Wellmann thinks, mistakenly and arbitrarily, that the arrangement into tetralogies connected by content is merely the work of Tirannion of Amisa and Andronicus of Rhodes (2<sup>nd</sup>-1st cents. BCE)

<sup>133</sup> See Nietzsche, Philologica i (Works XVII), p. 203; Rohde, Kl. Schr. I, p. 215; Diels, Hermes 40, 1905, p. 316.

shows that all the works listed before that were regarded as authentic by ancient authorities, and, not having the works themselves, we must have very weighty arguments for treating them as spurious.

It is true that Alfieri (op. cit., p. 71, n. 11) thinks (following Wellmann, see above) that the existing arrangement of Democritus' works into tetralogies is the work of Thrasyllus himself. He sees as proof of this that 'as Wellmann has shown' On Agriculture and On the things in Hades, which are included in these tetralogies, belong not to Democritus but to Bolus. But Wellmann did not succeed in proving the inauthenticity of On agriculture and On the things in Hades (just as he did not succeed in proving the identity of Democritus' On history with Bolus' Medical history). So Alfieri's reasoning is unconvincing.

<sup>2</sup>Pythagoras: see no. 154 with comm.

<sup>3</sup>The disposition of the sage: see nos. 726ff.

<sup>4</sup>On the things in Hades: see no. 582ff.

<sup>5</sup>Tritogeneia: see no. 822.

<sup>6</sup>The horn of Amaltheia: as Diels points out, this was a common name for all sorts of collections of sayings, anecdotes, etc.. See Aulus Gellius Noct. Att. preface, 6: 'Others entitled their books The Muses, ... he called his The horn of Amaltheia.' Gellius is probably referring here to Sotion, the teacher of Seneca (Noct. Att. 1.8): 'Sotion ... wrote a book full of many stories of all kinds, and called it The horn of Amaltheia'. See further Pliny NH, preface, 24.

<sup>7</sup>On cheerfulness: see nos. 733ff.

<sup>8</sup>Ethical notes: the title's being in the genitive case leads one to suppose that after these words there appeared a figure, indicating the number of books. As Diels correctly points out, they are not identical with the Notes which are not included in the tetralogies.

<sup>9</sup>Well-being is not extant: see n. 735: 'and he (i.e. Democritus) says that the end is cheerfulness ... and he also calls it 'well-being'; no. 734 'Democritus ... in On the end [says that] cheerfulness [is the end]'. From this Diels correctly concludes that On cheerfulness, On the end and Well-being are different titles of one and the same work (a common occurrence in antiquity). The ancient compilers of the catalogue of Democritus' works apparently did not understand that and looked in vain for a separate work [entitled Well-being].

<sup>10</sup>'attribute to Leucippus': see below, n. 15.

<sup>11</sup>Description of the cosmos: cf. ps-Hippocrates Letter 18 (IX, p. 380 Littré); 'I (i.e. Democritus) happened to be writing about the disposition of the cosmos'.

<sup>12</sup>On the planets: cf. nos. 390-1. Alfieri observes that the term planētes ['planets'] apparently appears, in the literature known to us, for the first time in Democritus.

<sup>13</sup>According to the Suda (see no. CXVI) there was a work of Democritus' (moreover, his best-known work) On the nature of the cosmos. There is no such work in Thrasyllus' list, but of the two books On nature cited here the second is entitled On the nature of man. Hence Diels correctly supposes that the first is identical with the book On the nature of the cosmos.

<sup>14</sup>On the nature of man: see nos. 514ff; ps-Hippocrates Letter 23 (IX, p. 392 Littré). The letter is entitled On the nature of man.

<sup>15</sup>It must be noticed that here Diogenes Laertius does not say, as he does in speaking of the Great World-System, that the work On mind was attributed to Leucippus, though in the tradition it was regarded as his most important work (see no. 22). Clearly, Diogenes' source, Thrasyllus, did not accept Leucippus' authorship.

<sup>16</sup>'together': the two last-mentioned works.

<sup>17</sup>On the soul: see nos. 443ff.

<sup>18</sup>On tastes: see nos. 494ff.

<sup>19</sup>On colours: see nos. 481ff.

<sup>20</sup>On the different shapes: since Democritus' work On ideas, referred to by Sextus (no. CXVI) is missing from Thrasyllus' catalogue, Diels is correct in supposing that these are just two names for the same work. In that case, besides nos. 238ff., nos. 48ff. are relevant.

<sup>21</sup>On changes of shape: see nos. 325-7.

<sup>22</sup>Kratunteria: see no LIX.

<sup>23</sup>On images: see no 472 and no. 472a with comm., from which it is clear that Krische's proposed emendation peri aporroēs ['on effluence'] instead of pronoïēs ['forethought'] is unnecessary.

<sup>24</sup>On logical matters, or The canon: see no. 98 with comm. . In Gellius Noct. Att. IV.13, it is possible that the manuscripts read 'It is reported in a book of Democritus' entitled On rhythms or the Canon of logical matters that snakebites are healed by the sound of trumpets, skilfully and tunefully played; in it it is said that many sick people have been cured by the sound of trumpets' (see I, p. 273 Hertz). This title is entirely inappropriate for the

book; obviously the authentic title was either corrupt or missing, and the scribe supplied at random the first title that came into his head. Diels supposes (DK II, p. 214) that here the original reading was On sympathies, referring to the book by Bolus. L. Carrion (Gellius, Noct. Att., ed. H. Stephanus, Paris, 1585, notes) proposes a shrewd correction of the reading of the manuscripts, Peri loimōn, ē loimikōn kakōn [On diseases, or the evils of disease] (in our passage of Diogenes Laertius also some manuscripts read loimōn [diseases] instead of logikōn [logical matters], which gives no sense). Alfieri op. cit. p. 37, n. 120 remarks that the word 'logic' in the specialised sense was first brought into use not by Aristotle but by Democritus, as is clear from this title. We may add that it was he who also established the principles of that science, see nos. 103-4.

<sup>25</sup>These are the works on nature': Diels emphasises [DK II, p. 91, l. 10 n.] that in conformity with his materialistic world-view Democritus regarded logic as a part of physics.

<sup>26</sup>Miscellaneous: see n. 1 above. Apparently the Causes contained a number of separate, unconnected Problems (subsequently the Problems and Causes of Aristotle and Plutarch were compiled in the same form). This was the reason why the Alexandrians did not include them in the tetralogies of the section Works on nature. Their authenticity is attested by their remarkable popularity in antiquity: Aristotle himself hints at a cause of Democritus' (no. 18), and subsequently this was seen as the most characteristic feature of this philosopher (no. 29 = no. LVIII; no. 560). See Diller, Philologus, Suppl. XXVI.3, 1934, p. 29.

<sup>27</sup>Causes concerning animals: the authenticity of this title has been suspected, without any grounds, by Rohde, Kleine Schriften.I, pp. 214-5, n. 1. See comm. on no. 560, and also nos. 515-55.

<sup>28</sup>On the stone: see. no. 319.

<sup>29</sup>Mathematics: see nos. 105ff.

<sup>30</sup>On different judgement: see no. 82 with comm..

<sup>31</sup>Topics in Geometry: see nos. 135ff.

<sup>32</sup>Things unfolded: see nos. 421ff with comm..

<sup>33</sup>Astronomy: *ibid.* This work is undoubtedly identical with On astronomy, mentioned by Apollonius (no. 422).

<sup>34</sup> The contest of (or 'with') the water-clock (?): 'the contest with a/the reckoning of time' (?). It is hard to guess what is referred to. Philippson (Hermes 64, 1929, p. 183) remarks: 'I understand by this a contest regulated by a water-clock, and suppose that Democritus had invented an instrument similar to our stopwatches, that enabled the judge standing at the finishing-line to determine the time taken by the individual runners or drivers. The book or

booklet could have contained the description of the measuring-device and an exposition of its function and how to use it.' Diels [DK II, p. 145, line 9 note] raises the possibility of another interpretation based on the supplementation 'the contest of the water-clock and the heavens', comparing the treatise The Art of Eudoxus (14.13. p. 21 Blass).

<sup>35</sup>Geography: see nos. 406ff.

<sup>36</sup>Treatise on the Heavens, Treatise on the Poles: cf. ps-Hippocrates Letter 5, (IX, p. 380 Littré) 'I (i.e. Democritus) happened ... to be ... writing a treatise on the poles, and about the stars in the heavens'.

<sup>37</sup>Treatise on Rays: see no. 138 with comm..

<sup>38</sup> Music and Literature : cf. Diels, 'Die Anfänge der Philologie bei den Griechen', Neue Jahrb. 13, 1910, pp. 9ff. See nos. 823ff.

<sup>39</sup>On Homer: see nos. 815ff.

<sup>40</sup>It is hard to decide which is the correct reading , Onomastikōn ab etc. [gen, plur.] [On Names, Bks 1 and 2, etc.] or Onomastikon [nom. sing.] [A Book on Names], since it is impossible to establish what the subject of this work was.

<sup>41</sup>Tetralogy XII (medical works): see nos. 801-805a.

<sup>42</sup>Land-measurement: Wellmann, starting from the mistaken premise that a large number of the works of Bolus were included in Thrasyllus' catalogue, reads Geōrgikōn [Works on Agriculture] instead of Geōmetrikon [Land-measurement], since that was the title of the work of Bolus from which he had published a collection of fragments (Wellmann, Die Georgika des Demokritos). Diels followed him in reading Geōrgikon or Geōrgika.<sup>134</sup> But in a treatise on agriculture a substantial part may have been devoted to land-measurement; hence the title Geōmetrikon is perfectly justified. Of course, along with the Geōrgika of Bolus there may have existed a work by the real Democritus On Agriculture (see Kroll, Hermes, 61, 1934, p. 320). See nos. 806ff.

<sup>43</sup>Tactics and Use of Arms: These works, which are included in the tetralogies, were also considered apocryphal by Wellmann, on the ground that a certain Alexandrian writer, Damocritus the historian (known to us from Flavius Josephus and the Suda), wrote a work entitled Tactics in two books, and Wellmann considers that Damocritus<sup>135</sup> identical with Bolus (Hermes, 61, 1828, p. 475). Of course, that could have been a chance coincidence.

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<sup>134</sup> [The text of DK (II, p. 92, line 4) reads Geōmetrikon but the note on the text reads 'One expects Geōrgikon or Geōrgika']

<sup>135</sup> It is incomprehensible that the Egyptian Bolus should have a name in an Ionic form.



<sup>44</sup>The further works listed in the column Notes are all regarded as apocryphal by Diels; see n. 1 above and comm. on no. XIV, n. 1.

<sup>45</sup>On the things in Meroe: Wellmann's addition 'sacred writings' [On the sacred writings in Meroe] is unnecessary and unconvincing. See comm. on no. XIV.

<sup>46</sup>On history: this work too is regarded as spurious by Wellmann, since among the works of Bolus the Suda names On passages from the historians which cause us difficulties. If the work On history is genuine, in the fifth century the meaning of its title was not that of Bolus' work, but On Enquiry, or On Collection of Facts.

<sup>47</sup>Phrygian Treatise: see comm. on no. LXXVI

<sup>48</sup>The manuscripts' reading CHERNIKA or CHERNIBA is usually corrected to Cheirokmēta ['things wrought by hand'] (a work by Bolus); this correction is too bold and arbitrary. I propose reading (with virtually no correction) Cheir nikai ['the hand is victorious']. As stated in Passow's dictionary, the word 'hand' in Greek is often used of the independently acting subject, e.g. in the proverb 'the hand washes the hand', or in Aesch. Seven Against Thebes 536 'the hand sees what is to be done', Suppliants 599, 'the hand of the people prevails', Soph. Ajax 50 'a hand raging for slaughter', Hom. Il. XIII.77, 'their hands are raging'. In that case the title 'the hand is victorious' would perhaps have named a collection of experiments or scientific tricks. But it is possible that one should read cher<eiona> nikai ['the worse is victorious'], as in Hom. Il. I.576, Od. XVIII,404. Then that would have been a work of ethical content.

<sup>49</sup>'Some are compilations of his writings': Such are the collections of all kinds of sayings of Democritus, e.g. the Sayings of Democrates, which we have often made use of. They begin with the following words, which we may suppose do not belong to Democritus: 'If someone attends to these sayings with intelligence he will do many things worthy of a good man, and will not do many bad things'.

<sup>50</sup>'Others are acknowledged to be by other hands': Besides the late alchemical works Diels (DK 68 B 305-7) ascribes the following citations to the spurious works of Democritus: Qifti (A. Müller, Griechische Philosophie in der arabischen Überlieferung, p. 36) 'Democritus, a Greek philosopher, author of a book On Philosophy'; Masala (c. 800 CE) (Mašallah al-Misri, Greek translation in Cod. Vatic. Gr. 1056; see Catal. Codd. Astrol. Gr. 1 (Brussels, 1898, p. 82), an Arabic list of astrological works: 'Democritus 14 books, i.e. 6 on birthdays, 4 on questions, 2 on conjunctions, 1 on calculation and 1 on inclinations'.

Ps-Oribasius on Aphorisms of Hippocrates, ed. J. Guinterius Andernacus, Paris, 1533, f. 5 v: 'Then we say that no-one could produce such a work (sc. the Aphorisms) like Hippocras, whom the philosophers called the friend of nature. Indeed Democritus tried to produce one such, but he did not perfect it as Hippocras did.'

CXVI

<sup>1</sup>The Suda undoubtedly knows the ps-Hippocratic Letters, which it regards as genuine; the title of the book On the nature of the cosmos is taken from them. So, only one genuine work of Democritus' from the immediate tradition was known to it, obviously the one most popular in the later period ; this was the Great World-System. And precisely that work was regarded by the Peripatetics as the work of Leucippus. See comm. on nos. 162-6.

## 8. Writings about Democritus

CXVIII

<sup>1</sup>See H. Usener, 'Analecta Theophrastea', Kl. Schr. I, p. 60; W. Capelle, Hermes 48, 1913, p. 333, n. 3. Alfieri supposes (op. cit., p. 77, n. 141) that not only the work On the astronomy of Democritus, mentioned by Diogenes Laertius V.43, was directed against Democritus, but also the works which follow that one in Theophrastus' catalogue, On images, On tastes, colours and fleshes, On the world-system, On talk about the heavens. Cf. Aristophanes' expression 'sophist about the heavens' (Clouds 360), directed against the followers of Democritus, and 'babblor about the heavens' in Plato Rep. 489c.

CXIX

<sup>1</sup>See comm. on no. CXVIII.

CXX

<sup>1</sup>See nos. XCVIII-CVI.

CXXIV

<sup>1</sup>The expression Glossōn kai suntagmatōn is understood by Diels (DK II, p. 90, line 13, n.) as follows: 'Callimachus' work combined a glossary of idiomatic words with a list of the works of Democritus available in the library of Alexandria or otherwise known in the literature'. The word suntagma may indeed mean 'work', but the title On unfamiliar words and on the works of Democritus seems to me absurd. Whereas the word suntagma is virtually equivalent to the word suntaxis in all its senses (see Passow's dictionary): both have the sense 'something composed of the union of different parts', and both mean 'military detachment', 'political grouping', 'book' or 'tax'. Therefore, although the word suntagma occurs only once in Greek literature in the sense 'part of a sentence'<sup>136</sup>, we correctly understand it here in the sense 'constituent part of a sentence or of a word'. We should

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<sup>136</sup> Apollonius Dyscolus, On pronouns, I.1.122.16 Schneider: 'The man writes well ... his discourse is correctly constructed. For each of its parts is put together in its appropriate construction' (suntagmati, 'a word in a grammatical construction, syntactical element', LSJ s.v.). It seems to me that in no. 829 (from the same work of Apollonius) the words en tois peri Atronomias kai en tois hupoleipomenois suntagmasi should not be translated 'In the work On astronomy and in the surviving works', but as 'In the work On astronomy, as in the surviving combinations of letters (i.e. combinations not corrupted in the tradition)'.

then suppose that the subject of this work was Democritus' idiosyncracies in the choice of words as well as in the combination of letters or of words (i.e. in syntax). See Plut. Quaest. Conviv. 731e: 'Novelty in the parts of one's discourse and in their combination with one another can amount to barbarism or solecism...'. In that case Diels' assertion (which is a priori natural, since Callimachus was the librarian of the Museum at Alexandria) that Callimachus compiled a catalogue of the works of Democritus preserved in the Museum, and that Thrasyllus took his list from it, can no longer stand.

CXXV

<sup>1</sup>Hegesianax: a mythographer, who came from Alexandria in the Troad and lived at the court of Antiochus III (224-187 BCE). See Steph. Byz. s.v. 'Hegesianax'; Athen. IX.393d.

CXXVI

<sup>1</sup>Sphairus from the Bosphorus, a pupil of the Stoic Zeno, contemporary of Chrysippus: list of his works in DL VII.177-8. In his commentary (op. cit. p. 78, n. 1) Alfieri cites the interpretation of the term elachista ['minimal'] given by Festa, Stoichi antichi, II, Bari, 1935, p. 182, n. b). Even if the subject of this work was Democritus the interpretation is incorrect, since Democritus and Epicurus understood by elachista not 'molecules' but the smallest parts of the atom.

CXXVII

<sup>1</sup>On Thrasyllus see comm. on no. CXV, n. 1.

## THE DOCTRINE OF DEMOCRITUS

### A. GENERAL PRINCIPLES

- a. Principles of things
- i. The principle of 'isonomia'

(equiprobability or equal attribution)

'why rather here and now, than there and then'

1

<sup>1</sup>The whole of Aristotle's report in Phys. III.4, 203b6ff, is regarded by Diels (DK 12 A 15) as entirely a report about Anaximander. In fact the investigation there deals with the most diverse tendencies in materialistic doctrine, e.g. among others Anaxagoras ('Intellect') and Empedocles ('Friendship'). In exactly the same way the five proofs of the existence of the void<sup>137</sup> contained in the passage are taken from different materialistic systems; the third proof 'from the fact that only thus would coming-to-be and ceasing-to-be not give out' (for 'give out' one should probably read with Simplicius 406.28 epileipein instead of hupoleipein [in the mss. of Aristotle]) is naive and clearly belongs to Anaximander; cf. Aet. I.3.3, Ar. Phys. III.8, 208a8ff. As far as the proof cited here is concerned, the sole argument in favour of its being by Anaximander could only have been the repetition in this passage of the word 'give out'. But that word is used here in a completely different sense and in a different connection from that in the passage cited above. This proof manifests an exceptional subtlety of logical thought, which could not have existed in the time of Anaximander, before the Eleatics. It is true that Burnet (L'aurore de la philosophie grecque (authorised French trans.), Paris, 1919, p. 61, n.1) follows Diels on this question; but he does nothing to justify his point of view. It is perfectly obvious that this fifth proof goes back to Democritus. The important point is not merely that that is what is indicated by Simplicius and Philoponus in their commentaries; that is clear also from the testimony of Lactantius cited here, for the word 'vacare' in Lactantius is undoubtedly the translation of the Greek hupoleipein. The suggestion that Philoponus and Simplicius themselves attributed this argument to

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<sup>137</sup> [Luria is inaccurate here; the five proofs discussed by Aristotle are proofs of the existence, not of the void, but of the infinite.]

Democritus, solely on the basis of its content, is impossible in view of the testimony of Lactantius. Simplicius and Philoponus talk of Democritus, but Lactantius talks of Leucippus. Obviously, Lactantius's original source was the same passage of Leucippus-Democritus as Aristotle's, whereas his immediate source was independent of Aristotle. The circumstance that the theory investigated here played such a major role for the Epicureans also confirms the fact that the reference is to Democritus.

<sup>2</sup>'what is outside the cosmos': cf. no. 18 with comm.

<sup>3</sup>'infinite body ... and worlds': This purely logical proof of the existence of infinitely many worlds is found in Democritus' disciple Metrodorus of Chios (Aet. I.5.4, DK 70 A 6): 'Metrodorus ... says that it is absurd that a single stalk of wheat should grow in a great plain and a single world in the infinite. And that the worlds are infinite in number is clear from the fact that their causes are infinite in number. For if the world is finite, and all the causes from which the world has come into being are infinite, they [i.e. the worlds] must be infinite. For where the causes are infinite, so too must their effects be, and the causes are either the atoms or the elements'. Cf. W. Ross, Aristotle, Physics, Oxford, 1936, p. 547: 'The doctrine of an infinity of worlds is ascribed to many early thinkers ... but the reference to the void makes it probable that in the particular case it is the Atomists that are referred to'.<sup>138</sup>

<sup>4</sup>The formulation given to the views set out here cannot be Aristotle's own, not only because in fact it has the same meaning as the expression 'not give out' used above, i.e. that in the eternal and unlimited universe everything possible must take place somewhere or other and at some time or other. It is true that Zeller, Philos. d. Gr I.1, p. 436, maintains this view, but he is undoubtedly mistaken, for Aristotle's remark (Meta. IX.8, 1050a7ff.) 'everything which comes into being goes towards its principle and its end ... the end is actuality and potentiality is realised for the sake of that' has nothing at all to do with our passage. Here the logical emphasis is not on the word 'all', but on the contrast between potentiality and actuality, and the expression 'strives to go'<sup>139</sup> does not mean inevitably that in all cases the thing which is striving is bound sooner or later to reach its goal. Indeed Aristotle absolutely does not wish to maintain that everything which is possible is bound to be realised in actuality; cf. Meta. XI.6, 1071b19 'for it is possible for what potentially is not to be'. On the other hand, the passage cited in the text coincides almost word for word with one of the passages of Archytas preserved by Eudemus (Phys. fr. 30, ap. Simpl. in Phys. 205b15, p. 467.32). In the comm. on no. 140 I show, starting from other considerations, how many data there are to show that this passage has its source in Democritus: 'It is clear that there is an infinite too [...] and if there is place, and place is that in which body is or

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<sup>138</sup> [Ross's actual text concludes '... probable that it is the Atomists that are chiefly referred to'. He is commenting, not on Metrodorus, as Luria's note might suggest, but on Ar. Phys. 203b26; the reference to the void occurs at b27.]

<sup>139</sup> [Aristotle's verb is badizei, which simply means 'goes', but Luria translates 'стремится', lit. 'strives'. The rendering 'strives to go' is intended to indicate the shift of sense.]

could be, and one must count the potential as existing in eternal things, so there would be infinite body and place'. The meaning of this expression of Democritus' is made clear from the doctrine of Diodorus Cronus<sup>140</sup> cited by Cicero De fato 7.13: 'Whatever can be, that either is now or will be'.<sup>141</sup> See also no. 64: 'As many things as one could think of, all exist'; no. 6 'Not only can be, but actually are (in Democritus' opinion)'. Cf. also the remark of the Epicurean Boethus in Plut. De Pyth. Orac. 10, 398e-399a: 'Of the outlandish and unexpected things anyone might predict about land and sea and cities and people, which of them will one not find to have occurred ... since infinity contains everything?' Only what is internally, logically impossible cannot occur, even in the course of eternity: 'The story which says what is not so, which has the error in itself, is not entitled to wait for chance support'. Two passages in Sextus contest this view; M. VIII.381: 'Yet if one were to think of it, it would not have existed for all that; for there are many things which are thought of ... but do not have any existence; IX.45: 'Some say in response to this that the origin of the thought that there is a god came about from appearances in sleep' (undoubtedly Democritus is meant). Cf. IX.49: 'since not everything which is thought of has existence, but it can be thought of, but not exist ...'.

<sup>5</sup>Cf. August. De civit. Dei XI.5: 'Similarly they think that outside the cosmos there are infinite spaces. If anyone says that in them the almighty could not have left empty space, will not the consequence be that they are compelled, with Epicurus, to dream of innumerable worlds?'

3

<sup>1</sup>'keeps on saying, repeats'.

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<sup>140</sup> See also comm. on no. 283 on the influence of Democritus on Diodorus Cronus.

<sup>141</sup> [L cites the text as 'Quidquid fieri possit, id aut esse iam, aut futurum esse', which is actually from a later passage, 9.17. The text of 7.13 reads 'Ille [i.e. Diodorus] id solum fieri posse dicit quod aut sit verum aut futurum sit verum, et quidquid futurum sit id dicit fieri necesse esse et quidquid non sit futurum id negat fieri posse' ['He says that only what either is or will be true can come about, and whatever will be he says is necessary and whatever will not be he denies that it can come about']. There Diodorus is not claiming that whatever is (antecedently) possible either is or will be true, but defining the possible as what either is or will be true, from which it follows that whatever is possible either is or will be true. Cicero begins his discussion in 9.17 by repeating Diodorus' definition of the possible ('quid valeat id quod fieri possit') as what either is or will be true, which he says is relevant to the theses ('attingit hanc quaestionem') that nothing comes about except what is necessary and that whatever can be, that either is now or will be. These passages do not then support the attribution to Diodorus of the principle of plenitude which Luria ascribes to Democritus, viz. that in an infinite universe every logical possibility must at some time or other be realised, since Diodorus' thesis presupposes his definition of the possible as what either is or will be true, which there is no reason to suppose Democritus accepted. In any case, even if for the sake of argument it is granted that Diodorus accepted some form of the principle of plenitude, it is unclear why that should count in favour of ascribing that principle to Democritus.]

<sup>2</sup>Theophrastus contrived to find a contradiction here, but in fact there is none. From the fact that everyone perceives differently and that these sensations, which are of equal status, conflict with one another, Democritus concludes that we have no right to regard any one of these perceptions as true, i.e. corresponding to objective reality. But that does not give us the right to draw the opposite conclusion, i.e. that in the case where everyone perceives something or other uniformly, that common perception corresponds to objective reality. In so far as everyone's sense organs are constructed uniformly, it is most likely that the external world must be subject to a uniform distortion. However, though none of these perceptions is 'true', each contains a distorted image of a fully determined real thing, and is therefore 'in accordance with the truth'.

4

<sup>1</sup>This testimonium is frequently doubted, since the theory set out in it is attributed by Aristotle not to Democritus, as it is by Aetius, but to Anaximander. However, Aristotle speaks here not of Anaximander alone, but of a whole group of thinkers. The argument 'no more up than down' is, as we have already seen, so characteristic of Democritus that not only do we have a perfect right to regard Aetius' report as trustworthy, but also to understand Aristotle's 'some thinkers' as referring above all to Democritus. In exactly the same way Aristotle's famous paradox, Buridan's ass, is undoubtedly directed against Democritus; De caelo II.13, 259b29ff.: 'But if it stays still because of the necessity arising from the similarity ... then something which is very hungry and thirsty, but at an equal distance from food and drink ... has to remain motionless as well'.

<sup>2</sup>and similarly (i.e. symmetrically) related to the extremities': Cf. Plato, Phaedo 109a: 'something in equilibrium, placed at the middle of a uniform extension, will have nothing to incline its moving more or less in any direction, and being uniformly situated will remain uninclined'. Tim. 62d: 'If ... it is in the middle... it would never be carried to any of the extremities, because they are alike in every way'. Cf. also no. 5: 'like those who say that the earth remains motionless because of the similarity'.

The mention of the void<sup>142</sup>, of the theory of the equilibrium of the earth which we have just examined and of the original principle 'Why rather here than there?' gives me, I think, the right to see in this passage a dispute with Democritus, so I count this passage among the testimonies concerning him.

5

<sup>1</sup>Here there is either textual corruption (against which the agreement of all the manuscripts testifies) or anacoluthon; in the first clause 'those who say that the earth remains motionless' is the subject, but the predicate is missing. One must either supply in the first clause the missing predicate 'say', or instead of 'those who say' [nominative] read 'for those

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<sup>142</sup> [In fact neither Aetius nor Aristotle mentions the void in the passages cited here.]

who say' [dative] and treat the predicate of the second clause 'it is necessary' as transferred to the first clause as well.

<sup>2</sup>This objection is unconvincing. Since the earth cannot move at the same time in all possible directions, it must, according to Democritus' principle, remain motionless. There is an infinite number of atoms, and therefore they can move at the same time in all possible directions. Consequently, in virtue of the principle of isonomy they will move in precisely that way, and will not remain motionless. In exactly the same way the testimony of Aristotle De caelo II.13, 295a21ff. contains, I think, a rejection of Democritus' view: 'and if it is prevented neither by the swirl, nor by its breadth, and the air has receded, where will it be carried ... ? (25) Is this (i.e. motion), up or down, or where is it? For it must be some motion. But if 'no more down than up', and the air above does not prevent motion upwards, neither will the air below the earth prevent motion downwards'.

6

<sup>1</sup>The theory contained in this passage, according to which even in our world there are many objects perfectly identical with one another, is not presented as the view of Democritus; it is merely a mistaken conclusion from Democritus' premises.

7

<sup>1</sup>In nos. 7-8 the expression 'no more this than that' receives a completely new sense. At first glance one might think that here we have merely a fortuitous verbal similarity, and that the expression 'no more 'thing' than 'nothing'' was supplied by later writers purely through misunderstanding, in connection with the principle 'no more this than that'. But against that supposition we have the evidence of Cicero on the Epicureans, from which it is clear that the Epicurean principle of isonomia [equilibrium], apart from matters of chance, which were discussed above, also applied to the case of 'no more 'thing' than 'nothing'', and that Democritus too must have assigned such an extended sense to this principle. See no. 6. Cic. ND 1.39.109 (discussing Epicurean doctrine): 'You take refuge in equilibrium (for, if you agree, that is what we call isonomia), and say that since there is mortal nature there must be immortal nature (I.19.50). Now there is the highest force in infinity, and it is most worthy of great and diligent contemplation; in which it must be understood that it is a nature such that everything corresponds to its counterpart. This is what Epicurus calls isonomia, that is 'equal distribution'. So from this it comes about that, if there is such a multitude of mortal beings the number of immortal beings cannot be less, and that if there are infinitely many destructive forces, the forces which preserve things must also be infinite'. This supposition cannot belong to Democritus in this form (as is well-known, Democritus' gods 'are hard to destroy, but not indestructible', i.e. they are not immortal), but goes back to the later Epicureans; on the other hand the doctrine that there are both



gods who destroy and gods who preserve is attested for Democritus. In Epicurean writers we come across this principle supported by the help of the Democritean theory 'there are no gaps'. We may then suppose that Democritus held as a particular case of this principle the assertion: 'If in an infinite space there exists A, there must also exist not-A, i.e. opposites must always exist together'. Relative to the origin of this theory see comm. on no. 148.

<sup>2</sup>On the word den ['thing'] DK II. p. 174 has the following note: 'Cf. Theodotion's Septuagint (translation cited by Philop. De opif. mundi II.1. p. 59, 12 Reichardt: hē de gē ēn then kai outhen ['and the earth was thing and nothing']. On this Philop. 68.16 "then ēn' toutesti 'ēn ti' ["was thing', i.e. 'was something']"). From this single late parallel one might draw the conclusion that the word den was the original invention of Democritus and was introduced by him into Greek. Thus e.g. C. Bailey, The Greek Atomists and Epicurus, p. 118 remarks: 'Democritus ... naively invented the term den'. Zeller, Philos. d. Gr. I, p.1056, and Alfieri, op. cit. p. 79, n. 150, go to the other extreme, supposing that the word den arose in a natural form and existed in popular speech from time immemorial in the sense 'something'. But the absurd form of this word shows that it was intentionally invented by some Ionian philosopher or other; see e.g. Kühner-Blass, Ausführliche Grammatik der griechischen Sprache, Hannover, 1890, p. 634: 'deis ['one'] is formed from oudeis ['no-one']; in these (i.e. Aeolic and Ionic (Luria)) dialects the rough breathing disappeared, so that one said not, as in Attic, 'oud(e)heis' but 'oudeis', and this could now easily be wrongly decomposed into ou + deis'; P. 614: 'Misconstruction'.

We should, however, pay attention to the fact that the rough breathing is lacking not only in Ionic, but in the Aeolic dialect of Lesbos. The passage cited by Diels with the expression then = den is not unique. Leaving aside later authors,<sup>143</sup> we find it in a passage of Alcaeus, preserved for us in Etym. Magn. 639, 34 and in Schol. Dion. Thrac. (p. 381 Hilgard). This passage contains the third line of an Alcaic stanza; in my article 'Annotationes Alcaicae', La parola del passato 4, 1947, pp. 79-80 I attempted to restore the preceding lines as follows:

[four syllables, short, long, short, long missing] eon ti k' ap' oudenos

kai k' ouden ek denos genoito

i.e. '(if it simply came to be), then something would come to be from nothing, and nothing from something'. This is 'the law of the conservation of matter', which the poet Alcaeus, it seems, took from the philosopher Thales, with whom, as I show in the article cited, he was acquainted (see also comm. on no. 197). So we should suppose that in all likelihood the word den was invented by Thales and taken over from him by Democritus.

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<sup>143</sup> See e.g. Simpl. in De Caelo I.10, 279b12, p. 294,33 Heib.: Galen, De elem. sec. Hipp. I.2 (3,20 Helmr.); on the latter passage the conjecture of Mullach and Heiberg is convincing.

<sup>1</sup>For elucidations of the passage from Aristotle's Metaphysics cited here see comm. on no. 221. See also no. 17 with comm., where it seems there are simultaneously attributed to Democritus the two assertions 'At some time all things were together' and 'Things are always in motion'. If opposites always coexist, then by a purely logical process one may imagine such an original situation, when they were not yet separated from one another, i.e. potentially 'everything was together' and 'a thing previously existed, being at the same time assertion and denial' ('everything was together', 'a thing previously existed, being both alike').

## ii. The principle of analogy between microcosm and macrocosm

<sup>1</sup>The sayings of Democritus compared here are taken from testimonia which are examined more fully below; there the reader will find the apparatus and the context of these sayings. Here I aim only to show that the anthropomorphism characteristic of all primitive science, as of all primitive religion (cf. e.g. the words of Aristotle about Empedocles, Phys. VIII.1, 242a28ff.: 'There is something which unites men, friendship, and enemies avoid one another; he assumes that this applies to the whole as well'), appears in Democritus not in any random way, but contains an original system: 1) It is only man in his personal, earthly and communal life (but not his internal physical constitution!) that is known to us immediately (no. 9); 2) Between this quantity which is known to us (man, the microcosm) and another, unknown [quantity] (the macrocosm, no. 10) there exists an analogy; 3) Therefore on the basis of the behaviour of man one can establish the laws of the macrocosm by way of analogy (nos. 11-12).

<sup>2</sup>This sentence of Democritus is established by Diels on the basis of several testimonia, see no. 65.

<sup>1</sup>In this passage Aristotle does not cite Democritus as the author, but his authorship is clear from the context as a whole (see no. 40 with comm.). In any event the meaning of the saying here is entirely in the spirit of Democritus; it contains merely an expanded version of the Democritean saying 'Man is a small world'.

<sup>1</sup>Cf. Hippocr. Airs, Waters, Places 9, p. 38.3 Littré: 'When they are mixed together in the same place they conflict with one another, and the strongest always prevails, but it is not always the same one which is strong, but sometimes one and sometimes another'.

12a

<sup>1</sup>Cf. Alcmaeon (DK 24 B 4): 'The equal balance of the powers (sc. in the body) maintains health ... but the predominance [lit. 'monarchy'] of a single one of them produces disease'.

iii. What is eternal has neither beginning nor cause

16

<sup>1</sup>Alfieri, op. cit. p. 23, n. 91, makes an entirely correct observation about the word biai ['by force, forcibly']: 'Simplicius is the only one to give this explanation, which, it is obvious, can apply only to derived motion; to understand the origin of Simplicius' observation, it suffices to notice that the passage ... of Aristotle continues as follows (300b11ff.): "for if one of the elements is forcibly moved by another, all the same there must be a natural motion for each one, contrary to which forcible motion occurs". What is a hypothesis in Aristotle has become a certainty in his commentator: atomic motion occurs through external impacts'. It is all the more difficult to understand the fact that in his commentary on the passage of the Metaphysics cited here Alfieri himself (op. cit., p. 12, n. 42) contents himself with a citation of E. Frank, Platon und die sogenannten Pythagoreer, Halle, 1923, p. 194, who takes precisely the view of Simplicius, supposing that Democritus denied that the particles had any motion of their own, and that he explained all motion by mutual pressure and impact of bodies. In this regard, which is most surprising of all, Frank bases his view precisely on our no. 17, where 'what [their motion is] and because of what' means only that Aristotle is here regretfully recording the absence of a teleological cause, and on another passage of Aristotle, (De an. I.2, 403b30ff. = no. 443a), where it is said that what is not itself moved cannot move anything else, and that consequently in Democritus' view motion is an internal attribute of atoms of fire (Democritus also attempted to support that assertion by geometrical considerations). The fact that Democritus did not indicate what the origin of motion is is, however, completely understandable; in his opinion motion, pressure and impact are all eternal. Hence it would have been methodologically unjustifiable to raise the question of what happened when there was no impact or pressure.

17

<sup>1</sup>The expression 'all things were together' was used, as Aristotle testifies in the Metaphysics itself (XII.1, 1069b22) not only by Anaxagoras, but also by Democritus (see no. 8). The sense of the passage as a whole is: the original complete mixture of the elements postulated by the investigators of nature (Empedocles, Anaxagoras, Leucippus, see no. 221) is in essence no different from the assertion of the theologians that at the beginning of the universe there existed 'night' and 'chaos'. For without a force external to 'chaos', that 'chaos' could

not have been used in any doctrine about the universe ; it was that, in Aristotle's opinion, which led Empedocles to introduce Love and Hatred, Anaxagoras to introduce Intellect and Plato and Leucippus to introduce eternal motion, but none of these, in Aristotle's opinion, provides a way out of the difficulty. Nonetheless it remains totally incomprehensible how In Democritus' opinion at the beginning of time there could have been a totally uniform mixture, if motion is eternal. See comm. on no. 221.

18

<sup>1</sup> ho ouranos: means here and elsewhere, as in no. 1, not 'heaven', but 'our world, our cosmos'.

<sup>2</sup> 'spontaneous': always means in Democritus , according to the correct observation of Alfieri, op. cit., p. 90, n. 198, p. 106, n. 259, p. 107, n. 261, p. 54, n. 57, 'without the interference of any rational foresight or external force', 'movement occurring not from the activity of an external force but from the force of natural necessity'. So, if Aristotle and his followers identify the spontaneous with chance, that is 'a distortion of Democritean doctrine from a teleological point of view'.

<sup>3</sup> 'from seed': according to the correct observation of Ross, [Aristotle's Physics, Oxford, 1936], p. 515, this passage seems to be the source for the similar argument found in the writings of the Epicureans: Epicurus, Letter 1: 'Nothing comes to be from not-being, for everything would come from everything without any need of seeds'. Lucr. I.159-60:

For if they came from nothing, from all things

Every kind could be born, nothing would require seed.

This is illustrated by a number of examples, and in lines 169 and 172 the author concludes

But now because everything is created from definite seeds ...

And thus everything cannot come to be from everything.

<sup>4</sup> Kranz compares with this the title of Democritus' work Causes in the Heavens, etc. [No ref. given.]

<sup>5</sup> From the expression 'he did not ascribe the least significance to people', i.e. he totally denied free will, it is clear that, in the opinion of Themistius, Democritus ascribed the decisive role to fate even in people's daily life. On the contrary, in the view of Aristotle and his other commentators, Democritus denied the role of fate in human life, and recognised it only when the question concerned the origin of the world. So, in the view of Themistius, everything that occurs not by the will of man, nor by the will of god, occurs by chance, whereas in Aristotle's view every occurrence which is not explained by another occurrence, has to be counted as occurring by chance. Now in Democritus' view an event which always occurs and has always occurred in one way or another does not occur 'as it chanced' in one

way on one occasion and in another way on another; there is no need of explanation, and so even in this case there can be no question of chance. Democritus denied chance altogether and, in Juvenal's words (no. 30) [also no. LXIV] 'gave it the finger' ('to threatening fortune ... extended the middle finger'); contrariwise, if anything were to occur by the whim or the will of man or god, then it would occur by chance.

<sup>6</sup>See no. 346.

<sup>7</sup>'keeps its place in the centre': since 'the movement caused by rotation' overpowers 'the original ... disorderly motion'.

19

<sup>1</sup>Epicurus refers to this passage (Letter [II]<sup>144</sup>.90): 'For it is not merely necessary for a collection [of atoms] and a swirl to occur in a void where a world can come into being, as is supposed, by necessity ... as one of the so-called natural philosophers says'.

20

<sup>1</sup>Cf. the materialistic doctrine mentioned by Plato in Laws 888e: 'Everything which is coming to be and has come to be and will come to be ... is by chance'. See S. Luria, Proc. Acad. of Sciences of USSR, 1927, pp. 1065-6.

#### iv. Natural necessity

22

<sup>1</sup>In the Neoperipatetic tradition the work On Mind was regarded as a work of Democritus' (see D.L. IX.46 (from Thrasyllus)). It is curious that with regard to the Great World-System Diogenes Laertius remarks 'Theophrastus and his followers regard this as the work of Leucippus'; there is no such remark with regard to the work On Mind. That makes the authorship of this work by Leucippus even more doubtful (see Theodoretus' version in the text). It seems to me very likely that the citation is taken from a criticism of Anaxagoras contained in this work. He, as is well known, inferred from the existence of causal conditionality in the world the existence of a 'cosmic intellect'; cf. DL IX.35 'Democritus made fun of his doctrine about the world order and the intellect'. Democritus replaced Anaxagoras' 'intellect' with 'natural necessity'. As a curiosity I cite the purely sophistic misinterpretation of these words of Leucippus-Democritus by A. Covotti, I presocratici, Naples, 1934, p. 241: 'The agreement ...with Anaxagoras becomes even more precise...Anaxagoras had written 'Intellect set everything in order'. Similarly, Leucippus teaches...in...the book On the Intellect 'Nothing comes to be without a cause, but by reason and necessity'(!). Alfieri gives the correct interpretation of this fragment (op. cit., p. 39): 'Everything which happens is necessarily conditioned (ek logou, where logos does not

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<sup>144</sup> [Luria gives the ref. as 'III.90'.]

indicate a rational force or an organising principle, but a mechanical condition or cause) and is in conformity with the necessary law of nature’.

23

<sup>1</sup>Cf. the materialistic doctrine in Plato, Laws 889b-c: ‘being completely inanimate...not because of intellect but by nature and chance’. See also Aristophanes Clouds 379ff.: ‘But isn’t it Zeus who compels them to move?’ ‘Not at all, it is the swirl of the aether.’ ‘Swirl? I hadn’t realised that Zeus does not exist, but instead it is now the swirl which rules’ (cf. l. 1471).

24

<sup>1</sup>See comm. on no. 18, n. 2. A very similar view was expressed by Diodorus Cronus, who, as we shall see (no. 283, with comm., cf. comm. on no. 1), in all essentials merely re-styled Democritus in sophistic fashion. I therefore think it useful to cite here the corresponding testimonium on Diodorus, Cic. Ad fam. IX.4: ‘On what is possible you should know that I follow Diodorus. So, if you are going to come, you should know that it is necessary that you come. But if you are not, then your coming is one of the impossible things’. Cic. De fato 7.13: ‘For he (i.e. Diodorus) says that the only thing which can come about is what either is true or will be true: and whatever will be, he says that it is necessary for it to come about, and whatever will not be, he denies that it can come about.’ Cic. De fato 9.17: ‘But let us return to that question of Diodorus’, the one called ‘On what is possible’, which deals with the meaning of ‘what can come about’. So Diodorus thinks that the only thing that can come about is what either is true or will be true. This position is connected with the following argument: nothing comes about, which was not necessary, and, whatever can come about, either is now or will be (cf. no. 1 with comm.); nor can things which will be change from true to false, any more than things which have come about. But in what has come about the immutability is apparent, whereas in some things which will be, because it is not apparent, it does not even seem to be there. For example, in the case of someone suffering from a terminal disease ‘This person will die from this disease’ is true, and if the same thing is truly said of someone in whose case that force of the disease is not apparent, none the less it will be ... (9.18) ‘Nor is there any reason, since this is so, why Epicurus should be terrified of fate and seek protection from the atoms and lead them aside from their path.’ Plut. De Stoic. repugn. 46, 1055e: ‘According to Diodorus the possible is what either is true or will be true’.

Diels gives in his edition [DK 68 A 68] only the beginning of the fragment of Aristotle (down to ‘e.g. the cause of one’s going’), which is what he thinks refers to Democritus, along with Simplicius’ commentary. But that very commentary of Simplicius shows that in this passage Aristotle is referring to Democritus. We must not suppose that the examples which constitute the second part of the first sentence were added by Aristotle himself; that would have been arbitrary and inadmissible from the methodological point of view. See

what I have said above about Aristotle's puzzles. It seems to me much more correct to see in Aristotle first an exposition of Democritus' views and then a critique of those views. The reference to 'the wise men of old' is also perfectly appropriate in the mouth of Democritus.

<sup>2</sup>Cf. Ar. Meta. IV.30, 1025a16: 'Now this happens [by chance] to the person digging the hole (for a plant), that he finds treasure'.

<sup>3</sup>Whether we have to do here with an actual incident which occurred in Democritus' time, or with a theme from folklore is impossible to say definitely. See Ael. NA VII.16: 'Eagles take up land tortoises and then drop them down from a height on to rocks, so as to break the shell and extract and eat the flesh'. Pliny also reports (NH X.3.7): 'The eagle also shows craft by breaking the shells of tortoises by dropping them from a height'. These ideas formed the basis for the subject of Phaedrus' fable II.6: 'A crow ... persuades [an eagle] to dash the hard shell against a rock from the height of heaven, so that when it is broken it can easily eat the flesh'. Later the poet Aeschylus becomes the hero of this fable; see Ael. NA VII.16; 'an eagle, thinking that his head was a stone, dropped on it a tortoise which it was carrying'. Val. Max. VII.16: 'an eagle which was carrying a tortoise, deceived by the radiance from his head (for it was empty of hair), dropped it as on to a stone, in order to break it and eat the flesh' (cf. Pliny NH X.3.7; Sotades ap. Stob. IV.34.8; Vita Aeschyli; Suda, s.v. Aeschylus). 'The observation that eagles smash tortoises corresponds to fact' (Christ – Schmidt, Geschichte der griechischen Literatur, vol. 1, Munich, 1912, p. 287, n. 7), so it is perfectly possible that an actual event, described by Democritus, may have become the source of a popular fiction and then been transferred to the bald Aeschylus (see Christ--Schmidt, op. cit., p. 287). We come across the same theme, treated in an essentially different way, in Aesop, no. 259 Hausrath = 419 Halm, in Babrius, no. 115, and in other places, in art, popular poetry and fables (see G. Thiele, N. Jahrb. f. kl. Alt. 21, 1908, pp. 391ff.). For literature on this question see Christ--Schmidt, op. cit., p. 287, nn. 4-7. The passage of Simplicius placed in parentheses [328.3], analogous to the preceding one, is cited in his dissertation by Karl Marx (K Marx and F. Engels, Works, 1<sup>st</sup> edn., vol. 1, p. 82, n. 45). Here is its complete context: 'We see that some of the things which come about as a result of skill also come about by chance; for things also come about by chance in the same way as they come about by skill. For example someone who was thirsty drank cold water and became healthy, but perhaps Democritus says that the cause was not chance, but his being thirsty'. I have decided not to include this passage directly in the text, since from the word 'perhaps' one should possibly conclude that Simplicius is not citing Democritus, but merely imagining how Democritus would have explained that fact.

25

<sup>1</sup>From Democritus' point of view what happens always and never changes needs no explanation ('spontaneous' – see No. 18 with comm.: 'chance' is inaccurate). All change, without any exception, must be explained on the basis of the laws of mechanics (the correct order would have been 'blow, resistance, motion', i.e. collision of atoms, as a result of which

there is impact, as a result of which there is a reaction, in consequence of which there is motion). Cicero's words (no. 26) have the same meaning: 'Whatever either is or comes to be ... comes to be or has come to be through natural weights and motions'. Mondolfo, L'infinito nel pensiero dei Greci, pp. 302ff., followed by Alfieri, op. cit., p. 106, n. 256, understands antitupia ['resistance'] as 'impenetrability'. Cf. no. 313 [Simplicius] 'moving ... through the void, which yields (in front of them) and does not resist', and especially no. 117 [Philoponus] 'move ... by their counter-thrust', from which it is clear that antitupia means simply 'resistance'.

28

<sup>1</sup>Here Democritus is discussed together with Anaxagoras and the Stoics. But if we identify necessity with fate, what is said here will be in a certain sense true even for Democritus: everything which always exists and remains without change occurs by virtue of spontaneity, while everything which changes occurs according to necessity. Moreover, as we shall see below, Democritus (somewhat inconsistently) admits a certain free will in human activities. Hence in his view choice was active in a certain demarcated sphere.

<sup>2</sup>'disorderly activity': Later authors, it would seem, used Epicurus as a source for attacks on Democritus here, as in several other cases; (Epist. III = no. 37): 'chance [he, i.e. the wise man, does not believe to be a god, as most people do] (for god does nothing in a disorderly way)'. Cf. comm. on no. 37. However, both authors may have used the same passage of Democritus as their source.

<sup>3</sup>The passage of Aetius just cited shows that Diels was right to see in this pronouncement of Aristotle's a transmission of the views of Democritus, but the words 'something divine and more supernatural' are rather Aristotle's interpretation.

29

<sup>1</sup>See comm. on no. LVIII. 'setting up chance ... as the mistress ... of things as a whole' is a rephrasing of Epicurus' reference to Democritus (see no. 37 with comm.): 'necessity ... which is introduced as mistress over everything'. 'setting up chance' is a teleological distortion of Democritus' doctrine; see Alfieri, op. cit., p. 231, n. 580.

31

<sup>1</sup>I have considered it possible, following L. Löwenheim, Die Wissenschaft Demokrits und ihr Einfluss auf die moderne Wissenschaft, Berlin, 1914, pp. 121-5, to include the whole of this passage in the total of testimonia on Democritus. The grounds for that are given below (nos. 171, 516). Here I draw attention merely to the fact that the beginning of this passage of Aristotle contains only one of several versions of Democritus' own testimony about the origin of his atomism. These versions are compared below (no. 171). Philoponus (whose commentary is cited in parentheses) also testifies that here the atomists are referred to.



<sup>2</sup> en tois phusikois: This expression is usually translated ‘in the natural phenomena’, on the basis of other parallel expressions in Aristotle, e.g. Meta. XI.4, 1070b30: to kinoun en ... tois phusikois [‘the mover in ... the natural phenomena’], PA I.5, 654a16: en pasi ... tois phusikois esti ti thaumaston [‘in all ... the natural phenomena there is something wonderful’]. Löwenheim translates ‘in the works of the investigators of nature’; I followed him in Essays on the History of Ancient Science, p. 153. His premise was that in Aristotle ‘everyone brings back’ [sc. a question to a principle] can mean only ‘every student of nature’ (cf. ‘all the natural philosophers’ in the exposition of this passage in Simplicius), not ‘everyone in general’. But it has to be acknowledged that the expression en tois phusikois [in the sense] ‘among investigators of nature’, though possible, is however unusual; one would expect para tois phusikois. From the linguistic point of view I should prefer to translate ‘in works on natural science’; cf. e.g. Meta. VII.1, 1042b8 or Phys. VIII.10, 251a8. But in order to avoid disputes I retain the traditional translation, since no conclusions depend on it.

#### v. Free will

33a

<sup>1</sup>Diels [no ref. given] compares with this dictum Aristotle’s words (EE VII.14, 1247a31ff.): ‘But nature is the cause of what is always or for the most part, but chance is the opposite’ (a Democritean distinction) ... (1247b4) ‘But if ... nothing is to be said to come about from chance, but though there is some other cause, because we do not see (it) we say chance is the cause, why in drawing distinctions do they posit chance as a cause analogous to human reasoning, assuming that it has a nature of its own?’ As Usener points out (Epicurea, p. 396; see also R. Philippson, ‘Demokrits Sittensprüche’, Hermes 59, p. 411) Epicurus imitates this dictum of Democritus’, KD 16: ‘For the wise man chance intervenes in a few things, but reasoning arranges the greatest and most important things over the continuous span of life’.

33b

<sup>1</sup>Against every kind of evil the only remedy is the correct use of the thing, or in other words, the skill corresponding to that thing’ (A. Langerbeck, Doxis Epirusmie, Neue philol. Untersuch., 1925. Cf. Antiphon, Tragicorum Graecorum Fragmenta [TGF] fr. 4 Nauck (in Ar. Mechan. I, 847a20): ‘through skill we overcome things by which we are defeated by nature’. Cf. the passage (perhaps by the same author) restored by Th. Gomperz, Studia Vindobonensia II, p. 5: ‘nature gave [the means] to live cheaply, skill [the means] to live well’ (‘to live cheaply’ is my suggestion; ‘life’ is Gomperz’ suggestion).

33d

<sup>1</sup>All the dicta compared here (nos. 33a-d) ascribe great significance to rational foresight, and consequently to free will, though within certain narrow limits (cf. E. Bignone, Nuove ricerche

sulla formazione filosofica di Epicuro, v. 1, Florence, 1933, pp. 51ff.). Epicurus (see nos. 36a-38) points out that such a supposition contradicts Democritus' assertion about pervasive causation; how these views, on a first impression contradictory, were reconciled we do not know. Here there is plain talk about the power of chance, the existence of which, as we saw above, Democritus flatly denied.

It is also incomprehensible how someone can have moral responsibility for his desires, if they are totally causally conditioned. Whether these contradictions remained unreconciled for Democritus, or he somehow reconciled them, we do not know. It is possible that these and similar passages refer not to moral responsibility but to the self-defence of the community and of individual citizens (see nos. 620-5).

Of course there can be no guarantee of the authenticity of those passages which are known to us only from the 'Bees'.

34

<sup>1</sup>No. 34, it seems, has the same sense as no. 33a, on the basis of which it must be interpreted.

<sup>2</sup>podēgetein ['direct'] and ochein euporōs ['bring through the right channel'] are metaphorical expressions, taken from sailing, not from horse-riding, as Langerbeck thinks (op. cit., p. 73).

<sup>3</sup>'such things' are just what are useful to the wise person and harmful to the foolish.

<sup>4</sup>Langerbeck, op. cit., p. 74, rightly draws attention to the strong emphasis here on free will and the necessity of a strong will: 'the strong emphasis on the word boulomenōi ['willing'] through its very significant position in the sentence: so long as one goes for it with a sure aim'.

35

<sup>1</sup>'good things': As Diels points out [DK II, p. 182, l. 5 n.], an Ionic circumlocution for the simple 'goods'; cf. Acusilaus, Pap. Ox. 1611, fr. 1 = DK 9 b 40a. Cf. Diels, Berl. Sitzb. 1884, p. 350,12: 'exeirgei [=] 'restricts to this area', i.e. 'constrains', as Hdt. VII.96: 'I am not constrained by necessity to undertake the enquiry'.

<sup>2</sup>The subject of 'constrains' must on my reading be taken from the following clause: hē phusikē kakē ['natural wickedness']. Cf. Eur. Hippol. 162: kaka dustanos ('unfortunate decay of the soul'); Med. 1051: tēs emēs kakēs ['my wickedness'] ([i.e.] 'lack of resolution' (Wilamowitz). Antonius Melissa puts into the mouth of Democritus the following expression 'Chance provides a splendid table, good sense a sufficient one' [DK 68 B 210 = Stob. III.5.26, CPP 588].

36

<sup>1</sup>I have taken this testimonium from A.O. Makovelsky's book The Ancient Greek Atomists, Baku, 1946, p. 231. The passage is entitled 'Aristotle's criticism of Democritus in De Interpretatione ch. 9'; as in other places the author gives no immediate source, nor does he give any ground for the title. His translation 'The abolition of chance brings with it absurd consequences. There is much that happens not by necessity, but by chance' is not confirmed by the original; in E. Radlov, Aristotle's De Interpretatione, Journal of the Ministry of Public Instruction (ЖМНП), 1891, February, p. 76, which Makovelsky cites, there is nothing like that. Nevertheless, if with the great majority of scholars we accept that work as authentic or contemporary with Aristotle and produced by his school (see Gercke, RE II, col. 1040, s.v. 'Aristoteles') it is impossible not to see there a critique of Democritus, since in this passage there is a totally inappropriate discussion, with a purely polemical aim, of the freedom of the will, which has essentially no connection with the logical questions discussed in the work (cf. E. Radlov, op. cit., p.76, n.1: 'Aristotle's acute remarks have no logical interest, but are particularly important for the interpretation of the opinions of the ancients about the freedom of the will'), and it contains the characteristically Democritean formulation 'nothing [occurs] whichever way it chanced, but everything is and comes to be by necessity' (= no. 22 'Nothing comes about in vain, but everything ... from necessity'). Gercke, who, without adequate grounds, regards this work as apocryphal and belonging to the Hellenistic period sees here a critique of the Stoics: 'The author (stood) completely under the influence of the dispute provoked by Diodorus Cronus between the Epicureans and Stoics (namely Chrysippus) on the subject of the freedom of the will'. But the Stoics never put forward the principle of pervasive causation in such a sharp and unconditional form as in the dictum of Democritus' cited here; see e.g. Eus. PE VI.7 'Democritus ... intends to show that the finest of human things (sc. the freedom of our mind) is a slave, but he (Chrysippus) that it is a semi-slave', and also Boethius In De int. (PL LXIV, pp. 193-5): 'The Stoics [say that] what we do, we do by our will, which is indeed in us, but yet the necessity of that providence constrains the will itself'. As far as Diodorus Cronus is concerned, leaving aside the fact that (see comm. on no. 283) he lived later than Aristotle, who could not have cited him, there are no grounds whatever to think that the metaphysical question of the freedom of the will was of interest to him, since his arguments had a purely eristic character. It is curious that the final conclusion of the arguments of chapter 9 is put forward by Aristotle as the consequence of his denial of the principle 'everything from necessity': 'so it is clear that it is not the case that everything is or comes to be from necessity, but some things are whichever way it chances, and the assertion is no more true than the denial, and some things are rather and for the most part one way or the other' (19a19); whereas in fact he is merely repeating Democritus' own conclusion (no. 103): '(some things) are from necessity ... and others are possible, and of these ... some are for the most part ... and others are equally divided', though Democritus, of course, does not connect these purely logical categories with the purely logical principle of pervasive causality or the freedom of the will (see comm. on no. 103).

<sup>1</sup>Here Democritus' inconsistency in the area of ethics is acutely characterised. The freedom of the will postulated in nos. 32-5 contradicts Democritus' basic principles in a most obvious way. It was precisely to remove this contradiction that Epicurus introduced the swerve (cf. nos. 38-9). It is true that in their commentary (DK II, p. 101, l. 30 n.) Diels and Kranz interpret this passage altogether differently: 'Epicurus thinks that though the Abderites had made great achievements in many things, it had still not become clear even to themselves how much the concept of necessity and chance had facilitated the task of giving an explanation of the world. The facts (erga) which Epicurus believes he has discovered completely do away with the doxa ['belief'] ([i.e.] the popular conception of divine providence) and lead to the triumph of the mechanistic theory of the Abderites'. But the second part of our passage, which Diels omitted, shows the complete impossibility of understanding the 'belief' mentioned here as the religious world-view of the common people and the 'things' as facts which contradict it. The expression 'it caught the man conflicting with his deeds in respect of his belief' requires us to apply both 'deeds' and 'belief' to the same 'famous man', i.e. to Democritus, and the 'deeds' are Democritus' practical actions, which he himself did not regard as predetermined. If this is so, then the verb kouphizō here means not 'make easy, facilitate' but, as in a number of other places, (e.g. Eur. Hel. 1555; Dio Cassius XL.1, L.33) 'be easy, be light' kouphon einai. But on the other hand kouphon einai is a synonym of the word kouphologeîn ('behave frivolously, argue superficially'). As is well known, Epicurus regarded it as his greatest achievement (see nos. 36-9) that he had overcome Democritus' blind 'necessity', and 'spontaneity' and had in so doing freed mankind from 'slavery' (no. 37); hence it is completely impossible that he saw in Democritus' affirmation of 'the total power of necessity and spontaneity' 'an alleviation conferred on humanity', all the more because after 'although' one should expect not praise but censure of Democritus.

<sup>2</sup>'where it did not gain the upper hand': this is the third limb of the three-limb antithesis (A - B - A) so beloved by the ancients.

<sup>3</sup>staseōs: 'internal division'.

<sup>4</sup>I.A. Borichevsky [no ref. given] has made the very plausible suggestion that Epicurus' dictum originally stood in a context of this kind. Now it stands after words which have no connection whatever with it ('the wise man who is being tortured suffers no more [...] his friend'), which results in complete nonsense. Votke [no ref. given] separated the two sentences from one another, as self-standing dicta. However, just such reproaches were directed against Democritus on the ground that he regarded taste, colour and warmth as things that do not exist in reality (see no. 61). So this expression of Epicurus' could have stood in a context of the same kind as no. 61.

<sup>1</sup>It had long been maintained (by Usener, von der Mühl and others) on the strength of the testimony of Diogenes of Oenoanda (no. 39), that Epicurus is here attacking Democritus. Now just this has been shown by Bignone, *op. cit.*, pp. 51ff. and Philippson (Hermes 59, p. 412). Philippson compares the expression 'necessity, which is introduced by some as the mistress over everything' with the words of Dionysius of Alexandria (no. 29): 'Democritus ... setting up chance as the universal ... mistress and queen' ('instead of 'necessity' he imprecisely says 'chance' [Philippson]); see also comm. on no. 39. However, his conclusion that both authors have as their source the same passage of Democritus is problematic; in many cases Christian writers made use of Epicurus' attacks on Democritus' determinism for their own purposes (see e.g. no. 41, which clearly repeats Epicurean argumentation), and in this case Dionysius' source is Epicurus. However that may be, Dionysius, repeating Epicurean attacks, directly indicates that they have Democritus in view.

<sup>2</sup>Bignone also points out that Epicurus' expressions 'unreliable' and 'given', applied to chance, contain a direct attack on Democritus' expression (no. 33a) 'Chance gives great gifts, but is unreliable'. 'Chance [is not a god...], for nothing is done by a god in a disorderly way' is probably also the source for Aetius (no. 28): 'Chance is a name for disorderly activity'. But it is possible that both refer to the same pronouncement of Democritus'.

38

<sup>1</sup>Cf. *Lucr.* II.251ff.

39

<sup>1</sup>The restoration of this passage is very problematic, as is its interpretation and translation. I understand it as follows: 'what has been said previously' and 'this' = prophecy, and 'that' = the existence of fate. In that case the meaning is this: of course it is possible to reject prophecy and none the less admit deterministic natural regularity (necessity), but that brings confusion to our life. In any event along with the rejection of prophecy there disappears any ground to admit fate or deterministic necessity.

<sup>2</sup>This passage of Diogenes of Oenoanda immediately follows his report that Democritus regarded the evidence of our senses as unreliable, whereas what exists in reality is merely atoms and the void (no. 61). But it seems that it sums up the whole of Democritus' doctrine, including his rejection of the freedom of the will, with which the absence of fear of fire and sword fits better.

40

<sup>1</sup>From nos. 32-5 it is perfectly clear that in his practical moral dicta Democritus attached great significance to free human action. So, if Themistius maintains in the excerpt cited here that Democritus altogether neglected free human will he can have come to that

conclusion only on the basis of his theoretical works (above all those on nature). So Epicurus had a perfect right to speak (no. 36a) of the contradiction between actions and words in Democritus. Similarly the later dictum, falsely ascribed to Democritus, had as its source the same kind of theoretical pronouncements of Democritus: 'If it were possible to learn what one must undergo, and not undergo it, learning would be a fine thing. But if one must undergo what one must learn, why must one learn? For one has to undergo. Democritus' (Corpus Paroemiographorum Graecorum.: Apostolius VI.67d: Arsenius XX.33. Cf. Boissonade, Anecdota I, 117, 119; Max. Loc.Comm. 42, p. 637).

The theory set out in Ar. Phys. VIII.2, 252b7ff., which belongs, I am profoundly convinced, to Democritus, gives at any rate a clear idea of how Democritus and those who agreed with him argued: 'It would seem perfectly possible for there to be motion when there was none at all before, on the following grounds ... We see that it is possible for something to have been moved when it neither is being moved nor has any movement in itself, as in the case of inanimate things, which, though neither any part of them nor the whole is being moved, but is at rest, yet are moved at some time ... But above all that kind of thing is obvious in living things; for in some cases there is no movement in them, and they are at rest, yet they are moved at some time, and in some cases there comes to be in us an origin of motion from ourselves, even if there is no motion from outside. We do not see this happening this way in the case of inanimate things, but there is always something else outside them which is moving them. But we say that the animal itself moves itself, so that even if it is totally at rest at some time, movement would come to be in the motionless thing from itself and not from outside. But if this can come about in an animal, what prevents the same thing from happening with respect to the totality [of things]? For if it comes about in the microcosm, it will in the macrocosm as well. And if it comes about in the cosmos, then it will in the infinite, if it is possible for the infinite to be moved and to be at rest as a whole. .. (253a9ff.) ... what happens in the case of living things. For the thing which was previously at rest subsequently moves, though nothing outside has moved it, so it seems. But that is false; for we always see some natural part being moved in the animal; and the animal itself is not the cause of the movement of this, but perhaps the environment ... nothing prevents, but rather it is perhaps necessary, many movements coming to be in the body from the environment, and some of these move thought or desire, and that moves the whole animal, as happens during sleep. For though there is in it no movement involving the senses, yet there is some [movement], and the animals wake up again'. The fact that these arguments contain something totally extraneous to Aristotle's system is apparent from comparison with other arguments of his devoted to the same question; NE III.7, 1113b7: 'acting and not acting are up to us'; De motu an.6, 700b11ff: 'Of other things, apart from the movement of the whole [cosmos], living things are causes of motion, except such as are moved by one another ... For all animals ... are moved for the sake of something, so that this is for them the limit of all their movement, that for the sake of which [they are moved] ... So that it is clear that in one respect what is eternally moved by the eternal

mover is moved in the same manner as each animal, and in another respect otherwise ... A thinking thing sometimes acts and sometimes does not act, and is [sometimes]moved and sometimes not moved'. B. Saint-Hilaire, Physique d' Aristote, Paris, 1862, p. 467, is exceptionally indignant at this: 'Aristotle ought not to have accepted ... this argument... It amounts to nothing less than the denial of freedom in man. One may refuse it to animals, but for us to deny it to ourselves is to contradict the most manifest evidence of conscience'. I regard Democritus as the source of this theory because of the expression 'the animal is a small world', which is testified to be a turn of phrase specific to Democritus, and is not found anywhere else (see no. 10). 'The phrase is borrowed from Democritus (fr. 34)' (Ross, op. cit., p. 690). The content also indicates Democritus; one should note the contrast between our world and infinite space, which is foreign to Aristotle.

41

<sup>1</sup>See comm. on no. 62.

vi. Nothing comes to be from nothing

(The principle of the conservation of matter and energy)

42

<sup>1</sup>This principle was already well known to Thales, for Alcaeus, his older contemporary, writes (fr. 84 Lobel): 'and nothing would come from something' (see comm. on no. 7).

44

<sup>1</sup>'in kind ... in number': Aristotle gives the definition of these scientific terms in a great number of places. He explains that the category 'in kind' is wider than 'in number' (Meta. IV.6, 1016b36: 'things (sc. one) in number are also one in kind, but things (sc. one) in kind, are not all one in number'. Things identical in number are such as, having different names, are instantiated in one and the same instance (Top. I.7, 103a9ff.: 'the same ... in number are things of which there are several names, but the thing is one, e.g. a cloak and a mantle'. Things identical in kind are such as belong to one and the same class or type, e.g. one person and another person, one horse and another horse (ib. '(the same) in kind are such as are undifferentiated in respect of their kind, as man with man and horse with horse; for those things are said to be the same in kind which come under the same kind'). Sometimes things merely seem to be identical in number, though in fact they consist of altogether new matter, e.g. the flowing water of a river in some place or other, or a flame (e.g. Meteor. II.3, 357b28: 'like flowing water and the stream of a flame'). Consequently, something which consists of one and the same matter, e.g. a person in youth and the same person in old age, is one in number; see Meta. IV.6, 1016b32: '(one) in number, in which the matter is one, and in kind, of which the definition is one'. Cf. GA II.1, 731b33: 'it is impossible (sc. for an

animal to be eternal) in number, but in kind it is possible'. So the sense of the passage is clear; new worlds formed from the old are the same in type, but no single one of the old worlds survives as an individual, since the atoms which constitute them are dispersed and re-united in new combinations. Cf. C. Bailey, The Greek Atomists and Epicurus, Oxford, 1928, p. 148: 'The worlds thus become the same in form, but not in individuality'; cf. Cic. ND 1.19.49: [the Epicurean gods are perceived] 'nec soliditate quadam nec ad numerum' ['neither materially nor individually'].

## vii. The principle of impenetrability

45

<sup>1</sup>The atomistic 'principle of impenetrability' is essentially different from that which bears that name today, since the atomists operated with indivisible parts of space. This principle can essentially be formulated as follows; a single particle of matter always occupies a single particle of space, and conversely a single particle of space contains at most a single particle of matter. From this it also follows: 1) that no continuum, in so far as it is a continuum in the full sense of the word, can be divided 2) that several continua can in no circumstances form a single continuum.

<sup>2</sup>This is in essence simply a consequence of the law of equilibrium 'Why this rather than that?'. In the particular case 'Why two bodies rather than any number?'.

### b. THEORY OF COGNITION

#### i. Preliminary confession of ignorance

48

<sup>1</sup>tōi kanoni [by the principle]: Diels [DK 68 B 6] translates 'rule' ['Regel']. No. 83 allows us to translate this term more precisely as 'basic methodological principle'. Cf. comm. on no. 98, and also Langerbeck, op. cit.

49

<sup>1</sup>As Langerbeck correctly observes in the passage indicated, epirusmiē in our context must mean 'change of shape', since rusmos means 'shape' in Democritus.

51

<sup>1</sup>When a Greek speaks of a well or of a deep abyss etc., he has in mind something which it is difficult to find a way out of (cf. Aesop 9 Hausrath: 'a fox which had fallen into a well had to stay there because it could not get out'. So the expression 'The truth is in a deep abyss'



means the same as 'It is exceptionally difficult to know how each thing is in reality' [= no. 50]. Cf. Pl. Th. 165b: 'How will you deal with the inescapable question, when you are down the well, as they say?'; 174c: 'falling into wells and all sorts of traps through inexperience'. But a very wise man can 'find a way out even of a situation where it seems there is no way out', as we read in Aesch. Prom. 59; cf. the dénouement of the fable of Aesop just cited. One must not lose sight of that in interpreting the passages cited.

52

<sup>1</sup>'nothing is true': 'Nothing' is the subject, and 'is true' the predicate. One must not read 'nothing true' as the subject, i.e. 'none of the things which we experience', as in Sextus (no. 57). 'True' [=] 'such as it exists in reality'. On 'unclear' see nos. 79-80.

<sup>2</sup>See comm. on no. 63, where a similar dictum of Metrodorus' is cited (especially the end of the comm.), and also comm. on no. 57.

53

<sup>1</sup>'eristic, i.e. a follower of the Eleatic philosophy': see Zeller, Philos. d. Gr., I, p. 1039, n.

<sup>2</sup>See S.A. Luria, Essays in the history of ancient science, Moscow and Leningrad, 1947, p. 156: 'this fine example, typical of a people who live by the sea, undoubtedly appears to be an organic part of the passage and consequently goes back to Democritus himself. ... In actual fact an oar plunged into water appears to everyone as refracted at the point where it is plunged in, yet none the less immediate experience convinces us that it remains unbroken. What are we then to say about examples which appear different to different people?' Clearly the Greeks regarded the refraction of an oar in water as the most typical example of a visual illusion.<sup>145</sup>

55

<sup>1</sup>This is a particularly valuable piece of evidence: 'He had undertaken to show that sensations have the force of reliability'; from which we see that in Democritus' view in every case something in reality corresponds to the evidence of our senses, and that he was convinced that he had shown that. All the rest contains merely the conclusion of the sceptics and therefore has no interest for us (see comm. on no. 57). The citations which have come down to us in their authentic Democritean form in no case attest the correctness of Pyrrho's interpretation.

<sup>2</sup>In Kranz's opinion [DK II, p. 139, l. 16n.] 'but we' might have been contrasted with the word 'the gods' etc. , as in Il. II, 484ff. This seems to me implausible.

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<sup>145</sup> See e.g. Pl. Rep. 602c: 'the same things are crooked and straight to those who look at them in water and outside it'.

57

<sup>1</sup>Diogenes Laertius (IX.72, no. 51) correctly notes that the Pyrrhonians were very one-sided in their representation of Democritus' doctrine and thereby fell into exaggeration by turning him into a sceptic: 'And indeed Xenophanes and Zeno the Eleatic and Democritus turn out to be sceptics according to them'. However, Sextus himself gives elsewhere a more correct interpretation of Democritus' doctrine (no. 85).

58

<sup>1</sup>What has just been said about the Pyrrhonians is true in this case for Cicero as well: 'Cicero has here probably overshot the mark' (J.S. Reid, Ciceronis Academica, London, 1885, p. 262), since 'from the time of Arcesilaus and Carneades the doors of the Academy had been wide open to Pyrrhonian influence' (Zeller [no ref. given]).

<sup>2</sup>'tenebricosos' ['dark']: probably simply the Latin translation of the Greek skotias; see no. 83 (Diels).

<sup>3</sup>As Diels points out [DK II, p. 29, l. 6n.] the expression 'everything is swathed in darkness' is found later in Lactantius Inst. III.28.12, but Lactantius attributes that view not to Democritus, but to Anaxagoras.

59

<sup>1</sup>The grammatical connection is as follows: colours (subject) have their being (direct object) by convention and stipulation etc.

61

<sup>1</sup>In contrast to Democritus, Epicurus was interested in physics from the point of view of its application to morality, so his physics had above all to satisfy his moral ideal. For this not only must the human will be free, but the world of appearances in its basic features must really exist. If in fact the whole sensible world were mere illusion, if there existed only atoms, then for us there would no difference between being alive and being dead; in either case there would exist only a certain combination of atoms. In that case there would be no reason to avoid fire, sword etc., all the more because everything is predetermined and predestined.

<sup>2</sup>'expelling from life': Plutarch is parodying one of the Epicureans' own expressions, which we find in the fragment which I have cited here: 'according to your theory, Democritus ... we shall not even be able to live' (Diogenes of Oenoanda). See further Lucr. IV.505-12. The passage of Epicurus in the Gnomologium Vaticanum (see no. 36a and comm. on nos. 36-9) can also be attributed to this source.

<sup>3</sup>'throw things into confusion': This passage too goes back to the same Epicurean dictum.

<sup>4</sup>See comm. on no. 65, n. 1.

62

<sup>1</sup>Oenomaus, a Cynic philosopher from Gadara, lived in the mid-2<sup>nd</sup> century CE. The only work of his known to us, Cheats detected in their fraud, was mainly directed against the Delphic oracle. As a Cynic he was chiefly concerned with the question of the freedom of the will, since from the standpoint of Cynic doctrine man forges his own happiness. Belief in oracles, however, presupposes that everything in nature and in life is determined in advance, and that no efforts of will can change anything (see e.g. the myths of Oedipus, Perseus etc.). Therefore Oenomaus felt it necessary to combat belief in oracles, and at the same time combat philosophers, [viz.] Democritus and Chrysippus, the head of the Stoic school; the former maintained that all natural phenomena are subject to pervasive causality, and the latter that free will is itself ruled by providence (see comm. on no. 36). Oenomaus aimed to show that the denial of the freedom of the will contradicted Democritus' basic premises, [viz.] that the only criterion of truth is our senses, i.e. the immediate apprehension of our existence. This immediate apprehension is accepted as an axiom (see nos. 64-5: 'This I say about everything, man is what we all know'; 'As many things as one might think of, all are')<sup>146</sup>, from which everything else is deduced. But the existence of free will is apparent by exactly the same immediate apprehension, since everyone immediately feels the difference between free choice and compulsion 'between the case when a man goes himself and when he is taken by someone else'. So one must either give up the principle that self-awareness is the starting-point of all science or accept the freedom of the will. But the first alternative arouses Democritus' indignation, and he cannot accept it, since on the principle 'Man is what we all know' are founded all his numerous celebrated works, which in that event turn out to be non-existent. So this passage gives us the possibility of better understanding the meaning of Democritus' initial basic principle, to which nos. 64-5 are dedicated. As in a number of other cases, on the basis of these dicta Democritus is understood as an empiricist, who regards the immediate evidence of the senses as absolutely reliable, from which it may be concluded that he must also acknowledge the freedom of the will, as immediately given in sense. Others, starting from sceptical statements by Democritus, have drawn the opposite conclusion, maintaining that he was a sceptic, who put absolutely no trust in the evidence of the senses. In fact his scepticism had a purely propaedeutic character; it had to bring the reader to the conclusion that the evidence of the senses, being the only source of knowledge of reality, gives simply a distorted picture of reality and that one piece of evidence contradicts another. One must eliminate these contradictions and so correct the distorted picture with the help of genuine knowledge. Hence the conclusion that it is necessary to admit the freedom of the will ceases to be persuasive; the freedom of the will may be just such an illusion as colour, smell, taste etc.

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<sup>146</sup> [The words 'all are' are not present in the text of no. 64, which is here cited.]

<sup>2</sup> antilēpsis [‘apprehension’]: See Passow’s Dictionary: ‘Grasp with the senses or with the faculty of knowledge: Plat., Tim. Locr. and often in Plutarch’. Cf. the verb antilambanomai [‘apprehend’] (see no. 62: Georgius Monachus II.19).

<sup>3</sup>The expression is very unclear; it seems that my translation gives the basic sense. In it one has to translate krinō tini as ‘count as something’, but in that case ‘thing’ does not sound altogether Greek. Logically one would expect ‘the nearest things of all to ourselves’.

<sup>4</sup>‘for those many books no longer exist’: clearly subordinate to ‘you are discontented’ (‘you are discontented if someone wants to deprive you of your apprehension of yourselves, for [then] those many books [of yours] no longer exist’.

<sup>5</sup>‘unseen there’, i.e. something concealed in this general belief, viz. that apprehension is a reliable measure.

<sup>6</sup> biaiōn [‘compelled, enforced’]: cf. biai [‘by force ’] in no. 25 and comm.

63

<sup>1</sup>Diels included this report among the spurious fragments [DK 68 B 304], but it must correspond to reality in a greater or less degree, since we come across the same dictum in Democritus’ follower Metrodorus; Cic. Acad. priora II.23.73 (after no. 58): ‘Metrodorus of Chios says at the beginning of his book On Nature “I deny that we know whether we know anything or know nothing, nor that we even know whether we know or do not know this very thing, nor that we know whether anything at all exists or nothing exists”’. Philod. Rhet. fr. 3, col. 1 (II.169 Sudh.): ‘nor would one agree with Met<rodorus>. of Chios that one does not know that very thing’. Sext. M. VII.88: [Metrodorus and others abolished the criterion of truth] ‘Metrodorus because he said “we know nothing, not even this, that we know nothing”’. DL IX.58: ‘Metrodorus of Chios, who said that he did not even know this, that he knew nothing’.

But the most interesting testimony of all is that of Eusebius (PE XIV.19.8), from which, it appears, we are entitled to conclude that Metrodorus’ scepticism was also propaedeutic. At the beginning of his work he expressed extreme scepticism, but none the less in the further course of his arguments he reached the conclusion that all phenomena ‘exist’: ‘Metrodorus is said to have been a student of Democritus, and to have indentified as principles the full and the void, of which the former is what is, and the latter is what is not. In the introduction to his On Nature he writes as follows: “None of us knows anything, not even this, whether we know or do not know” (this introduction set Pyrrho, who came after him, off in the wrong direction). But later he says “Everything that one would think is”’. <sup>147</sup>

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<sup>147</sup> [This dictum might be taken to mean ‘Whatever anyone thinks, is [so]’ (i.e. ‘All beliefs are true’) or ‘Whatever anyone thinks of, exists’. Lacking Metrodorus’ own text, we cannot tell what precisely he meant.

<sup>1</sup>On the basis of this expression together with the other data mentioned in the text I restore Democritus' dictum 'Whatever anyone thinks of, exists' (no. 64). That 'sceptical introduction' ('we do not even know whether we know etc.') essentially contains merely a repetition of a remark of Democritus himself, transmitted to us by Alexander (In Meta. III.5, 1009b9, p. 305.26 (= no. 52): 'Democritus ... says that either nothing is true or, if something is true, it is unclear to us'. This dictum of Democritus' is perhaps referred to by Gorgias (DK 82 B 3): 'If [anything] does exist it is inapprehensible to man... and if it is apprehensible it is untransmittable ... and even if anything does exist it is unknowable and unthinkable for man'. Gorgias regards this conclusion as inevitable, for otherwise, 'If what we think existed, then everything we think would exist (on the strength of the principle 'Why rather this than that?' [insertion by L]) exactly as we thought of it, which is absurd'. Democritus and Metrodorus, on the other hand, regard that absurd possibility (that everything which is thought of exists) as a fact; that is the way in which they refute the 'sceptical introduction' from which they set out. Lucretius too (IV.469ff.) subsequently combats agnosticism of this kind: 'Finally if anyone thinks that nothing can be known, he too does not know if that can be known, since he admits that he knows nothing. So I shall give up pleading the case against someone who has stood on his head in his own footprints'. Of course, Lucretius is referring to Gorgias or Pyrrho, not Democritus or Metrodorus.

It is striking that the same dictum is put into the mouth of Heraclitus and is also treated as a propaedeutic doubt. He is supposed to have said that he began (in his youth) from the assumption that he knew nothing, and later arrived at the truth. See Gnom. Vat. 743 (Wiener Studien [Wien. Stud.] 10, 1888, p. 232): 'Heraclitus the natural philosopher said that when young he was the wisest of all, because he knew that he knew nothing'. Cf. DL IX.5: 'Heraclitus was astonishing as a child, because when still young he said that he knew nothing, but when he grew up he said that he had come to know everything'. It is interesting that in Plato Tht. 173d the same expression gives a general characterisation of the abstract investigator of nature: 'all of these things he does not even know that he does not know'. This is the investigator such as Thales (174a), who practices astronomy and the discovery of the nature of things; and there are a number of grounds for supposing that by this 'leader of philosophy' (173c) Plato in the first instance has Democritus in mind.<sup>148</sup> In connection with this Sternbach's assertion (Wien. Stud. 10, 1888, p. 233) becomes even more convincing: 'The dictum 'I do not know even this, that I do not know', which Metrodorus is commonly supposed to have been the first to put forward, would better fit Democritus, who had said that truth is plunged in the depths ... Plato Tht. 173d seems to

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Luria interprets him in the latter sense, and, apparently on the strength of the testimony relating to Metrodorus, in comm. on no. 64 attributes that thesis to Democritus also (see also translator's n. on no. 62).]  
<sup>148</sup> Cf. Frank, op. cit., p. 96, n.239. Frank thinks that Tht.155-184 refers primarily to Democritus. We may add that, as is pointed out there (174b), this leader of science teaches what man is, while Democritus says (see no. 65): 'This I say about everything; man is what we all know'.

refer to this saying, and it is very probable that that dialogue was composed before Metrodorus' book ... appeared. That being so, I consider that a quotation of a saying of Democritus' underlies the corruption rather than the name of Democritus himself'. [I am indebted to Prof. S.J. Harrison for help with the construal of the last sentence of the quotation from Sternbach.]

Cicero was the first to put the saying 'I know that I know nothing' into the mouth of Socrates (Acad. priora II.23.74: ['It cannot be doubted that it seemed to Socrates that nothing can be known. He made only one exception, that he knew that he knew nothing, nothing more'. Cicero's testimony undoubtedly goes back (see Reid, *op. cit.*, p. 264) to Plato, Ap. 21d: ['It is likely at any rate that I am wiser than this man in this one small thing, that I do not think that I know what I do not know'], but the meaning of this passage of Plato is completely different. 'Socrates certainly believed that knowledge could be found' (Reid, *op. cit.*, cf. Zeller, Philos. d. Gr. II, 1, p. 117), and this passage has no bearing at all on science. See Pl. Ap. 19c: 'I say this without disrespect to that kind of knowledge, if anyone is learned in matters of that kind – lest I be prosecuted by Meletus in a case of that kind – but I have nothing to do with those matters'.

65

<sup>1</sup>As Diels rightly point out (DK II, p. 177, l. 14) epinoia means 'concept'.

<sup>2</sup>idiōtikē ('commonplace, superficial'): see no. 171.

<sup>3</sup>This appeared at the opening of some work; cf. Cic. Acad. priora II.23.73 (no. 58): 'He was bold enough to begin "This I say about everything"'.

<sup>4</sup>I think that Democritus' train of thought was as follows: according to his doctrine, man, i.e. his sensations and ideas, is something immediately given. There is no need to explain or to define these sensations and ideas; they are clear to everyone without that. Only what is not obvious is in need of explanation, and that interpretation is achieved on the basis of the principle of analogy between microcosm and macrocosm (see nos. 9-12). That is why the expression 'Man is what we all know' stood at the beginning of one of Democritus' works. It is possible that the same thought was expressed by Albertus Magnus as follows (no. 97): 'Democritus says that the wise man is the measure of everything that exists'; cf. no. 84 [Sextus M. VII.321] Democritus and others 'said that they were themselves criteria of truth'. In the same way Protagoras' doctrine of man as the measure of all things must have been somehow connected with this saying of Democritus'. See comm. on no. 97 and the exposition of Democritus' basic assumption by Oenomaus of Gadara (no. 62): 'our apprehension of ourselves ... is the most reliable measure'. In Democritus' view, explaining or defining sensations was not only superfluous, but impossible. That such was Democritus' view appears from Ar. Phys. II.1, 193a31ff, a passage very close to the testimony of Sextus which I have cited, so that I am convinced that it goes back to Democritus: 'but it is

absurd to try to demonstrate that nature exists ... demonstrating the apparent by means of the non-apparent is the mark of someone who is unable to judge what is knowable in itself and not in itself. And that this can happen is clear; for someone blind from birth might reason about colours, so that he would necessarily be arguing about names, but understand nothing'. See also Nicephorus Gregorius, *Byz. Hist.* 20.1.3, p. 956ff. Schoppen: 'It would be as if ten people blind from birth got together and disputed about the colours of wool that they were holding, each one thinking that he was speaking the truth in every case. I think that anyone who saw them would be torn between pity and laughter, and would think that they were associates of Democritus and Heraclitus' (cf. comm. on no. 77). Similarly, Epicurus' dictum 'Man is that sort of shape with a soul' (fr. 310; Sext. *M.* VII.267) apparently refers to the same passage of Democritus. That the thesis 'Man is what we all know' was in Democritus not merely the opening of a work, but the starting-point for all cognition, is clear from Oenomaus of Gadara (no. 62), who, after declaring that the apprehension of ourselves is the most reliable criterion, says that the rejection of this thesis would arouse Democritus' indignation, for then 'all his many fine books would be reduced to nothing'.

66

<sup>1</sup>Here and in all other cases in the pre-Epicurean literature we understand 'those who posit indivisible magnitudes' as Democritus and his followers.

67

<sup>1</sup>'reality is what appears': see comm. on no. 70.

<sup>2</sup>'thinking otherwise': *allōs* 'otherwise' means 'worse than should be', and contains a euphemism, especially in the sense of opposition to the truth (Hdt. III.16.7 'the Egyptians seem to revere them otherwise', IV.77.2 'the story has been made up otherwise' etc.). The note in Passow's *Dictionary* 'otherwise than should be' is connected with this.<sup>149</sup> So 'thinking otherwise' means 'thinking otherwise (than appropriate)'. The line of Homer cited in the text is not in the versions which have come down to us; for literature on the question

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<sup>149</sup> I Bekker, *Anecdota Graeca*, p. 379,4; Hesych. s.v. *allōs* ['in vain']. Schol. II.23.144: 'Signifies 'vainly, fruitlessly'; Soph. *OT* 333 'why do you examine these things vainly' (cf. 1151: 'labours in vain'. On this the scholiast remarks 'Not as is appropriate'. Cf. *alloion ti* ['something else'] with the secondary meaning 'something bad': 'something other than what is what is good and what is wanted', euphemistically instead of 'something bad'. Hdt. V.40.1 'lest the Spartans decide something else in your case'. DL IV.44 'so that, if anything else were to happen, I should not depart having wronged you'. Bekker, *Anecdota Graeca* p. 14, 28: *allokotos* ['strange, unusual']; 'signifies strictly what diverges from the established state and manner... and also applies to those in unnatural bodily states'. In connection with 'think otherwise' cf. Hdt. V.85: 'they say ... that as they were dragging [the ships] there was thunder accompanied by an earthquake, and the crews who were dragging thought otherwise [i.e. were struck unconscious] by that'. Hom. *Il.* 23.696-8 (of Euryalus)

'they dragged him through the battle with trailing feet ...

And they carried him with them thinking otherwise.'

*Od.* 10.373: 'it did not please my mind, but I was thinking otherwise (i.e. was absent-minded, not reacting to my surroundings), and my mind foresaw evils'.

see DK II, p. 109, l. 10n. The approach to this question taken by Frank (op. cit., p. 88) is completely wrong: 'If Homer uses the expression 'thinking otherwise' in this passage, in which he describes Hector's falling down unconscious, then in Democritus' view the etymology of this word is a sufficient proof that Homer shares his view of consciousness as consisting of an uninterrupted succession of sensations, and that he is acquainted with his doctrine of the subjectivity of sensory sensations'. In this connection, moreover, according to Frank Democritus even goes so far 'in order to show what he required' (n. 213) as to falsify a text which every Greek boy knew by heart! In fact it appears that Democritus merely wanted to say that he had turned back from new-fangled speculations about pure reason, which [supposedly] grasps reality immediately, to the old, Homeric, view, in which it is impossible to create a boundary between consciousness and reason; even someone in a state of unconsciousness possesses reason to some extent; so long as someone is alive, he 'still thinks' (II, 22.59). This correct interpretation of Democritus was given by Philippson, Hermes 64, 1929, pp. 169-70; see no. 460.

69

<sup>1</sup>The testimonia compared in section I (nos. 48-74), show perfectly clearly that Democritus did not take phenomena to be the truth in any case, and that Philoponus completely misunderstands when he says : 'there is no difference between the truth and what appears to sense ... as Protagoras also said '. It is shown below (nos. 75-9) that the view of Democritus and Protagoras were opposed.

<sup>2</sup>'though on the correct account they are different': Philoponus' thesis is that from the correct viewpoint what appears [to the senses] and the truth are distinct from one another. Langerbeck (op.. cit., p. 80) and Alfieri (op. cit., p. 133, n. 335) understand this passage correctly.

<sup>3</sup>'for as the mind is related ...': All this proportion and 'strictly mathematical' demonstration are an example of dull scholasticism, of which neither Aristotle nor his immediate successors were in the least guilty. It is possible that the whole of this argument is merely a pretentious rephrasing of Aristotle's statement cited in no, 73. On the true sense of the expression 'what appears is true' see comm. on no. 70.

70

<sup>1</sup>The formulation 'reality is contained in the phenomena' expresses the real essence of Democritus' theory of knowledge much more exactly than those we have come across in no. 67 'reality is the phenomenon' and no. 69 'reality and the phenomena are the same'. 'In the phenomena (we would say 'behind the phenomena') there is situated some truth (some reality)', but absolutely not 'Phenomena are in and of themselves the whole of reality'. Philoponus himself, who confuses Democritus and Protagoras in no. 69 when he says 'what appears and seems so to each person is true, as Protagoras said', accepts in his commentary



(no. 96) on the text of Aristotle cited here, that ‘Democritus was in a position, starting from his assumptions, to show that conflicting appearances of the same object are all true’. This expression can be meaningful only if the expression ‘to be true’ means not ‘to be itself reality’, but ‘to correspond to some fully determined reality’. So by all of these words Democritus means that every phenomenon informs us of a basic fact which exists outside us and is not capable of being immediately grasped (no. 72): ‘the phenomena make it possible for us to judge about the apprehension of objects which are not immediately apparent’, though these are things which exist outside us, viz. atoms and the void, which are altogether dissimilar to our representations of them [i.e. to how they appear to us]. From this it is clear what Theophrastus (no. 71) understood and what he did not understand of Democritus’ doctrine. It seems to me impossible to doubt that he was not in a position to understand it adequately and to expound it with sufficient clarity.

71

<sup>1</sup>[L renders] ‘in conformity with their essence’

<sup>2</sup>The translation of this sentence is attended with difficulties. The translations of the first part given by the Russian translators G. Bammel and A.O. Makovelsky are entirely unacceptable. It is impossible to translate pasin axioun aisthanomenois as ‘is accepted by all perceivers’, since, first, axioun is the active, not the passive voice, and, second, the dative case is misplaced in their version; obviously it depends on phainesthai, not on axioun. The first half of this sentence is correctly translated by Alfieri (op. cit., p. 153): ‘and it is absurd to maintain that all those who have the sensation of the same objects all receive the same impression from them’. But then neither on linguistic nor on logical grounds is it possible to agree with his translation of the second part of the sentence ‘and that such an impression proves the truth of the objects’. The basic meaning of the verb elenchō is ‘expose, refute, show the untenability or inferiority of something’. It is true that it is also used in the sense ‘prove’, but this is a purely secondary meaning, which always preserves the basic sense ‘expose, bring out into the open’, in opposition to people who maintain the opposite. It is precisely this sense which the expression has in the passages which are cited to show the use of the word elenchō in the sense of ‘prove’: Thuc. VI.86, Hdt. II.22. See Passow’s Lexicon, s.v. elenchein: ‘disdain, hold of little worth, refute and shame by means of the account of the thing, ton logon, tas doxas’. It is true that elenchein can also mean ‘try, test, investigate’, but that meaning can be admitted only if one accepts Korais’ conjecture of toutōi instead of toutōn, but there is no need for that. We may add that if Alfieri’s translation is accepted we get a total contradiction with other statements of Democritus, in which it is clear that he never thought, as Protagoras did, that the agreement of the results of the sense-perceptions of different people was a proof that those results exactly corresponded to objective reality (see no. 77). (See addenda & corrigenda: ‘But cf. Philop. In De an. (no. 200) ‘are proved to exist’. Alfieri’s understanding of Theophrastus’ words in his

translation is correct. Theophrastus may be mistaken in attributing 'prove their truth' here to Democritus (see comm. on no. 70). Edd.'

72

<sup>1</sup>The entire dispute about the meaning of the expression 'the phenomena are the sight of the things which are unclear' (Regenbogen, Diller, Gomperz) is in my opinion completely superfluous, since the formulation of Diotimus cited by Sextus is clear in itself (see comm. on no. 70). Kranz appeals very appropriately to a testimonium of Hippocrates from a Heraclitean source (De victu I.111, vol.VI, p. 486 L): 'men do not know that things unapparent are investigated via the apparent'; [Isocr.] Dem. 34: 'the unapparent is known from the apparent'; Diocles (Aet. V.29.2): 'the phenomena are the sight of things unclear; and the phenomena from which an attack of fever is seen are wounds and inflammation and swellings'; Philo (De vita Mos. I.280): 'belief ... as the ancient doctrine says, in things unclear [arises from] what is apparent'; Galen (De med. exp. X.1, p. 145b, pp. 20, 100 Walzer): 'You reject ... the empirical because it aims to store up particular things, and for other reasons you praise and value the method of inference from the visible to the invisible, because in this way one learns in a general and comprehensive manner what one wishes to know' (Arabic text, see on no. 558). Cf. Sext. PH I.138: 'Some things are clear and some unclear, as the dogmatists say, and the phenomena signify, and the things signified by the phenomena are the things that are unclear; for according to them the phenomena are the sight of the things that are unclear'. (Concrete examples: air cannot retain an impression, if water cannot retain one.); M VII.374: 'If the sight of the things that are unclear is the phenomena'; M III.23 'If the phenomena are the sight of the things which are unclear, then since it is not possible to get a dimensionless sign and limit of anything in the phenomena it is clear that one cannot get one in intelligible things either'. See further Sextus' arguments in M III.58 where it is shown that Aristotle misunderstood the principle 'the phenomena are the sight of the things that are unclear'. Its meaning is 'Evidence about things that are unclear must be got from the phenomena' (PH III.78). The Peripatetics objected to the principle 'the phenomena are the truth' because, in their view, it is not the case that some reality or other corresponds to every representation, because reason contains in itself the key to the immediate apprehension of things in themselves (no. 67: 'a certain power to discover the truth', no. 69 'reason is for the discovery of the truth'), and because phenomena do not, therefore, serve as the basis for judgement about things in themselves. This is clear from a passage of Alexander of Aphrodisias (Quaest. III.105,13-106,13), where Alexander is arguing against 'those who admit the existence of some indivisible magnitudes', i.e. the atomists and Epicureans. He points out that one should not in every case rely on sensory sensations, should not start from the nature of limited, organic things and habits instilled by sensations or from logical connections which evidently make it possible to draw from the evidence of the senses conclusions about what is inaccessible to the senses, and that it impossible to transfer conclusions based on the experience of

limited, organic things to the entire totality of things.<sup>150</sup> So it is not the case, he remarks, that phenomena constitute reality. Alexander adds: 'If someone imagines himself in some place where he had once been, or had never been at all, that does not amount to his being there now. We have sufficient evidence of the fact that not every appearance is true from the empty imaginings which people have, both sleeping and waking'. (Cf. Democritus' explanation of dreams in no. 472, esp. 'scattered and distorted forms'.) So Frank's interpretation (op. cit., p. 23) is brilliantly confirmed: 'The significance which the principle of perspective had for the thought of Anaxagoras and Democritus is enormous. In any event one may straightforwardly call Democritus' philosophy a philosophy of perspective, not only because as a whole it proclaims three-dimensional body as an absolute, but the development itself of the theory of the subjectivity of sensible secondary qualities is clearly strongly influenced by optical illusion, which serves it as a paradigm (see no. 53: 'but they appear like the oar in the water', Luria). The phenomenon is the visual perception of the invisible. This assertion of Anaxagoras', taken over by Democritus and made the basis of his entire theory of knowledge, gives a whole new view of the relation between mind and object. This new viewpoint is not restricted to denying that sense-perception is simple visibility. On the contrary, it strives to discover in sensory visibility a law-governed expression of what underlies it, so that that law-governed expression can be precisely calculated and constructed mathematically'. Here Frank is starting from the evidence of Vitruvius about Democritus (no. 139) 'so that clear images of something unclear should represent the appearance of buildings in stage pictures', and Sextus M VII.88 on the Democriteans Anaxarchus and Monimus, who undoubtedly merely repeat Democritus' theory: 'A. and M., because they compared real things to stage pictures and took them to be like things that occur in sleep and madness'. Frank continues 'In the earliest works of Plato we see that even then (at the beginning of the 4<sup>th</sup> cent BCE) in philosophical circles (we may suppose, those of the Abderite school) the theory of the subjectivity of sensations was explained primarily by the example of perspective and optical illusion'. See Plato Prot. 356: 'the same magnitudes look larger from close at hand and smaller from a distance'; Rep. 523b: 'some perceptible phenomena do not call on the intellect to examine them, since they are adequately assessed by perception, but others absolutely require it to examine them, since perception is in no way sound. It is clear, he said, that you are talking about things seen at a distance and pictures in perspective' (i.e. the result of an optical illusion); 602c: 'things of the same size do not look the same size from close up and from a distance. And the same with straight and crooked things when seen in water and out of the water, and concave and convex things because of the way colours distort our vision, and all the confusion which is obviously itself in the mind. Perspective painting (= optical illusion)

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<sup>150</sup> [Luria here misrepresents Alexander's objection to the atomists, which is that they argue from empirically discernible characteristics of limited things, instead of drawing (in good Aristotelian fashion) logical conclusions from the nature of the limited. See 105.16ff: 'As this was an argument from the characteristics of limited things, but not from the essence of the limited, and from the familiarity of perception, not from what follows logically, so is the second one'. I.e. instead of 'or from logical conclusions' Luria's argument requires 'rather than from logical conclusions'.]

exacerbates this condition of the mind in creating the most extreme illusions'. Cf. Ar. Meta. 1010b5.

So the phenomenon is true in the sense that a distorted impression always allows one to draw the opposite conclusion, viz. that something exists objectively.

73

<sup>1</sup>Cf. Löwenheim, op. cit., p. 229. Ex anangkēs is more correctly connected with phasin than with alēthes einai. The meaning is: the truth is apprehended by thought, but according to Democritus thought is constituted by perception, i.e. change in matter. Hence what is apprehended by the aid of thought is also a phenomenon, and so phenomena have necessarily to be described by the Democriteans as the basis of their judgement of the truth. Consequently, the expression 'either nothing is true, or it is unclear to us' (no. 52) was merely a 'sceptical introduction', and the passage as a whole has the same meaning as the excerpt from Democritus in Galen (no. 80).

ii. Refutation of the pure phenomenalism of Xenias and Protagoras

75

<sup>1</sup>It is nowhere said that Democritus mentioned Xenias in precisely this connection, but it is very likely. Cf. no. 76.

76

<sup>1</sup>Democritus and Plato: the ref. is to Pl. Tht. 171b: 'If Protagoras grants that everyone's opinions are true, by the same token he accepts that the opinion of those who think that he is mistaken is true ... In that case does he not agree that his opinion is false, in so far as he accepts that the opinion of those who think that he is mistaken is true?' etc. Apparently Democritus argued similarly. Of course there is here a quaternio terminorum [= equivocation]. Democritus and Plato have in mind objective truth, whereas Protagoras has in mind subjective truth for every individual, and allows external to human knowledge only a certain absolutely formless and characterless matter.

77

<sup>1</sup>This testimonium of Aristotle's is completely arbitrarily separated by Diels from what follows it (DK 68 A 112 = L 80). The construction of the paragraph as a whole is as follows. It begins with the sentence 'And similarly the truth about the appearances is in some people's view derived from the objects of sense. To this sentence there are added by means of the connective 'for' a whole series of accusative and infinitives depending on 'they think', followed by the conclusion 'which is why Democritus says ...'. There is no reason, either of content or of grammar, to attribute to Democritus only the last three accusatives and infinitives, rejecting what precedes them, as Diels does. Cf. Syrianus' commentary which we

print together with Aristotle's text. In fact a series of testimonia persuades us that not only did Democritus protest vigorously against deciding scientific questions by a vote, but that he indicated a number of cases in which even the unanimous opinion of people is mistaken and in conflict with the facts. In no. 53 Democritus cites the oar immersed in water as an example of the principle 'that nothing comes to be in fact'. The oar appears to everyone without exception as refracted at the point where it is immersed in the water, but none the less it is easily shown that in that case everyone is mistaken. In no. 71 Theophrastus sees it as one of the major inadequacies of Democritus that he thinks that in some cases one and the same object appears the same to everyone who perceives it, while nevertheless rejecting the objective existence of such objects (see no. 71 with n. 2).

The picture given in the passage under investigation of a community in which only two or three people are sound in mind, and all the rest are mad, no doubt occurred in various versions in Democritus. In no. 580 the 'wise' among the primeval savages gather together, and raise their hands and fix their eyes on heaven, explaining everything that happens on earth in this way, that an all-benevolent, almighty and exceedingly wise god does those things for the good of mankind. If in no. 581a we have correctly restored the original content of a remark of Democritus', then he said the same about an assembly of ants on an ant-hill, frogs at the edge of a swamp, worms in a dung-heap and pigs wallowing in mud, who also declare that god has abandoned for a while his responsibilities for the government of the world and the movement of the heavens and is thinking only of what is good for those creatures, is prophesying their future and sending them all goods; they say 'Everything is for the sake of us'. It is perfectly possible that the example cited in the Byzantine History of Nicephorus Gregorius (end of 13<sup>th</sup> cent., cited in comm. on no. 65, n. 5), next to which Democritus is mentioned, also has Democritus as its source; cf. Ar. Phys. 193a3, cited in the same place. Just as the passages cited above refer to an assembly of madmen, savages, ants, worms, frogs and pigs, there the reference is to an assembly of people blind from birth, devoted to the question of colour of the wool they are holding in their hands (cf. Democritus' expression 'by convention colour', no. 61). There each one is convinced that he alone knows the truth, and among the blind there is no possibility of refuting him. Perhaps Democritus' dictum (no. 727) 'For me one man is worth as much as the people, and the people as much as one man' has the same meaning.

<sup>2</sup>That the words in quotation marks refer to Protagoras is clear from Pl. Tht. 167c: 'What each state (i.e. the majority of its citizens) accepts as right, that will be right [for it], as long as the state will consider it so'. That occurs in Protagoras' fictional speech after the 'epistemological' dictum 'As regards those appearances which some people call true from inexperience, I think that some of them can be better than others, but not at all truer'. (Democritus apparently attacks that sort of position: 'To all men the same thing is good and true; but the pleasant differs from one to another', no. 89.) Cf. Philippson, Hermes 59, p. 417: 'The saying directed against Protagoras in my opinion'; Luria, Quellen und Studien zur Geschichte der Mathematik [Q. u. Stud. z. Gesch. d. Math.] II, 1932, pp. 119-20.

### iii. The two kinds of cognition

79-80

<sup>1</sup>The passage of Galen and that of Aristotle cited here in second place have the same sense; although our sense-perceptions contradict one another and consequently none of them can give us a correct impression of the things which exist outside us, none the less reason derives all its knowledge from the senses and is itself merely one of the senses. Hence the senses necessarily constitute the only reality which is accessible to us, since in every case they testify to us about a true, actual world. It does not, however, follow from this that we cannot know anything. It is only for skotiē gnōmē (see no. 83), which functions uncritically, that the situation is hopeless; gnēsiē gnōmē, on the contrary, is able through comparison and analogical reasoning to arrive at knowledge of true reality. Hence the expression 'our overthrow is a fall for you' is merely a sceptical introduction. Cf Zeller, Ph. d. Gr. I, p. 1132, n. 1.

<sup>2</sup>'you overthrow': i.e. 'you try to overthrow' [DK II, p. 168, l.8 n.].

<sup>3</sup>See comm. on nos. 3, 52, 73.

81

<sup>1</sup>ennoia [thought] here is the same as gnēsiē gnōmē or dianoia in no. 83.

82

<sup>1</sup>Peri diaphorēs gnōmēs means 'On the difference between thought', i.e. on the difference between the two types of thought, between gnōmē gnēsiē and gnōmē skotiē. Cf Luria 1) Proc. Ac. Sci. USSR, 1928, p. 74, 2) Qu. u. Stud. z. Gesch. d. Math. II, p. 120 (giving the remaining literature). It is also possible that one should read 'On different thought' [διαφόρης instead of διαφορηής]; the meaning remains the same. On the problem of contact with a circle or sphere see comm. on no. 133.

83

<sup>1</sup>in the Canons': see comm. on no. 98.

<sup>2</sup>Cf. nos. 80-81; phrēn and phronēsis in those excerpts are the same as dianoia and gnēsiē gnōmē here.

<sup>3</sup>Since skotios and gnēsios are here presented as opposites to one another, skotios can mean only 'illegitimate'. Diels [DK II, p. 140, l. 15n.] compares with this expression the Platonic phrases nothos logismos ['bastard reasoning'] (Tim. 52b) and nothē paideia ['bastard education'] (Laws V.741a). Here Democritus fulfils his promise to 'equip the senses with the force of persuasion' (in the text of Sextus, see no. 55) and 'speaking in agreement with the senses, not to do away with coming into being etc.' (no. 146).

<sup>4</sup>'when ... can no longer': this passage enable us to understand the true sense of the expression 'unclear' in no. 52. 'This adēlon does not express despair about knowledge, but rather the hopeful indication that it is in the very realm of abstraction which leads us to the changes in motion of the smallest invisible parts through the void that the truth is to be found. The atoms and the void are adēla, and when Democritus says (no. 555) that the bloodless animals too have internal organs, only they are concealed from us (adēla) by the smallness of those animals, that means just that the fact that we do not see their internal organs is no proof that they lack them ... So that is the meaning of Democritus' entire theory of knowledge; the fact that something is hidden from the senses provides no proof that it does not exist' (Dyroff, Demokritstudien, Leipzig, 1899, p. 97). Cf. Hipp. De arte 11: 'The things that escape the sight of the eyes are captured by the sight of the mind'. Antiphon, DK 87 B 1 (AGPh. 38, 1927, pp. 215-8): 'and knowing these things he will know nothing in reality, neither the things that the person who sees furthest sees with the eyes, nor the things that the person whose mind stretches furthest knows with the mind'.

<sup>5</sup>'see any smaller': 'direct its sight on a smaller object' (DK II, p. 140, l. 19n.). More correctly 'on an object which becomes continually smaller'; that is also the sense of 'take refuge in something finer'. Cf. Epicur. Letter I.56: 'the transition is not to be thought of ... as going on to infinity, nor to something [ever] smaller'. Diels compares Thuc. VII.36.2 'divide into smaller parts'. Wilamowitz, Platon II, 2<sup>nd</sup> edn., p. 393, interprets otherwise.

<sup>6</sup>Diels (Dox. 380) supposes that the mention of Democritus here is a misunderstanding; he compares Aet. IV.5.1, Dox. 391): 'Plato and Democritus [locate the ruling part of the soul] in the whole of the head' and Theodoretus V.22 'Hippocrates and Democritus and Plato in the brain'. But in my opinion here we have simply inexact expression; Aetius is saying that, like Epicurus, Democritus thought that the soul consisted of two parts; all the rest refers only to Epicurus.

84

<sup>1</sup>kritērion = measure. In no. 97 D. says: 'the wise man is the measure of everything'.

85

<sup>1</sup>epiphthengesthai : 'repeat like a continually recurring refrain'.

86

<sup>1</sup>In Democritus' opinion, it seems, animals have some subtle senses which humans lack (see comm. on no.559!). Cf. no. 472a (end) and no. 559. As regards the senses which wise men and gods possess but others lack, that is above all gnōmē gnēsiē, as E. Rohde (Kl. Schr. I, p. 220n.) and Diels suppose. Undoubtedly ordinary people lack it; otherwise they would all be atomists! Cf. Zeller, Ph. d. Gr. I, p. 1125, n. 3, Alfieri, op. cit. p. 135, n. 339 and the literature cited there. We need not pay attention to the objections of Alfieri and his predecessors,

since they are based on a contrast between the senses and the mind which is entirely alien to Democritus.

89

<sup>1</sup>The authenticity of no. 89 is confirmed by the clear paraphrase of it in the Epicurean Diogenes of Oenoanda fr. II.1.9, p. 5 Chilton: 'that what is advantageous to our nature, i.e. ataraxia, is the same for one and for all' (see Natorp, Die Ethika des Demokritos, Marburg, 1893, pp. 91-2). See comm. on no. 77.

91

<sup>1</sup>Despite the opinion of Diels and Kranz [DK II, p. 128, line 20 with n.] I allow myself to retain kaitoi ge ouk in the text. In fact, Theophrastus could not have recommended Democritus to coordinate 'certain forms of atoms with certain sensations', since that is precisely the content of his theory of sensations!

96

<sup>1</sup>See comm. on no. 70.

97

<sup>1</sup>It is clear that the theory set out at the end of the excerpt with its doctrine of virtus (= power) cannot belong to Democritus. However, the dictum cited at the beginning of the excerpt 'The wise man is the measure of all things, of perceptible things through the senses and of intelligible things through the mind' sounds like an attack on Protagoras' famous dictum 'Man is the measure of all things' (in which, of course, 'measure' has a completely different sense) and is perfectly appropriate to Democritus, provided that we take into account that Albert has changed D.'s terminology into the terminology used in his own time; see comm. on no. 65. In favour of this approach to Albert's testimony is Sextus' remark (M VII.321 = no. 84) that Democritus, Epicurus and Zeno 'regarded themselves (i.e. the wise man) as the criterion of the truth'. Hence I suppose that Albert copied this passage from a good ancient source, in which the quotation from Democritus was only 'The wise man ... through the mind', and all the rest was commentary by the Peripatetics. Alfieri, op. cit., p. 310, n. 811, remarks: 'Albert the Great found in his source a reference to 'the Abderite' and applied it not to Protagoras but to Democritus'. But, notwithstanding the external resemblance, this dictum cannot belong to Protagoras; the opposition between 'perceptible' and 'intelligible' things is entirely foreign to the sensualist Protagoras. In just the same way the picking out of the 'wise' is characteristic of Democritus, not of Protagoras. Cf. also the re-phrasing of Democritus' basic thesis by Oenomaus of Gadara (no. 62 w. comm.): 'the apprehension of ourselves ... is the more reliable measure'.



c. THE LOGICAL FORMS OF THE THINGS THAT THERE ARE

(RULES OF COGNITION)

i. General

98

<sup>1</sup>See no. CVI w. comm. This work dealt not only with logic, but, perhaps, also with the general principles of the theory of knowledge, if 'Canons' and 'Canon' are the same work. See the purely epistemological passage (no. 83) which begins with the words 'in the Canons ... he says...'. So Kanōn ('standard') should be translated not as 'rule', but as 'fundamental methodological principle, fundamental criterion (of knowledge)'. Cf. Epicurus' work On the Criterion, or the Standard (Kanōn), mentioned by DL X.27.

99

<sup>1</sup>Bonitz [no ref. given] supposes that the ref. is to Socrates. DK I, p. 452, l. 25 [identifies] ekeinos as Democritus, which may be correct.

<sup>2</sup>Cf. Regenbogen, Scientia 25, 1931, p. 351. I cite here the commentaries of Simplicius, Themistius and Philoponus, for they give an interpretation of Aristotle's testimony, but, though these interpretations are drawn from an earlier source they are correct only in part, since Aristotle is here obviously speaking of form rather in its logical sense (being something) than in a purely metaphysical sense.

<sup>3</sup>kata ton logon [kata tēn aisthēsīn appears to be printed in error]: i.e. logically, but not on the basis of a sense-impression. See Bonitz, Index 435a 47ff.

101

<sup>1</sup>Aristotle's expression 'arguments appropriate to an enquiry into nature' and Plutarch's 'appropriate to the subject and successful' should be compared with Ar. Phys. 264a7ff.: 'the arguments which one would be persuaded by as appropriate are these ... and if one investigates logically ...'. The MS reading eklogō is probably a corruption of the words ek logou, and amounts to a mistaken insertion into the text of an interpretation of the word oikeiois. ek logou = ek tou physikou logou ['belonging to the theory of nature'].

ii. Direct cognition (axioms)

Classification of expressions

103

<sup>1</sup>After the words 'Democritus of Abdera says' in the Suda there follows a testimonium about Democritus, preserved also in DL IX.44-5, which is cited below under various nos., and is immediately followed by the passage cited here. Alexander (In Top. 112b1, p. 177.19),

explaining Aristotle's expression 'Some things are by necessity, some for the most part and some whichever way it chances' gives a ground which we do not find anywhere in Aristotle<sup>151</sup>: 'We know that of things which are some are of necessity, e.g. that man is a living being', and continues word for word with the testimonium cited from the Suda. However Alexander does not name his source, which was also the source of the passage of Aristotle he is explaining. See excursus 'The logical system of Democritus and Aristotle' (p. 440).

<sup>2</sup>'similarly it is necessary that god should be indestructible': Of course, this example cannot belong to Democritus; it is typical of the pious insertions of a later epoch, which we shall discuss elsewhere. It is taken from a source common to the Suda and Alexander. Doxographers of that kind considered themselves entitled to interrupt the work they were discussing with supplementations and examples of their own, as we can see with complete confidence in the example of the letters of Epicurus in DL or Simplicius' work on Hippocrates of Chios.

<sup>3</sup>'having five fingers' [or 'toes']: Aristotle considers the most characteristic feature of man not that he has five fingers, but that he is two-footed. The reason for this is clear; for Aristotle a feature is characteristic which exists in all members of a given class and is never absent. In fact there have been no cases of a man's being born with one foot or three feet. Top. 129a6ff.: 'To ascribe a property relatively to something else means to state the difference between them as it is found either universally and always or for the most part and in most cases: thus a difference which is found universally and always is one such as man possesses relatively to a horse, viz. being a biped; for a man is always and in every case a biped, whereas no horse is ever a biped'. So this feature exists universally and of necessity and therefore it must be used for the definition (the 'what it is'). See Ar. An. Post. 79a28: 'What something is is one of the universals; for man is not a two-footed animal in a certain way'. A man's being two-footed functions in Aristotle's zoological system as a fundamental principle of division; he frequently divides animals into footless, two-footed, four-footed and many-footed (e.g. De Progr. An. 704a12 'Some animals are footless, others two-footed, others four-footed and others many-footed'<sup>152</sup>) and even when he accepts a different system he puts man into a special category of 'bipeds', e.g. Top. 143b1 'Animals are divided into the footed and the winged and those that live in water and the two-footed' (cf. Cat. 1b18). Democritus, on the other hand, as we see from the passage cited, considers it a characteristic feature of man that he has five fingers, though he himself emphasises that now and then people are born with four or six fingers. In his view that circumstance does not constitute an obstacle to regarding that feature as characteristic and in a certain sense

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<sup>151</sup> [In fact 'Man is a living being' is a standard Aristotelian example of an essential predication (see Bonitz s.v. anthrōpos 1.), being part of the essential definition 'Man is a rational living being'. Aristotle regards all such predications as necessary.]

<sup>152</sup> Ar. Progression of Animals, 706a 27, b4; PA 687a2; HA 489a32, 586b1; GA 732b16. For other passages see Bonitz, op. cit., p. 201a21 ff.

necessary. See Suda s.v. kuriōs [‘strictly’]: ‘necessarily ... for someone who says without qualification ‘Someone who is ageing goes grey’ or ‘Every man has five fingers’ says so instead of saying ‘Necessarily ...’. In this connection we should notice that in Aristotle too one can find traces of a system based on the number of toes: HA 504a8: ‘High-flying birds are all four-toed’, PA 688a4 ‘Some many-toed animals have five toes on their fore feet’, 695a15 ‘All birds are four-toed’ (see further HA 497b24, 498a34). So the supposition that Aristotle took this system from Democritus is not groundless.

<sup>4</sup>‘goes grey’: This example too is taken by Aristotle from Democritus in a very similar passage which repeats Democritus’ system, An. Pr. 32b4: ‘having made these distinctions we repeat that what is possible is said in two ways, one being what comes about for the most part and falls short of necessity, e.g. a man’s going grey or growing larger or wasting away ... and the other being the indefinite etc.’.

<sup>5</sup>‘equally’: this term for the third category of phenomena is absent from Aristotle, who regularly uses either the expression ta sumbebēkota [‘accidents’] or more frequently expressions formed from tuchē [‘chance’]: Top. 112b1: ‘some of necessity, others for the most part, others whichever way it has chanced’: An. pr. 32b 4: ‘the possible is said in two ways, one is what is for the most part ... the other the indefinite, which is possible to be both thus and not thus, e.g. an animal’s walking or an earthquake’s occurring when one is walking, or generally what comes about by chance’: De int. 19a17: ‘it is clear that not everything is of necessity ... but some things are whichever way it has chanced ... and others are rather and for the most part’. Clearly, by ‘by chance’ Aristotle refers to the Democritean category ‘equally’, for in An. pr. 32b12 he elucidates the words ‘by chance’ as ‘for by nature it occurs no more this way than the opposite’. This difference in terminology is by no means a matter of chance. Aristotle, as we have seen, regularly confuses purely logical questions with metaphysical (comm. on n. 32, E. Radlov, Journal of the Ministry of Public Education. Feb. 1891, p. 76, n. 1: ‘Aristotle’s comments have no logical interest, but are important for the clarification of the view of the ancients on the freedom of the will’); Democritus, it appears, drew a sharp distinction between these and other questions. Maintaining that there are features which characterise this or that kind of thing not always, but simply in the majority of cases or even only in particular cases, he used, it is true, that same term ‘necessity’ which in his usage means sometimes ‘the invariable dependence between two phenomena’ and sometimes ‘causal necessity’ (that homonymy did not trouble him). In these logical arguments he did not at all address the question whether there are features which occur for the most part or equally, either of necessity or by chance. As we have seen above, from the standpoint of Democritus’ metaphysical premises everything which one can think of without logical contradiction has existed, exists or will exist somewhere at some time (‘whatever one might think of, exists’). That does not, however, prevent its being the case that in a number of cases a logical contradiction between a thing and a property has not yet been discovered, or that a particular property will not occur in a particular place or within a given foreseeable stretch of time. So in practical scientific investigations one must

always have to deal with what is possible, but nevertheless in nature nothing occurs by chance, but everything by the force of natural necessity. Aristotle regards such a view as inconsistent; in setting out Democritus' view (De int. 18b26 (no. 23): 'none of the phenomena are as it has chanced, but everything is and comes to be by necessity') he takes it that such a view requires that in logic the only conclusions are those which are by necessity ('by necessity one of the opposites is true and the other false') and that a necessary conclusion from that is 18b5: 'so nothing either is nor comes to be by chance or as it has chanced, nor will it be nor not be [sc. as it has chanced], but everything is of necessity and not as it has chanced', but at the same time (19a18, where Aristotle is following Democritus): 'not everything is of necessity ... but some things are as it has chanced and the assertion is no more true than the denial, and others ... for the most part'. In changing the Democritean term 'equally' into the expression 'as it has chanced' Aristotle in fact gives the impression of contradiction, but, as we have seen, the example which Aristotle regards as most characteristic of the category of 'by chance' (Meta. 1025a24) [actually a14-19] is explained by Democritus (no. 24) by appeal to causal law, i.e. to the intersection of two or more causal series.

The most characteristic things in this line of thought are freaks and monsters of all kinds, for in the very name 'monster' there is contained the idea of lack of conformity to natural law. The Epicureans (undoubtedly following Democritus in this) maintain that even monsters are an instance of some law or other; thus in the Epicurean Philodemus (De signis, see Th. Gomperz, Herkulanische Studien, Leipzig, 1866, p. 10, l. 22ff.) we read: 'In their opinion even monstrous phenomena accord with some law, although in their normal connections which we observe they constitute an exception'. Fortunately for us, Aristotle, thanks to his characteristic eclecticism has in this case preserved the argument in full, even though it contradicts his basic positions. GA 770b9ff.: 'The monstrous is something contrary to nature, not contrary to nature as a whole but to nature as it is for the most part, for nothing comes to be contrary to nature which is always and of necessity ... it appears less monstrous because even that which is contrary to nature is in a way in accordance with nature'. In other words, every monster which cannot be explained and therefore appears 'a chance thing' from the standpoint of one system turns out to be in conformity with law from the standpoint of another causal system.

<sup>6</sup>'engage in politics': cf. no. 648: 'It is disgraceful to busy oneself with other people's concerns while neglecting one's own' and 'It is not advantageous to neglect one's own affairs and do other things'. Perhaps Arrian (Epict. Diss. IV.11.1) had Democritus in mind when he remarks: 'Some people dispute whether what concerns the community is part of human nature'. If so, the Aristotelian slogan 'Man is a political animal' (Pol. 1253a2) is directed against Democritus (see. no. 729: 'to desire to escape notice', 'live without attracting notice', 'Democritus ... turned away from governing the state and gave himself totally to the knowledge of things', etc.). However, as we see from the excerpts collected under no. 728, at the same time Democritus recommended the study of the art of politics.

Obviously. Democritus regarded the aspiration towards a social life as entirely normal for many people, but did not think it inherent in everyone. Another explanation is, however, possible; since at that time the greater part of humanity consisted of barbarians, who did not take part in social activities and did not aspire to do so, one can think that for humanity as a whole engaging in politics belongs to the category of 'the equal'; engaging in politics is as characteristic of the Greeks as it is uncharacteristic of the barbarians.

Excursus to no. 103

### Democritus' Logical System in Aristotle

It has been shown by a whole series of commentators that in the definition of the concepts of the necessary and the accidental Aristotle gives different and mutually contradictory definitions in different passages. In a series of passages he defines the necessary (anangkaion, = to katholou, ta kath' hauta) as a property which flows logically from the definition of an object (Meta. 1025a30)<sup>153</sup> or as a property inherent in all the objects of a given class without exception (An. post. 73b32: 'of a chance case and primitively'). All other properties, which can be absent from even one of the objects of a given class (Phys. 256b10, Meta. 1059a2 'can not be present') or which can be present or not present in the same object (Top. 102b6: 'what can be present or not present to the same thing') are accidental. These definitions of the necessary and the accidental fully correspond to the formal, logical character of Aristotle's thought. His paradigm was mathematics, and his only decisive method of proof was the syllogism. Sciences which aim to give decisive proofs must start from what is necessary; only if the object under investigation has always and in all cases without exception those properties which enter into its definition have we the right to draw conclusions from them and assert that we have knowledge of it (An. post. 74b5: 'So if demonstrative knowledge is from necessary principles, for what one knows cannot be otherwise, and the things that belong to things in themselves are necessary ...'). Hence in Aristotle's view a genuine science requires that what is for the most part and what is for the lesser part should be assigned to the category of the accidental. Nevertheless in a number of other passages, especially in the field of biology, Aristotle gives another definition of the necessary and the accidental: the necessary is what occurs either always or in the great majority of cases (GA 770b9, Meta. 1026b31, 1064b37, Phys. 196b11, Top. 112b1, EE 1247a31 etc.)<sup>154</sup>, the accidental what occurs only in

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<sup>153</sup> 'And accidental is also said in another way, e.g. such things as belong to each thing in itself but are not in its essence, e.g. for a triangle to have [angles equal to] two right angles.' [This sentence gives a definition of a special kind of accident, viz. a property which holds necessarily but does not belong to the essence (kath' hauta sumbebēkota = propria, see Ross, Meta. I, p. 349), not, as L's wording suggests, a definition of the necessary. Aristotle's primary definition of the necessary (Meta. 1015a33-5) is 'what cannot be otherwise'.]

<sup>154</sup> [So far from contradicting Aristotle's doctrine that the necessary is what is always the case, with no possibility of exceptions, all the passages which L here cites distinguish the necessary, thus conceived, from what happens usually (or, for the most part) but not always. What happens for the most part is thus an

special cases. It is curious that in Meta. 1025a1ff. [actually a14ff.] both definitions occur next to one another ‘the accidental is said’ [a14-30], ‘the accidental is also said in another way’ [a30-35: the quotation cited in fn. 49 belongs here].<sup>155</sup> As an example of the accidental in the sense ‘what does not occur in the majority of cases’ he mentions the discovery of treasure by someone digging to plant a tree<sup>156</sup>, an example which repeats verbatim the words of Democritus cited by Simplicius In Phys. 330.14, no. 24. This would seem sufficient to allow one to consider this second definition of the necessary and the accidental (see comm. on no. 103, n. 5) as taken mutatis mutandis from Democritus, since it contradicts not only Aristotle’s other definition, but also his entire logic (cf. GA 778a6: ‘but nature is not precise, because of the indefiniteness of matter’).

In De signis (pp. 10, 32 G) the Epicurean Philodemus notes the close connection between the separation of the category of ‘for the most part’ (‘in the great majority of cases’) and empirical, inductive logic, and sharply contrasts in this connection Epicurean - atomistic logic with the logic of Aristotle and the Peripatetics. For the Peripatetics, he says, the only important properties are those general properties (homoiotētes [‘similarities’]) which occur always, in all particular cases; ‘for us it will be sufficient to be persuaded on the basis of experience’. One must draw conclusions on the basis of likeness and similarity; sometimes those conclusions have force in all cases without exception, sometimes only for the great majority, for it is just that kind of conclusion which is drawn from observation of the phenomena. Aristotle is obliged to admit (An. pr. 32b20) that there are demonstrative arguments even from assertions ‘for the most part’, and even, perhaps, that there are arguments and examinations about what is possible in this sense. If Aristotle himself and his school had based themselves on a logic of that kind, then such a carefully evasive remark (with the word schedon [‘pretty well, more or less’]) would barely have been possible.

Zeller and a number of other philosophers, who virtually identify the whole of ancient science with Aristotle, see the highest manifestation of Aristotle’s genius in this definition of the accidental as ‘that which occurs only in particular cases’ and in the opposition between it and the category of ‘what is for the most part’, not taking into consideration the fact that this opposition contradicts the whole of Aristotelian logic. It is precisely on the strength of this definition that Zeller (Ph. d. Gr. II, 2, p. 242) calls Aristotle ‘the inventor of inductive logic’.

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intermediate class between what is always the case and the accidental, which is neither necessary nor ‘for the most part’, but merely occasional. Contrary to what L says, Aristotle never defines the necessary as what is either universal or for the most part.]

<sup>155</sup> [In 1025a14-35 Aristotle thus distinguishes two sense of ‘accident’: 1) that which is neither necessary nor for the most part’ (a 14-30) , 2) that which is a kath’ hautō sumbebēkos (a30-35).]

<sup>156</sup> ‘Accidental is said of what belongs to something and is true to say of it, but neither of necessity nor for the most part, e.g. if one were to find treasure while digging a hole for a plant, this happened accidentally to the person digging the hole, his finding treasure. For this [finding treasure] neither comes about of necessity from this [digging a hole] nor after it, nor if one digs does one for the most part find treasure’ [1025a14-19].

As early as 1892 Konsbruch (AGPh. 5, pp. 302ff (esp. 314ff.)) had shown the complete arbitrariness of this assertion of Zeller's. He remarks: 'Aristotle's celebrated induction stands in total contradiction to scientific induction, for it allows one to draw a conclusion from particular to general only in the case where the presence of this or that quality has been demonstrated for all particular cases without exception'. This kind of demonstration is suitable for mathematics, but, as Konsbruch rightly remarks, totally unacceptable for biology.

The passages we have cited settle this question finally. Democritus divides all the properties of objects not into two, but into three categories: those which are always present in all the objects of a given category, those which are present in the great majority of cases and those which are present in particular cases.

So one has to regard not Aristotle but Democritus as the founder of inductive logic.

### iii Excluded middle

104

<sup>1</sup>The Stoics could not in this case be attacking atomists from the Epicurean camp, since the Epicureans rejected the law of excluded middle just as the Stoics did: 'Epicurus ... totally denied that 'Either so or not' is necessary' (Cic. ND I.25.70). This rather shows that the words cited here constitute a continuation of the passage dealing with the discussion of Democritus' puzzle (1079d).

<sup>2</sup>Leonicus [no ref. given], wishing to correct the text, introduced a series of defects (koinotētas instead of kenotētas, ouk anisa instead of anisa); these 'corrections' show that he completely failed to understand the sense of this passage.

## B. Mathematics

### a. Demonstration of the necessity of admitting partless entities

105

<sup>1</sup>'appropriate': see comm. on no. 101.

<sup>2</sup>'a body and magnitude': this is the figure hendiadys, synonymous expression, since ti ['a'] applies simultaneously to both nouns. Cf. the same usage in De caelo 268a5: 'Of the things which exist by nature some are bodies and magnitudes and others have body and magnitude'; cf. also De caelo 298b4. Cf. Simpl. ad loc. 7.28: 'the expression "bodies and magnitudes" is used pleonastically, signifying the same thing'<sup>157</sup>. According to Simplicius

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<sup>157</sup> True, Simplicius goes on 'if this is not merely pointing out that every body has magnitude and that there are no indivisible or partless bodies, as some said'. To understand the absurdity of this second interpretation it suffices to compare this passage of Aristotle with the passage of Democritus under discussion, in which we come across the same expression 'body and magnitude'. This conjecture of Simplicius' is based on Aristotle's incorrect assumption (Phys. 266a11) that atoms and partless things must necessarily be unextended.



(loc. cit.) Alexander understood this expression in the same way: 'But Alexander [says that] this expression is used pleonastically'.

We come across this identification of the concepts 'body' and 'magnitude' in other passages of Aristotle, e.g. De caelo 268b15: 'we say that all natural bodies and magnitudes are in themselves subject to locomotion' and 273b23: 'a magnitude of equal weight, ... of unequal weight'. Simplicius correctly points out that given Aristotle's own scientific assumptions this identification of bodies with magnitudes is inadmissible (ad loc. 8.6): 'Yet I think that time, place, motion, line and surface which are continuous and always divisible are natural magnitudes, but not bodies'. Obviously this identification of Aristotle's is a mere mechanical borrowing from his materialistic sources. On the other hand, for the materialist Democritus there is every reason to treat 'body' and 'magnitude' as synonyms, since he did not recognise immaterial mathematical magnitudes; cf. Philop. In Phys. IV, cor. De loco 575.12: 'some do not admit that what receives bodies is an interval distinct from them, but say that in the nature of things there is only a bodily interval divisible in three dimensions'. Below in this passage of Aristotle [316b1] Democritus says 'a body is separated out from the magnitude'.

<sup>3</sup>Cf. GC 327a11: 'for if it is possible for it to be separated, ... even if it has not yet been divided, it will be in a state of have been divided ...', and the passage of Eleatic philosophy cited in comm. on no. 105, n. 6: 'if it is divisible, let it have been cut'. Cf. comm. on no. 105, n. 10, and also GC 316b23: 'for if it were possible, then it might occur'.

<sup>4</sup>'even if it has not been divided all at once': Philoponus correctly explains this passage as follows: 'Even if it has not yet been divided everywhere'. The meaning is: entirely independently of whether we can actually achieve the simultaneous division of a body at every point, we are entitled to imagine such a division as having been achieved. Cf. below 'though perhaps no-one would have divided it'. This thesis, directed against Empedocles, is taken over from the Eleatics: cf. Melissus DK 30 A 8: 'If someone thinks that the whole is not continuous but consists of separate things in contact that is no different from saying that it is not one, but many'. Cf. my Infinitesimaltheorie, p. 136.

<sup>5</sup>'there would be no impossibility' [lit. 'there would be nothing impossible']: 'nothing' is used as a term indicating circumstances, not as a subject, as Alfieri supposes (op. cit., p. 83): 'No division would be any longer impossible'.

<sup>6</sup>'at the mid-point' ('in two, and again in two'): Cf. Aristotle's 'when it is divided into two or more' [316a32], i.e. as in Zeno's famous example in his sophism of Achilles and the tortoise (Ar. Phys. 239b22 'in the dichotomy'. Cf. G. Junge, Jahresb. d. deutsch. Math.-Verein 35, 1826, p. 164: 'By way of repeated halving'. The meaning of this expression becomes clear from Ar. Phys. 187a1, no. 105a and from the treatise On Indivisible Lines 968a18: 'further, according to Zeno's argument there must be some Indivisible magnitude ... and the moving thing must first arrive at the midpoint, and there is a midpoint of what is not altogether

partless'. Democritus means by this (perhaps having in mind the very similar testimony from Eleatic philosophy which we shall cite a few lines later) that the procedure of repeated bisection is just as possible as the one he has imagined, but there is no need to undertake it, since he postulates at the same time that simultaneous division at every point has already occurred, leaving aside the question of whether that was done by way of repeated bisection or in any other way. A corresponding passage from some Eleatic is cited by Porphyry, who ascribes it to Parmenides himself (which he has no right to do, as Simplicius correctly remarks). Simpl. In Phys. 139.27: 'for, he says, if it were divisible, let it have been divided, and each of the parts divided into two, and when this has happened continually it is clear that there will be left some indivisible smallest magnitudes, infinite in number, and the whole will consist of an infinite number of the smallest things, or it will be gone and reduced to nothing and will consist of nothing, which is absurd ... for if something is left it will not have been divided in every way'. This passage, probably somewhat modified by Porphyry, agrees almost word for word with what Democritus says; it was probably taken over from the work of Melissus and directed against Empedocles (see below). Later Epicureans maintained their atomistic views on precisely this way (see V. de Falco, L'epicureo Demetrio Lacone, Naples, 1923, p. 97, pap. 1061): 'and we take the half of this and again the half of the half, and this until the unspoken (?) conclusion ... for since the decrease goes on to infinity, the segment, which is half of this, will also go on to infinity' (my restoration). Heiberg, followed by de Falco, restores incorrectly 'the segment, which is equal to this'. It is curious that the opponents of atomism, seeking to show its impossibility, produced exactly the same arguments: see e.g. On Indivisible Lines 970a31: 'and the [line] divided in two and divided in two again as far as it is possible to cut, the indivisible [line] will be divided in the same way'.

<sup>7</sup>See Philoponus' explanation (29.8 = no. 105, below).

<sup>8</sup>'let it have been divided' = 'let it have been cut': see the passage from an Eleatic work cited in comm. on no. 105, n. 3.

<sup>9</sup>diairesis ['division'] and haphē ['contact'] are here understood entirely concretely, and seem to be virtual synonyms of the word 'point'; 'contact' means virtually the same as 'unextended boundary in contact', and 'division' the same as 'unextended boundary in division'. 'For he calls the points at which division and cutting has occurred 'division'' (Philop. 29.8 = no. 105, below). So Alfieri's translation 'and all the same let it lead to the division' is incorrect.

<sup>10</sup>This too is taken over from the Eleatics (see the passage from an Eleatic work just cited: 'it will be gone and reduced to nothing and will consist of nothing').

<sup>11</sup>'they did not make the whole any bigger': to understand this it is necessary to conceive the point as the minimal material unit. E.g. let the line ABC be divided into two lines: AB<sub>0</sub> and B<sup>0</sup>C. From the one point B there have been formed the two end-points B<sub>0</sub> and B<sup>0</sup>. If the

point were something, then  $AB_0+B^0C$  would have had to be longer than  $ABC$ , since it contains an extra point ( $B_0+B^0$  instead of the single point  $B$ ). In fact the point is a zero quantity; so  $AB_0+B^0C=ABC$ . So the single point does not make the body bigger. And conversely: if we divided  $ABC$  into two so that the point  $B$  belonged wholly to the segment  $AB$  and not at all to the segment  $BC$ , then the new line  $B^0C$  would necessarily turn out to be shorter than  $BC$  by the single point  $B$ . But that is not at all so: the point which we removed is a zero quantity, hence both lines are equal to one another. So if we remove a single point, in the same way the body is not made smaller. See Ar. Phys. 263a23: 'so if someone divides the continuous line into two halves, he treats the one point as two, for he makes the same point the beginning and the end ... for he has to count the one point as two'.

<sup>12</sup>See comm. on no. 105, n. 6.

<sup>13</sup>See Zeno DK 29 A 21: 'For if something makes no increase when added, nor decrease when subtracted, he says that it is not something which exists, since what exists is clearly a magnitude, and if a magnitude a body, for that exists in every way. Other things when combined in a way make an increase and in a way do not, e.g. a surface and a line, but a point and a unit not at all'.

<sup>14</sup>See Philop. ad loc. 30.15: 'When wood is sawn sawdust is produced, which consists of small bodies which cannot be sawn any further, and the whole is made smaller by being broken up into sawdust. If anyone were to suppose that when things are divided they are reduced to sawdust, the same argument will apply. For the grain of sawdust, if it is not a point, but a magnitude, will itself be divided, if every magnitude is divisible. But if it will not be divided, Democritus' theory is true which says that there are indivisible bodies from the combination of which the other bodies come into being, and that magnitude is not in every way divisible'. So here too the subject is the same; that continual division cannot be brought about by us has nothing to do with the question under discussion, i.e. the one stated above. Here too we have merely a repetition of the Eleatics' proof, but in this case it is much clearer that it is an attack on an actual theory.

<sup>15</sup> 'points or contacts with that property': Alfieri compares Ar. Meta. 1028b16-17: 'Some people (i.e. the Pythagoreans) think that the limits of body, such as surface, line, point and unit are substances ...' and 1090b5-7: 'and there are some (the same Pythagoreans) who think that, because the point is the end and limit of the line, and the line of the surface, and the surface of the solid, they must be natures'. Just so in the expression cited a little earlier 'a separate form or property' (where 'separate' applies simultaneously to 'form' and to 'property'), there is a reference to opponents of materialism, apparently Pythagoreans.

<sup>16</sup>'are the points motionless or in motion?': 'Points in motion' doubtless refers to the Pythagorean doctrine according to which we form a conception of extended bodies as a result of the motion of unextended points. Aristotle De an. 409a4 refers to this doctrine: 'since they say that a line in motion forms a plane, and a point in motion forms a line'; more

detail in Sext. M VII.99: 'from a point flowing we imagine a line, which is size without breadth, and from a line flowing we constructed breadth, which is surface without depth, and from a surface flowing there came into being a solid body'. Other testimonia in Frank, op. cit., pp. 370-1. From this it is clear that Frank's view (op. cit., p. 371, n. 282), to which I too have adhered till now (Essays in the History of Ancient Science, p.333), that this Pythagorean doctrine originated only in the 4<sup>th</sup> cent. in response to Democritus' doctrine of indivisibles, is incorrect: Democritus is attacking this doctrine, and Sextus M IX.376 is merely repeating, with slight alterations from the sceptical standpoint, Democritus' argument against the doctrine of the moving point contained in our excerpt.

<sup>17</sup>For reasons unknown to me this significant passage was not included by Diels in his collection. It was first cited by J. Hammer-Jensen, AGPh 23, 1910, pp. 103 ff., 241 ff., who called attention to its significance. Later it was discussed by Frank, op. cit., pp. 52ff. Now Kranz has included it in Diels' collection [DK 68 A 48b]; he refers to the commentary in the edition by Joachim, Oxford, 1922, pp.76ff. (unavailable to me). However, as Alfieri has correctly pointed out, Zeller (Ph. d. Gr. I, p. 105) was the first to appreciate the significance of this passage: 'The basic content of the proof given in our text certainly belongs to Democritus, even if its dialectical presentation originates partly from Aristotle himself'. For further literature see Alfieri.

<sup>18</sup>With this Aristotle concludes his exposition. To demonstrate that Democritus' assumption is impossible he thinks it necessary to repeat the whole content briefly and to translate it into his own scientific language and terminology ('potentially', 'actuality'). This repetition contains little that is new and is interesting above all for its characterisation of Aristotle's scientific terminology, but the necessity of the repetition shows that in the preceding part Aristotle was simply reproducing Democritus' arguments, repeating the expressions of his prototype with great accuracy.

<sup>19</sup>'elsewhere': Phys. VI.

<sup>20</sup>See Philop. In GC 316a13, p.38.22 (= no. 105, end).

<sup>21</sup>Philoponus understands neither the course of Democritus' argument nor Aristotle's criticism. He thinks that Democritus is speaking only of simultaneous division at every point, whereas his opponents demand that an infinite division comes about by way of a series of successive divisions. That is the meaning of Philoponus' comment: 'Democritus decides the question by starting from his own assumption, but does not provide a solution to the question presented to him'. But Democritus himself points out, as he is fully entitled to do, that his demonstration remains true even in the case of a series of repeated divisions (in the case of repeated bisection): 'the same thing will happen in the case of bisection'. Aristotle's refutation is more precise than Philoponus supposes; see comm. on no. 105, n. 26.

<sup>22</sup>into separate, i.e. into actual [magnitudes] ... into actual things which are capable of existing in their own right': this is how Philoponus comments on Aristotle's words: 'into separate things ... and into things which are apart and separated' [316b28-9]. The meaning is this: it is impossible in a division to reach unextended points, contacts and divisions, which cannot exist in their own right: 'for a single contact is always of two things, so that there is something in addition to the contact and the division and the point' (GC 316b6-8).

<sup>23</sup>A. Brieger (Hermes36, 1901, p. 177), O. Gilbert (Die meteorologischen Theorien des Gr. Altertums, 1907, p. 152) and E. Sachs (Die fünf platonischen Körper, p. 220) have maintained that according to Democritus in every body there is an infinite number of very small, but not infinitely small atoms, and that thanks to this Democritus is supposed to have 'come into conflict' with mathematics. Further, they suppose that Epicurus' words: 'one must not suppose that in a finite body there are infinitely many volumes' are directed against Democritus. Goedeckemeyer (Epikurs Verhältnis zu Demokrit, p. 28) denies that conclusion on the basis of the testimony of Aet. I.16.2: 'there is no division to infinity': 'In the passages where he speaks about the relation between Democritus' atoms and bodies Aristotle does not suggest by a single word that Democritus made bodies consist of infinitely many atoms'. Philoponus' words provide definitive proof that in this dispute Goedeckemeyer is absolutely right. See my Infinitesimaltheorie, pp. 158-9, n. 135.

<sup>24</sup> 'having heard' is incomprehensible to me. It seems that the text is corrupt.

<sup>25</sup>'no point is adjacent to any point': the meaning of this expression in Aristotle (see no. 105, Philop. ad loc., 39.20ff.) and in Democritus (comm. on nos. 236-7) is not the same.

<sup>26</sup>This interpretation of Philoponus', which I earlier took as my starting-point (Theory of Infinitesimals, p. 84, n. 39), appears convincing only at first glance. It is true that Democritus' theory of generation and corruption is based on the atomic theory, not the other way round; but Aristotle aims to show that in his proof of the existence of atoms Democritus unconsciously starts from his own conception of generation and corruption, and consequently is guilty of a vicious circle, i.e. of assuming the point at issue (see no. 115). If it is not the case that every magnitude is a simple combination of points, then, according to Aristotle, Democritus' entire demonstration becomes untenable. In fact, Aristotle does not take as his starting-point the 'law of the conservation of matter' in the sense in which the Ionian natural philosophers and Democritus understood it; by change he understood actual qualitative change, in which some things completely disappear and others come into being (GC 317a17ff.: 'but simple and complete coming to be is not defined by combination and separation as some (i.e. Democritus) say, and that change in what is continuous is alteration. That is the point at which everything goes wrong. For generation and corruption as such do not occur by combination and separation, but when something changes as a whole from this to that. They thought that all that kind of change was alteration, but they are different'. In fact, if once we deny that generation is simply a new combination of atoms, and think that in generation there really appears something new, then, if we are to

be consistent we shall have also to deny that a magnitude can be composed of points. Unextended points can form only a notionally divided space, for 'no point is adjacent to any point'; from the combination of such points no magnitude can come into being. A magnitude contains points, but is not composed of points. We can divide a magnitude as many times as we like; every time we have to expect the result to be magnitudes, not points. An undivided space of magnitudes and a divided space of points are totally different substances, and the difference here is qualitative, not quantitative, since there is no transition from the first sphere to the second (see De lin. insec. 972b2: 'and the line is not bigger than the point'), just as there is no transition from a line to a surface; Schol. in Eucl. Elem. V, def. 4.20, p. 228 Heiberg: 'for a line increased ten thousand times remains a line and will never make a surface'. Aristotle regards the atomists' greatest sin to be their holding that 'a line consists of points', and sharply objects to it (De caelo 299a6). So in Aristotle's view Democritus bases the indivisibility of the atoms on the argument that in the opposite case magnitudes would consist of unextended points, but at the same time without any reservation he assumes that magnitudes which come into being are merely the result of the mechanical combination of points, whereas in fact there has here come into being something completely new, qualitatively other. In no. 115 the same is said of one of Aristotle's followers. It is hardly necessary to point out that this argument was not invented by Aristotle himself, since it is characteristic of the whole of what is known as the Eudoxan tendency in mathematics.

105a

<sup>1</sup>See comm. on no. 105. H. Cherniss, Aristotle's criticism of presocratic philosophy, Baltimore, 1935, p. 75, n. 302, writes: 'The Greek commentators, Simplicius, Themistius, Philoponus, Alexander, understood the sentence to refer to Plato and Xenocrates, the first of whom is then charged with positing non-Being in answer to Parmenides, the second with setting up indivisible lines. ... But since Plato posits absolute non-Being no more than does Aristotle (cf. Soph. 258a11-b3, d7-e5, e6ff. ), since Aristotle does not use atoma megethē specifically for Xenocrates' atomoi grammai, and since he represents the two Eleatic arguments as the incentives to the Atomic theory of Leucippus (cf. GC 325a2ff., esp. 26-9), it seems certain that the enioi of the present passage are the Atomists. (For the other view see Robin, La Théorie Platonicienne des Idées et des Nombres, note 272, IV, pp. 300ff.)'

#### b. Partless mathematical entities

##### i. The indivisibility of the partless entities

106

<sup>1</sup>those the atoms' understood as 'those positing the atoms': cf. Ar. De sensu 445b18; Themistius (no. 123): 'those who posit indivisibles'.

<sup>2</sup>I cite also a passage of Stobaeus, since there Democritus is mentioned by name.

107

<sup>1</sup>This passage, of decisive significance, was, like no. 105, not included by Diels in his collection of passages, though it had been cited in 1914 by H. Vogt, Bibl. Math. III.14.18; it is now included by Kranz, DK 68 A 48a. See my Theory of Infinitesimals, pp. 124-6.

108

<sup>1</sup>'infinite body': i.e. 'body infinite in number' (iterative singular), in other words: 'Does there exist an infinite number of bodies?'<sup>158</sup> See no. 1, where there is undoubtedly the same usage.

<sup>2</sup>If a magnitude is composed of indivisible partless things, then there must exist magnitudes composed of an odd number of partless things. Obviously, such a magnitude cannot be divided into two equal parts, since partless things are indivisible (cf. Eudemus fr. 62 Spengel = Simpl. In Phys. 231b10, p. 230.35: 'If a magnitude is composed of partless things, there will be a line longer by one point than another line, but if that is so, either it will not be the case that every line is divided into two equal parts, or, if every one were to be divided, the line consisting of an odd number of points would be divided. But in that case the point too would be divided'. Cf. my Theory of Infinitesimals, p. 166. That is why I supply dicha ['into two equal parts'] at the end of the citation from Simplicius, for the atomists never maintained (nor were in any event able to maintain) that there are perceptible bodies which it would not be possible to divide even potentially, but they did maintain that perceptible bodies, even very large ones, which consisted of an odd number of partless things, cannot be divided into two equal parts. Cf. Philoponus' commentary.

109

<sup>1</sup>Obviously Aristotle draws no distinction between Democritus' mathematical partless things and his physical atoms; neither does Simplicius (no. 111). Democritus himself, as I tried to show in my Theory of Infinitesimals (pp.119-126), did not confuse these two kinds of indivisibles, at least in his later works. In fact there is a whole series of passages from which it is perfectly clear that Democritus' physical atoms are further divisible (Infinitesimaltheorie, p. 172, n. 158). Hence Democritus' doctrine of physical atoms cannot turn out to be in contradiction with the foundations of mathematics.

<sup>2</sup>Cf. Frank, op. cit., p. 220: '(Pythagorean) statements such as 'Everything is number' and 'The only objective knowledge is mathematics' flow immediately from the views of atomism, and indeed are comprehensible only on that basis. In fact Aristotle emphasises this Pythagorean statement as at the same time the essential foundation of atomistic philosophy'.

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<sup>158</sup> [In fact the question at issue in De caelo I.5 is not whether there are infinitely many bodies, but whether there is a body infinite in size.]

<sup>3</sup>See no. 106 w. comm.

110

<sup>1</sup>This passage refers to the elements which in aggregate form a sensation, while they are themselves presented to us as imperceptible. See no. 429.

111

<sup>1</sup>In Christian philosophy the mathematical element too is generally called not to ameres [‘the partless’] but hē atomos [‘the atom’]. See e.g. no. 116; among earlier authors Rabanus Maurus, De universo IX.1 (P.L. iii, p.. 2626, De atomis): ‘Now the atom is that which cannot be divided, e.g. the point in geometry. For division is called tomus [‘cutting’] in Greek, and absence of division atomus’. It seems that Rabanus Maurus goes back to the same source as Augustine (De genesi ad litteram II.4.8): ‘there is no body however small in which division terminates’. On the other hand, he certainly has a common source with Theophilus. See also Elias In Porphyry. Isagogen 6.16, p. 74.21: ‘the atom ... is what does not admit of division, e.g. the point’.

112

<sup>1</sup>See comm. on no. 113.

113

<sup>1</sup>See comm. on no. 123.

<sup>2</sup>In nos. 112 & 113 the followers of Democritus, who accepted the existence of partless things, are contrasted in this respect with Epicurus. Hence, Galen and Simplicius knew that the Epicurean atoms were not regarded as having no parts. That must be why they allowed that Epicurus denied in general the existence of partless things, which is, as we know, untrue (Ep. Letter I.58: ‘the smallest part of the atom’). Simplicius even supposes that under the influence of Aristotle’s criticism Epicurus gave up partless things, when in fact those partless things, though not identical with the atoms, constitute the most characteristic feature of Epicurean doctrine. Such a peculiar agreement between Galen, Simplicius and Theodoretus cannot be coincidental; we must assume that they all go back to the same source. So we have not three testimonies, but only one.

114

‘in form’: as something peculiar or individual. So in Alexander’s commentary.

115



<sup>1</sup>to assume the point at issue' is to commit the logical fallacy of *petitio principii*. I explain the meaning of this accusation in the comm. on the passage of Philop. 38.22 (no. 105 w. comm. n. 26).

<sup>2</sup>mēkos ['length'] here means much the same as megethos ['magnitude']. 'in bulk and distance': i.e. physically (bodies are not decomposed into atoms) and mathematically (bodies are not decomposed into partless things); 'body' is the subject, 'divisible length' the predicate.

116

<sup>1</sup>This passage, cited for the first time by me, is interesting not only because it contains new explicit testimony about Democritus' mathematical atomism. It also contains something new, the assertion that Plato and 'Pythagoras' (i.e. the Pythagoreans who are thus designated) held that the number of units in the universe is finite. However, one could have assumed that on the basis of what Aristotle says.

ii. Partless entities and the elements of the Platonists and Pythagoreans

117

<sup>1</sup>See Frank, op. cit., p. 220: 'The other view particularly characteristic of the Pythagoreans is that bodies consist of mathematical points, "of units which have spatial position" (Ar. De an. 409a6 etc)' (see no. 120 w. comm.). That sound initially abstruse, but becomes comprehensible if one imagines that these points have taken the place of atoms, so that this theory has developed as an extension of atomism. This is also the view of Aristotle ... (cf. 409b9ff. (= no. 466: 'what is the difference between talking of small spheres or of large units or in general of units in motion?') and of Sextus M X.252ff' (= no. 121). Frank, who sees in Pythagorean units simply an idealistic modification of Democritus' atoms, understands Ar. Meta. 1002a8 ff. in the same sense, completely correctly: 'Most earlier thinkers thought that substance and what there is is body, and that other things are properties of that, so that the principles of bodies are the principles of what there is, but later and subtler people thought that the principles of these things were numbers'.

<sup>2</sup>The commentators are here trying to show that the specific properties of the atom as a body (its sunecheia, which means not only 'uninterruptedness' but also 'extendedness') are completely indifferent from the mathematical point of view; in so far as the atom is indivisible it makes no difference if we regard it as an unextended point.

<sup>3</sup>sōma ti leptomerestaton ('body with minimum surface', i.e. a spherical atom): see no. 132 w. comm., n. 2.

118

<sup>1</sup>the latter': viz. Leucippus.

<sup>2</sup>'the former': Pl. Tim. 53c.

120

<sup>1</sup>'from mathematics': specifically, as follows from the ensuing context, from Democritean mathematics.

<sup>2</sup>'for the unit is a point without position': cf. De an. 409a4ff: 'for they say that a line in motion makes a plane, and a point a line, and the motions of the units will be lines; for the point is a unit with position'. See comm. on no. 105, n. 16.

<sup>3</sup>'others' are Leucippus and Democritus, as the commentators testify (see 'Democritus and his followers' in Alexander and Syrianus); cf. Bonitz, Index, p. 157b38.

121

<sup>1</sup>As Frank showed, this passage provides quite definite evidence that the Pythagoreans lived later than Democritus; in this passage they criticise Democritus, and they employ his own weapon against him. Specifically he compared the elements of bodies, which are totally unlike those bodies, with letters, which are totally unlike the words composed of them. There is no need to point out that these 'people who maintain that there are atoms' cannot be Epicureans, since the Pythagoreans could not have criticised them.

<sup>2</sup>'solid bodies': see no. 124.

122

<sup>1</sup>'as I said earlier': see no. 171.

<sup>2</sup>The Platonists regarded earth as a pure element, composed of cubical primary bodies; according to Democritus earth is a mixture of seeds (panspermia), consisting of all possible elements.

### iii. Two kinds of atoms

123

<sup>1</sup>In the passages cited under no. 123 it is asserted that Democritus made a distinction between physical and mathematical elements, i.e. between atoms and partless things. In those collected in no. 124 only atoms are ascribed to Democritus, and the inventor of the term 'partless thing' (ameres) is held to be the Megarian eristic Diodorus Cronus (see no. 283 w. comm.). But a number of other considerations require us to admit that Democritus accepted both kinds of indivisibles; see my Theory of Infinitesimals, pp. 119ff. This is clear e.g. from Simplicius, if we compare his words in two passages of his comm. on Physics, [a] 81.34 (no. 212): 'the indivisible ... in the sense of having parts and size, but being incapable of being affected because of its solidity and fullness, as with each of the atoms of

Democritus'; [b] 925.13 (no. 113) 'Leucippus and Democritus ... hold that the cause of the indivisibility of the primary bodies is not merely their being incapable of being affected, but also their being small and partless'. Clearly, two different kinds of elements are referred to. Further, it is easy to show that Democritus divided atoms mathematically into smaller parts with the form of different geometrical bodies (e.g. surface, line etc.). One cannot attach much significance to the passages about Diodorus Cronus which are compared here, since Diodorus and his partless things are being contrasted, not merely with Democritus, but also with Epicurus as an adherent of the atomic theory, while in Epicurus' own writings it is stated in the clearest words, which admit of no reinterpretation, that besides the atoms he accepted partless things (Letter I.58: 'the minimum in the atom'). The most that we can accept from Dionysius is that the term amerē ['partless things'] was first put into circulation by Diodorus. As regards ongkoi ['solid bodies'], it is impossible to say the same, since this term is definitely attested for Democritus (DL IX.44). How unreliable later authors are on the question of the inventors of scientific terms is clear e.g. from the fact that Theodoretus thinks that the inventor of the term 'atom' was not Democritus but Epicurus!: IV.9 (no. 199): 'Epicurus ... lived later than Democritus ; what they (i.e. Leucippus and Democritus) called solids and indivisibles he called atoms'. Traces of the two kinds of atoms indicated above are present in Christian literature also: see Venerable Bede, Elem. philos. I.2 (4) = P.L. 90, p. 1132c: 'An element as defined by the philosophers is a simple and minimal part of some body, simple in quality, minimal in quantity. .. A minimum is what is a part of something, but which has no parts of itself. Whence letters are similarly called elements, because they are most similar parts, but nothing is a part of them ... some divisions can be made actually, others only by reason and thought ... Boethius says in his commentary on Porphyry, the force of the intellect is to divide things that are joined together and to join things that are divided'.

<sup>2</sup>and they say that this is not divided into smaller parts': Either 'this' is 'this atom', in which case one must, with Landauer [no ref. given] add the word 'actually', or it is 'this partless thing', in which case 'is not divided' means 'is not divided even in thought'.

124

<sup>1</sup>See comm. on no. 123, n. 1.

#### iv. Axiomatics

125

<sup>1</sup>In his work On the sphere and the cylinder Archimedes thinks that the theorem about the volume of the pyramid was discovered not by Democritus but by Eudoxus. Before Eudoxus, in his words, such a theory did not occur to any of the mathematicians (op. cit., I.1, ed. 2, p. 4.4 Heiberg): 'Eudoxus' theorems about the solids, that every pyramid is a third of a prism with the same base and the same height as the pyramid, and that every cone is a third of a

cylinder with the same base and the same height as the cone. These are properties which already belonged to those shapes, but it happened that they were ignored by all the many notable geometers before Eudoxus and were not thought of by any of them'. As Arendt correctly points out (Bibl. Math. XIV, 3, 1915, p. 295) Archimedes became acquainted with the corresponding statement of Democritus' only after the publication of the first book of his On the sphere and the cylinder; that is especially characteristic of the relation between official mathematics and atomism in the 3<sup>rd</sup> century. Democritus is mentioned in the closest connection with Archimedes' heuristic method of the integration of mathematical atoms, and it is in that connection that Archimedes uses the expression 'without proof', both of his own and of Democritus' method. This shows that by the expression 'without proof' he does not mean 'without any kind of proof' but 'without strict mathematical proof'.

<sup>2</sup>By 'some' Heiberg understands Antiphon, Hippias and Hippocrates; on the basis of the material assembled here for comparison I suppose that the reference is to Democritus. As we shall see below, he was interested in the determination of the volume of the sphere, and consequently in any case with the determination of the surface of the circle. The expression 'after that' probably refers to geometers who subsequently adopted the method of atomic integration. The expression 'most people thought that they had not discovered these theorems' sounds like a correction of an incorrect remark in the work On the sphere and the cylinder (see comm. on no. 125, n. 1).

<sup>3</sup>'by the section of the cylinder', i.e. 'by the outline of the ellipse'. See no. 128. I give more detailed grounds for the necessity of this conjecture in my article 'The ellipse in Greek geometry before Archimedes' (see below, p. 617, no. 48). This reading can also be supported palaeographically; the ms reading (the section of the whole cone?) gives no sense; Archimedes himself points out that he was the first to discover the area of a parabola.

<sup>4</sup>Frank (op. cit., p. 175) was the first to see that 'this passage has its source in the sphere of Democritus' thoughts', since 'in this passage the atomistic understanding of magnitude appears as a self-evident principle'. In my Theory of Infinitesimals (pp. 72-3) I attempted to give an approximate reconstruction of this theorem in its general aspect: 'if a magnitude arrives at another given magnitude by addition or subtraction, then the one is composed of the same parts and is in a numerical ratio with the other. But if it arrives at the given magnitude only by superimposition it is composed of parts of a different kind and is not in a numerical ratio with it'. On the difference between simple addition (in respect of length) and 'integration' (in respect of breadth), see Ar. De caelo 299b23. In the view of the opponents of atomism integration as a whole does not lead to any result; between lines on the one hand and planes on the other not only is there no rational relation, there is no relation at all. A hostile remark of this kind is preserved in the scholia to Euclid (Elem. V, def. 4.20, p. 188 Heiberg): 'the line has no proportion to the surface, nor the surface to the body; for even if the line is multiplied ten thousand times it still remains a line and will never

make a surface'. The opponents of the atomists compared only magnitudes with the same scale of measurement, and even those magnitudes in their view did not always have a numerical proportion to one another, since there are incommensurable magnitudes. They do not speak of 'attaining the previously given magnitude' but only of 'exceeding the previously given magnitude', e.g. Archimedes De sphaera et cyl. p. 8.23 Heiberg : 'in the case of unequal lines, surfaces and solids the larger exceeds the smaller by a quantity which, when added to itself, is able to exceed any previously given magnitude of those which have a numerical ratio with one another'. We find this axiom in other passages of Archimedes (De spiral. II, p. 12.6: 'I assume this lemma', Quadr. Parab. II, p. 264.8ff.); from the latter we know that Eudoxus took precisely this theorem as his starting-point when he provided the theorem about the volume of the pyramid with a strict proof: 'assuming this lemma in his proof' (our axiom follows) ... and earlier geometers used this lemma ... that every pyramid is a third part of the prism etc. and every cone is a third part of the cylinder etc. they wrote assuming a lemma similar to that of the above-mentioned'.

<sup>5</sup>My attention was drawn to these significant words of Eudoxus<sup>159</sup> by M. Y. Vigodsky.

<sup>6</sup>So here the following statements are treated as self-evident postulates, a) a line consists of points, b) a broken line which connects by its segments all points of a curve is identical with that curve ('notions in the demonstrations of what is agreed' = 'common notions').

<sup>7</sup>'continuous', as in Ar. Phys. 203a9: 'those who make the elements infinite, e.g. Anaxagoras and Democritus ... say that the infinite is continuous in contact'.

<sup>8</sup>'every line exists in virtue of the continuity of its points': this is another version of the same atomistic postulate.

<sup>9</sup>I. Stenzel, Zahl und Gestalt bei Platon, p. 20, points out the atomistic origin of this postulate and correctly translates it: 'A straight line is one which has the same direction as the points on it'. Proclus' commentary, which was unknown to Stenzel, testifies to the correctness of that interpretation.

#### v. Integration of the partless entities

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<sup>1</sup>Interpreters have completely misunderstood this passage, as is shown by their proposed 'corrections', which are not merely unnecessary, but which completely distort the sense. Thus, Guise [no ref. given] corrects 'triangles' to 'unequal triangles', but from the standpoint of the problem under discussion the question whether these triangles are equal or unequal has no significance. The meaning of this passage is as follows: from the atomistic

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<sup>159</sup> ['Eudoxus' is a slip for 'Eutocius'.]

standpoint the line of intersection AB between two faces of a pyramid cannot belong simultaneously to the two triangles ABC and ABD after they are separated from one another, but it must stay with one of those triangles, let us say ABC. In that case the triangle with apex D must have a base smaller than AB. But on the other hand the ends of the straight line AB do not project beyond the ends of this base next to it, once the faces of the pyramid are put together again. This problem seems to be the exact planimetric counterpart to Democritus' problem which immediately follows it. Diels corrects epipedōi to epipedois [reversed in DK II, p. 173, l. 18], though Simplicius here reads epipedōi, and it gives a very good sense if understood as an instrumental dative. See H. Vogt, Bibl. Math. III.10 (1909), p. 145, Heiberg Hermes 42 (1907), p. 300, Luria, Theory of Infinitesimals, p. 140.

<sup>2</sup>'is neither in motion nor at rest'.

<sup>3</sup>['things which are not equal to one another are unequal to one another, and it is not the case that these things are equal to one another and these are unequal to one another']: since these words are still, it seems, connected to the discussion of the equality of the atomic laminae in the cone, everything is in favour of Democritus' having arrived at the conclusion 'If any magnitudes are not equal to one another they are unequal, so the surfaces are not equal, but unequal'. See Frank, op. cit., pp. 53ff.; Philippson (Hermes 64 (1929), pp. 178ff.) is wrong; Alfieri, op. cit., p. 243, n. 608, p. 199, n. 502, shows that he completely misunderstood problems of this kind.

<sup>4</sup>'have to make them indivisible': this is not an assertion or endorsement of the actual situation of things, but an explanation of why the atomists were logically obliged to regard their elements as indivisible. It is clear from Simplicius' commentary that precisely the expression 'divided in a way' corresponds to the actual situation of things 'they say that they are divided'.

<sup>5</sup>Previously it was the Platonists who were being discussed: 'further, if it is possible for planes to be put together only at their edges', since it is only they who construct bodies from surfaces which meet at their edges. Here, in contrast to them, we have those who superimpose planes on one another ('if they can be put together in breadth [i.e. by superimposition]'); so these are not Platonists. But they are not Pythagoreans either, since Aristotle goes on to say of them (De cael. 306b14): 'the same applies to those who construct the cosmos from numbers; for some, e.g. some of the Pythagoreans, make the nature of things out of numbers'. Consequently, the passage under discussion refers to the Democriteans, as is confirmed by Alexander In Meta. 36.21 : 'He is speaking about Leucippus and Democritus' and 28 'he has said more about these matters in the third book of the De Caelo'. See comm. on no. 362.

<sup>6</sup>We should notice that here it is said that 'they say' (not 'they would say' or 'they might say'); consequently, that was what the atomists actually taught. Also, in what follows

reference is made to only one method of division, for the atomists divided the pyramid and the sphere only in that way. The same method is discussed below (Ar. De Cael. 306b24ff.)

<sup>7</sup>Cf. P. Luckey, Isis 20, 1933, p. 45: 'We do not know what the Egyptians called a truncated pyramid, i.e. how they read the hieroglyph . . . . But a truncated isosceles triangle, i.e. an isosceles trapezium, they called ḥ}k.t.. This word has as its determining element the hieroglyph 'tail'; corresponding to this the verb ḥ}k in the pyramid texts (673c) means 'cut off the tail' (T.E. Peet, The Rind Mathematical Papyrus, Liverpool, 1923, p. 95.) Was the Democriteans' expression 'a tailless pyramid' (kolouros puramis) the translation of the Egyptian expression for a truncated pyramid? Or did the Greeks adopt this artificial expression independently of the Egyptians?' See Theon of Smyrna, Mathem., p. 42 Hiller: 'some people call that kind (a truncated pyramid) a trapezium, from a plane trapezium'; compare the fact that the Egyptians depicted the truncated pyramid in the shape of a trapezium.

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<sup>1</sup>'make the intervals by being packed together': Epicurus said the same thing later (Epist. I.58): [the smallest things] ... measuring out magnitudes via their particularity (i.e. via their particular kind of movement one after another), more of them [measuring] a greater [magnitude] and fewer a lesser'.

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<sup>1</sup>I venture to place this excerpt here, since it is possible that Democritus spoke of the cylinder in the section on volumes, i.e. in the solution of the problem of integration, but of course he may have spoken about the cylinder in some completely different connection, e.g. in connection with sections of the cylinder.

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<sup>1</sup>metabasis ['transition']: cf. Epicur. Epist. I.56: 'not only is infinite quantitative division to be rejected ... but one must not suppose that infinite transition [in thought] to ever smaller parts occurs in finite things'. Aristotle is saying essentially the same thing as the scholium on Eucl. V, def. 4.20: 'a line has no proportion to a surface nor a surface to a body; for even if a line is multiplied ten thousand times it remains a line and will never make a surface'.

<sup>2</sup>This passage is directed against 'atomists' in the widest sense of the word (against Platonists, Pythagoreans and Democriteans. In the comm. on no. 126, n. 5, I show that in any event the Democriteans are referred to here.

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<sup>1</sup>'and the sphere from eight parts': it is hard to understand why it was necessary for the atomists to divide the sphere into eight parts, formed of three mutually perpendicular planes, and the ancient interpreters who regarded this as incomprehensible were undoubtedly right (see no. 130, *Simpl.* 613.18: 'the interpreters really needed an oracle'). Cf. the similar testimony, *Plut. Quaest. Conviv.* 1003F, which goes back to the 'atomists' of the Academy: 'if the triangle is not resolved into any circumference, and the two diameters cut the circle into four triangles, the straight is prior to the circular'. It is curious that the octahedron is constructed first and is only afterwards transformed into a sphere; cf. the Platonists' name for the dodecahedron: 'the sphere formed from twelve pentagons' (see *Sachs, op. cit.*, pp. 83ff.). So it is possible that for Democritus this division into eight parts was merely a transition to the construction of an infinite number of pyramids with apexes in the centre of the sphere.

<sup>2</sup>'is divided into triangles': we find the same planimetric parallel to the division of bodies into pyramids in *Pl. Tim.* 53c: 'a surface bounded by straight lines is composed of triangles'.

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<sup>1</sup>'most mobile': see no. 444 w. comm. and no. 304.

<sup>2</sup>'the former (the sphere) is all angle': the word *gōnia* ['angle'] originally meant not the inclination of one straight line in relation to another, but a figure formed of two straight lines; hence until the middle of the 4<sup>th</sup> century BCE the Greeks said not 'equal angles' but 'similar angles'. Hence 'angle' meant everything angular, above all a 'polygon'. See *ps-Ar. Mech.* 855a36ff.: 'the circumference of every circle is, it seems approximately equal to a polygon with the same diameter, larger in the larger circle and smaller in the smaller, so that by observation the lines along which they roll will be in the same proportion'; see further *ps-Ar. Mech.* 851b23-4. (Cf. 'circles which consist of an infinite number of sides', 'infinitely many indivisible sides of a great circle' and 'approximately equal' in Galileo's reworking of this passage, *Le opere di Galileo Galilei*, vo. VIII, Florence, 1898, p. 70, l. 4, p. 94, l. 28, p. 95, ll. 28-9; see comm. on n. 287). This passage, which also goes back to an atomistic source, becomes more comprehensible if we take into account the passage of Eutocius cited in no. 125: 'since we can connect straight lines from every point (on the circumference) we may consider the line itself as consisting of straight lines'. So *gōnia* means, not 'angle' but 'the angular' or, which is virtually the same, 'polyhedron'; 'the sphere is angular everywhere' i.e. 'every point on it is the apex of a polyhedron, just as elsewhere in Aristotle it is necessary to translate *gōnia* as 'something angular' or 'polyhedron'. These passages have been correctly explained by *Sachs, op. cit.*, p. 220, n. 2: 'Dem. seems, moreover, to have regarded the sphere as the extreme case of the angular ... That seems in line with his treatment of the infinitesimal; if he discovered the theorems of the volume of the pyramid and the cylinder, he must have regarded the circle as a figure with infinitely many angles, and hence the sphere as a body with infinitely many angles'.



<sup>3</sup>'from ... the juxtaposition of these elements nothing continuous is formed': this is an attack on Democritus' definition (no. 237): 'the infinite is continuous by contact'.

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<sup>1</sup>Cf. Damianus, Optica, p. 6: 'for this (i.e. the circle) has been shown to have the largest area of the plane figures which have the same perimeter'.

<sup>2</sup>'are nearer to having no angles': this is essentially the same atomistic theory of the circle as 'a polygon with infinitely many sides' and the sphere as 'a polyhedron with infinitely many faces', which we have already come across in no. 130 (cf. comm.). Cf also Ptol. Mathem. I.3. Heiberg: 'Nevertheless one can reach this result from considerations of nature also, e.g. that the aithēr is the finest and most uniform of bodies, and the surfaces of uniform things are uniform, and that the only uniform surfaces are the circular in plane figures and the spherical in three-dimensional. Now since the aithēr is not a plane, but three-dimensional, it has to be spherical. And similarly that nature has constructed all terrestrial and perishable things wholly from rounded but non-uniform shapes, but on the other hand all the divine things in the aithēr from uniform and spherical'. (My attention was drawn to this passage by Neugebauer.)

<sup>3</sup>So the term mikromerēs or leptomerēs, which is so often encountered in ancient philosophical literature, means 'having the smallest perimeter (or surface)'. Precisely so Simpl. In Phys. 379.8ff., which is all probability goes back to Democritus, deals with the question of the largest volume: 'the swallow... tying the mud together with straw in the most voluminous shape'. (It is self-evident that Democritus' use of mikromerēs in the sense 'having the smallest perimeter (or surface) of all shapes (or bodies) of equal area (or equal volume)', reported here by Philoponus, is merely an occasional [? = exceptional] one. Edd.)

## vi. Touch

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<sup>1</sup>The title is explained in the comm. on no. 82 on the basis of Sext. M VII.179: 'there are two kinds of knowledge, the one legitimate, the other bastard'. The geometrical meaning of the dispute about the question of contact is explained in my Theory of Infinitesimals, pp. 37-40 w. comm. Cf. Ar. Meta. 997b32ff.: 'Nor are perceptible lines such as the geometer says; for no perceptible line is straight or circular in that way, since the circle does not touch the ruler at a point, but in the way Protagoras said in opposition to the geometers'. Sext. M. III.27: 'the sphere is supposed to touch the plane at a single point, and to make a line as it rolls, clearly on the basis that the whole line consists of the points which fall next to one another. Now if the point fills out the magnitude of the line, it will itself have magnitude'. Plut. De comm. not. 40, 1081A: 'for if the sphere touches the plane at a point, it is clear that the

sphere is dragged across the plane at a point. And if the surface is painted with ochre, it will make an ochre line on the plane, and if it is painted red it will make the plane red. But that a body should be coloured and reddened by something bodiless is contrary to our conception’.

#### vii. The problem of incommensurability

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<sup>1</sup>On irrational lines and solids’: for different suppositions about the meaning of the expression alogos [‘irrational’] in Democritus see my Theory of Infinitesimals, pp. 170-1. It also possible that Democritus spoke there about the incommensurability between lines and bodies; see comm. on no. 125, n. 4.

#### c. Geometry

##### i. Plane geometry

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<sup>1</sup>On the question of the authenticity of this passage see DK II, pp. 209-10, Alfieri, op. cit. p. 279, nn. 707-10. I am convinced, independently of the question how much we should rely on Clement’s writings as a whole, that the quotation which he cites is taken from a genuine work of Democritus. The same view, which is that of T. Gomperz, Ed. Maier and others, is now also taken by J. Burnet, op. cit. p. 24 and S. Gandz, Quel. u. Stud. z. Gesch. d. Math. I, 1930, p. 256.

<sup>2</sup>Harpedonaptai [‘Surveyors’]: the question of these ‘stretchers or pullers of ropes’ is discussed in detail by Gandz, op. cit., pp. 255-77.

##### ii. Theory of perspective

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<sup>1</sup>Cf. Procl. In Eucl. 40.12: ‘Optics and harmonics are offshoots of geometry and arithmetic; the former treats visual phenomena as lines and the angles created by them’.

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<sup>1</sup>once a certain point is fixed as the centre’: it is possible that there is a criticism of this view or a correction of it in Damianus, Optica 24.18: ‘It is thought that sight is generated from the whole of the pupil or its visible part, not from the defined point’.

<sup>2</sup>'corresponds': Cf. Damianus Optica 28.10: 'the part of optics concerned with scene-painting considers how images of building should be painted. For since it is impossible for things to be as they appear, they seek not to exhibit their actual shapes, but to fashion how they will look. The craftsman's goal is to make the appearance of the product appropriate, and in guarding as far as possible against visual deception to aim not at true but at apparent equality or appropriateness'.

<sup>3</sup>'of what is unclear': see comm. on no. 72. Cf. Procl. In Eucl. 40.16: 'it is scene-painting which shows how appearances which are not inappropriate or shapeless should be presented in paintings according to the distances and height of the things painted'.

<sup>4</sup>The reason for the discrepancy between the testimonies of Vitruvius and Theophrastus is probably that Theophrastus was acquainted with Democritus' psychological works but not with his mathematical ones, and it may have been the case that in the former works Democritus did not discuss the laws of perspective in sufficient detail. However, this passage is corrupt in the manuscript, and while our supplementation < ἔλλι πῶς is the only one which is satisfactory from the palaeographic standpoint it seems that we have here simply an evaluative judgement of Theophrastus' which is not binding on anyone. Cf. Hultsch, Heronis reliquiae, p. 277, 17

<sup>5</sup>The example of the 'round square' was very fashionable in the later, mainly Epicurean, literature, e.g. ps-Ar. Probl. 911b3: 'Why does the sun, when shining through quadrilaterals, produce not straight-sided shapes but circles?'; Sext. PH1.118: 'the same tower looks round from a distance and rectangular from close up'; Plut. Col. 1121A: 'in the writings of Epicurus ... that the tower is round'; Lucr. IV.353ff. (= no. 434); DL IX.85. Precisely this question was discussed in the specialised optical literature and a mathematical proof was attempted; see Eucl. Optica 10: 'right-angled magnitudes look round when seen from a distance'. This is proved as follows. Let there be given a rectangle BC. Let it be situated in the air and seen from a distance (one has to add, 'so that the eye is situated exactly opposite its centre, on the same level as it'). Since there is a distance at which a visible object ceases to be visible, the angle C is no longer visible, but only the points D and Z. The same will be the case for every angle. Therefore the whole rectangle will appear round. It is possible that proofs of this kind were given by Democritus. See also Procl. In Eucl. 40.20: 'optics, which explains the illusory appearances of things seen at a distance, such as parallel lines coming together and rectangular things looking circular'; Damianus Optica 22.10: 'rectangular porticoes looked at straight on appear tapering at the far end (also Sext. PH 1.118: 'the same portico looked at from one end appears tapering, but looked at from the middle appears the same size throughout') and rectangular towers look round and tapering from a distance, and ceiling cofferings of equal size look unequal according to their positions and dimensions'.

<sup>6</sup>'and a circle': Cf. Damianus Optica 28.20: 'Similarly, since a round column will look broken, as it looks narrower in the middle, it is made broader at that point; and sometimes a circle is

drawn not as a circle, but as an acute conic section, and a rectangle is elongated ... they look that way when placed at a considerable distance’.

<sup>7</sup>‘the oar’: cf. Epicur. ap. Plut. Col. 1121A: ‘and the oar is broken’; Cic. Acad. priora II.7.19: ‘about the bent oar ... Let Epicurus see to that...’; Lucr. IV.436ff.: ‘But to those who are ignorant of the sea ships in port seem to be maimed, and to confront the waves with broken poop, for the part of the oar above the foam is straight, and straight is the rudder above, but the parts beneath the water all look as if they are turned back up again and almost floating on the surface’.

#### d. Infinity

##### i. Demonstrations of the existence of infinity

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<sup>1</sup>All three of the proofs of the existence of the void which I cite below depend on our imagining ourselves situated at the boundary of the universe and then trying to move outside it. If in doing so we bump up against something, then something exists outside the boundaries of the universe and, consequently, our presupposition was false; there is no boundary of the universe. If we do not bump up against anything, then we can move further on, and in that case it once again appears that there is no boundary of the universe. Archytas and Alexander describe the attempt to stretch one’s arm beyond the boundary of the universe, while in the Epicureans (Lucretius) we encounter a slight alteration; there what is described is the attempt to shoot an arrow into the space outside. Alexander’s attack (‘not every appearance is true’) may be directed either against Democritus or against Epicurus; but since the formulation of the proof in Alexander is, as we shall see, somewhat different from Epicurus’ formulation, we must see in that proof an attack on Democritus. If that is so, then Archytas’ proof also goes back to Democritus, all the more so because his argument ‘we must take what is possible as actual in eternal things’ is one which we have already come across in Democritus (cf. Aristotle’s testimony in the text [no. 1] ‘there is no difference between being possible and being actual in eternal things’). This argument is especially characteristic of Democritus’ principle ‘no more this way, than that’, while for the Epicureans, of course, their source was not Archytas but, as always, Democritus.

The texts are as follows:

1) Archytas DK 47 A 24 = Eudemus Phys. fr. 30 = Simpl. In Phys. 467.20: ‘Archytas, as Eudemus says, put the question thus; if I had reached the outermost or fixed heaven, would I stretch my hand or my staff outside or not? Now not stretching it out would be absurd; but if I stretch it, what is outside is either body or place (it makes no difference, as we shall see). So one will always go on in the same way up to whatever boundary you set, and one

will ask the same question, and if there is always something further where the staff is, it is clear that there is an infinite too. And if it is body, the answer to the question has been shown. But if it is place, and place is that in which body is or could be, and one must take what is possible as actual in eternal things, in that case too there would be infinite body and place'.

2) Alex. Quaest. III.12, p. 101: 'That what there is is not infinite. The argument which seeks to prove that what there is is infinite, viz. that someone who is supposed to be at the boundary of the cosmos either stretches his hand outside the cosmos or will be prevented by something, and either way there will be something outside the cosmos (for either the thing preventing him will be outside, or the space in which what is stretched out), gets its plausibility from imagination and perception, as does that which says that everything bounded is bounded by a boundary. In both cases the plausibility comes from perception ... (pp. 105.12-106.13) it requires the person who has reached the boundary of the universe to stretch out his hand beyond the boundary or to be prevented, and either way there will be something outside the universe. To suppose that someone who has reached the boundary of the universe is able to stretch out something under his control beyond the boundary... but that is not so, for it is not the case that 'what appears so is true' ... for we have sufficient evidence that not every appearance is true from the empty imaginations of people sleeping and waking; and the supposition that someone who has reached the boundary of the universe is able to stretch out something under his control is like those. For what is the difference between imagining and supposing that, and someone's supposing himself to be in what is not [? In a state of non-existence] and then asking whether in that situation he will be able to stand or will find nothing to support him and will be able to stretch out his hand or will have something in the way [? because one must suppose that what is not is something of that kind].

3) Lucr. III.958ff.: 'All that there is is therefore bounded in no direction of its ways, for it would have to have an utmost boundary. Now it is seen that there can be no utmost boundary of anything, unless there is something beyond to limit it, so that it is seen that this nature of our sense can follow it no further. ... (968) Further, if the whole of space were constituted as finite, if someone ran to the extreme edge and threw a flying weapon, do you think that, propelled by strong force, it would go wherever it was sent and fly far off, or that something would prevent and obstruct it? You have to say and assume one or the other, but either shuts off your escape and compels you to admit that the universe stretches out without a boundary. For whether there is something to prevent it and stop it from going where it was sent and reaching its goal or it is borne outward, it was not sent from the boundary. So I shall follow you and wherever you place the extreme edge I shall ask what happens to the weapon. It will turn out that there is nowhere that a boundary can be set, but further room for flight always stretches out'.

A corrupt passage of Diogenes of Oenoanda (fr. 6 Chilton) is devoted to the same question: 'in such things to proceed ... further ... no-one ... outside this cosmos (?) there is nothing, since (?) the void cannot be affected he/it would have not to remain still and go on into the infinite because nothing prevents ... that he will not be able to go further than the last, because he knows it ...' [text and translation conjectural].

The passages cited here have played a very major role in the history of the question of Democritus. According to the view first proposed by Brieger, *op. cit.*, p. 177, and later maintained by Gilbert, *op. cit.*, p. 152 and Sachs, *op. cit.*, p. 220, Plato improved the doctrine of Democritus, which was feeble and unsatisfactory from the mathematical point of view. Despite the clear testimony of Aristotle, according to which Leucippus and Democritus were responding to Zeno's attack by their doctrine of atoms, in the opinion of these scholars atomism was even more helpless in the face of Zeno's arguments than those opponents whom Zeno was directly attacking; if those opponents were mistaken in thinking that an infinitely large number of unextended magnitudes constituted a finite magnitude, Democritus supposedly made an even grosser mistake in thinking that the sum of an infinitely large number of finite magnitudes constituted a finite magnitude. These scholars maintain that according to Democritus every body contains an infinitely large number of atoms, which are extremely but not infinitely small; hence Democritus falls 'into contradiction with mathematics'. Brieger bases his view about this on the testimony of Aristotle (no. 143); if one reads only the first part of it ('Both Anaxagoras and Democritus maintain that everything is a mixture of all things'), that would really speak in favour of this view; the upshot is that according to Democritus every thing contains atoms of every kind, and hence that Democritus' view does not differ from that of Anaxagoras. But Brieger took that phrase out of context, and did not inform his readers of the second half of the passage of Aristotle he cited ('for according to Democritus in every part there are matter and void in equal measure'). In other words, according to Anaxagoras there is an infinitely large number of materially distinct things, and all of those are contained in every part of a body; according to Democritus there are only two things, matter and void, and all of those (i.e. both those things) are contained in every part of a body. This resemblance gives Aristotle a certain basis for seeing in Democritus' doctrine a variant of Anaxagoras' position 'everything in everything', insofar as matter and void constitute everything from Democritus' standpoint; but Brieger has no right to conclude that, according to Democritus, a finite body contains an infinitely large number of parts. It is true that Epicurus (Epist. I.56) censures those who thought that an organic body contains an infinite number of material parts (ongkoi), but, as is well known, Epicurus attacks the opponents of materialism far more often than he attacks Democritus, so in this case also Brieger had no right to see here an attack on Democritus. It is also impossible to follow Sachs in concluding from Aristotle's use of the expression panspermia ('a mixture of all kinds of seeds') that Democritus admitted the presence of an infinite quantity of different elements in every body. From the passages set out in nos. 141-5 this expression characterises only infinitely large bodies extended

throughout the entire world; air as a whole, water as a whole and earth as a whole, but not separate extended things of every kind; cf. e.g. Aristotle's words in 140a (at the beginning): Democritus calls the elements of 'the whole of nature' a panspermia. But most decisive of all, as Philoponus correctly remarks (no. 143) is that fact that Democritus' basic proof of the logical necessity of atomism (no. 105) is in essence an attack precisely on the doctrine which Brieger and his followers ascribe to Democritus. We may add that in criticising Democritus Theophrastus objects (no. 144) that according to him there are in any body many different atoms [i.e. atoms of many different kinds], but not all the elements and not an infinite number. Finally, Simplicius (no. 145) directly contrasts Democritus with Anaxagoras in this connection: 'Democritus does not say, as Anaxagoras does, that everything is contained in everything'.

So this charge brought by modern scholars against Democritus is totally unfounded, as Goedekemaier has pointed out (op. cit, p. 28). As regards the ancient opponents of Democritus, Aristotle and Theophrastus, it seems that from the standpoint of ancient mathematics their charge was entirely correct, but it was not the same charge as that brought by Brieger and his followers: Democritus accepted an infinite number of different schēmata ['shapes']. i.e. of different kinds of atoms, and also an infinite number of atoms of each kind. Consequently the total number of atoms turns out to be not infinite, but the square of infinity, and from the standpoint of ancient mathematics there can be no number which is 'more infinite than infinity', no. 141. See comm. on no. 145.

ii. An infinite number of atoms cannot be contained in a finite body. Only an infinite quantity of each of the four elements can be called a universal seminal mixture of the atoms.

141

<sup>1</sup>See comm. on no. 145.

143

<sup>1</sup>Anaxagoras' theory, according to which there are 'seeds of everything in everything', has, as we have seen above, nothing to do with Democritus. In describing Democritus' doctrine Aristotle uses this expression in a transferred sense. But if Aristotle's fanciful expression misled Brieger and Sachs, we cannot be surprised that the same thing happened to scholars of later antiquity. Simplicius, In de Caelo 730.9 (no. 145) speaks of Democritus' doctrine 'that there are seeds of everything in everything', and we read the same thing in a scholiast on Aristides and in the proverb-writers Apostolius and Arsenius [no. 144]. As Leich and Schneidevin [no ref. given] correctly point out, this dictum became a proverb, and it was only after its true author had been forgotten that it was put into the mouth of Democritus.

144

<sup>1</sup>all ... the material causes': i.e. all the shapes of the atoms.

145

<sup>1</sup>infinite not merely in number ... but also in their shapes': to Philoponus' readers it was clear without further commentary that this is impossible: as Philoponus himself says elsewhere (no. 141): 'If the number of shapes is infinite, and every shape is present in many atoms, then the whole number of atoms is greater than an infinite number, but that is impossible'. In fact the ancients regarded infinity as a completely determinate number 'the greatest number'. See [Ar.] De lin. insec. 968a2ff.: 'for if the many and the large and their opposites, the few and the small exist in the same way, and that which has virtually infinite differences is not few but many, it is clear that the few and the small will have finite differences'. Cf. the words of an unknown Epicurean in Procl. In Eucl. Def. 17.158.2: 'if two semi-circles are created by one diameter, and infinitely many diameters are drawn through the centre, it will result that [the semi-circles] are twice infinity in number'. Plut. De comm. not. 1079A: 'Yet how is it not clear that a man is composed of more parts than his finger?' That is how the atomists showed that the number of atoms in a finite body had to be finite. If one adheres to the standpoint of the atomists, then only the entire number of atoms in the universe could be infinite. So it seems that here, from the standpoint of ancient mathematics, there was identified a genuine contradiction in Democritus.

## C. The Doctrine of Atoms

### a. Historical and General

#### i. The history of the doctrine of atoms



<sup>1</sup>heni logōi: ‘starting from the same principles’, Zeller, Ph. d Gr.I, p. 1054. These words must be connected with ‘about everything’. Heni logōi does not just mean ‘simply’, as supposed by Heidel (Proc. Amer. Acad of Arts and Sci. 48, 1913, p. 732) and Diels [DK 67 A 7, II, p. 72, l. 32 n.].<sup>160</sup>

<sup>2</sup>kata phusin hēper estin: ‘corresponding to actually existing nature’.

<sup>3</sup>‘some’ refers to the Eleatics.

<sup>4</sup>kenou kechōrizmenou: a separate void, a void separated from matter. Here, however, the subject is not a void between worlds, since the assumption of such a void is not necessary for the explanation of motion. Here a ‘separated’ void is evidently contrasted with a void which is observed simply as a property of the parts of matter, making it lighter or heavier (that may have been the view of Empedocles, see below in this number); but such an assumption does not solve the problem of motion.

<sup>5</sup>hyperbantes tēn aisthēsīn: ‘neglecting sensations’ [more strictly, ‘neglecting perception’]. In Aristotle’s mouth this cannot have been a reproach, but it directly contradicts the principle ‘to start from considerations which agree with feelings’ (pros tēn aisthēsīn homologoumena [more strictly ‘which agree with perception’]) characteristic of Democritus. It is for this reason that, following Natorp, Forschungen zur Gesch. des Erkenntnisproblems im Altertum, Berlin, 1884, pp. 166 ff., I am convinced that the whole of this passage, including the conclusion ‘this view is close to the raving of a lunatic’, is taken over from Democritus.

<sup>6</sup>kai apeiron enioi, ‘and infinite too, as some people say’: specifically, Melissus (see comm. on no. 153).

<sup>7</sup>The mss’ reading kai tou ontos outhen mē on phēsīn einai [‘he says that nothing which is not’] contradicts the whole course of the thought. What Democritus means is precisely that the void, that which is not, is a part of what is ‘for the void exists’, but this void exists ‘not in the strict sense of the word’. Hence it seems to me that Heidel is completely right in emending mē on (‘non-existent’) to meion (‘less’); cf. no. 147: ‘he says that what is not ... exists no less than what is’. Diels’s appeal to the next clause [DK II, p. 73, l. 6 n.] is unconvincing, since in that clause the logical emphasis is placed on ‘strictly’ (I venture to emend gar to ge, since the former word is completely absent from ms E).

<sup>8</sup>‘and others’: especially Alcmaeon, as Philippson correctly supposes (Gött. gel. Nachr. 1929, p. 133, n. 1).

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<sup>160</sup> [L’s own translation reads ‘The most methodically constructed theory was that of Leucippus and Democritus, who were guided by a single general principle in the observation of phenomena’.]

<sup>9</sup>einai gar ['for there are'] is indirect speech, i.e. 'as Leucippus declares'. Consequently we have a quotation from Leucippus, probably from the Great World-System 'in which he regards Empedocles as his predecessor in recognising the existence of the void, discusses him and subjects him to criticism' (Philippson, op. cit.). That is also how the passage is understood by Kranz (Hermes 47, 1912, p. 34, n. 1), who adds 'Leucippus says' in his translation. According to Vogliano (Epicuri et Epicureorum scripta in Herculaneis papyris servata, Berlin, 1928, pp. 4, 99) and Philippson, op. cit. pp. 131-3, this historical excursus by Democritus is connected with a badly damaged passage of Ep. On nature bk. 28, which I restore as follows: 'There there are atoms (phusis), and in accordance with his theory of the void there is also a lot of void. He expresses this in the same terms as he uses in his work On the first people to recognise atoms. Taking this over from him, we have ourselves undertaken an investigation in this book' (on the expression phusis in the sense 'atoms' see Simpl. In phys. 1318.33, no. 313: 'the natural and primary and indivisible bodies; for they called them 'nature' [phusis]'). If Philippson is right and Democritus' doctrine is the subject here, then by the work On the first people to recognise atoms is probably meant the same historical excursus which we have discussed above (see also no. 149). It is perfectly possible that it was in just that passage that the name of the Phoenician Mochus occurred (see no. 169). 'the same terms' (in Vogliano's plausible suggestion, op. cit., p. 99) refers to to den and to mēden.

<sup>10</sup>'unless there are continuous pores everywhere, but that is impossible': a similar construction as Hdt. IV.189: 'except that the clothing of the Libyans is of leather, but all the rest etc.'. The meaning is made clear by parallel passages, Aristotle on Democritus, no. 105 'so that even if it came to be and was put together out of nothing, then the whole would be nothing but an appearance'; Melissus DK 30 A 8: 'for if it is divisible everywhere nothing is one, so there are not many things either, but the whole is void'; an unknown Eleatic cited by Porphyry (Simpl. In phys. 139.27): 'or it will be gone and reduced to nothing, and will consist of nothing'.

<sup>11</sup>'the things in contact ... and what is between them': In ordinary usage things in contact are precisely those parts which have nothing between them. It is clear from this that we have a fairly exact quotation from Democritus; cf. no. 236: 'When Democritus said that atoms are in contact he did not use 'contact' in the strict sense ... but when atoms are near one another, not far apart, he called that 'contact'.

146a

See comm. on nos. 105-105a.

147

<sup>1</sup>Burnet's assertion (op. cit. p. 383, n. 2) that hös dokei ['so it seems'], must always be translated 'is supposed' and that this expression always introduces a view of someone other than the author is altogether ungrounded and in my view untrue.

<sup>2</sup>'no more of this kind than that': see nos. 1-6 w. comm.

<sup>3</sup>'what is exists no more than what is not': see no. 7 w. comm.

148

<sup>1</sup>The doctrine of the co-existence of contradictories ('If A exists, then not-A must exist') has a certain mystical, idealistic colouring, and in any case amounts to an illegitimate transition from the domain of logic to that of ontology. It is then all the more curious that we have here to deal with a borrowing from the ancient philosophy of the West. According to the Italian philosophers, if 'being' exists, then 'not-being' must also exist, i.e. if spirit and soul exist, then there must also exist 'the prison of the spirit' or the negation of spirit, i.e. body and matter. Parmenides gave this doctrine a more sensible look; he called 'existent' fire, which strives to go up, and 'non-existent' heavy, damp earth. As a materialist Democritus went further and stood this doctrine on its head; he accepted the assumption of the necessity of the co-existence of contradictories, but regarded 'the existent' precisely as matter and 'the non-existent' as what in his theory corresponded to spirit, viz. the void. That the terms to on ['what is'] and to mē on ['what is not'] were actually used by Parmenides is attested by Ar. GC 318b6: 'Parmenides says that there are two things, what is and what is not, speaking of fire and earth'. Cf. nos. 7-8 w. comm. and comm. on no. 171, from which it is clear that the starting-point of Democritus' construction of his theory of atoms and the void was the doctrine of his predecessors about heat and cold.

149

<sup>1</sup>Democritus mentions': see comm. on no. 148.

153

<sup>1</sup>Since I regard Leucippus as a contemporary of Democritus, I see no improbability in the idea that Leucippus was primarily a student of Melissus, who was at that time especially popular in Eastern Greece (see Hippocr, De nat. hom. I.6.34), and that he disputed with him. In the best-known passage (no. 146) in which Democritus criticises the Eleatics there is ascribed to them the doctrine 'that the universe is motionless and infinite'; this can refer only to Melissus. The legend that Leucippus was a student of Parmenides and Zeno may have been a conclusion drawn from that continual criticism of Melissus and from the excellent knowledge of Eleatic doctrines which is apparent in the works of Leucippus and Democritus.

154

<sup>1</sup>A coin of Abdera from Jameson's collection (Ch. Seltman, Greek Coins, London, 1933, p. 144, pl. 28, no. 11), dating from the period 450-432, and consequently from Democritus' youth, bears an image of Pythagoras and the inscription ΠΥΘΑΓΟΡΗΣ ('Pythagoras'). Clearly, Pythagoras was at that time very popular among the Abderans, and it would have been perfectly natural for Democritus to have carefully studied his writings as a young man. There is therefore no reason to doubt the report that at that time Democritus wrote a work entitled Pythagoras. No doubt that work contained moral dicta (Thrasyllus lists this work first among his Ethical Works). From Herodotus' report we have every reason to doubt that the legend of Pythagoras the investigator of nature had already taken shape by then. It is also quite possible that in his youth Democritus had some Pythagorean as his teacher of ethics. Everything else in this passage has as its source the tendency to turn the so-called Pythagoreans, who actually had much in common with Democritus, from successors of Democritus into his predecessors (see Frank, op. cit., pp. 72ff.) and to construct the absurd schema which was subsequently universally disseminated. According to that schema Democritus was turned into a student of the Pythagoreans and the Eleatics, and Plato and Aristotle into students of the Milesian natural philosophers (see nos. VII-VII w. comm.). Alfieri, op. cit., p. 47, n. 93, rejects even a kernel of historical truth in this legend.

155

<sup>1</sup>The influence of Empedocles on Democritus is investigated by Kranz, Hermes 47, 1912, pp. 1ff.

156

<sup>1</sup>Despite the fact that Democritus was most of all indebted to the Milesians (above all to Anaximander), as is clear from comparison of their doctrines, the distorted tradition does not report that straightforwardly, in that it turns Democritus into a follower of the Eleatics 'the most extreme enemies of science'. All the more valuable, then, is the testimony preserved here, from which we see that Democritus had reason to mention the Milesian Thales and his doctrine. It is possible that he mentioned the Phoenician ancestry of Thales in order to show the Phoenician origin of the science which he was studying (cf. the legend of the Phoenician Mochus).

157

<sup>1</sup>The question of the influence of Anaxagoras on Democritus is discussed by Brieger, op. cit., pp. 161ff.

158

<sup>1</sup>Specifically in GC I.2ff.

<sup>1</sup>'ancient' means, of course, not 'belonging to Leucippus', as Diels supposed without the least ground, but the views of the early Milesian philosophers, who lived 150-120 years before Democritus. The fact that Democritus argued especially energetically against the doctrine of 'world-organisation and mind', i.e. against the theory of a separate, creative mind, which was Anaxagoras' surrender to idealism, is self-explanatory. In a lecture given to the scientific society of Naples, entitled 'The historical position of Democritus' (1932, p. 7, known to me only from Alfieri's book) Covotti cites two interesting passages of Plato about Anaxagoras, the first of which goes back to Democritus. These passages show first, that by 'ancients' is meant, not Leucippus, but earlier philosophers, and secondly that the expression 'about mind and world-organisation' 'had an entirely general sense' and 'did not refer to Leucippus at all'. These passages are: Crat. 409a: 'it seems to indicate that what he (i.e. Anaxagoras) was saying recently, that the moon takes its light from the sun, is in fact an older view'; Phaedo 98b: 'On reading it I saw that he (Anaxagoras) was making no use of mind nor ascribing any causes to the organisation of things'. Later Laws XII, 967b; 'saying that it is mind which has organised everything in the heavens'.

<sup>1</sup>See comm. on no. 72.

<sup>1</sup>There is no reason to doubt that Leucippus actually existed, but on the other hand it is clear that he left no books, though the Peripatetics regarded him as the author of two works which the general tradition ascribed to Democritus. Therefore we in our time have no criteria for distinguishing what was introduced by Democritus himself from what he took over from Leucippus.

The literature on the question is as follows: Rohde, Kleine Schriften I, p. 205; Diels, Verhandlungen der 35en Philologenversammlung, Leipzig, 1880, p. 96; Diels, Rh. Mus. 42, 1887, pp. 1-14; A. Brieger, Hermes 36, 1901, p. 161; P. Bokownew, Leukipp-Frage, Dorpat, 1911; E. Zeller, Arch. f. Gesch. d. Philosophie 15, 1902, pp. 137ff.; W. Nestle, ed., Zellers Grundriss der Geschichte der griechischen Philosophie I, Leipzig, 1928, pp. 1038ff.; Diels, VS, 4<sup>th</sup> edn., intr., pp. vi ff; Oppermann, Xenia Bonnensia, 1929, pp. 26ff.; Luria, Comptes-rendus de l' Academie des Sciences de l'URSS, 1929, pp. 137ff.; E. Howald, Festschrift für Joël, 1934, p. 159; Luria, Symbolae Osloenses 15-16, 1936, pp. 19ff.

<sup>1</sup>So the Great World-System, which the Peripatetics regarded as belonging to Leucippus, was seen by the source of the Suda as precisely the most authentic of all the works in the Democritean collection.

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<sup>1</sup>In my restoration of the text the subject appears to be Aristotle or some other Peripatetic: 'they say': viz. the Peripatetics. 'plagiarising': viz. Aristotle or the Peripatetic mentioned above. See my article in Symb. Osl. 15-16, pp. 19ff.

165

<sup>1</sup>From this it is perfectly clear that in Cicero's time there were two views on the authorship of Leucippus. Cicero, not having an opinion of his own, leaves the question open.

166

<sup>1</sup>Diels [DK II, p. 73, ll.27-8] thinks that the sole source for this passage is Aristotle's remark in GC 325a23, where we find a somewhat similar expression 'But Leucippus thought that he had arguments'. Alfieri, op. cit. p. 15, n. 60, sides with Diels: 'What is being discussed is not the title of a work by Leucippus, whose authenticity is in doubt, but a precise reference to an expression used by Aristotle, where the plural 'arguments' indicates the theory of Leucippus. The sense of the phrase is 'as we find written in what Aristotle called the arguments of Leucippus''. It is, of course, perfectly possible that 'in the arguments of Leucippus' means 'in the doctrine or theory of Leucippus'. But it does not follow that that passage of Aristotle is the sole source of the passage cited: the expression 'to have been separated' in the sense 'the void' does not occur at all there. That sense is characteristic of another passage in the same work, 316a13ff., but there Aristotle is speaking of Democritus, not Leucippus. Hence 'what are called the arguments' cannot mean 'the theories which Aristotle calls ...', all the more so because this is a very common expression, meaning 'so-called', 'incorrectly called' etc. It therefore seems to me clear that the creator of the MXG was doubtful of the authorship of Leucippus, i.e. he inclined in favour of the authorship of Democritus. Cf. S. Luria, Symb. Osl. 15-16, p. 19. On the other hand it is perfectly possible that the proof given in GC 316a13ff. was put by Democritus into the mouth of Leucippus. That would explain why that argument, like many others, was ascribed to Leucippus. In favour of this suggestion, perhaps, is the circumstance that in a later spurious alchemical work Physical and Mystical Writings of Democritus (M. Berthelot, Collection des anciens alchimistes grecs, I, Paris, 1888, p. 41) one book is entitled 'Democritus Bk V, addressed to Leucippus'; in it Democritus addresses Leucippus ('O Leucippus'). It is possible that this imitated the structure of one of the genuine works of Democritus.

169

<sup>1</sup>Diels included these passages in his collection, which would be logical only if he thought it possible that Democritus himself actually referred to Mochus. The fact that the widespread version of the legend of Mochus, frequently encountered in the literature, was written only much later and that Mochus' book had already been forged does not exclude the possibility of a reference to Mochus in a work of Democritus'; this entire falsification could have been

constructed on the basis of a brief remark by Democritus. The literature on the question is as follows: W. Nestle, ed., Zeller's Grundriss der Geschichte der griechischen Philosophie, I, p. 1047. The sources are: DL, Preface 1; Josephus, Antiquit. I.107; Athenaeus III, p. 126A; Damascius 125.I, p. 323.6 Ruelle; Iamblichus, Vita Pythag. 14. Cf. Diels, Hermes 40, 1905, p. 315; Alfieri, op. cit., pp. 98, 223. If, as is entirely possible, Democritus' atomism did not develop without the influence of certain factors (see comm. on no. 146 and my book The Theory of Infinitesimals, pp. 9-10, where the literature on the question is indicated), then it may be that the legend of Mochus was also borrowed from them. But Diels is entirely illogical in including this passage in his collection while excluding passages testifying to the influence of Homer on Democritus, though Democritus himself quite naively refers to Homer as his predecessor on a number of questions (see no. 67, where Democritus himself uses a lost line of Homer 'Hector lay thinking other things'). See Philippson's remarks, Hermes 64, pp. 167ff. Just so I think it possible that a passage of Hermias (Irris. 12, Dox. 654) has as its source a criticism of Pherecydes by Democritus: 'Pherecydes says that the principles are Zeus, Chthoniē and Cronus, and that Zeus is the aithēr, Chthoniē the earth and Cronus time; for the aithēr is the active principle, and earth the passive, and time is that in which things come into being ... Leucippus thinks that all that is nonsense, and says etc.' (see no. 306).

## ii. General Testimonia (atoms and void)

171

<sup>1</sup>From this frequently repeated report it is clear that in one of his works, before setting out his atomistic theory, Democritus discussed the views of his predecessors and, having exposed their mistakes, reached the conclusion that atomism is the only reasonable solution of the question. The establishment of this fact has a further significance for us; it allows us to ascribe to Democritus those passages where we come across the characteristic argument from the opposition of hot and cold, as in the passages cited under no. 171, and in no. 148.

<sup>2</sup>idiōtikōs: 'non-expertly'. Cf. no. 65.

<sup>3</sup>'regarding' refers both to Democritus and to the Pythagoreans.

<sup>4</sup>'were previously said by Democritus': From these words it is clear that we are dealing with an expression of Democritus himself.

<sup>5</sup>Philoponus indicates that this passage of Aristotle refers to Democritus; we have no reason not to believe him. If that is so, then we must also see an examination of Democritus' doctrine in the passage cited here from PA; in favour of that we have not only the opposition of hot and cold, which is the starting-point, but also such characteristic expressions as 'chance' and 'of necessity'.

<sup>6</sup>'strife and love' in Empedocles, 'mind' in Anaxagoras, 'chance' and everything following from it in Democritus.

173

<sup>1</sup>tōn mathēmatikōn ['of the mathematical's']: Alexander interprets these words as if after 'these people' were read 'of the physical elements': as the Platonists saw in the differences between the mathematical elements the causes of all other things, so did the atomists see the causes in the differences between the physical elements. If that is so, in 'of the mathematical's' one must understand 'the differences', but in that case one feels the lack of a logical subject and can hardly manage without supplying 'some people' or something similar. But if 'some people' is supplied, then it is much simpler to see in the expression 'as some of the mathematical's' a second subject, parallel to 'those who made [the underlying substance] one', and to translate 'and as some mathematicians'.

175

<sup>1</sup>If I understand this passage correctly, what Theophrastus means is that only in the atomistic theory is there the premise that the universe is a completely perfect and flawless system. In the Peripatetic theory only mathematical forms are completely perfect; in the material world, by contrast, there is much that is very imperfect. By comparison the most perfect are the heavenly bodies, but even there there is a certain amount that is disorderly, e.g. the motion of the planets.

176

<sup>1</sup>The confusion of the void with air was undoubtedly completely foreign to Democritus, but since in each separate cosmos there are no intervals of void except extremely small ones, and since Democritus explained movements within a cosmos by the aid of a 'swirl of air', that confusion on the part of his interpreters is entirely understandable.

177

<sup>1</sup>Asclepius also was unable to understand Democritus correctly; we cite his words as virtually only a curiosity. Democritus' expression does not at all mean that the amount of void in the universe is not less than the amount of matter. Plato's words (Rep. 479a) are also cited without any reason: 'Big things and small, heavy and light are no more correctly called that than the opposite. So are each of the many things what we say they are more than not being that?' So what is in question is the relativity of sensible qualities, not the existence of the void. Plato rejected the void, as Asclepius himself correctly points out in a further passage.

179



<sup>1</sup>As Alfieri correctly remarks, *op. cit.*, p. 89, n. 226, the ms. reading 'different' also gives good sense, but Plutarch was here speaking not about the form of the atoms but about the uniformity of matter. See no. 368, *Simpl. ad loc.* 569.5 'of the same nature', no. 261 'and their nature is one'.

181

<sup>1</sup>Cicero is joking: Democritus' doctrine is very ancient and consequently of noble origin, so that a partisan of the optimates ought from the very beginning to be a supporter of Democritus.

184

<sup>1</sup>The expression 'in size' is incomprehensible. Zeller, *Ph. d. Gr.* I, p. 1083, sees here an unsuccessful formulation of the circumstance that all the atoms, taken together, are infinitely large. Bailey, *op. cit.* pp. 126 ff., connects this expression with the different sizes of atoms, since the number of these differences is infinitely large. Taking into account no. 187, where we find 'the atoms are infinite in number, and the void infinite in size', I think that something similar was read here, but Diogenes cited it inattentively and omitted the word 'void'.

191

<sup>1</sup>This astonishing theory of Democritean *eidōla* ['images'], which along with atoms and the void constitute a third basic entity (in contradiction to Leucippus, who admitted only the existence of atoms and the void), was constructed, in my opinion, only on the basis of the testimony of Cicero, who was an important source for Christian writers: 'Atoms, void, images, which they call *eidōla* ... all ... come from him (i.e. Democritus)', *De fin.* I.6.21, no. 182.

193

<sup>1</sup>Cf. Plut. *Col.* 1114a: 'it is called by you intangible and void and incorporeal'. Cf. DL X.67: 'it is not possible to conceive of something incorporeal except the void, and the void can neither act nor be affected, but it merely provides bodies with motion through itself'.

195

<sup>1</sup>It seems that we have here a contamination of two theses of Democritus': [a] the universe is infinite, [b] each separate organised (finite) cosmos lies over a void.

## b. The atom

### i. Names by which the atoms are designated

196

<sup>1</sup>hē atomos ('indivisible'): 'form' (idea, Diels) or 'essence' (ousia, Kranz) is understood.

<sup>2</sup>to atomon ('indivisible'): 'body' is understood.

196a

<sup>1</sup>The word phusis ['nature'] has the same sense in the passage of Aristotle on which Simplicius is commenting (265b24): 'for they say that nature is in local motion', since only the atoms, not the void, are in motion. See also GC 327a16, no. 239: 'for nature (= the atoms) is neither repositioned (changed in respect of 'turning' (tropē) [= position] nor rearranged (changed in respect of 'contact' (diathigē) [= arrangement]'. Theophr. De sensu 80, no. 484: 'since nature (i.e. atoms) penetrates (sc. a body)'.

197

<sup>1</sup>With the word 'den' ['thing'] Diels compares Theodotion's translation of the Bible cited by Philoponus, De opific. mundi II.1, p. 59.12 Reichardt, hē de gē ēn den kai outhen ['and the earth was thing and nothing']; Philopon. 68.16 gives a note on this: 'was thing, i.e. was something'. The translation of the biblical expression (Gen. I.1) translated in the Septuagint as 'invisible and unorganised' constitutes a deliberate philosophical falsification, premised on acquaintance with atomism.

198

<sup>1</sup>Since shape was one of the most characteristic features of the atom, Democritus sometimes called the atoms simply 'shapes' (ideai). Plato, as is well-known, took over a

great deal from Democritus, so it was perfectly natural for him to take from Democritus his name for substance (ta eidē). It is understandable that of the three basic properties of the atoms, shape, impenetrability and materiality, he was able to make use of only the first in his own doctrine. Cf. Wilamowitz, Platon I, Berlin, 1920, p. 346; K. Göbel, Die vorsokratische Philosophie, Bonn, 1910, p. 313. The objections of Alfieri, op. cit., p. 99, n. 225, are unconvincing.

<sup>2</sup>From these different names Diels (Elementum, Leipzig, 1899, p. 16) draws the following conclusion: 'The numerous expressions by which Leucippus and Democritus designated the atoms (eidea, schēmata, ideai ['shapes'], phuseis ['natures'], nasta ['solids'], atoma ['uncuttables'] etc.) show that they did not yet feel the need to define the concept of the atom once and for all'. That may be right as far as formal definition is concerned (the Peripatetics were great enthusiasts for such definitions), but on the other hand there can be no doubt that in speaking of the atoms the atomists were operating with a perfectly precise concept from the scientific point of view.

As regards the expression stoicheion ['element'], Diels, Elementum, p. 17, cites the words of Eudemus (DL III.24) 'Plato was the first to use the term stoicheion in philosophy' and remarks in this connection 'Eudemus' report confirms that no-one before Plato applied the term stoicheion to physically primary bodies'. Diels thinks it 'completely impossible that the concept stoicheion (from stoichos ['line, row'] could have been formed outside Attica'. The last remark does not follow from his conclusions (Elementum, p. 68), and is altogether unconvincing. It is perfectly possible that Democritus had already used that expression, not as a name for the concept 'element', but as a figurative expression; Eudemus might have been referring to that when he made the remark cited.

<sup>3</sup>it is possible that the titles Peri ideōn (On shapes [Sext. M VII.137]) and Peri tōn diaphorōn rusmōn (On the different shapes) [D.L. IX.47, 'diapherontōn' mss.] name the same work.

## ii. The shape of the atoms revealed by sense-perception

200

<sup>1</sup>Following Madvig, who deletes the phrase from ta sphairoeidē to legei and the word hōn, Diels regards the whole phrase from ta sphairoeidē to hōn as a gloss. But one can perfectly understand the sentence without this deletion. The fact that hōn refers not to the immediately preceding word aktisin but to the words schēmatōn and atomōn which occur earlier has many parallels. The commentaries which I cite here show that this passage, generally regarded as an insertion, was already read in all the ancient mss. going back to the beginning of our era. Cf Langerbeck, op. cit., p. 77. It is perfectly possible that Democritus was re-working in a scientific way the primitive Pythagorean view that the specks which are carried about in the air and are visible in sunbeams are the souls of the dead and the unborn. Anaxagoras also discussed these specks which are visible in sunbeams: see Plut.

Qu. Conv. 722a: ‘I add the opinion of Anaxagoras that the air is given vibration and a tremulous motion by the sun, as is clear from the little specks which are always flitting about in the light and from the fragments which people call motes’. Thrausmata [‘fragments’] is Empedocles’ term. But it is possible that the Pythagorean doctrine reported by Aristotle was only an idealistic transformation of Democritus’ doctrine constructed by the so-called Pythagoreans. According to Theodoretus’ source (possibly Aetius, see n. 201) Democritus was followed by the Pythagorean Ecphantus in accepting this theory, and we know from other sources that Ecphantus (if he really existed, and was not just a character in one of the dialogues of Heraclides of Pontus) re-cast Democritus’ doctrines in an idealistic fashion.

<sup>2</sup>Ar. Phys., 184b21ff., 188a22ff.

<sup>3</sup>The expression hōs spermatōn [‘as seeds’] is intended to explain the expression panspermia [‘a mixture of all kinds of seeds’].

<sup>4</sup>We see from this commentary that Democritus used this entire comparison simply to give a visual explanation of why atoms are invisible. The specks in the air become visible only when they encounter a sunbeam. Exactly so the atoms become ‘visible’ only when gnēsiē gnōmē comes to their aid; see no. 83. Cf. the Epicurean explanation of this symbol, which they took over unchanged from Democritus: Galen, On the natural faculties [De fac. nat.] I.14, II.45 K., 293 Us.: ‘Yes, says Epicurus: you must think of them (sc. the atoms) as very small, so that each of them is ten thousand times smaller than the smallest of the specks that float about in the air’.

201

<sup>1</sup>Diels supposes that the phrase kalousi ... pallomena was inserted by Theodoretus into his excerpt of Aetius on the basis of Ar. De an. 404a1ff., no. 200 (itself an interpolation); see Dox. 286. However, Diels himself thinks it possible (Dox. Prol. 45) that this phrase was in Aetius; in that case the words ‘Ecphantus agreed with this’ refer to the theory of ‘specks’ (cf. no. 201). I regard both passages, the testimony of Aristotle and that of Aetius, as genuine (see comm. on no. 200, n. 1). The assertion that Democritus and Leucippus thought that the ‘specks’ were atoms is superficial and wrong; that could be the case for Ecphantus.

### iii. The size of the atoms

204

<sup>1</sup>The testimonia about the size of the atoms are contradictory. While from one group of testimonia it is perfectly clear that atoms must have all possible dimensions, including extremely large, by others it is reported that all Democritus’ atoms were extremely small. The testimonia of the first group are totally clear and unambiguous; moreover, these reports correspond to Democritus’ basic principles, set out above (nos. 1-47). But since

Democritus himself scarcely drew the distinction between physical and mathematical atoms with sufficient clarity, not merely the commentators, scholiasts and lexicographers, but Aristotle himself scarcely distinguished the former from the latter. The mathematical atoms, which are in any case partless, are so small as to be imperceptible; so sometimes that property was ascribed to the physical atoms as well.

207

<sup>1</sup> Cf. Epicur. Epist. I.55, Lucr. II.496-9, IV.111-122. I firmly reject the approach which regards every criticism in Epicurus and Lucretius as a criticism of Democritus. But in this particular case it is hardly possible to doubt that this criticism is directed against Democritus and, consequently, that Democritus allowed that in the universe there are very large atoms, which can even be seen. Hence Diels, I am convinced, was wrong not to trust this testimony.

209

<sup>1</sup> 'grasped in thought': this does not mean 'so small as to be imperceptible'. Cf. Alfieri's translation.

#### iv. The impassibility and solidity of the atoms

211

<sup>1</sup> Democritus represents every kind of division as the thrusting of a wedge into a crack, and the resulting widening of an already existing crack (see no. 214, Simpl.: 'they said that division comes about via the void in bodies'). If a body is absolutely solid, i.e. if it contains no void at all, then it cannot be split in any way; see Simpl. no. 237: 'they rejected cutting, saying that what appears to be cutting is the separation of things in contact with one another'.

<sup>2</sup> 'the magnitudes': Democritus regards the atoms as extended, not as unextended points.

212

<sup>1</sup> This was probably the theory of Empedocles; see my Theory of Infinitesimals, pp. 136ff.

<sup>2</sup> 'in having parts': O. Apelt, Beitr. z. Gesch. d. Gr. Philos., Leipzig, 1891, pp. 265 ff., drew from this passage the astonishing conclusion that Democritus admitted infinite divisibility. In fact a little later in Simplicius (82.4) we read the following: 'if (what is one) like an atom, first it is absurd and contrary to perception to say that the one is an atom, and then it is itself continuous and divisible to infinity and therefore potentially many'. But here Simplicius is discussing a theory according to which the universe consists of a single individual ('atom'); he is then right to say that such a huge atom is continuous in the Aristotelian sense, i.e.

potentially divisible to infinity. That view has nothing in common with Democritus, since Simplicius himself remarks: 'Leucippus and Democritus consider that not merely impassibility is the cause of the primary bodies not being divided, but also their smallness and lack of parts' (In Phys. 925.13), so the parts are not further divisible even mathematically ('partless').

213

<sup>1</sup>'continuous not by contact': this expression presupposes as its contradictory 'continuous by contact', and that was the most characteristic feature of Democritus' doctrine: 'Democritus ... says that the infinite is continuous by contact' (Ar. Phys. 203a22). So this strange expression is used by Aristotle to refer to the Democritean opposition between 'what is continuous by contact' and 'what is continuous not by contact', i.e. the atom which is not subject to external influence. In order to show that the word naston ['solid'] was not a word generally used in Greek, but a coinage of Democritus', Diels cites the words of Galen, who criticises the Roman doctor Archigenes for using the word naston (in the comparative form): 'What does the word 'more solid' mean? I am not at all clear, since it is not a word commonly used by the Greeks in such a context. People used to call a certain kind of bread 'solid', but I do not know what other kind of body they applied this word to. Archigenes ... seems to me to use the word 'solid' for 'full' [VIII.931.K, DK 68 A 46].

216

<sup>1</sup>All these charges essentially relate only to Epicurus, since Democritus completely rejected qualitative differences. Thus, for instance, Democritus could not have maintained that 'atoms', coming together, become 'hot', because for him heat did not exist at all, it is only a deceptive interpretation of the collision of the atoms of our body (including the atoms of the soul) with atoms from the external world (it is our 'bastard thought' which is guilty of this deceptive interpretation).

#### v. The matter and form of the atoms

220

<sup>1</sup>'parts', i.e. atoms.

221

<sup>1</sup>This passage remains very unclear. Ross, Aristotle's Metaphysics, Oxford, 1925, and Kubinsky, Meta., Moscow, 1934 arrange the punctuation as follows: 'Everything comes to be from what is, but what is potentially, not what is actually and this is Anaxagoras' one ... And the mixtures of Empedocles and Anaximander and as Democritus says. Everything was together potentially, but not actually.' In the arrangement of the punctuation which they

propose 'everything was together' etc. are Aristotle's own words, which have nothing to do with Democritus.<sup>161</sup> This proposal would be very tempting, but against it we have not merely the commentary of ps-Alexander but also the testimony of Galen, although it is, indeed, perfectly possible that a common source of ps-Alexander and Galen misunderstood Aristotle. On the other hand no. 17 makes it probable that only the words 'everything was together' belong to Democritus, while 'potentially but not actually' contain Aristotle's criticism, since in no. 17 we read 'but some think that there is always activity, e.g. Leucippus'. In that case 'the atomists spoke of the original situation in the sense of the situation of such and such masses of atoms before the formation from them of this or that particular cosmos, not in the sense of the situation of all atoms before the formation of any cosmoi whatever. In my opinion, worlds had always existed', Zeller, *Ph. d. Gr.* I.2, p. 1076, n. 2. If the expression 'everything was together' or something synonymous was actually in Democritus, then in all probability he may have meant the following: the atoms move in all directions, and that has always been so; so everywhere there have existed both coagulations (worlds) and voids between them. But the atoms behave as if all matter in its original natural situation had been distributed evenly everywhere, in accordance with the principle of *isonomia* (see no. 8). This 'even distribution' would have been on this interpretation a sort of 'limit'; cf. DL IX.30, no. 289: 'many bodies of every shape were separated off from the infinite and carried into a great void'. In that case the expression 'potentially but not actually' would have been a criticism of Empedocles and Anaxagoras, who accepted a situation in which 'everything was together' in the actual sense, a criticism which was probably based on the thought of Heraclitus.

223

<sup>1</sup>'in shape or form': 'or' here means approximately 'i.e.'.

224

<sup>1</sup>'other qualities of their external appearance': probably refers to size, position and order of arrangement.

226

<sup>1</sup>angulata vel hamata: 'angled or with hooks'.

227

'irregular, others hook-shaped': we do not have to suppose that these queer shapes were specially characteristic of atoms. As is well-known, atoms have all possible shapes. These

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<sup>161</sup> [L's presentation of Ross's text is not perfectly accurate, in that Ross has a dash, not a full stop, after 'says', and has 'everything was together ... actually' in quotation marks. Given L's punctuation, it is unambiguous that 'everything was together ... actually' is a statement by Aristotle, not by Democritus, whereas Ross's punctuation allows that second possibility. But it appears likely from Ross's notes that he too attributes that sentence to Aristotle. I have no knowledge of Kubinsky's text.]

queer shapes were mentioned particularly because they play a major role in the theory of sensations (cf. no. 234).

230

<sup>1</sup>'like the spherical from the pyramidal': This expression can apparently have two senses: either 'in the same way as the spherical cannot come from the pyramidal' or 'as, e.g. the spherical cannot come from the pyramidal'. In Greek such an expression is correctly used in the first sense. We saw above (no. 130) that Democritus actually formed the sphere from the pyramid; that does not contradict the principle according to which no body of any kind comes into being from another, since that principle refers to physical change ('cutting'), whereas mathematically ('in thought') the atom can be further divided as far as the partless things.

232

<sup>1</sup>Here Democritus is apparently criticising those who think that the atoms of fire are pyramidal (hence, Plato's predecessors). At that time it seemed natural that the shape of every elementary part should be the same as that of the whole body (see no. 233, where Democritus thinks that the atoms of the head are round, since the head is round, the atoms of the jaw pyramidal etc.). Democritus aims to show that it is possible to explain why a flame has such a form while thinking of the atoms as spherical.

233

<sup>1</sup>As we see from no. 220a, Democritus did not attempt to give a systematic enumeration of the shapes of all the atoms; so what is referred to here is cited only as an example. From no. 516 we see that the structure of the jaw particularly interested Democritus.

234

<sup>1</sup>It is clear from nos. 234-5 that Epicurus rejected Democritus' doctrine which accepted the existence of twisted, hooked, anchor-shaped and other atoms; such atoms, at least according to Epicurus' naive observation, must be very fragile, since their points are very easily broken off. It is curious that Lucretius reverted to Democritus' view, II.444-6:

'Finally, things that seem to us hardened and thick must be deeply woven together with more hooked and as it were branching [atoms]'

and II.393-4 (see also II.405)

'Or because it is certainly made of elements which are larger or more hooked and tangled together.'

Bailey, op. cit. 345-6 ascribes this theory unconditionally to Epicurus, but he is wrong, as we see from the passages cited in the text, which Bailey did not notice. It is



possible that the Epicurean proof that the number of the atoms is infinite (Epist. I.42) was taken from Democritus: ‘for if the void were infinite, and the bodies finite in number, they would not remain anywhere, but would be scattered throughout the infinite void, not having anything to support them and keep them in position by collisions. But if the void were finite, the infinite bodies would have no room to take their place’. The number of different types of atoms is held by Epicurus to be indefinitely large, but not infinitely large as Democritus held.

c. How the atoms are situated relative to one another

i. The meaning of ‘contact’

236

<sup>1</sup>The transfer of the concepts ‘continuum’ and ‘contact’ from the field of ‘bastard thought’ to that of ‘legitimate thought’ raised, as the Eleatics showed, an insuperable difficulty. From the atomists’ point of view these concepts were totally inadmissible in the world of ‘legitimate thought’, since they implicitly contained the denial of indivisibility, which was postulated a priori by the atomists. Cf. Ar. Phys. 230a29ff., Philop. In GC 28.26. Epicurus later protested against this uncritical transfer, maintaining that in the world of magnitudes discerned by thought bodies are not in contact ‘part to part’ (Ep. I.58): ‘nor are they in contact part with part, except each one in the case of itself ... [I.62] for the additional assumption about the unseen, that the things which are discerned by reason ... also have continuity, is not true in such cases’. The peculiar application of the term ‘contact’ which we encounter in these passages had already been prepared by earlier developments; as we see in no. 105, the word haphē (‘contact’) had already acquired in those earlier writers with whom Democritus is disputing the special sense ‘unextended boundary in contact’. Since such a use conflicts with ordinary usage, the author of On indivisible lines thinks (971b28ff.) that that sort of contact is not contact at all: ‘if it is possible that something should be continuous but not in contact’. Cf. no. 237 Simpl.: ‘for the other things which seem to be continuous are close to one another in contact’. See my Theory of infinitesimals, pp. 154ff.

237

<sup>1</sup>It was natural that the expression ‘continuity’, which is closely connected with the expression ‘contact’ should have had to receive a new meaning in Democritus. He drew a distinction between what is ‘continuous through contact’, i.e. a continuum in the world of ‘bastard thought’, and what is ‘truly continuous’, i.e. a continuum in the world of ‘legitimate thought’; see no. 237, Simpl. In GC. This peculiar usage of Democritus’ led to a strange confusion in the scientific literature; see comm. on no. 212. In no. 213 ‘in so far as it is one and continuous not through contact, to that extent it cannot be affected’ both meanings of the word ‘continuous’ are assumed to be known. Simplicius no. 131, In De caelo 659

criticises this use of the word 'continuum': 'a continuum does not come into being from putting these elements together'.

ii. The position of each atom

(rusmos, tropē, diathigē)

[shape, position, arrangement]

238

<sup>1</sup>thesis ['position'] (in Abderan dialect tropē) means the position of each atom in isolation; taxis ['arrangement'] (in Abderan diathigē) means the relative position of two or more atoms in relation to one another.

<sup>2</sup>'forward and backward': This expression does not mean the relative position (taxis) of the atoms, as Prantl and Kranz suppose [no refs. given], but the orientation of each atom in space, e.g. an atom may be so turned so that its front is at the back and its top at the bottom.

239

<sup>1</sup>As Alfieri correctly points out (op. cit., p. 86) 'repositioned' refers to 'position' (tropē), 'changed' to 'relative placing' (diathigē).

<sup>2</sup>'its nature': i.e. the atoms. See comm. on no. 196. [Ref. should be to 196a.]

240

<sup>1</sup>ta schēmata ('the shapes') = hai ideai ('the forms', i.e. 'the atoms').

<sup>2</sup>'they thought that the truth is in what appears'. [L's translation omits 'they thought that' and adds 'to us' after 'appears'.]

<sup>3</sup>'letters': see comm. on no. 241 (Diels, Elementum, p. 13, n. 3).

<sup>4</sup>'the spherical [atoms] first': see no. 233.

<sup>5</sup>As we see, in the time of Philoponus Z and N were read in the mss of Aristotle; Philoponus took Γ and Λ from another source. It is altogether probable that the second example goes back to Democritus himself, but in the case of Z and N that is impossible. The form Z appears for the first time only around 180 BCE; up till then it was written I. So Wilamowitz was right to maintain that in the mss of Aristotle there was originally written not Z but I. But N differs from I not merely in position; so one must assume that in the older mss H was written instead of the later N, and that the new form Z led to the incorrect transformation of H into N. The old reading (H, not N) is still preserved in Philo, On the eternity of the world

[De aetern.] 22.VI, p. 107.10ff. Cohn-Reiter : he reaches it from position as follows: ‘the letter Z [will be changed] into H by repositioning, when the crosswise parallels become vertical and the stroke connecting the two verticals is turned and ties them to one another’. The addition of the oblique connecting stroke was omitted in Philo’s ancient source. In fact metathesis [‘repositioning’] corresponds to Aristotle’s term thesis and Democritus’ tropē.

241

<sup>1</sup>diathigē: ‘mutual contact’ (Diels [DK II, p. 72, l. 21n.]

<sup>2</sup>The parallel with letters, from which words are formed, is characteristic of Democritus; cf. no. 240 ‘for tragedy and comedy come into being from the same letters’. See Diels, Elementum, p. 13, Frank, op. cit. pp. 169ff., Alfieri, op. cit., pp. 11-12. Frank rightly draws attention to the fact that the parallel with syllables also has its source in Democritus; he does not merely remark that the four elements, earth, water, air and fire, play a significant role for Democritus, that of secondary elements, but that the molecules of these secondary elements are exactly like ‘syllables’ (on this see comm. on no. 271). We find the same parallel in Christian literature, which goes back at third hand to Democritus; see e.g. Isidore of Seville Etym. XIII.2, P.L. 82, p. 73, De atomis. 4: ‘the philosophers call them atoms ... it is an atom because it is uncuttable. The same is true in language, for you divide speech into words, words into syllables and syllables into letters. The smallest part, the letter, is an atom, and cannot be divided. So an atom is what cannot be divided.’ Ven. Bede, Elem. philos. I, P.L. 90, p. 1132C: ‘So letters are called elements by resemblance, because they are parts with the closest resemblance, to such an extent that they have no parts’. The opponents of atomism used this analogy of Democritus’ to attack his doctrine; see Cic. ND II.37.93: ‘Here should I not be astonished that there is someone who persuades himself that certain solid and indivisible bodies ... are carried about and that the most ornate and beautiful world is created by their chance combination? I do not understand why someone who believes that does not also believe that if innumerable examples of the twenty-one letters, made of gold or whatever you like, were thrown down together on the ground somewhere, they could make the Annals of Ennius, so that they could subsequently be read. I rather thank that chance would not be able to do that for a single line’. The words ‘whether made of gold’ perhaps contain a hint at Democritus. Diels, Elementum, p. 1, n. 3, shrewdly points out that modern opponents of Darwin have used this very passage of Cicero in their criticism (though the theory of natural selection deprives Cicero’s conclusions of any power of conviction). Diels cites Du Bois-Reymond, Kulturgeschichte und Naturwissenschaft, vol. 1, Baden, 1878, p. 254 and Max Müller, Deutsche Rundschau, 1896, p. 292. The former says: ‘the comparison is with an overturned box of letters; in modern biology that is the name of the argument directed against accepting self-generation. It consists in this, that the chance coming into being of any kind of animal, say a mouse, from the corresponding atoms is just as improbable as maintaining that when a box of letters is tipped over the letters can by chance fall so as to form a poem, e.g. Schiller’s ‘The Bell’. The

latter writes: 'Neither the survival of the fittest nor natural selection could bring order into that chaos: to suppose so is the same as to maintain that if the letters in a printing-press were properly mixed up some time or other Goethe's Faust would turn up'. Sextus, by contrast, aims to base the immaterial character of the elements on this analogy; see M X.253, no. 121: 'just as the elements of words are not words, so the elements of bodies are not bodies'.

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<sup>1</sup>diatagēi, ruthmōi, protropēi : an unsuccessful translation into the koinē of the Abderan expressions diathigēi, rusmōi, tropēi.

246

<sup>1</sup>This is illustrated by concrete examples in no. 233.

<sup>2</sup>'right and left' is a third opposition, which one cannot do without. So it is possible that in the passage of Aristotle commented on here by Philoponus (n. 238) 'right and left' must be restored.

#### d. The void

##### i. Definition of the void

249

<sup>1</sup>From the examples cited it is perfectly clear that all Democritus' definitions are purely negative. Essentially the void exists only potentially, as something which must sooner or later receive something larger or smaller ('must receive' is for Democritus the same as 'will receive'; see no. 1). This is the whole of the entitlement of the void to existence: hence it is also called 'the non-existent' or 'nothing'. To the extent that one understands this property of Democritus' void, one also understands names like 'lack' (sterēsis), 'place lacking body' or even 'the powerless' and 'the non-efficient'. In itself the void cannot carry on any activity and cannot have any influence on matter: it is posited purely to clarify this or that difficulty in the behaviour of matter.

251

<sup>1</sup>'the efficient cause': cf. the words of Epicurus, DL X.67: 'the void can neither act nor be affected, but it merely allows bodies to move through itself'. So according to Democritus, the void is the *conditio sine qua non* of all kinds of motion: 'motion occurs through the void'. In their exposition of Democritus' doctrine the Peripatetics distorted this view; they gave to Democritus' words the meaning that for him the void was the efficient cause of

motion: 'motion occurs because of the void'. Unfortunately many modern scholars have repeated this mistake. See comm. on no. 259, n. 2.

<sup>2</sup>adranes ('inert, non-efficient'): cf. Plut. Col. 1114a: '(the void) is called by us (Epicureans) intangible and void and incorporeal'.

252

<sup>1</sup>No. 105, Ar. GC 316a25ff: 'but if there will be no body nor magnitude, but there will be a division ... it will be put together from things with no magnitude, or be nothing at all'. In fact, as we saw earlier, for Democritus division cannot take place where is no void, hence the words 'void' and 'division' became for him virtual synonyms.

253

<sup>1</sup>Theodoretus (cf. Aet. I.18.3 = no. 187) himself altered Democritus' doctrine, unless he simply included from a fuller ms of Aetius another saying of Democritus omitted by Stobaeus and Plutarch' (Diels, Dox., p. 46). Comparison with the passage of Democritus preserved by Eudemus (no. 251) show that it is Diels' second suggestion, not his first, which is correct.

## ii. Proof of the existence of void

### Void the cause of motion

255

<sup>1</sup>These words are preceded by the following: 'Those who try to show that (the void) does not exist do not disprove what people mean by the void, but what they mistakenly say, e.g. Anaxagoras, and those who attempt this kind of disproof. For they show that the air is something, by straining skins and showing that the air exerts force, and lifting it in *klepsydrai*'. The main difficulty is to understand the expression 'people'. Prantl [no ref. given], followed by V.P. Karpov in his Russian translation of Aristotle's Physics, supposed that 'people' was applied here to the opposition to Anaxagoras as people who maintained the correct view of things. Prantl's starting-point was the expression 'in which there is simply nothing', i.e., according to him, in which there is not even air. Since the next sentence contradicts that interpretation, he altered 'hence' to 'not at all'. However, this is a completely arbitrary procedure: 'people' understood by 'void' what contains absolutely nothing, but since they knew absolutely nothing about the existence of the air, when it is totally pure and motionless, they called 'void' space full of air. Cf. the remark of Strato, which probably goes back to the same statement of Democritus' (Heron, Pneumatica p. 4.8): 'Skins which seem empty to most people (= 'people' in Aristotle!) are not empty as they think, but full of air'. The school of Democritus, followed by Strato, contrasted the void with air. Cf. Heron, Pneum. 6.23: 'The bodies [i.e. particles] of the air ... have empty spaces between them, like sand on the seashore. The grains of sand are to be supposed to be like

the bodies of the air, and the air between the grains of sand to be like the empty spaces between [the particles of] the air'. Aristotle means the following: 'Anaxagoras certainly proved to those naive people that what they thought was void is air, but he did not at all prove to them that the void as such does not exist'.

<sup>2</sup>'the totality of body': = the universe (Ross [Ar. Phys., p. 582, on 217a33]).

<sup>3</sup>'something outside the continuous totality of body': the Pythagorean theory, maintained among others by Xuthus, no. 256.

<sup>4</sup>'those people' are those who reject the void, e.g. Anaxagoras.

<sup>5</sup>A whole series of other proofs of the existence of the void, probably going back in most cases to Democritus, is cited in Heron, Pneum. 4.28.

<sup>6</sup>The atomists thought that it was by the compression of the wine into its own interstices that the cask was enabled to hold the wine-skins as well as the wine that had previously filled it', Ross, op. cit. [p. 583, on 217b17-18]. Cf. ps-Ar. Probl. 938b14: 'Why, when a liquid is poured into skins, does the jar not merely hold the liquid along with the skins, but something else as well?' The answer given there belongs to Aristotle: 'There is no void, air is emitted from the wine'.

<sup>7</sup>Cf. ps-Ar. Probl. 938b24: 'The same vessel holds as much ash and water together, as it holds of each when poured in separately. For there seem to be many empty spaces in the ash ... the ash absorbs the water because it has empty spaces ... and the water too would have empty spaces'. T. Gomperz, Gr. Denker I., 3rd edn., p. 352, followed by Ross, op. cit. p. 583, supposes that according to Aristotle the vessel containing ash could not hold as much water as it could when empty, but only approximately as much. But such a defence of Democritus is unnecessary; the passage from the Problems shows that Democritus said exactly what Aristotle attributes to him. That experiment (which is of course incorrect) was supposed to show that both the water and the ash were compressed to a significant extent (in all by 50%), since both contain a lot of void.

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<sup>1</sup>The commentaries of Themistius and Simplicius show that the Atomists are meant by these 'some people'. Similarly Ross, op. cit. p. 593 'certainly by the Atomists'. So Diels was wrong (DK 33, I, p. 376) in relating the whole of this passage to the Pythagorean Xuthus (Simpl. In Phys. 683.24). The Pythagoreans accepted the existence of a void only outside the universe (cf. Ross, op. cit., p. 582: 'The Pythagorean notion of a void outside the universe'; see also comm. on no. 255, n. 3.). The expression 'as Xuthus said' relates only to the words 'or the whole will swell out'.

<sup>2</sup>in equal quantities': since all matter is densely packed, the expansion of one body (occurring in the flow of water or air) is possible only if another body is simultaneously compressed. However, this suggestion is in Aristotle's view too artificial to be correct.

<sup>3</sup>A void which is not 'separate', not 'self-contained', but an internal property of body, was accepted, it seems, by Empedocles; see GC 325b8: 'the things between them are voids, which he (i.e. Emp.) calls pores'. See my Theory of infinitesimals, p. 96, and also comm. on no. 259.

<sup>4</sup>The simile 'as when people are going through a crowd', belongs to Democritus; see Sen. Natural Questions [NQ] V.2 'as in a square or street, when there are few people about one walks without any fuss, but when a crowd comes together in a narrow space quarrels arise when people bump into one another' (no. 371). This shows that it is Democritus' doctrine which is discussed in the passage of Aristotle commented on by Themistius and Simplicius.

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<sup>1</sup>On 'self-contained' and 'separate' void see comm. on nos. 256 and 259. 'Distinct in its own right': this expression does not have here the later sense 'void between worlds'; see no. 270, where the reference is to Democritus' void in general.

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<sup>1</sup>as the people who maintain this say': Diels [DK II, p. 95, ll. 38-9] notes 'Empedocles and Anaxagoras', but he is wrong, since the words 'as they say' relate, here as elsewhere, not to the whole expression 'there is no void nor do bodies expand', but only to the position which is rejected by that, 'there is a void and bodies expand'. 'the people who maintain that' are the atomists. Cf. Simpl. ad loc., 'if there is no void at all ... nor do bodies expand, as the followers of Democritus ... say'. Themist. In Phys. 4.7: 'this was the position of those who reject division to infinity, which is a hypothesis (of course, not 'the rejection of division to infinity', but 'the existence of division to infinity') which the geometer accepts'. Schol. on Eucl. X.1 (V, p. 436.16 Heiberg): 'there is no smallest quantity, as the Democriteans say' (here too not 'there is not', but 'there is').

<sup>2</sup>the impossibility is obvious': sc. of the change of one element into another taking place by separation.

<sup>3</sup>to chōrizomenon ['what is separated'] is here the same as to ekkrinomenon ['what is separated out']. For the whole context see no. 335.

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<sup>1</sup>In this dispute between Simplicius and Alexander it seems that the latter was right. By 'separated voids' (= 'separate voids') Simplicius understands empty spaces between 'compound bodies'; by 'dispersed voids' spaces which occur inside those bodies, i.e.

between the atoms which compose them. That distinction has its source in Strato, who distinguished 'voids dispersed in small parts' from 'the continuous void between worlds' (he denied the existence of the latter; see comm. on no. 270); but the separated voids between bodies, which Simplicius talks about, have only a superficial similarity with this [i.e. the continuous void between worlds], since air which is situated between bodies also consists of atoms densely packed together, between which there is no continuous void, but precisely the same 'voids dispersed in small parts' as are inside bodies. Aristotle himself (and probably Democritus too) understood by 'separated voids' all the small spaces between atoms, which occur in the cosmos both inside bodies and outside them, since, according to Democritus, there is no difference between them and others. As I have already pointed out (no. 256), Aristotle wished to contrast these Democritean voids with Empedocles and his pores. At all events Aristotle (no. 256), like Alexander, understands by 'separated voids' the void within bodies, which makes the expansion of bodies possible. Themistius (no. 256), whose source is Alexander, straightforwardly identifies the dispersed voids with the separated: 'they say that the void is dispersed in bodies, so that there are in the fine-textured separated spaces which are receptive of bodies' (p. 136.7).

<sup>2</sup>'is the cause of the expansion of bodies': We have seen (comm. on no. 251) that the Peripatetic Eudemus discussed the possibility of the view according to which the void was regarded by Democritus as the efficient cause of motion; but he regarded such an interpretation of Democritus as impossible. Simplicius resorts to a bold reconstruction, with the aim of reconciling this Peripatetic interpretation with the perfectly clear statements of the Atomists. They said that the void is a cause of motion only in the sense that it allows bodies to penetrate itself; Epicurus later used the same argument (DL X.67). According to Simplicius, only the void inside bodies is an efficient cause of motion, not the void outside bodies: 'for the separated void is not a cause of expansion, but it provides a place for bodies to expand'. In the comm. on no. 259, n. 1, I have already said that this artificial division of the void into two kinds arose only later as the result of misunderstanding. From no. 260 we conclude that Aristotle himself was well aware how one must understand 'cause' in the Atomists, to whom all kinds of teleology were alien: 'they think that the void is a cause of motion in this way, viz. that in which things move'. Philoponus' understanding was the same.

<sup>3</sup>The expression 'neither the separate nor the dispersed' has the aim of interpreting the word 'wholly' in Aristotle, and is perhaps based on Aristotle himself (Phys. 213a27), where Simplicius ad loc., 648.17 followed Porphyry in reading 'separate' and 'non-separate': 'there is no extension different from bodies, either non-separate or separate from them'. This incorrect reading was perhaps, together with Strato, the source of Simplicius' strange theory.



<sup>1</sup>In favour of the view that hēkei can mean 'come to their aid' Ross [op. cit., p. 586, on 214a22] cites the similar expression in De caelo 279a4: 'once again the same argument will come [into play, to their aid]'.

<sup>2</sup>See comm. on no. 259, n. 2.

iii. Why 'non-being' is admitted by philosophers.

Non-being as void. The matter and structure of the void.

261

<sup>1</sup>'everything must have a single motion': That it follows from Democritus' premises that all bodies must fall downwards is merely an incorrect conclusion of Aristotle's, and we have no right to assign that conclusion to Democritus.

<sup>2</sup>Hammer-Jensen [no ref. given] supposes that his passage is based on a remark of Plato's, Tim. 50a: 'if someone were making shapes out of gold and ceaselessly reshaping each one in every way, and someone pointed out one of them and asked what it was, as regards truth it would be much safer to say that it is gold, but never to say that the triangle and all the other shapes that come into being are real ...'. Cf. Heracl. DK 22 B 90: 'All things are an exchange for fire and fire for all things, as goods for gold and gold for goods'.

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<sup>1</sup>Alexander's conclusion is a fairly gross cheat. As is well known, Democritus said that 'the full and the void are everywhere' and 'what is not no less is than what is'. Since at that time 'come to be' was virtually synonymous with 'be', Alexander drew the astonishing conclusion that, according to Democritus 'everything that comes to be is and comes to be no less from the void than from the full', thus creating an internal contradiction in Democritus.

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<sup>1</sup>e.g. Aristotle': this passage is completely incomprehensible to me, since, as is well known, Aristotle totally rejected the existence of void. The meaning of 'in two dimensions' is also incomprehensible.

<sup>2</sup>Strato: This is also incorrect. Strato admitted the existence inside bodies of small empty spaces not filled by any matter.

iv. Two kinds of void (the void inside things and the external void)

268

<sup>1</sup>'non-separate' = 'dispersed'. See comm. on no. 259, notes 1 and 3.

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<sup>1</sup>'outside the heaven', i.e. outside our cosmos. So the void between worlds is here contrasted with the exceptionally small empty spaces within bodies. On scientific grounds Democritus did not admit large quantities of void within the cosmos. Diels, on the other hand, showed (*Sitzungsb. d. Berl. Acad. d. Wiss.*, 1883, pp. 101ff.) that the Peripatetic Strato's scientific works were based not on Aristotle but on Democritus, though he also sometimes disputed with Democritus from a Peripatetic standpoint. Of course, according to Strato there could not be a continuous void outside the cosmos, since the Peripatetics identified the universe with our cosmos and did not admit the existence of other worlds. In all other respects his doctrine of the void basically coincides with that of Democritus; see my article 'Democritus' mechanics', *Archive of the Hist. of Science and Technology* VII, 1934, pp. 152ff., 165, 176ff. As Diels showed, Strato's theory is preserved for us by Heron (*Pneumatica*, p. 4.2 Schmidt): 'Some (Aristotle in opposition to Democritus) think that there is no void at all, others that there is no void which is continuous in its nature, but that there is void dispersed within bodies in small quantities (Strato and, in so far as the reference is to our cosmos, Democritus)'. In our cosmos a continuous void can be created only artificially (p. 8.11 Schmidt): 'similarly, if the particles of the air are forcibly separated from one another and a larger empty space is created in an unnatural way, they rush together again ... so if one takes a very light vessel with a narrow mouth, puts it to his mouth, sucks out the air and lets go, the vessel will hang from his lips, since the void draws the flesh in to fill up the space which has been emptied. So from this it becomes clear that there was a continuous empty space in the vessel'. On the basis of a number of experimental examples Strato came to the conclusion (p. 27.1 Schmidt): 'in all these cases one can say that every body is composed of tiny bodies, between which there are dispersed empty spaces smaller than the parts ... and that there is no natural continuous void, if no force has been applied'. See also Aet. I.18.4: 'Strato says that there is no void outside the cosmos, but there can be void inside'. If these two passages are compared with one another it is certain that void outside the cosmos is equated with 'continuous void'. For Democritus as for Strato the lack of 'continuous void' in the cosmos in natural conditions was undoubtedly explained by the mutual attraction of bodies, by their tendency 'to come together with one another'; void, it seems, was pushed out by this into the spaces between worlds. One may think that in that case Democritus was the source for Plato *Tim.* 58a: 'The circumference of the universe, which is circular and of such a nature as to want to join up with itself, compresses everything and allows no empty space to be left'.

<sup>2</sup>'in itself': Cf. Heron *Pneum.* p. 6.11 Schmidt: 'so one should not suppose that in what there is any continuous nature of a void exists in and of itself, but dispersed in small parts ...'.

e. The four elements

## i. The composition of the four elements

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<sup>1</sup>The ancient doctrine of the four elements left some traces in Democritus' system. The four elements occupy for Democritus an intermediate position between the atoms and the bodies composed of them (something similar to the molecule in modern chemistry). To the extent that the atoms were compared with letters, the four elements were compared with syllables; cf. comm. on no. 241. See e.g. Plato Tim. 48b: 'one must consider the very nature of fire, water, air and earth ... we call them principles, positing them as the elements of everything, and it is appropriate that they should not be compared to syllables by someone who gives even a little thought to the matter'. Ar. Phys. 195a19 = Meta. 1013b17: 'for the letters are [the causes] of the syllables ... and fire and earth and all the rest are [causes] of the bodies and parts of the whole ... as the material cause'. Cf. Pl. Th. 204a: 'let it be as we are now saying, the syllable is one form which comes to be from all the letters which fit together, and both in writing and in all the rest'. Ar. Meta. 1041b13: 'but the syllable is not the letters, nor is ba the same as b and a, nor is flesh fire and earth'; 1043b5: 'to those who investigate the syllable does not appear to be composed of letters'.<sup>162</sup> The last two passages are a criticism of Democritus' theory, according to which compound bodies are a simple mechanical combination of atoms. There too we encounter the same expression 'syllable'. See also isidore of Seville, Etym. XIII.2 (comm. on no. 241): 'So too in language. For you divide a speech into words, words into syllables and syllables into letters. The letter is the smallest part, the atom, and it cannot be divided. So the atom is what cannot be divided.' See also Pl. Laws 889b, referring to a doctrine which goes back to Democritus: 'they say that fire and water and earth and air all exist by nature and chance'.

## ii. The constituents of each of the four elements

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<sup>1</sup>The contradiction which Aristotle points out does not in fact, it seems, exist at all; otherwise Themistius' source could not have maintained that Aristotle was objecting, not to Democritus, but only to his own conclusion drawn from Democritus' doctrine (see no. 275). If Galileo understood Democritus correctly, he is speaking here not of the larger or smaller size of the atom, but of the size of different parts composed of atoms, 'molecules' of earth, water and air (Discorsi, pp.108-9 of the Russian translation). Such parts can be further divided, thanks to which water comes from earth, etc., and conversely some such 'molecules' combine into larger bodies, thanks to which water comes from air etc. In that case Aristotle's objection totally lapses. But even if that is untrue and the passage deals

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<sup>162</sup> [Aristotle's text reads 'The syllable does not appear to be composed of letters and composition'. L's omission of 'and composition' loses Aristotle's point, which is that the composition is not one of the elements from which a compound is composed. Aristotle is not, as L's citation suggests, denying that a syllable is composed of letters, but that it is composed of letters together with an additional element, composition.]

with larger and smaller atoms (which I do not believe), Aristotle's objection is not persuasive. The assertion that every part of air turns into water and conversely that every part of water turns into earth belongs to Simplicius; even Aristotle does not ascribe it to Democritus. The example cited by Themistius of wine thickened by boiling supports, on the contrary, the idea that the smaller parts, as he represents them, evaporate in this process and form an invisible vapour in the air. Exactly so we are not in any case obliged to suppose that according to Democritus every part of water turns to air (and correspondingly that every part of earth turns to water), and in that case he probably thought that the larger parts, the parts of earth and water, rise up into the air and float about there, invisible. The only parts which take on the forms of water and air are those which were already essentially of those kinds, but previously it was impossible to see them, because they were dispersed in an alien environment.

<sup>2</sup>Similarly in no. 375: 'those who assigned the form of the sphere to fire because of its mobility' and no. 443a ff. Possibly Democritus defined the atoms of fire as 'those atoms which have the form of the sphere'; in that case Alexander's criticism (In Top. 375.10) is directed against him: 'He says that what is specific should be set out by means of what is more familiar; in that way the subject would be better understood. For if one set out the specific nature of fire as being most like the spherical atom, it will not be set out properly; for it is clearer what fire is than what the spherical atom is'.

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<sup>1</sup>Here Democritus is directly opposed to those who ascribed to the atoms of earth the shape of the cube. That is in sharp contradiction with Philoponus, who twice (no. 279) reports that Democritus thought that the atoms of water and earth are cubical. Perhaps one should conclude from that that Democritus thought that water and earth contained cubical atoms.

<sup>2</sup>immergitur = diaduesthai ['permeates] (also in Simpl. In De caelo 610.18, in this no.).

<sup>3</sup>ex semine confuso = panspermian ['a mixture of all kinds of seeds] (also in Ar., in this no.).

<sup>4</sup>Themistius is expounding some earlier author. On the other hand, the only text available to us, the Hebrew, is a translation into Hebrew of an Arabic translation of Themistius' Greek text. It is clear that there must have crept into it many gross distortions of the wording, as well as those resulting from misunderstanding of the text. In any event it is clear from these passages that Themistius' source thought that it was not Aristotle but Democritus who was right in this dispute (see no. 274). First comes a critique of Democritus' theory going back to Aristotle, and then begins a criticism of Aristotle. So the division of the atoms into smaller parts is, one must assume, an inference drawn by Aristotle from Democritus' doctrine, not a doctrine of Democritus himself. See also comm. on no. 274.

<sup>5</sup>'equivocation': what is meant is either that Democritus was talking about the division of parts of the four elements ('molecules') whereas Aristotle in criticising him was talking

about the impossibility of dividing atoms, or that Democritus totally rejected any division and was talking only about the separation of larger atoms from smaller, whereas Aristotle understood that in the sense of the division of atoms into yet smaller parts.

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<sup>1</sup>See comm. on no. 274, n. 1.

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<sup>1</sup>Cf. Ar. De sens. 442b10: 'Democritus ... reduces flavours to the shapes'.

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<sup>1</sup>If the comma before the word ruthmōi is retained, we have the same mistake here as in no. 279; here it would be maintained that the four elements differ from one another in the shape of their atoms. But with my arrangement of the punctuation there is no need to hold the author of the treatise guilty of that mistake.<sup>163</sup>

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<sup>1</sup>Cf. nos. 220 and 275.

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<sup>1</sup>Cf. Lucr. II.583-5: 'There is not one of those things whose nature is apparent to us which consists of a single kind of principles, nor anything which does not consist of a mixture of seeds (panspermia)'.

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<sup>1</sup>Cf. Lucr. II.382-7: 'the fire of the thunderbolt is much more penetrating than ours, which springs from wood on earth. You could say that the heavenly fire of the thunderbolt is more subtle and consists of small shapes and can thus pass through gaps which our fire cannot ...'.

See also no. 415, Aet. III.3.11: 'the thunderbolt [occurs] when [the violent escape of elements of fire] consists of those which are purer, smaller, more regular and 'close-fitted' [to use his own term]'.

<sup>2</sup>euages ['bright']: Cf. comm. on no. 484, n. 14 (Pl. Tim. 58d): 'the brightest air is called aithēr'.

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<sup>163</sup> [In his Greek text L retains the comma before ruthmōi, but his translation requires the transposition of the comma to follow the latter word, as noted in the critical apparatus.]

## D. MECHANICS AND COSMOGONY

### a. THE NATURE OF TIME AND MOTION

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<sup>1</sup>This characteristic passage of Aristotle has its source in Democritus, as is clear from Alexander and Augustine, but until now it has not been appealed to for the reconstruction of Democritus' atomism, either by Diels or by any other scholar. This passage shows that the opponent who conceives time atomistically and thinks of motion as consisting of

separate 'slides' (as in a film) was none other than Democritus. So the assumption that I made in 1932 (Quellen und Studien zur Geschichte der Mathematik [Q. u. St. z. Gesch. d. Math.] II, pp. 160ff.) becomes a fact; and that gives me the right to include passages of Aristotle which contain criticism of that doctrine in the number of passages about Democritus (no. 283). We come across this Democritean theory later in Epicurus and Lucretius. See Epicur. Epist. 1.49-50: 'and we must suppose that we see and think of the forms because something is coming in from the outside ... moving quickly, and for that reason giving the appearance of one continuous thing'. Cic. ND I.39.148: 'there is a frequent movement of appearances, so that there seems to be one thing as a result of many'. Lucr. IV.768ff.: 'it is not surprising that the images move and wave their arms and other limbs rhythmically. For it happens that a dream image seems to do that. Indeed when the first disappears and another is born in the same place, the previous one seems to have changed its gesture there. Certainly, one must suppose that that happens quickly, such is the mobility and such the quantity of things, and such the quantity of particles that can maintain the supply in any perceptible time'. See also no. 430.

<sup>2</sup>in the case of things which adjoin one another' refers to 'smallest bodies'; here Democritus' theory is being discussed.

<sup>3</sup>hōs idiōs hepomenon ('as something which follows specifically') is an Aristotelian technical term. See Top. 102a18ff.: 'A specific [property] is one which does not display the essence, but belongs [to that essence] only and is convertible with it, e.g. being capable of learning grammar is specific to man; for if something is a man it is capable of learning grammar, and if it is capable of learning grammar it is a man'. See also An. post. 73a7: 'such as follow one another, e.g. specific [properties]'. So Alexander is here attempting, very inappropriately, to show his knowledge of logic.

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<sup>1</sup>'the same reasoning': That it is Democritus' theory which is here under consideration is seen above all from no. 282, from which it is clear that the atomistic conception of time was Democritus' own. See Luria loc. cit. Moreover, Aristotle himself points out that he is here criticising the atomists. See De caelo 303a3: 'nor is it as others, e.g. Leucippus and Democritus say, ... that the primary magnitudes are indivisible... Besides, saying that there are indivisible bodies is bound to conflict with the mathematical sciences and to overthrow many well-established views and things apparent through the senses, about which we have already spoken in our treatment of time and motion'. See also two other passages of Aristotle, De caelo 299a8ff.: 'If this is so it is not necessary for a part of a line to be a line, but we have shown in our previous discussions of motion that there are no indivisible magnitudes', and De sens. 445b18ff.: 'it seems to favour those who posit indivisible magnitudes, but we have spoken about them in our treatment of motion', and the evidence of Alexander In De sens. 113.3: 'he says that the impossibility of the postulation of indivisible bodies has been shown in the discussions of motion, applying that term to the

final parts of the Physics, in which he has shown that there can be no indivisible magnitudes'. So Aristotle was criticising the atoms precisely in books VI-VIII of the Physics, since Simplicius points out, as does Alexander, that just those books bore the title 'On motion'; Simpl. In Phys. V, prooem., 923.9: 'It was said previously that the five books before this are called Physics and the next three On motion'. Cf. In Phys. I, prooem., 4.14; In Phys. V, prooem., 801.14: 'Aristotle and his followers are accustomed to call the next three On motion'. The title On time and motion shows with even greater clarity that the reference is precisely to the passages cited under no. 283, since there are no other passages in which the atomistic conceptions of time and motion are discussed.

<sup>2</sup>divided into indivisibles or nothing': The usual interpretation and translation of this passage seem to me incorrect. Cf. e.g. Ross, Ar. Phys. p. 640: 'magnitude, time and motion must either all be composed of indivisibles or none of them ... outhen must be taken adverbially, 'not at all'. But such a translation is too artificial, since grammatically the predicate 'the same reasoning applies' also relates to mēthen ['nothing']. This expression immediately becomes comprehensible if there is seen in it a criticism of Democritus' doctrine; cf. Aristotle's words in no. 105: 'let it have been divided ... if there will be no body or magnitude ... there will be ... nothing at all'. Simpl. In Phys. 139.28: 'let it have been divided ... there will finally remain some smallest indivisible magnitudes ... or it will be gone and reduced to nothing and composed of nothing'. So this supposition must be translated as in my Russian translation ['and divided into indivisibles or into nothings'].

<sup>3</sup>At the beginning of the passage of Aristotle under consideration the atomists' viewpoint is essentially being set out; that 'a moving thing must necessarily have already moved (at each separate moment)' was also the atomists' view. On the contrary, the assertion that 'everything that has moved' must necessarily have previously been in the state of motion contains a criticism of the atomists, who had maintained that bodies 'never are moving' but always 'have already moved'. Aristotle thus commits the logical error which Themistius regards as typical of him (see no. 274 w. comm., n. 1 and no. 275 w. comm., n. 4), that of starting from assumptions which his opponent does not have to accept. He does that here too: 'for the 'nows' were not adjacent to one another' (see comm. on no. 275). But Aristotle's entire rebuttal is based solely on this assertion: 'an indivisible is adjacent to an indivisible; but since that is impossible', 'no indivisible is adjacent to an indivisible, for division is infinite'. Hence Aristotle's criticism gives us to some extent the possibility of judging how the atomists themselves argued.

<sup>4</sup>From the word monachōs ['only', 240b31-2] down to kekinēsthai d' aei ['but always to have moved', 241a1] we have a brief exposition of the atomists' viewpoint. Cf. Epicur., Epist. 1.62: 'for the presupposition about what is invisible, that times which are grasped in thought will have continuous motion, is not true of such things'. Them., In Phys. 184.11: 'He (i.e. Epicurus) says that the moving thing moves over the whole of ABC, but over each of the indivisibles of which [ABC] is composed it does not move, but has moved ... (184.10) and this



though Aristotle had previously pointed out the fault in the argument' . Simpl. In Phys. 934.23: 'that this argument which he (i.e. Aristotle) had set out is not totally unpersuasive is clear from the fact that though he had set it out and refuted it all the same Epicurus and his followers, who came later, say that this is how motion occurs. They say that magnitude and motion and time are composed of indivisibles, and that a thing in motion moves over the whole magnitude which is composed of indivisibles, but with respect to each of the indivisibles in it [i.e. the whole magnitude] it [i.e. the thing in motion] does not move, but has moved, since if the thing which moves over the whole were posited as moving over these too they would be divisible'. According to these commentators, Aristotle was the first to indicate the possibility of giving such an account of motion, and Epicurus was simply the first to come out with it seriously, having taken it over from Aristotle. But this is impossible, since we come across the same theory of motion (accepted with eristic aims) in the Megarian philosopher Diodorus Cronus, who lived no earlier than the end of the fourth century; Aet. I.23.5: 'Diodorus Cronus says that something has moved, but nothing is moving'; Sext. M X.85ff.: 'the argument of Diodorus Cronus that motion does not exist, by which he argues that nothing is moving, but [it] has moved. That it is not moving follows from the assumptions about the indivisibles themselves. For an indivisible body must be contained in an indivisible place, and therefore cannot move in it ... nor in a place where it is not. For it is not yet in it, so as to have moved in it. So it follows that it is not moving, but has moved; for the thing that we previously thought of as in this place is now thought of as in another place, which would not have happened had it not moved'. But von Arnim's theory (Epikurs Lehre vom Minimum, Almanach Wien. Akad. 1907, pp. 383ff.) that Epicurus merely 'gave a dogmatic turn to the sceptical argument of the Megarian' is also unacceptable; see my article, Q. u. St. z. Gesch. d. Math. II.2, pp. 161ff. Moreover, the anecdote reported by Diogenes Laertius, from which it has been concluded that Diodorus died about 307 BCE<sup>164</sup> does not deserve credence; the epigram of Callimachus' preserved by DL II.111 and Sext. M 1.309 appears to have been written during Diodorus' lifetime (Natorp, RE V, col. 705); if that is so, Diodorus lived until the middle of the 3<sup>rd</sup> century and could not

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<sup>164</sup> The argument runs as follows: according to DL II.111, Diodorus, who was living or spending some time at the court of Ptolemy Soter met Stilpo and could not solve a sophistical problem posed by the latter. So, having gone home and written a discussion of this problem he died of grief (Pl. NH VII.53.180 he immediately died of shame). However, DL also reports (II.115) that after the capture of Megara by Ptolemy in 307 Ptolemy tried to persuade Stilpo to sail with him to Alexandria, but he refused. So, Zeller concludes, that meeting [between Stilpo and Diodorus] took place not in Alexandria but in Megara when Ptolemy captured it, which took place in 307. But the expression 'spending time with' + dative fits only a stay at Ptolemy's court, not a chance meeting with him at the capture of Megara. Further, from the fact that Stilpo refused to sail to Alexandria with Ptolemy it does not follow that Stilpo could not have been at Ptolemy's court at some later time. And, finally, we are most probably faced with two anecdotes, deriving from contradictory presuppositions. So from this anecdote we can conclude only that Diodorus and Stilpo met at the court of Ptolemy I between 307 and 283 (the year of Ptolemy's death). As far as Diodorus' death is concerned, this is a story typical of Hermippus about the death of a great man, of variable date, caused by grief at a defeat inflicted by a rival or inability to solve a problem he had been set (Homer, Aeschylus et al.). It has no value (Dox. 150ff.; Susemihl, op. cit., I, p. 15, n. 33, p. 493, n.15; Natorp, RE V, col. 705). Diodorus may have died a significant time later than that meeting.

have been a contemporary of Aristotle. In that case, Democritus is undoubtedly the common source of these arguments in Aristotle and Diodorus.

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<sup>1</sup>The passage cited here is part of a work of Aristotle's on the views of the atomists (no. 431). Aristotle aims to show that according to the atomists things can exist even when no-one perceives them. Even if things never come to be, but have always 'already come to be', we are right to think that they 'have already come to be' before anyone senses them. See comm. on no. 431.

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<sup>1</sup>As is well known, the ps-Aristotelian treatise On indivisible lines is directed against the Platonist Xenocrates, who followed Democritus in accepting the existence of indivisible lines, but we do not know that Xenocrates shared Democritus' theory of the atomistic structure of time. Apart from that, the objections contained here coincide with those contained in Aristotle's works so closely that we must suppose, along with Zeller, Ph. d. Gr. II, p, 1017, n. 2, that 'these objections were at the same time directed against the atomists also'. Similarly, when in the course of criticising Zeno's sophisms Aristotle remarks (Phys. 239b8) that 'time is not composed of indivisible 'nows', any more than any other magnitude' he is referring not only to the mathematical ideas of Zeno's time, but above all to Democritus.

<sup>2</sup>'adjacent' in Aristotle (see also no. 283 w. comm., n. 3) means not only 'are in contact with one another', but also contact in the Democritean sense, i.e. the mutual position of two things between which there is nothing except void. So 'are adjacent' means 'succeed one another in such a way that no third body is situated between them'.

<sup>3</sup>In my article published in 1932 (Q. u. Stud. z. Gesch. d. Math. II, 2, p. 165), when I was not yet acquainted with this passage of Aristotle, I drew the following conclusion from the fact that Democritus rejected the reality of time: 'If in the world of 'legitimate thought' time does not exist at all, in such a world it can only be a matter of separate moments existing alongside one another (analogous, we may say, to the separate frames of a cine-film which exist simultaneously alongside one another), of separate 'nows'. This is the only possible way of asserting in opposition to the Eleatics that motion and change exist, and at the same time of rejecting the existence of time'. It is clear from the excerpt cited that Aristotle is here arguing against such a theory. If, he says, all the separate 'nows' exist at the same time alongside one another, then they must necessarily all exist now, i.e. in one and the same 'now', but since everything happens simultaneously there exists neither past nor future. It is hardly necessary to point out that this objection has a purely sophistical character, since the philosophical sense of the word 'now' (in the sense of a 'frame of the cosmic film')

perceived at each separate moment, apart from which we can perceive nothing) is here confused with the ordinary, everyday sense (equivocation). All 'nows' exist alongside one another, but they cannot be perceived simultaneously.

<sup>4</sup>Diels' felicitous reading genēsomena ē genomēna, with the following ginomena deserves to be accepted, since genomena kai ginomena kai genēsomena is one of Democritus' favourite turns of phrase, see e.g. no. 20.

<sup>5</sup>We have already come across the use of the word 'division' in Democritus (see no. 105 w. comm., n. 9) virtually in the sense 'point' (here in a temporal sense). Regarding this passage of the Physics Simplicius notes (728.15): 'he calls the limit 'division''.

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<sup>1</sup>The remark 'the same argument does not apply to those who do not say that there are atoms' shows that everything preceding is directed against those who 'accept atoms'. Aristotle argues as follows: 'He takes two stretches of time A and B, and the point, i.e. the moment, at which the two segments of time are in contact he designates C. So this C is situated simultaneously in A and B. In stretch A body D is white, but in stretch B [Luria writes 'C', which is clearly a slip, since 'C' designates not a stretch of time, but a moment] it is not white. In so far as C is situated in B, body D must at that moment already cease to be white, but at the same time C is situated in A, so D was not white for the extent of the whole stretch A, but only for a time within that stretch which excludes one 'now', namely C. But that contradicts the condition that D remained white for the entire extent of A. But if we regard A and B as indivisible segments of time, and in segment A D is not yet white, but in segment B D is 'already white', then 'becoming white' must take place somewhere between A and B<sup>165</sup>, consequently there must exist some moment between those indivisible segments of time, but that contradicts the very assumption of the existence of indivisible segments of time'. This whole argument amounts to an example of the grossest *petitio principii* on Aristotle's part, since it was precisely the most characteristic feature of the atomists' view that indivisible units are not in contact with one another (see nos. 236-7) and that coming to be never occurs: 'it never changes, but always has changed'. See no. 283, Ar. Phys. 241a1ff. But since Aristotle uses precisely the opposite propositions as self-evident assumptions the whole of the rest of his argument is superfluous.

<sup>2</sup>'the later': 'which belongs to the later stage' (Ross) [Ar. Phys., p. 449]. This is how it is understood by Philop. 845.31: 'so that C is to be ascribed to the later condition, with respect to being white', and Simpl. 1295.23: 'C is to be made the beginning of the not-white, which occurs in the second time'.

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<sup>165</sup> [Following Aristotle 263b 28ff., Luria moves from describing a case of ceasing to be white to a case of becoming white.]

<sup>3</sup>'the time is no greater': the segment of time in which something 'was coming to be' and 'has already existed' is no greater than the time in which it simply 'was coming to be', i.e. the time left for the second stage is equal to zero. So the atomists' supposition of 'the sudden appearance of the quality of the thing which exists' is incorrect.

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Cf. Epicur. Pap. 1413 (Crönert, Kolotes und Menedemos, p. 104, n. 501): 'our impressions of the extent of time are not in agreement with the amount of ... the impression of days and night, according to which we think of their quantity ... a measure ... measures time ... the person who says on the basis of ordinary speech that 'I would not be ashamed to say that time is days and nights' ...a property of the impression'.

287a

<sup>1</sup>That the argument of Chrysippus' given here was directed against Democritus is supported, we may suppose, by Plutarch's rebuttal of it, which is perhaps taken from Democritus (1081E): 'for if the now is not a time, but a limit of time, and every part of time is such as the now is, the whole of time seems to have no parts, but to resolve itself throughout into limits and junctions and starting-points'. Cf. no. 105: 'but yet if there will be no body nor magnitude, but there will be a division ... there will be ... nothing at all ... and the whole will be nothing but an appearance'.

It is curious that Aristotle's theory at EN 1174b8-9: 'it is impossible to undergo a change unless in time, but it is possible to have pleasure [not in time]' takes on an atomistic appearance in Heliodorus' paraphrase, 215.34: 'it is not possible to undergo a change in the indivisible now, but it is possible to experience complete and perfect pleasure', since there the phrase 'the indivisible now' is introduced.

287b

<sup>1</sup>In order to interpret this passage of the Mechanics correctly one must take into account its reworking by Galileo (Works I, pp. 68-72, 94-5). There we find the same verb huperpēdan = 'jump over', we encounter the word gōnia in the sense of 'polygon' (comm. on no. 131, n. 2) and finally the theory as a whole is correctly discussed as a theory of Democritus': 'Having jumped over the whole of the part IO without touching it' (p. 69, l. 15); 'just as without any jumps the small circle can traverse a line so much longer than its circumference' (p. 70, l. 29); in Galileo's Mechanics the expression stasis corresponds to 'remains still, motionless' (admittedly, in a somewhat different theory: 'the point B remains motionless for a certain time' (p. 95, ll. 1-2)); 'the ends of the sides of the polygon are motionless for some time during the revolution' (p. 95, l. 15); 'instantaneous stillness' (p. 95, l. 24); 'the infinitely many indivisible sides of the larger circle' (p. 95, l. 28); 'the circles (which are polygons of infinitely many sides)' (p. 71, l. 29); 'it seems to me that you are travelling in the direction of those scattered spaces (i.e. paresparmena kena – see nos. 268-70!) of a certain ancient

philosopher'. 'But all the same you do not add 'who denied Divine providence'' (p. 72, ll. 20-23). Stasis means 'being motionless'; see e.g. Ar. Phys. 228b6, and elsewhere.

287c

<sup>1</sup>to legomenon: 'as is commonly said, as is supposed'.

<sup>2</sup>hestanai: 'remain motionless'. Cf. 'when stasis occurs', no. 287b.

<sup>3</sup>'absurd': from the standpoint of modern science this is not absurd, but totally natural.

## b. ON THE SHAPE AND CHARACTER OF THE GREAT VOID

### ON THE ORIGIN OF WORLDS

#### I. General principles. The swirl. The original motion of the atoms.

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<sup>1</sup>'By separation' is the same as the simple 'having been separated', and is the opposite of 'by combination'. Diels [DK II, p. 70, l. 29n.] compares Simpl. In Phys. 446.7ff: 'and hence when we see it [i.e. motion][occurring] by separation in what is being moved, since it exists in that, we call it the actualisation of the movable qua movable, but when [we see it occurring] by combination starting from the moving thing [i.e. the thing that imparts motion], we call it the actualisation of the moving thing in the thing which is being moved'. See further a scholium on Epicurus (schol. on DL X.74): 'nor are they [i.e. worlds] living things which have been separated off from the infinite', and also the passage of Epicurus cited under no. 291 [Epist. II, DL X.88]: 'from the infinite (i.e. space)' (Diels).

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<sup>1</sup>auxein in the intransitive sense 'grow': cf. Bonitz Index, 122b35 (Diels [DK II, p. 74, l. 28n.]).

<sup>2</sup>I include this Epicurean attack among the testimonia on Democritus because specific technical expressions such as 'separation from the infinite', 'great void', 'swirl' and 'of necessity' leave no doubt that this attack is directed against Democritus.

292

<sup>1</sup>See no. 46.

294

<sup>1</sup>See no. 117 [actually no. 39], Diog. Oen. fr. 32, col. II, ll. 7 ff. (p. 57 Chilton); 'motion occurs because of their collision with one another'.

295

<sup>1</sup>summenein ['remain stationary']: this is a technical term of Democritus'. See app. crit.

296

<sup>1</sup>This is not entirely exact: the collision of atoms is the cause, not of motion in general, but merely of change of motion, since motion in itself is, according to Democritus, eternal and uncaused (see comm. on no. 304).

297

<sup>1</sup>According to Diels the source of this passage of ps-Plutarch was not Aetius; it is an Epicurean excerpt from the Megas Diakosmos. See Rohde Kleine Schriften [KL. Schr.] I, p. 200 (see no. 383 w. comm.).

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<sup>1</sup>At the same time as the impact of scattered atoms is breaking up some bodies into separate atoms, new bodies are being formed of others, since the atoms reunite, but essentially these are not continuous bodies, but aggregates of atoms with their own distinctive characters, since 'bodies of the same kind more readily unite with one another' (kata tas toiautas homilias ['in accordance with such associations'] = Lucretius' 'concilia', as Alfieri correctly points out). 'Such' means approximately 'temporary, occurring by chance'.

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<sup>1</sup>'take hold of': cf. Ambrose Hexaemeron. I.1.4: 'As the philosophers maintain, the stronger bonding of the atoms is the cause of their remaining yoked together'.

300

<sup>1</sup>'as a sort of life': an accurate characterisation of Democritus' theory, according to which everything which moves has a soul. See comm. on no. 321.

301

<sup>1</sup>See comm. on no. 365, n. 2. One must observe that in 'the downward movement of bodies by the force of their own weight' Cicero sees the 'ruin' of Epicurus only, and in 'the vertical movement by the force of their weight' he sees 'the theory of Epicurus'. It is clear from this that Democritus did not share that view. See also no. 304.

304

<sup>1</sup>'apart from one': namely Plato.

<sup>2</sup>See Simplicius' comm. on this passage, no. 21.

<sup>3</sup>'are always in motion': see below, n. 6

<sup>4</sup>'what motion': i.e. natural or forcible motion. See Ar. De caelo 300b8 and Simpl. ad loc., 583.20 (both cited here), w. comm. Aristotle does not raise the question whether it is the atoms or the void which is in motion, as Alexander wrongly supposes in his commentary on this passage (see Simpl. In Phys. 1196.8, also cited here).

<sup>5</sup>Besides the reasons given in the comm. on no. 365, the passages cited here also prove the incorrectness of the theory of Zeller, according to which all atoms were originally in downward motion. In fact Aristotle's argument is this: according to Democritus, disorderly motion in all directions precedes regular, law-governed motion in the cosmos. Now for Aristotle everything disorderly is unnatural and everything regular is natural, and the unnatural cannot precede the natural; hence Democritus' doctrine is false. That argument, of course, makes sense only if Democritus accepted that before the formation of worlds motion was disorderly, in all directions. Instead of the expression 'unnatural' (para phusin) Aristotle sometimes uses the term 'forcible' (biai).

Them. In De caelo 161.16, (no. 196) remarks on this passage [i.e. on De caelo 300b8]: 'the followers of Leucippus and Democritus ... suppose that the atoms are forcibly moved by one another in the void'. From the words 'by one another' it is clear that by forcible, unnatural motion Aristotle means primarily the attraction and repulsion of the atoms.

<sup>6</sup>'the primary bodies are always in motion in the void and the infinite': cf. Ar. Phys. 215a19ff.: 'further, no-one would be able to say why something which has been moved should stop anywhere. For why here rather than there? So either it will be stationary or it must go on moving infinitely far, unless something more powerful hinders it'. The passages collected here, Ar. Phys. 251b13: 'motion is eternal'; 253b9: 'everything is always in motion'; Simpl. ad loc. 1196.8: 'the atoms ... being always in motion'; Ar. Phys. 260b5: 'there must always be motion'; 265a3: 'all perceptible things are always in motion'; De caelo 300b8: 'Leucippus and Democritus say that the primary bodies are always in motion' and in no. 306, Simpl. In De an. 39.26: 'the followers of Democritus, wanting things to be always in motion'; Hermias Irris. 12: 'Leucippus says that the things which are always in motion are principles'; Hippol. Refut. 1.13: 'Democritus that the things that there are are always in motion' show beyond doubt that according to Democritus the atoms are eternally in motion. If that is so, we have no right to raise the question what the origin of that motion was, and why it continues and will continue for ever. See no. 13 [Ar. GA 742b7ff.]: '... say ... e.g. Democritus ... that there is no beginning of what is always and infinite, but the reason why is a beginning and what is always is infinite, so asking the reason why in such cases he says is looking for a beginning of the infinite'. On the other hand Democritus regards eternal motion as a characteristic of spherical atoms and only spherical atoms; see no. 445 [Ar. De an. 406b20ff.]: 'the spheres ... because they are by nature such as never to remain

motionless'; [Sophon. ad loc. 18.25] 'the spherical atoms are always in motion'. No. 131 [Ar. De caelo 306b34-307a1] contains an explanation of this property of spherical atoms: 'they are the most mobile because they are least in contact and have the smallest base'; [Simpl. In De caelo 661.31-662.1] 'the sphere is mobile because it touches the underlying plane at a point'. How are the conflicting testimonies to be reconciled? The only possibility, in my opinion, is the explanation which suggests itself, that in principle all bodies must be in eternal motion, since they have been in eternal motion up till now and there is no reason for that motion to stop. But in actual experience the fact is otherwise, since friction hinders motion. Only atoms of fire (or of soul, which is the same thing) preserve eternal motion, since they have the shape of geometrically regular spheres and therefore touch a plane at [a point with] zero area. It turns out that we come across precisely this doctrine in Heron Mechanics 1.20.54 Schmidt<sup>166</sup>: 'some people (he is referring to the Peripatetics and their predecessors) suppose that weights lying on the ground can be set in motion only by a force equivalent to them, but that view is false. Therefore we must show that weights can be set in motion by a force less than any known to us, and explain why this phenomenon is not in fact observed. Let us imagine a weight lying on the ground, and that it is uniform, smooth and firm in all its parts ... We shall see that weight is necessary, not in a force to set it in motion, but in a force to stop it from moving ... But since by their nature bodies are not smooth in surface, and since it is not easy to make them exact, as a result of their unevenness it comes about that one body stops another. Planed planks are fixed in the ground on account of their smoothness and greased; then one can use them to move weights by applying the smallest force'. Heron uses this principle to explain motion on an inclined plane, whereas Pappus of Alexandria, Mathematical Compendium [Synagog. Math.] VIII.10 tries to explain motion from Aristotle's viewpoint: in his opinion, to set a body in motion it is necessary to apply a force equal to the weight of the body.

<sup>7</sup>'what motion': specifically, natural or forcible motion: Ar. Phys. 253b9 (cited here): 'not defining what motion they are talking about, or all motions'. Since precisely this question is raised in De caelo 295a21ff., we are, I think, right to think that this passage too refers to Democritus, all the more since the principle 'no more up than down' (cf. nos. 4 and 298 w. comm.) is characteristic of Democritus: 'but if neither the swirl nor its breadth prevents it [i.e. the earth] [from moving], the air underneath having been removed, where will it go then? It moves to the centre by force, and remains there by force. But it must have some natural motion. Is that motion up or down, or what? It must be some motion. But if 'no more up than down', and the air above does not prevent it from going up, neither would the air below the earth prevent it from going down. For the same causes must have the same effects on the same things'. This is followed by another detailed critique of the doctrine of

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<sup>166</sup> We have already found Democritus' theory in another passage of this work; see comm. on no. 270. [In fact the comm. on no. 270 contains references to Heron's Pneumatics, but not to his Mechanics.]



Empedocles: ‘further, one might make this additional point against Empedocles’; this shows that the passage we have cited cannot be considered as an attack on Empedocles alone.

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<sup>1</sup>Simplicius ad loc. interprets this passage as follows: ‘nor do heavy and light things move to the same place, but only things of the same kind; for the heavy things move to the centre and the light to the periphery’. The last remark is unnecessary and does not, I think, relate to the passage of Aristotle under discussion, since Democritus did not explain the movement of heavy bodies towards the centre of the earth by the mutual attraction of bodies of the same kind.

<sup>2</sup>‘for as things are now it is not the case’: disorderly movement took place only before the formation of worlds (see Simpl. ad loc. 591.12, in the last passage cited here: ‘before the making of worlds’), since the Greek word kosmos already contains the concepts of regularity and lawfulness. So ‘now’ means ‘after worlds had been formed’.

<sup>3</sup>‘are arranged and organised’.

306

<sup>1</sup>See comm. on no. 304, n. 6.

<sup>2</sup>‘by a blow’: see comm on no. 307.

307

<sup>1</sup>‘a blow’: it is very likely that Democritus applied the word plēgē [‘blow’] metaphorically to that impetus and pressure to which the original eternal motion of the atoms gave rise. But the application to this ‘blow’ of the word ‘vis’ (‘force’) is primarily imprecision on Cicero’s part, since for Democritus force (dunamis) was merely a source of change of motion (archē metablētikē [‘a principle of change’]; see comm. on no. 321.

309

<sup>1</sup>An attack on these views is preserved in Hippol. Refut. I.15, Dox. 566; cf. no. 16: ‘Ecphantus of Syracuse said “the primary things are indivisible bodies ... and they are moved not by weight or a blow, but by divine power”’. See also Aet. II.3.3, Dox. 330: ‘Ecphantus says that the world consists of atoms, and they are arranged by providence’. I am not concerned with the question whether the Ecphantus mentioned here really existed or was in fact only a character in a philosophical dialogue; see Frank, op. cit., p. 138, notes 403-4.

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<sup>1</sup>palmos (from pallesthai, cf. no. 312) means ‘shaking motion, vibration’. So e.g. Ar. De spiritu 479b21 characterises the disease palmos [‘palpitation’] as ‘jumping of the heart’.

Melampus' On palpitations discusses cases where the eye twitches etc. See Diels, Beiträge zur Zuckungslehre, Abh. d. Berlin. Akad. I.1, 1907. palmos is the movement when something jumps up and down. Alfieri op. cit. p. 94, n. 40 understands the word palmos in the sense 'blow, collision' ('I translate palmos in the same way as plēgē') but this incorrect interpretation is based on the arbitrary and mistaken alteration of the mss. reading epallaxis or parallaxis to peripallaxis, proposed by Diels. Bailey op. cit. p. 133 understands this term correctly.

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<sup>1</sup>dia to kenon can mean in Greek only 'because of the void'. Ross translates perfectly correctly, Aristotle, Physics p. 452: 'Make motion depend on the void'. 'Through the void' would be dia tou kenou in Greek. So the translations by Alfieri op. cit., p. 100: 'through the void' and by Karpov, Aristotle, Physika, edn. 1, Moscow, 1936, p. 168: 'in the void' are completely wrong. See no. 260.

<sup>2</sup>peripalassein, according to Diels, means the same as periplekein ['entangle, interlace']: 'Leucippus and Democritus employed this expression as the name for the collision of atoms and their combination to form compound bodies'. But this word occurs only in this passage, and here this meaning is completely inappropriate to the sense; the word peripalassein is understood as 'local displacement'. The source of Diels' mistake was that without any reason he had (see no. 292) altered the expressions epallaxis and parallaxis, which are actually synonymous with periplexis ['interlacing, entanglement'] to peripalaxis. The verb peripalassesthai (if that is the correct reading of our mss.) is in any event derived from pallesthai ['quiver'] and means, as Bailey correctly interprets it (op. cit., p. 88) 'oscillation, vibration'. See no. 200, Ar. De an. 404a19: 'they appear in continuous motion'; no. 201, Theodoret. IV.10: 'quivering up and down'; no. 203, Lact. De ira Dei 10.9: 'they fly about in restless motion and are borne hither and thither'. In Democritus the terms haphē, haptesthai ['contact, be in contact'] correspond precisely to this oscillation and collision. Cf the interesting passage Plut. Col. 1112B, where the early atomists are referred to along with the Epicureans: 'Those who bring the unchangeable and unaffected atoms into the same place do not make anything out of them but produce a continuous series of collisions. Their entanglement prevents dissolution and intensifies their mutual impact. So what is called coming into being is not mixture or gluing together but a confused battle among them. And in a moment they fly apart from force of impact and then they approach ... not in contact and close together ... but their combination is not the sort that produces genuine mixture and unified growth, but it merely makes them collide and rebound'.

## II. The original speed of the atoms

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<sup>1</sup>There is no doubt whatever that Aristotle's attack in this passage is directed against Democritus. Besides the expression 'those who say that there is a void' this is seen clearly from Simplicius' commentary, since the investigation of which he speaks is one which belongs to Democritus. Further on he mentions Democritus, then atoms. But it is not clear from this passage what view Democritus himself took of the original motion of the atoms: did he think that they moved at the same speed or at different speeds? On the basis of the principle of isonomia one must suppose that Democritus' atoms had all possible original speeds, i.e. that Diels [no ref. given] was right to see an attack on Democritus, together with others, in the passage where Aristotle asserts that the motion of all atoms was accepted as being of the same speed: 'and indeed the atoms must move at the same speed when they are borne through the void with nothing impacting on them'<sup>167</sup>. See comm. on no. 365.

<sup>2</sup>In order to understand this remark it is necessary to take into account a passage of Simplicius which has the same sense; see comm. on no. 376.

<sup>3</sup>This attack of Simplicius' on Aristotle and Alexander is particularly interesting. Simplicius remarks that the objection raised by Aristotle loses its force if the atoms are imagined as in perpetual motion (see comm. on no. 304).<sup>168</sup> In that case, even if only some of the atoms were to remain motionless or if they all moved at the same speed, they overtake one another. This remark makes sense only if that motion takes place in all possible directions (see comm. on no. 365). Democritus undoubtedly imagined the situation of things as precisely that.

## III. Attraction and repulsion. The notion of force.

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<sup>167</sup> [The quotation is not from Aristotle, but from Epicurus, Epist. I.61. The lack of a reference to Diels compounds the confusion, since it is impossible to tell whether Diels is being praised for a comment on Aristotle (and if so on which passage?), or on Epicurus.]

<sup>168</sup> [See translator's note on no. 314.]

315

<sup>1</sup>as distinct from the others': cf. a series of passages in Aristotle: PA 686b3: 'all the other animals, as distinct from man, are dwarflike'; HA 499a13: 'camels have a peculiar hump, unlike other quadrupeds'; Poet. 1459a31: 'Homer seems wonderful in comparison with the others'.

316

<sup>1</sup>koskineuein (here and in the passage of Aetius also cited here) means not 'put through a sieve', as Diels thinks [DKII, p. 177, transl. l. 2 'Durchsieben'] but 'sort seeds in a sieve' (only the chaff is sifted out); as the sieve is shaken different kinds of seeds are collected in different parts of the sieve. Therefore we must reject Diels' emendation of DL [IX.31] (no. 382) of diattomena ['rushing out'] to diattōmena, ['being sieved out'] since it is convincing only in so far as this translation is correct.

<sup>2</sup>sunagōgon ti ['something attractive']: this is exactly what writers of a later period called 'force' (dunamis). I leave open the question whether Democritus himself used the term dunamis.

<sup>3</sup>Cf. Pl. Tim. 52e ff.: 'when the grains are shaken and winnowed by the winnowing-baskets and other things for cleaning the wheat the big, heavy grains end up in one place and the fine, light ones in another; just so when the four kinds (i.e. the four elements) are shaken ... the most unlike are separated furthest from one another, and the most similar come closest together into the same place'.

<sup>4</sup>The quotation koloios ... homoion ['Birds of a feather flock together' and 'God always puts like together with like'] occurs in the same words in Ar. MM 1208b9. This entitles us to think that in Aristotle too we have a quotation from Democritus.

317

<sup>1</sup>This attack is typical of Aristotle and his entire school; they assume that the very premises from which they start are obligatory for their opponent too (though they are in fact alien to the opponent), which makes an easy victory over him possible. The principle 'like is not altered by like' is totally alien to Democritus; from his standpoint atoms are as such totally incapable of change. Spatial rearrangement (tropē – 'turning', diathigē – 'change of order') can be brought about precisely by atoms of the same kind and only by them. Given these premises Theophrastus' entire attack loses any sense.

318

<sup>1</sup>as a residue of putrefaction': Diels [DK II, p. 108, l. 14 n.] compares this expression with the same turn of phrase in Ar. Meteor. 379b4: 'the sea quickly putrifies when it is separated into discrete volumes'. On the meaning of that see comm. on no. 382.

319

<sup>1</sup>For another example of the acceptance of this theory see no. 515, Diod. I.7.<sup>169</sup> There is a similar explanation of magnetism in Epicurus fr. 293 Us. (= Galen De facult. nat. 1.14): 'Epicurus agrees that iron is drawn by the magnet and chaff by amber, and attempts to give the explanation of the phenomenon. He says that the atoms flowing out from the stone are so shaped as to get entangled easily with those flowing from the iron. Now having collided with two masses [of atoms], the one of the stone and the other of the iron, they rebound into the middle, where they get entangled and draw the stone along with them ... some of the parts flowing from the stone collide with the iron and rebound, and it is because of these that the iron is suspended [from the stone], while others penetrate very quickly through its [the iron's] empty pores and then, colliding with the adjacent [piece of] iron, cannot penetrate further, but those which penetrated the first [piece of iron] bounce back to it, causing further ... entanglements'.<sup>170</sup>

320

<sup>1</sup>'because of their unlikeness': this is in any case inexact. Dissimilar bodies cannot affect one another in any way; they cannot attract, hinder or repel one another. This remark must be understood only in the sense of the final result; as atoms of the same kind are attracted towards one another, those dissimilar to them are deflected in different directions, and everything happens just as if the bodies were being repelled by one another (stasiazein).

321

<sup>1</sup>This supposed contradiction in Democritus has, I think, its source in the fact that Theophrastus confused motion as such (explained by the attraction and repulsion of atoms of the same kind, i.e. of the same shape) with their specific movement in the cosmos, where all move towards the centre but the larger prevail over the smaller (see no. 12).

<sup>2</sup>'since their powers are in their shapes': so by 'power' Democritus means the power of attraction and repulsion, which can function only between bodies of the same kind, and between bodies of different kinds only 'in so far as they are of the same kind', i.e. if together with atoms of different kinds they also contain atoms of the same kind, which attract one another. Democritus saw in 'power' only the cause of change of motion; motion which goes on for ever in unchanged forms requires no explanation. Therefore Löwenheim (op. cit, p. 28) was right in attributing ultimately to Democritus the following definitions of power which occur in Aristotle: 'I am speaking of power not merely in the restricted sense of a

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<sup>169</sup>[This sentence has apparently been displaced from the preceding note. No. 515 deals with phenomena involving putrefaction, not with magnetism, which is the topic of the present note.]

<sup>170</sup> [In the second part of the last sentence Galen is discussing Epicurus' attempt to explain how a lodestone can magnetise a chain of iron objects in contact with one another, of which only the first link is in contact with the lodestone itself.]

principle of change in another thing qua other , but generally as any principle of change or rest' (Meta. 1049b5); 'Such [powers]as are of the same species, all of those are principles and are so called by reference to a primary principle which is a principle of change in another thing qua other ' (Meta. 1046a9). See also Meta. 1019a15: 'the term 'power' is applied to a principle of change or alteration in another thing or qua another thing'. The definition of 'power' as 'principle of change' obviously goes back ultimately to Democritus, the definition of it as 'principle of change or rest' to his opponents. But even the former definition (which is according to the modern view perhaps Pythagorean) contains a very important change of view in a fundamental respect from that of Democritus, which Löwenheim does not remark on. See no. 315 [Ar. GC 323b10-14]: 'Unlike the others Democritus was the only one to take his own line ... even if different kinds of things act on one another they do not do so in so far as they are different, but in so far as something the same [applies to them]'. So the formula 'in another thing qua other' is a hostile reworking of the Democritean formula 'in another so far as something the same [applies to them]'. This change was totally necessary and unavoidable, for otherwise it would have been impossible for the soul to have any effect whatever on matter and one would have had to follow Democritus (see no. 322) in regarding power, the soul and god as material, which would have been absolutely impossible for followers of Democritus from the idealistic camp. Therefore, if Democritus gave a general definition of power, that definition must have been 'power is a principle of change in another thing qua the same ' (or 'qua of the same shape'). The following two passages also, in my opinion, have Democritus as their source, as Bonitz (op. cit., p. 175) suggested in the first case: NE 115b4: 'Heraclitus says that opposites agree and that the finest harmony is that of divergent things and that everything comes about through strife; Empedocles and others say the opposite, for like seeks like'. Sophon. In De an. p. 116,8: 'So it is necessary either, as some say, following the lead of Protagoras, that all appearances are true or that contact with the unlike is deceptive, for that is contrary to the principle that one knows like by like'.

322

<sup>1</sup>'also': not merely the matter of the seed, but also its power.

<sup>2</sup>'of pneuma': that 'power' is according to Democritus a body is clear a priori. The report that it consists 'of pneuma' is altogether isolated and, it appears, doubtful. By 'pneuma' must be understood, here as elsewhere, 'fire'. Cf. Ar. PA 652b8: 'Some say that the soul of an animal is fire or some similar power'. So according to Democritus every power is the activity of some soul, and conversely, every soul is a purely mechanical centre of force. See Albertus Magnus, De lapid. i.4 (no. 448): 'Democritus and some others say that the elements have souls and that they are the causes of stones' coming into being'. So Democritus undoubtedly shares the view of Thales, according to whom everything which moves has a soul: DK 11 A 22 'the magnet has a soul, because it moves iron'; 11 A 3 'and inanimate things have souls, as [he knew] from magnets and amber'. For Democritus the soul was a

purely mechanical cause of motion; that is clear from his explanation of the effect of the magnet (no. 319). Hence Aristotle was right in the following brief characterisation of Democritus' views (no. 300 [Phys. 250b11-15]): 'motion ... is ... as it were a sort of life for all things which exist by nature'.<sup>171</sup>

323

<sup>1</sup>'a blow': cf. Cic. De fato 20.46: '(The atoms) had for Democritus that motive force of impact which he called a blow'. It is unlikely that Simpl. In Phys. 42.10 (no. 306) 'Democritus says that the atoms are by nature in eternal motion and that they have been set in motion by a blow' is derived from this.

#### IV. Combination and separation. Mixture.

324

<sup>1</sup>In so far as the word genesis means in Greek not only 'birth' but also 'origin' it is fully comprehensible that the word suggonē could also have the sense 'combination' of atoms in Democritus.

325

<sup>1</sup>The word ameipsikosmiē ['change of worlds'] obviously stands in the closest connection with Democritus' doctrine of the constant coming into being and perishing of worlds.<sup>172</sup>

326

<sup>1</sup>rusmos means 'shape' in Democritus, and on the other hand shape is the most characteristic feature of an atom (Democritus frequently calls atoms 'shapes' (ideai)). It is therefore comprehensible that in Democritus the word ameipsirusmiē ['change of shape'] means not only 'change in the shape of a body' (in the world of atoms that is completely impossible) but also 'change (in the structure) of atoms which compose a body'.

328

<sup>1</sup>hoi phusikoi ('inatural philosophers'): in opposition to the Eleatics, whom Aristotle called aphusikoi ['abolishing or denying nature']. In my opinion Philoponus, who saw hoi de as referring to the atomists, is more nearly right than Diels and Ross, who think that the reference here is above all to Empedocles and Anaxagoras.

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<sup>171</sup> [See translator's note on no. 304. It seems to me that Aristotle is best understood as saying in the passage cited from the Physics that it is change in general (rather than motion specifically) which is a sort of life for all things which exist by nature.]

<sup>172</sup> [The word metakosmēsis, which Hesychius gives as equivalent to ameipsikosmiē, has the general sense 're-ordering' as well as the specific sense of 'change of worlds'. It is possible that Hesychius regards ameipsikosmiē (which could mean either 'change of world' or 'change of order') as itself having the generic rather than the specific sense. His note contains no reference to Democritus.]

329

<sup>1</sup>kosmopoiein ['construct worlds']: 'draw a picture of the origin of the world'.

330

<sup>1</sup>That what is here being discussed is not the general view of classical natural philosophy but above all the view of Democritus is clear from the expression 'conjunction and separation, to which correspond coming to be and perishing'. That is how Simplicius interprets this passage, for the reversed order of the enumeration 'as Democritus, Anaxagoras and Empedocles held', means, I think, simply the following: 'Democritus, citing Anaxagoras and Empedocles'. That for Democritus change of place was the first and original form of motion is seen from no. 333. There it seems very probable that the doctrine of the three kinds of motion was borrowed mutatis mutandis from Democritus, who, as we know, saw in all 'kinds of motion' (i.e. changes) merely different derivative forms of change of place or reflections of it occurring in our senses.

<sup>2</sup>The fact that the doctrine of eternal motion is one of the most characteristic features of the atomistic system is clear from the passages set out above, e.g. no. 306.

<sup>3</sup>Cf. Plut. Col. 1112b: 'so that what they call coming to be is not mixing or gluing together, but a confused battle'.

331

<sup>1</sup>For the reason just given I am convinced that in the first instance it is Democritus who is meant by phusiologoi. This passage has normally been seen as an attack on the Heracliteans, on the basis of the word 'flow'. That is wrong, since Aristotle himself attests that the doctrine of 'fluid change' was characteristic of others besides Heraclitus: De caelo 298b29: 'some say that everything else comes into being and flows, and none [of them] is in a stable state, but only one thing remains [stable], from which all the rest come into being by re-shaping. It seems that that is what Heraclitus of Ephesus and many others mean'.

332

<sup>1</sup>'because of the void': see comm. on no. 313.

<sup>2</sup>'nature': coming from Democritus himself, as his own peculiar designation of the atom (see no. 196a).

334

<sup>1</sup>those who say "colour is by convention": Democritus and his school (see nos. 55, 215).

337



<sup>1</sup>especially if': this passage is very difficult, and Philoponus is right to remark (38.22) 'the sense of the words is somewhat obscure'. I attempt to explain it in comm. on no. 105, n. 26.

338

<sup>1</sup>This passage shows that my previous interpretation [no ref. given] was incorrect. Here we have a chiasmus: 'through the void' is connected to 'separation', 'through contact' to 'coming to be' (= 'combination'). In separation a greater quantity of void ('new void') penetrates the interval between the atoms; in combination new atoms combine with the body and 'touch' it (in Democritus' sense of the word), so that 'contact' comes to be.

<sup>2</sup>in that way', i.e. 'each through contact': namely, [each] atom.

340

<sup>1</sup>'grains of barley ... grains of wheat': a famous example of Democritus' (see. no. 316).

<sup>2</sup>Philoponus correctly sees the difference between Empedocles and the atomists (Democritus as well as Epicurus) as consisting in this, that for Empedocles it is the substances themselves, divided into tiny particles, that compose the mixture, whereas for Democritus it is the atoms. Alexander took a different view on this question (see no. 342).

342

<sup>1</sup>'bodies': Bailey [no ref. given] misunderstood these as atoms. As W. Schmidt correctly remarks (Epikurs Kritik der platonischen Elementenlehre, Leipzig, 1936, pp. 57-8) Alexander is here attempting to draw an artificial contrast between Democritus and Epicurus; he maintains that Democritus was talking about a mixture of compound bodies, i.e. a mixture of 'molecules', while Epicurus was the first to introduce to science a 'mixture of atoms'. This construction of Alexander's does not correspond to the fact. Cf. Schmidt, op. cit.: 'Alexander probably later misrepresented this difference to himself, when he had forgotten its origin, as a dispute between Democritus and Epicurus' (cf. no. 340 on Philoponus' treatment of the difference between Empedocles and Democritus).

#### V. Fire produces heat by means of light

342a

<sup>1</sup>'dry substance': this testimony seems suspicious at first sight, for 'dry substance' and 'wet' are characteristic terms of Bruno's own theory, the former meaning 'atoms' or 'earth' and the latter 'water', which glues them together. Just so it is characteristic of Bruno's theory that light shines only in a moist substance (p. 512: 'explicable and sensible in the moist'; p. 512 (a report about Democritus) 'it shines ... in the moist'). But the latter is unsurprising, for Bruno directly cites Democritus, thus confirming that he had borrowed this aspect of his own theory from him. On the other hand there is an absolutely essential difference between Bruno's own doctrine and the doctrine which he is citing. For Bruno 'dry

substance' is earth, but fire (p. 512) is a special 'spiritual substance', not at all identical with a dry substance. Indeed if it were necessary to conclude from Democritus' own words that he himself regarded light as some particular 'dry substance', that would be decisive confirmation that the passage is a forgery, since according to Democritus heat (and probably illumination) is simply a special state of a body under the influence of the penetration of atoms of fire into the spaces between its atoms. But we know from one of the passages of the Placita philosophorum ascribed to Plutarch (I.4.4 = no. 383) that Democritus (or Leucippus) actually spoke of 'moist substance' (hugra phusis), and, consequently, of the dry substance (xēra phusis) opposed to it. Moist substance is all the elements except fire, for according to Democritus water and earth are not elements at all, but a mixture of different elements, 'a mixture of seeds' (panspermia); earth differs from water not in its 'chemical' constitution, but in the size of its 'particles', composed of atoms (we would say 'molecules'); the 'particles' of earth are bigger than the 'particles' of water. When particles of water stick together, earth is formed; when particles of earth are split into smaller parts, water is formed. That is why depending on the temperature the same body turns liquid at one time and solid at another<sup>173</sup>; it would be truer to say 'more liquid' and 'less liquid'. By contrast, for Democritus fire never mixes with the other elements; its atoms are absolutely dry, so for Democritus 'dry substance' could mean only fire.

In fact, in no. 383 we read 'the collection of all the small atoms of matter gave rise to 'moist substance' ... or water separately', from which it is clear that water is merely one form of that 'moist substance'. In this connection Simpl. In Phys. 36.1 = no. 508 is an interesting passage, in which to 'hot and fiery bodies' there are opposed 'cold and watery, which come from their opposites'; since in Democritus' doctrine the hot and fiery can mean only fire as an element, obviously 'the cold and watery' are all the elements apart from fire.

The fact that the opposition dry—wet was already in the classical epoch identical with the opposition fire—water is seen from Hipp. De victu 7, a treatise by some Heraclitean author, where we encounter the oxymoron 'from dry water and wet fire'. From Plut. De facie in orbe lunae 937a-c (a treatise which may have in this respect an atomistic source) we see that light and heat (flame) are regarded as organic manifestations of the 'fiery element' which are transformed into one another: 'concave mirrors intensify the reflected part of the flash which is emitted (light!), so that they often emit flames (heat!) as well ... the light of the sun loses all its heat when reflected by the moon, but a faint residue of its brightness reaches us'. In itself the 'fiery element' is neither hot nor luminous; light and heat are simply the reaction of the moist substance to the influence of fire; see comm. on no. XLV. If so, there is nothing in the cited fragment of Bruno which would contradict our information about Democritus' doctrine. The sense of the new passage is as follows: we call light the phenomenon which occurs when atoms of fire get into the spaces between atoms of the other elements; heat comes about as a result of that penetration, and as a result of heat

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<sup>173</sup> Ar. GC 327a16 (no. 239): 'we see that the same continuous body is at one time liquid and at another solid'.

there is illumination. And conversely, when light pours from an illuminated body to those adjacent, that shows that atoms of fire have penetrated the adjacent bodies, and along with light they produce heat in those bodies. Democritus sees evidence supporting this supposition in heating by means of concave mirrors and convex vessels full of water. Some bodies, for example those which are transparent or have a polished surface, do not contain atoms of fire in the spaces between their own atoms, but enable them to be deflected in new directions. They pour out from the luminous body and 'produce heat by means of light'. So according to Democritus the penetration of light reflected in a mirror simultaneously produces heat, since heat and light are parallel phenomena produced by the same cause.

<sup>2</sup>'which produces heat in moisture': Philop. In De an. 68.27: 'Democritus and his followers ... say that spherical atoms (sc. 'of fire, of the dry substance') heat the substrate (= 'the watery' in Simpl., see no. 508) by their mobility'.

<sup>3</sup>'from mirrors ... from their concave surface': Theophr. De igne 73, p. 20 Gercke: 'the reason why things catch fire from the sun by reflection from smooth surfaces but not from fire is the fine texture [of the light] and because it [the light] becomes more continuous when it is reflected, which is impossible for fire because of the unhomogeneous nature[of its particles]... it is kindled by glass and bronze and silver which have been treated in a certain way ...'.

Cf. Plut. Quaest. conviv. IV.2.4 (no. 281): 'the fire of lightning is astonishing for its purity (akribeia) and fineness ... as Democritus says' ; Aet. III.3.10 (no. 415): 'lightning [occurs] when [the motion of the fire is forced out] from purer and finer and more homogeneous [sources]...'; Plut. Numa 9: 'they chiefly kindle [the fire] by means of metallic mirrors, the concavity of which is made to follow the side of a right-angled isosceles triangle, and which converge from the periphery to a single centre'.

<sup>4</sup>'from jars full of water': cf. Plin. NH XXXVII.10: 'a crystal sphere placed opposite the rays of the sun'. N.A. Lyubimov, History of Physics, part 1, St. Petersburg, 1892, p. 242: 'It has been known from ancient times that round glass vessels or glass spheres can produce flame by concentrating the rays of the sun'. Lyubimov does not say where he got his information from.

## VI. There are innumerable worlds subject to destruction.

344

<sup>1</sup>'return (to the previous condition)': cf. Ar. GC 337a6, 11: 'we say that there has been a cycle of generation, in that things have returned to the previous condition'; see Bonitz, Index, p. 46.

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<sup>1</sup>See comm. on no. 1, n. 3 and no. 352.

346

<sup>1</sup>See also Philo, On the creation of the world [De opific. mundi] 171 (I., p. 60, 4 C.-R.: 'some say that there are several worlds, and some even that there are infinitely many'.

349

<sup>1</sup>'differing in size': but not in shape, since all worlds are spherical, as Democritus proved (see comm. on no. 385). Epicurus argues against this; see n. 2 on this passage.

<sup>2</sup>Democritus' 'statistically' based conclusion that there exist worlds in which there is no life was disputed by Epicurus, who also objected to Democritus' contention that all worlds must be spherical (Epist. I.74): 'Further, one does not have to think that all worlds have the same shape'. (Scholium: 'But he himself says in Book 12 of On Nature that they have different shapes. For some are spherical, others ovoid and others of other shapes. But yet they do not have every shape. For no-one could show that <in> (suppl. Gassendi) this shape and <in no other> (suppl. Luria) are included seeds from which animals and plants and all the other things we observe are composed, but they could not have been in that [shape]'.) If not all worlds are spherical then on the strength of Democritus' principle (see no. 1) they must have all possible shapes; and Epicurus objects to that conclusion.

352

<sup>1</sup>Zeller (Phil. d. Gr. I, p. 311) understood the words periagōgē and peristasis ['cycle'] as 'world recurrence', i.e. he gave these words a temporal sense; worlds come to be and decay in succession, and that is the sense in which one speaks of great numbers of worlds. Diels [no ref. given] agreed with Zeller on this point, and accordingly supposed that with the words 'innumerable worlds' there must be supplied 'come to be and decay'. But Burnet (Early Greek Philosophy, 4<sup>th</sup> ed., London, 1920, pp. 58ff.) correctly pointed out that as in Anaximander so in Democritus the word periagōgē must be understood spatially (kata pasan periagōgēn = 'in all directions') and consequently that the passage is about infinitely many worlds existing simultaneously. See also Alfieri, op. cit., p. 26, n. 103; Mondolfo, L'infinito nel pensiero dei Greci, part IV, ch. 3, Florence, 1934.

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<sup>1</sup>Epicurus taught that the number of worlds was extremely large, but not infinite, and that not all worlds were spherical, but they had different shapes. See no. 349 with comm., n. 2.

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<sup>1</sup>The same story is told by Pluarch (De tranq. an. 466d), but Democritus is not mentioned: 'Alexander wept on hearing Anaxarchus speak about the infinite number of worlds, and

when his friends asked what was the matter he said “Ought I not to weep if there are infinitely many worlds and I have not yet become master of one?””.

VII. Whether there are weight and top and bottom even outside worlds.

361

<sup>1</sup>As Simplicius correctly observes, Aristotle is here referring primarily to Plato’s Timaeus, to which the words ‘since it [the world] is everywhere alike’ refer [63a2], but at the same time he is also criticising Democritus [in the words ‘in the world’ (en ouranōi)]; see no. 346.

<sup>2</sup>Epicurus held that the universe was infinite; hence he could not from his point of view admit the existence of a highest or lowest point in the universe. But he was not willing to accept the view (that of Democritus!) that the directions up and down do not exist at all in the universe. From the passages cited under nos. 295 and 297 we have seen that for Democritus the original motion occurred by chance, and was disorderly, having all possible directions. Cf. Plut. Col. 1111b: ‘Democritus should be accused not of admitting to what follows from his principles but of adopting principles from which those things follow ... but the most shameless thing is to see the absurdity and deny it, as (Colotes says) Epicurus laid down the same principles, but did not say ‘colour by convention’ etc. ... (Epicurus) does what he usually does ... he says that he posits an infinite universe but does not eliminate ‘up’ and ‘down’ (sc. as Democritus does).

362

<sup>1</sup>So according to Democritus ‘weight’ was a quality which inheres only in atoms and their compounds; consequently the partless things had no ‘weight’.

<sup>2</sup>‘the four points’: we may suppose that the tetrahedron was held to be the smallest body (and therefore the smallest atom as well).

<sup>3</sup>‘concerning motion’: since to Aristotle it seems self-evident that weight (or ‘lightness’) is the cause of all motion, the questions ‘where does motion come from?’ and ‘where does weight come from?’ are for him synonymous.

<sup>4</sup>‘On the Heaven’: in De caelo III, specifically in the passage just cited (299a25ff.). We see from this passage that the part of the De caelo indicated deals with the Democriteans along with the Platonists and Pythagoreans.

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<sup>1</sup>The meaning of this is as follows: Theophrastus finds it illogical that Democritus regards only weight and solidity as objective properties of bodies, and all others as subjective. This charge is unjustified, since, first, it is perfectly in order for theorists to reduce numerous subjective properties to a few objective ones, and secondly, for Democritus there are no

purely subjective properties, since in the actual world, the world of atoms, to every property there corresponds some objective substrate or other.

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<sup>1</sup>peripalassesthai ['oscillate']: see critical apparatus to no. 292.<sup>174</sup>

365

<sup>1</sup>This testimony of Aetius is in stark contradiction with the two preceding passages, and barely deserves consideration. Most probably we have here a confusion of partless things, which have no weight, with atoms, which have weight. On the other hand Epicurus, as we know, was the first to introduce weight as the cause of downward motion. Democritus rejected the existence of a downward tendency in the universe external to worlds.

<sup>2</sup>The passages of Cicero cited here and in nos. 38 and 301 permit us to reject without any hesitation the mistaken contention of Zeller (Ph. d. Gr. I, pp. 1084ff.) that Democritus regarded only the vertical downward motion of bodies as their original motion. Zeller drew this conclusion from a single passage of Lucretius (II.225-9), in which he saw, totally arbitrarily, a criticism specifically of Democritus:

But if anyone thinks that heavier bodies can fall straight down through the void faster than lighter ones, and that that is how collisions occur, giving rise to generative movements, he has stayed far from the truth.

But Cicero says perfectly clearly that the theory of the vertical movement of all bodies is in fact a totally mistaken invention of Epicurus', who was anxious 'not to diverge far from sensations', whereas he took his other mistaken conclusions over from Democritus (De fato 20.46): 'they [the atoms] had as their motive force ... from you, Epicurus, the force of heaviness and weight'; De fin. I.5.18: 'but that fault is common [to the atomists in general], but these catastrophies are peculiar to Epicurus: for he thinks that ... indivisible ... bodies move ... downwards ... in a straight line'; De fato 10.22: 'the indivisible bodies travel vertically in straight lines, as Epicurus thinks'. There is direct evidence that for Democritus the original motion proceeded not downward, but in all directions; see comm. on nos. 304 and 314, n. 1.

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<sup>1</sup>If Democritus had actually said that the earth would fall downwards in the absence of air [underneath it], that would have meant that Democritus accepted the existence of 'up' and 'down' in the universe, since in the cosmos the earth cannot fall downwards, since it occupies precisely the lowest place, the centre of the cosmos. But from what has been said above it is clear that we have here a mistake by Philoponus; it is possible that he confused

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<sup>174</sup> [See translator's note on no. 313.]

the original motion of the atoms of earth, preceding the formation of the cosmos, with downward motion (see comm. on no. 370). Similarly it is clear from Ar. Phys. 214b18 that those who accepted the existence of void (i.e. the atomists) were not willing to recognise any 'up' or 'down', otherwise there would have been no sense in Aristotle's question 'If a body is put into the void, where will it go? It will not go into the whole [of the void]'. In fact, according to Democritus' principle of isonomia ('no more this than that') a body in such a situation has to move in all directions at once. Similarly in other passages of Aristotle; Phys. 215a22: 'but in a void this [i.e. the property of yielding to force] is the same everywhere, so that it will move everywhere'. Cf. De caelo 295a21ff. (see comm. on no. 304, n. 7).

### c. THE MECHANICAL OPERATION OF THE WORLD

#### I. Everything tends towards the centre of the swirl

##### Heaviness

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<sup>1</sup>biai ['by force'] means in Aristotle 'contrary to nature'

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<sup>1</sup>This expression is understood differently by different commentators. Joachim (ed. and comm. on Ar. GC, Oxford, 1922, p. 165) translates 'according to the excess' as 'according to the quantity of mass' (more precisely 'according to the surplus of mass'), and understands this as follows, that 'Democritus ascribed to the atoms not only weight, but also different gradations of weight'. As Cherniss points out (op. cit., p. 97, nn. 412-13) such a translation is impossible in view of the general connections of Aristotle's exposition. 'Heavier' (cf. 'the lighter' in De caelo 309b5-8) means 'relatively heavy', in opposition to the expression 'heavy' ('heavy in the absolute sense'), to which is opposed the concept, absent in Aristotle, of 'light'; 'according to excess' is an abbreviated form of the expression 'according to excess and deficiency', meaning in Aristotle the comparison of two magnitudes in respect of amount.

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<sup>2</sup>'they must add': on the basis of what we know it is completely impossible to admit that Democritus made weight depend only on the quantity of void, but not on the quantity of

matter. I am therefore convinced that here Aristotle is in fact arguing not against Democritus' theory, but only against his imprecise formulation.

<sup>3</sup>See n. 2 here.

<sup>4</sup>'unless' here means 'this objection is correct only in this case, if...'. Cf. Ar. GC 325b7 'unless'. See also Quell. u. Stud. z. Gesch. d. Math. II.2, 1937, p. 137; 'On the recently discovered Locrian law', (Comptes-rendus de l'Academie des Sciences de l'URSS, 1927, p. 217; 'A conditional clause with no connection with what immediately precedes it. It has no final clause' (Wilamowitz, Sitzungsb. d. Berl Acad., 1927, p. 141).

<sup>5</sup>'if matter is a contrary': since the subject has so far been 'a single matter', the word 'contrary' can here mean only 'one of a pair of contraries'. Alfieri [no ref. given] translates 'if matter is a contrary'.

<sup>6</sup>'the things in between': I do not fully understand this remark of Aristotle's; Simplicius tries to explain it somehow.

<sup>7</sup>'many small things are heavier than a few large things': it seems to Aristotle that the more air something contains the lighter (not heavier) it will be, since it tends upwards.

<sup>8</sup>It is clear from Democritus' own words reported by Seneca (no. 371) that it would be entirely arbitrary to refuse to ascribe to Democritus the doctrine reported here.

<sup>9</sup>See comm. on no. 369, n. 5.

<sup>10</sup>Diels remarks [no ref. given] that ho prolambanön means simply 'the one in front': 'ho prolambanön simply = 'the one in front' in an inscription from the time of Augustus, Athen. Mitt. 24, 1899, 289, v. 37'.

<sup>11</sup>So in Them. In De caelo 214.9.

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<sup>1</sup>'weight, proportional to size'.

<sup>2</sup>tēn phusin is here the subject and echein ['have'] the predicate (tēn phusin is not the accusative of respect, as Alfieri supposes, translating 'by nature', p. 149). I do not understand the question-mark which Diels attaches to this word [DK II, p. 117, l. 17], or his reference [l. 17 n.] to sect. 68 [II, p. 119, l. 7]. There the word has its ordinary meaning 'nature', which does not fit here; here phusis means 'atoms'; cf. no. 196a: 'the ... primary and indivisible bodies, for those they called 'nature' (phusin)'. Similarly the conjectures of Preller and Usener [no refs. given] are entirely superfluous; the former replaces phusin by krisin ['judgement'], the latter by diaphoran ['difference'].



<sup>3</sup>the one which contains more void is lighter': Alfieri op. cit., p. 93, n. 205 has no right to draw from this the conclusion that for Democritus 'weight ... is inversely proportional to the amount of void contained in a body' (!).

<sup>4</sup>position [of the atoms] and inclusion [of void]': this is the subject.

<sup>5</sup>hormē tēs phoras ['motive impulse'] or, as Democritus himself called it, sous ['rush': Ar. De caelo 313b5, DK 68 A 62], was translated 'impetus' in the time of Galileo. From that concept the concept of acceleration later developed. And here, of course, there is understood 'if the body is divided into its separate atoms'. Alfieri's comment (op. cit., p. 154, n. 390) 'But here with his doctrine of a tendency toward downward motion Theophrastus is expressing the Aristotelian view, not that of the atomists' is totally arbitrary and wrong. Alfieri confuses motion in the 'great void', 'original motion', with motion in the cosmos, which is always in the direction of the centre. Cf. ropē ['weight'] (n. 368, Simpl. In GC 693.13[?])

<sup>6</sup>hōste is a pregnant expression: 'so that they', i.e. 'for it is only in that case that they can', etc.

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<sup>1</sup>One may refer to another passage of Aristotle, De caelo 295a32ff., which is apparently directed against Democritus. Aristotle very naively supposes that the swirl has not continued up to the present, or, if it is still going on, in any event it is remote from the earth, since we do not see it. So in Aristotle's view the laws of the swirl are inapplicable to the phenomena which occur on earth: 'and it is also absurd not to agree that previously the parts of the earth were carried by the swirl towards the centre. But now what is the cause of heavy things being carried towards it [the earth]? For the swirl does not come near us.' Cf. Simpl. ad loc., 530.21, 531.4: 'for even if the swirl still exists, it does not come near us. But the cause of heavy things being still carried towards the centre is the same as the cause of the earth being carried there then, if its motion had a beginning'.

<sup>2</sup>Although Simplicius names only Empedocles and Anaxagoras among the authors of the theory contained in this passage I have no doubt that Democritus maintained it as well. The reasons for this are as follows: 1. Expressions such as 'all investigators of nature', 'all those who generate the heaven (the cosmos)' (cf. 'not only Empedocles, but also Anaxagoras and his followers and others') would be impossible unless Democritus were also assumed to be among those theorists. 2. We see from no. 368 that all bodies have weight and tend towards the centre of the cosmos. The passages collected under no. 370 have the aim of showing how the heavier bodies (and, in particular, earth) have come together at the centre. 3. The doctrine of the swirl (dinē, or in Abderite dialect dinos) is especially typical of Democritus. 4. The second part of the theory, that once the earth has reached the centre it stays there because of the swirl, is attested as the theory of Democritus: Philop. In Phys. 262.3 (no. 366): 'Democritus ... says ... that ... the air ... does not allow it (the earth) to fall';

Simpl. In De caelo 375.25 [no. 378]: ‘because of the swift ... swirling ... the position of the earth remains in the centre, as Empedocles seems to say ... and Democritus’. It must therefore be supposed that in this as in many other cases, Democritus adhered to the system set out by his predecessors, especially Empedocles and Anaxagoras.

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<sup>1</sup>I do not understand why, despite the words ‘Democritus says’ Diels assigned this passage not to section B (passages of Democritus) but to section A (testimonia about Democritus). The expression ‘[the atoms give way]as if to people going [i.e. pushing] through a crowd’, which occurs in precisely the same words in both Themistius and Simplicius, [in the passages cited here] shows that this whole image belongs to Democritus. So, when we read in Aristotle [De caelo 279a10-11] ‘they are squeezed together and give way to one another till they reach the centre’, and this is ‘the way some of the investigators of nature say’, there can be no doubt that it is Democritus who is referred to here.

<sup>2</sup> See also no. 377 with comm.

<sup>3</sup>they assign the downward motion to constraint’: see comm. on no. 304, and cf. no. 370, Simpl. In De caelo 530.29: ‘those ... who generate the cosmos ... say that the earth remains subsequently in the centre on account of constraint’.

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<sup>1</sup>Alfonso, On squaring the circle, fol. 98b II.4-6: [Hebrew text follows; for translation see no. 374. I am indebted to Prof. J.F.A. Sawyer for the translation of the Hebrew.] On Alfonso see Luria, 1. The theory of infinitesimals in the ancient atomists, pp. 19-20, 56, 150-2, 168, 185-6; 2. Die Infinitesimaltheorie der antiken Atomisten, pp. 128, 141, 148.

II. The motion of a body depends on its shape and also on the matter of the medium in which the body moves. Friction.

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<sup>1</sup>Instead of a commentary it is sufficient to present Galileo’s famous criticism of this passage (Le opere IV, pp. 129ff.). Virtually nothing needs to be added to Galileo’s words: (129) ‘He goes on to confute Democritus ... by saying that that should occur much more in air ... (130) It seems to me that there is reason to suspect that that he [Aristotle] is wrong on more than one point ... On the contrary, things can chance to move more violently through water than through air ... The other reason is that he [Aristotle] (131) believed that just as there is a positive, intrinsic quality through which elementary bodies have a tendency to move towards the centre of the earth, there is similarly another, also intrinsic, through which some of these bodies have an impulse to move away from the centre and go upwards, and in virtue of that intrinsic principle, which he calls lightness, things which move in that way pass through rarer media more readily than through thicker. So Aristotle’s objection to

Democritus ... is not a good one: rather, precisely the opposite should occur, since they rise more slowly through the air; and, besides moving slowly, they do not join together, as in water, but separate and, as we say, get scattered, and therefore, as Democritus pertinently says in refuting the objection, they do not produce a unified impact by knocking against things. So the conclusion is that in this respect Democritus has reasoned better than Aristotle... (132) If we take a vessel ... full of cold water, into which is placed a flat or concave solid, whose weight exceeds that of the water by so little that it sinks slowly to the bottom, I say that if we put some lighted coals under the vessel, as soon as the new particles of fire penetrate the material of the vessel and rise through that of the water, certainly when they collide with the solid mentioned above they will push it up to the surface and hold it there as long as those particles continue to flow in. And when they cease to do so, once the fire is removed, the solid will go back to the bottom, abandoned by its supports.

But going back to Aristotle, it seems to me that he opposes Democritus somewhat more sluggishly than Democritus himself, according to Aristotle, opposes the objection which he [Democritus] brings against himself, and that opposing him by saying that, if it is rising hot particles which lift up thin flakes, a solid of that kind ought to be much more held and lifted up in the air, shows that in Aristotle the desire to refute Democritus is superior to the refinement of sound reasoning ... a desire which is revealed on other occasions ... (133) In my opinion, Democritus' doctrine is not refuted by an objection of this kind; indeed, if I am not mistaken, Aristotle's strategy is either inconclusive or, if it is conclusive, can just as well be turned against him.' [I am grateful to Dr. V. Lucchesi for help with the construal of the passage of Galileo.]

<sup>2</sup>'for there are seeds of everything in everything': see above no. 143 with comm.

<sup>3</sup>'those [who ascribe to atoms of fire the shape of the] pyramid' are the Platonists, 'those [who ascribe the shape of the] sphere' are the atomists.

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<sup>1</sup>The citation of Democritus along with other authorities is repeated in Simplicius' commentary (319.1); nevertheless I am convinced that we have here either a misunderstanding or an early insertion into Aristotle's treatise. In fact Simplicius, Philoponus [both in] (no. 378) and Aetius (no. 379) put into Democritus' mouth other explanations of the stability of the earth, which agree perfectly with each other but flatly contradict the one given here. Simplicius, however, directly contradicts them in 319.5. Secondly, the theory set out here makes sense only if the diameter of the earth is virtually equal to that of the heavenly sphere, so that between them there is left only a narrow slit, in consequence of which the air situated below the earth remains as if shut in. Aristotle too emphasises this, *De caelo* 294b24: [cited here] 'It is not the flatness[of the earth] which is the cause of its stability ... but its size ... since it is because the narrow space [surrounding

the earth] affords no outlet that the air is cut off'<sup>175</sup>. See also Simpl. ad loc., 520.28 [also cited here]: 'the earth does not allow the air to go up'; Themist. ad loc., 128.10: 'They drew the conclusion that enclosed air can sustain a great weight from air enclosed in skins'. But we know that Democritus held that the earth is very small in comparison with the sphere of the firmament; the interval between earth and heaven was not in his view a chink, but was so broad that within it the sun, the moon and all the constellations moved at different distances from the heaven ; hence for Democritus there was no question of enclosed air. We should also notice that Simplicius was apparently doubtful about Aristotle's assertion [520.8]: 'that is what ... Anaxagoras and Democritus appear to have said'. Alfieri, op. cit., p. 120, n. 313 correctly remarks about this passage: 'Perhaps Aristotle, in speaking of ... 'Anaxagoras and Democritus' meant to ascribe this doctrine to Anaxagoras only, and wished merely to indicate some treatise of Democritus' in which he discussed and criticised Anaxagoras' doctrine'.

<sup>2</sup>Cf. Ar. De caelo 295a14ff.: 'They seek for the cause of the earth's stability, and some say ... that its breadth and size are the cause, and others say as Empedocles does [that the cause is the circular motion of the heavens]'. Similarly Plato (Phaedo 99b) opposes another theory to the one set out in no. 378, which undoubtedly belongs to Democritus: 'One puts a swirl round the earth (a characteristic expression of Democritus'!), while another puts the air underneath like a base under a broad lid'.

<sup>3</sup>Diels [DK I, p. 94, l. 27 n.] compares the words of Simplicius In De caelo 524.12: 'the air not having sufficient space into which to move'.

<sup>4</sup>'packed together': for the explanation of this expression Ross [no ref. given] cites another passage of Aristotle, Progression of animals [De animal. incessu]705a4: 'some move with their whole body at once'.

<sup>5</sup>'evidence': cf. the passage of Themistius cited in n. 1 above.

<sup>6</sup>Aristotle (see no. 314) took it as obvious that the speed of bodies is inversely proportional to the density of the medium [through which they move]. Hence in a void the speed of movement of bodies must be infinite; consequently, in a void all bodies either do not move at all or move at the same, infinite, speed, which is absurd. Consequently, no void exists. Simplicius objects to this conclusion: that would be true only if bodies did not have from the very beginning a determinate 'impetus'; see no. 314 'if ... their impetus is not the cause of the movement of bodies in the void, bodies would not move in the void in the beginning', since the medium cannot produce movements from itself and is not a cause of movement. ['since ... movement' is not part of Simplicius' text, but is Luria's gloss.] Hence in his view speed cannot be inversely proportional to the density of the medium, and it is not true that,

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<sup>175</sup> [L's citation of Aristotle's text here is not exact, substituting ho aēr apolambomenos ['the air being cut off'] for Aristotle's ho aēr menei dia to plēthos ['the great volume of air remains in place']. The latter is printed in L's text no. 376.

along with that density, 'shape' itself 'causes diversity of motion, depending on whether the body either divides or does not divide the medium', as Alexander thinks [cited by Simplicius in no. 314], following Aristotle. The medium is capable only of holding up to some extent motion which already exists independently of the medium, and thus of altering its speed (Simpl. ad loc. 680.7): 'and in general it is rather the impetus which is the cause of the division [of the medium], not the division which is the cause of the impetus, even if in some places it hinders the bodies and in other places does not'. Simplicius presents this objection to Aristotle's theory as something which the atomists might say in order that their theory should not appear inconsistent: mēpote de touto to atopon autois akolouthēsei, ei legoien ... 'this absurd conclusion would not be one they had to accept, if they were to say ...' [no. 314]. It can hardly be doubted that Simplicius (or, more precisely, his source) correctly understood the atomists' train of thought.<sup>176</sup>

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<sup>1</sup>'and they make way for the moving thing': the same metaphor, more colourfully expressed, occurs in the passages collected in no. 371: Themist. In Phys. 135.15: 'when something moves in space, the bodies through which they move cluster together and make way for the moving bodies as if they were people going through a crowd'; Simpl. ad loc., 683.6: 'and local motion they say occurs when bodies are compressed and cluster together and make way for those which are passing through them'.

### III. Motion caused by rotation

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<sup>1</sup>According to Aristotle, all 'forcible motion' must stop sooner or later; for Democritus, all motion continues eternally, so long as nothing interferes with it (cf. comm. on no. 304, n. 6): 'why will a moving thing stop anywhere? For why will it stop here rather than there? So ...

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<sup>176</sup> [In the Addenda & Corrigenda, pp. 618-9, the editors propose an alternative interpretation of Simplicius' point.. 'It is more correct to understand Simplicius' words as an objection to the atomists' supposed argument: mēpote akolouthēsei = 'will perhaps remain in force'. But the meaning of Simplicius' comment will be clearer if we suppose that a negative has been lost from the manuscript tradition and read mēpote ... <ouk> akolouthēsei: '(Alexander's objection) perhaps loses its force'. Given the text as it stands the editors' correction is clearly right; in the passage cited [no. 314, ad fin.] Simplicius points out that the absurd consequence, viz. that if the atoms move at the same speed they can never collide and hence never form atomic aggregates, holds only if all atoms are always in motion, since if some are stationary and others in motion collisions can occur.

Quite apart from the above, this note appears to be misplaced. The text to which it purports to refer, Simpl. In De caelo 520.28, does not mention the problem about the speed of the atoms through the void which is the subject of the note, but the totally different question of the stability of the earth. Simplicius reports first the theory, which he attributes to Anaximenes, Anaxagoras and Democritus, that the earth is supported by the air beneath it, which it presses down like a lid, and then the theory of Anaximander and Plato that the cause of its stability is its equilibrium in the centre of the homogeneous universe. The citations of no. 314 in the course of this note suggest that perhaps it was intended to be part of the commentary on that passage, which has somehow been displaced.]

it must travel on to infinity, unless something of greater force prevents it?' [Ar. Phys. 215a19-22 (no. 5)]. Hence Empedocles' view, which he shared with Democritus, is foreign to Aristotle; according to it all rotary motion must continue eternally, so long as it is quick enough to overcome the force of weight (neither Empedocles nor Democritus knew anything about the parallelogram of velocities or the composition of simultaneously active forces: one force must inevitably overcome and eliminate the other).

<sup>2</sup>menei ... stasis: ['remains stationary']: cf. Simpl. In De caelo 530.29 no. 370): 'those ...who say that the cosmos came into being ... say that the earth remains in the centre as a result of force'. Cf. Ar. De caelo 295a14ff.: 'they seek the cause of the stability of the earth and say ... like Empedocles, that the circular motion of the heaven, being quicker, prevents the earth from moving, like water in a ladle; for when the ladle is whirled round the water is frequently underneath the ladle but does not fall down, though that is its natural motion, through the same cause'. The circular motion of the vortex overcomes the original motion of the particles of earth (for Empedocles these particles move downwards, for Democritus in all different directions): hence the earth remains motionless. The same theory is set out in Plato Phaedo 99b: 'one places a swirl round the earth and makes the earth stay still because of [the movement of] the heaven'. Cf. comm. on no. 376.

<sup>3</sup>'fall downwards': see no. 366

#### IV. Why things lying in the centre of a swirl are stationary

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<sup>1</sup>Since the principle of isonomia ('no more this way than that') is especially characteristic of Democritus, I consider that the commonly expressed doubt of the reliability of this testimony of Aetius' is groundless. Here there is no contradiction with no. 378; we have simply the explanation of why a body lying in the centre of a swirl must stay there for ever. No. 378 explains where the original 'impetus towards movement' has disappeared to. The passage of Plato just cited, Phaedo 99b, if my interpretation is correct, seems also to indicate that Democritus combined both these explanations: 'putting a swirl round the earth (first stage), he (after the swirl has dragged the earth into the centre) makes the heaven hold the earth motionless' ('stay still because of the [movement of the] heaven' in Plato = 'stay still because of its uniformity with respect to the heaven' in Aristotle<sup>177</sup>). Plato probably considered the explanation given in no. 378 unnecessary, whereas the explanation given in no. 379 impressed him, in opposition to Aristotle, with its logicity and simplicity, and he included it in his own system. See Phil. 108e-109a: 'if it [the earth] is round and is in the middle of the heaven (the Pythagorean hypothesis!) it does not need either air (see no. 378,

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<sup>177</sup> [L gives no ref. to Aristotle, but is presumably citing De caelo 295b10, which does not, however, contain the phrase tēn pros ton ouranon ['with respect to the heaven'].

Philop. : ‘the air does not allow it to fall downwards’) or any other necessity (also an attack on Democritus!) of any kind to stop it falling, but it suffices that it is held by the homogeneity of the heaven itself in every direction and the equilibrium of the earth itself; for when something equally balanced is placed at the centre of something similar it will not incline more or less in any one direction than in any other, but being alike it will remain uninclined’. This abstract character of the proof must have impressed idealist philosophers: it is not surprising that Parmenides took this proof over from Anaximander and that from Democritus it was taken over by ‘the so-called Pythagoreans’ and Plato.

As far as we can judge from the surviving fragments of books II and XI of Epicurus’ On nature (Rosini and Orelli, Epicuri fragmenta librorum II et XI De natura, Leipzig, 1818; Gomperz, Zeitschr. f.d. österreich. Gymn., 1867, pp. 208-9), Epicurus, following his principle ‘[things should be explained] in as many ways as each of them can come about’, accepted the possibility of different explanations of the stability of the earth (with the explanation contained in no. 376 cf. Ep. On nature XI, col. IX O Gomperz: ‘the supports beneath the earth’; XIV, col. IV O: ‘the support of the air’). But he probably preferred Democritus’ complicated explanation (nos. 378+379) to the Pythagorean-Platonic explanation of symmetry alone. He acknowledged that the earth ‘being equidistant on all sides cannot fall anywhere’ (Rosini and Orelli, op. cit. II, col. II). At the same time, taking everything into account, he regarded as insufficiently profound ‘such an explanation, that this one thing alone (i.e. ‘that the earth is situated at the centre’) is the cause of its immobility, without explanation of what determines that, since this symmetrical situation is due to a covering of air, uniform on all sides’ (On nature XIII, col. III O Gomperz). Alfieri too acknowledges (op. cit., p. 122, n. 307) that Aetius’ testimony is reliable: ‘the reason for the immobility of the earth is clearly explained in the testimony of Aetius III.15.7’. Alfieri includes this passage, omitted by Diels, in his collection of testimonia on Democritus, unfortunately in a very inappropriate place.

V. The movements of bodies are interconnected (the likeness to a lever is apparent in their movements)

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<sup>1</sup>It is of course perfectly possible that the expression mochleia (‘a system of levers’) is here merely a colourful comparison, and that the passage of Simplicius has nothing to do with the law of the lever. But in connection with the passages of Aristotle and Lucretius cited here I think it very likely that L. Löwenheim, Die Wissenschaft Demokrits u. ihr Einfluss auf die moderne Wissenschaft, Berlin, 1914, p. 75, is right to see a reference here to the same ‘lever-like’ connection. Cf. Ar. De caelo 291a29ff.: ‘Regarding their [the heavenly bodies]’

order ... and their distances from one another, these are questions for astronomy, for they are dealt with sufficiently there. But it happens that the motions of each are proportional to their distances, in that some are faster and others slower. For since it has been postulated that the outermost circumference of the heavens is simple and the fastest, and that the others are more numerous and slower (for each of them moves contrary to the heaven in its own revolution), it is reasonable that the one nearest to the first simple revolution completes its own revolution in the longest time and the furthest in the shortest, and of the others whichever is nearer [to the outer circumference] takes more time and whichever is further takes less. For the nearest is most under control and the furthest of all least because of its distance, and those in between are proportional to their distance, as the mathematicians demonstrate'. We find a mystical-idealistic variation on this theory in Pl. Tim. 38e: 'so when each (star) arrived at the motion suitable to it ... they came into being as living creatures, bodies bound with ties of soul, and they learned their instructions ... some moving in larger circles, others in smaller, the latter more quickly, the former more slowly'. Here 'like a system of levers' is transformed into an actual system of levers with joints, and in contradiction with Democritus' doctrine the stars are transformed into living beings. See Achill. Isag. 1.13: 'neither Anaxagoras nor Democritus ... thinks that the stars are alive'.

#### d. THE ORIGIN OF THE COSMOS

##### I. General

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<sup>1</sup>'without disturbing their equilibrium' (by their impact on one another).

<sup>2</sup>'remain together': cf. comm. on no. 295.

<sup>3</sup>'a membrane': see no. 386 with comm.

<sup>4</sup>'through the inclination': see nos. 419-20.

<sup>5</sup>Reinhardt (Hermes 47, 1912, pp. 492ff.) has shown that the cosmology, anthropology and history of culture contained in Diodorus I.7 goes back via Hecataeus of Abdera to Democritus. Hence I follow Diels in including that passage in my collection. But in this connection it is self-evidently impossible to attribute every detail in that report to Democritus: so, for instance, Diodorus speaks of a single cosmos, not many. Similarly the expression 'things of that kind rise to the top because of their lightness' is at best an adjustment of Democritus' theory to fit popular views. I have therefore considered it necessary to place the note 'cf.' at the beginning of this passage.

<sup>6</sup>This representation of the cosmological process by analogy with the churning of butter is thoroughly typical of Democritus' anthropomorphic thought.

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<sup>1</sup>As Diels has shown, this passage of the Placita ascribed to Plutarch (and also Plac. I.7.1-4: 'What is god?') cannot in virtue of its content originate with Aetius: here specifically atomistic-Epicurean views are set out without the name of their author, as something understood and generally accepted in their own right. There can be no doubt that the author of both passages was an Epicurean. But, apart from a few details, the cosmology set out here is not Epicurean; as Diels rightly saw, it belongs to Democritus (cf. Rohde, Kl. Schr. I. p. 200): for Epicurus, what was important for his materialistic ethics was not details but his mechanical principle; in a significant majority of cases he proceeded by way of agnosticism, holding all hypotheses in the field of cosmology equally correct and uniformly true, provided only that they did not violate the materialistic-mechanical principle. He directly opposed Democritus, who included only one of these possibilities in his cosmological system. See Epicur. Epist. II.88ff.: 'A cosmos is a portion of the universe containing stars and the earth and everything observed, separated off from the infinite and terminating in a boundary which is either moving or stationary, and round or triangular or of any other shape. (89) And one may suppose that there are infinitely many cosmoi of this kind, and that a cosmos of this kind can come into being inside a cosmos or in an 'inter-cosmos', which is the name we give to an interval between cosmoi in a large space with a lot of void, not, as some say, in a large and totally empty space. Suitable seeds flow from a single cosmos or inter-cosmos or from several and form a cosmos in another place by gradual aggregations and separations and changes of place ... (92) it is not impossible that their motions (i.e. those of the sun, moon and other stars) come about through the rotation of the whole heaven, or that while it is stationary, their rotation comes about from their original necessary impulse generated in the east at the time of the formation of the cosmos' (cf. no. 291).

The theory of triangular worlds mentioned here belonged, as Diels pointed out (DK 16, vol.1, p. 106) to the Pythagorean Petron. But in Plutarch there are also features which are totally foreign to Democritus. Here the separation of light atoms from heavy is not the result of circular motion but a precondition of it; the swirl as the first cause of all cosmic processes is absent here; cf. Epicur. no. 291 [= Epist. II.90]: 'it is not the case that merely an aggregation or a swirl has to come into being'. True, the very explanation of the process of rotation must, apparently, belong to Democritus (the motion of the atoms causes wind, and wind causes a swirl), but in Democritus this motion was caused, not by the separation of light from heavy (that is simply an effect of the swirl), but by chance collisions of atoms. Secondly, the theory of the formation of the stars belongs not to Democritus but to Epicurus; for Democritus the stars consist of 'earth' and enter our cosmos from outside; see DL IX.32 (nos. 382 and 395).

<sup>2</sup>'of the same nature', i.e. 'small, round, smooth and slippery'; this is an Epicurean view, not a Democritean one. See comm. on no. 397, n. 1.

<sup>3</sup>'exhalations from the stars' is something completely unprecedented. I think that it can be understood only in the sense of 'exhalations from the earth, caused by the stars'.

## II. Our cosmos is round

385

<sup>1</sup>We find an attack on this assertion in Epicurus (no. 382): 'a cosmos is a region of the heaven separated ... by a boundary ... and round or triangular or of any other shape'.

## III. The origin of the heavens

386

<sup>1</sup>See no. 382, DL IX.31: 'this separates off like a membrane'. 'a covering ... and membrane' are probably the words of Leucippus. On the word 'membrane' (humēn) cf. Hippocr. On the nature of the infant [De nat. inf.] 12 (VIII.488.13 ff. Littré); 'covering' (chitōn) cf. Hippocr. De carne 3 (IX.586.4ff. Littré); 'coverings of the walls' Hdt. VII.139 (DK II, p. 77, l. 3 n.).

388<sup>1</sup>We cannot draw from ps-Alexander's words the fully definite conclusion that according to his source the fixed stars move from west to east, whereas the planets move from east to west<sup>178</sup>, since this may have been his own example of something which Leucippus and Plato were obliged to explain.

389

<sup>1</sup>The passages set out here and in nos. 390-1 are not as contradictory as might appear at first sight. The fact that in some reports that planets are situated between the fixed stars and the sun and in others between the sun and the moon is connected with the fact that their orbits are not circles but extremely tangled lines; cf. no. 391: 'the planets are not themselves at the same height [above the earth]'.

<sup>2</sup>kata tēn auxēsin: 'because of the great increase of the atoms'.

390

<sup>1</sup>The separation of Venus from the list of the other planets is archaic and hence evidently represents Democritus' genuine theory. 'For Democritus three heavenly bodies, viz. the sun, Venus and the moon, were separated from the list of the other planets; this was connected with Babylonian religion: cf. e.g. a Babylonian boundary stone with three symbols, a crescent moon, the sun and Venus with eight rays' (Boll, s.v. Hebdomas, RE VII,

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<sup>178</sup> [The text of no. 388 requires 'the fixed stars move from east to west, the planets in the opposite direction', which is how L translates.]

col. 2526); similarly in a surviving Babylonian illustration there are represented from top to bottom the moon, the sun and Venus.

So it seems that this doctrine of Democritus' was taken from Babylon, either directly or via Parmenides (DL IX.23; An. Byz. II.15.4; Dox. 345). Only Diogenes' remark 'the circle of the sun is the outermost' is in direct contradiction with all the other passages. One can hardly accept Boll's eirenic explanation, according to which Democritus is here referring only to the planets, leaving the fixed stars totally out of consideration. As John the Lydian points out (On the months. II.6, p. 23.17): 'Zoroaster places the sun below the fixed stars, in contradiction to the Greeks' (Boll). Cf. W. Capelle, Hermes 60, 1925, pp. 387ff.; R. Eisler, AGPh 31, 1917, p. 53.

<sup>2</sup>Cf. Boll & Gundel, Sternglaube u. Sterndeutung, 4<sup>th</sup> edn. Leipzig & Berlin, 1931, p. 121: 'The Greeks, probably including Democritus, did not lose sight of the possibility that not only the planets familiar to us are in motion in the heavens, but others too, though so far we have managed to see only these planets'. Frank, op. cit., p. 202: 'Democritus is the first philosopher who appears to have seriously concerned himself with the problem of the planets (cf. the title of his work On the planets), but even he knows neither the number nor the names of the planets, 'since', as we learn explicitly from Seneca 'at that time the orbits of the five stars were not yet discovered'. I do not understand the comment of Kranz 'Not correctly interpreted by Frank' (DK III, p. 653.46).<sup>179</sup>

<sup>3</sup>'five stars' i.e. the planets [DK II, p. 106, l. 17 n.].

393

<sup>1</sup>'were drawn up': i.e. upwards from the earth. In so far as the reference is to Democritus it is inaccurate, since according to his doctrine the stars were formed from bodies which had not been carried up to their position from below, but drawn into our cosmos from outside. See nos. 360 and 395, and comm. on no. 397.

394

<sup>1</sup>After the lines cited here there follow these lines [V.637-43]:

'It can also happen that at a fixed time alternate streams of air flow back and forth from the opposite parts of the cosmos, so as to drive the sun from the stars of summer to the winter solstice and its icy cold, and hurl it back from the icy shadows of cold to the regions of summer and their blazing stars. And you must suppose that in the same way the moon and stars ...'.

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<sup>179</sup> [L's page ref. is to DK 5<sup>th</sup> edn. DK 6<sup>th</sup> edn., II, appendix, p. 423, lines 5-9 contains a note by Kranz on the Seneca passage (DK 68 A 92), which slightly expands the earlier comment: 'Frank has not paid attention to the connection of thought in the passage' ['den Zusammenhang der Stelle nicht beachtet hat']].

We read exactly the same thing in Democritus' pupil Metrodorus of Chios (Aet. III.7.3 = DK 7018): 'the etesian winds blow because the compacted air in the north flows along with the sun's retreat at the time of the summer solstice'. This theory goes back to Anaxagoras (DK 59 A 2, 9): 'the sun and moon make their turns when they are pushed by the air'. The coincidence of view between Metrodorus and Lucretius naturally prompted Frank (op. cit., p. 190) to suppose that they had a common source in Democritus: 'The summer and winter solstices were still explained by Anaxagoras and Democritus in a primitive, mechanistic way, by the force of the resistance which the sun encounters from the air which is increasingly compressed as the sun moves towards the north or the opposite south pole. This resistance finally forces the sun to turn back in the opposite direction until after half a year the same phenomenon occurs in its return in the opposite direction. Hence Democritus may have thought, along with the astronomers of his time, that every year shortly after the summer solstice on 28 June the northern, etesian winds were bound to blow, since the flow of air which once again drives the sun southwards comes from the north pole ('According to Democritus ... preliminary winds from the north for seven days' (no. 424.7: 28 June)). Vitruvius reports that in Democritus that calendar was based on the principles of his entire scientific system (see no. 424.1); (see also the passage of Metrodorus cited above; n. by Luria). Democritus also thought that in this way one could bring the winds and the weather generally into nomological dependence on the movement of the sun and the other heavenly bodies. In the calendar attached to his astronomical work Parapēgma ['calendar'] (see no. 424) he attempts on the basis of these principles to forecast the weather for almost every day of the year (Pfeiffer, Stoicheia II, pp. 84ff.)'.

Despite the fact that this theory is superficially very convincing, I cannot accept it, for the following reasons. In lines [V.] 614ff. Lucretius says that he will give several explanations of the solstices ('Also one may not propose merely a single explanation for the sun's [return] from its summer limits ...', 'One may not give [merely] a single explanation of these phenomena'.) He goes on (l. 621): 'First, one may think that all that proceeds as Democritus supposes', which is followed by the lines cited in our text (621-36). Finally, (ll. 637ff.) he sets out the theory of Anaxagoras as the last remaining possibility. So that theory is here opposed to that of Democritus, and it is therefore totally impossible to see Democritus' theory in it. Obviously, in this particular case Metrodorus was following not his teacher and regular guide, Democritus, but Anaxagoras. But without the testimony of Lucretius Frank's entire reconstruction collapses, since I cannot, much as I should like to, find anything in Democritus' calendar which would point to that theory. The fact that the 'etesian winds' which blow after the solstice are preliminary signs of some new winds or other (in the given case to the 'dog winds', i.e. south winds accompanied by great heat, see under 26 July!), is not more or less nearly connected with one or other definition of the solstices. Similarly it is hard to reconcile Aetius' remark (II.23.7 = no. 420) with Frank's theory.

<sup>2</sup>'signs': signs of the Zodiac.

<sup>3</sup>In other words, since the moon travels very slowly round its circular orbit, the signs of the Zodiac overtake it in succession more frequently than they overtake e.g. the sun, which travels faster than the moon. Hence we get the impression that that the moon moves faster than the sun in the opposite direction to that of the stars.

395

<sup>1</sup>kat'idian hupobolēn tina kosmou: Alfieri translates 'each in a special construction [of a world]'<sup>180</sup>, Makovelski by the word 'appendage': all that is arbitrary. The passage is not totally clear; I think that one must start from the use of the word hupobolē in the sense 'exposure of someone else's children or of illegitimate children', 'illegitimate birth' etc., and that by idia hupobolē one should understand an unsuccessful attempt to form a particular world.

<sup>2</sup>See C. Pascal, Studi critici sul poema di Lucrezio, Rome, 1903, p. 167.

396

<sup>1</sup>Epicur. Epist. II (DL X.90): 'the size of the sun and the other stars ... happens to be either bigger than it appears or a little smaller or the same; for that is how fires on earth are perceived when they are seen from a distance'.

397

<sup>1</sup>Here Diogenes Laertius is mistaken, since this is the view of Epicurus, not Democritus; for Democritus, the nature of the sun and moon is similar to that of the earth (no. 395), i.e. they consist, in his view, of 'earth', not of fire, as Epicurus later thought (Epist. II.90, after no. 395): 'but they (sun and moon and the other stars) were immediately formed and grew bigger through the accretions and swirls of fine-grained stuffs which were either breathy or fiery or both'. There is the same mistake in the Epicurean reworking of Democritus' cosmology in ps-Plutarch (no. 383): 'and the atoms which have the same nature (i.e. small and round and smooth and slippery) ... were pushed up and formed the stars'.

397a

<sup>1</sup>Originally the sun did not contain any fire at all. It got it from evaporations which had risen up from the earth (no. 395: 'fire was caught up in it'). The idea that the sun is nourished by evaporations from the earth was very widespread in the time of Democritus. See Aristoph. Clouds 1280-1, Ar. GC II. 7-8, 334b3ff., esp. 335a15 with comm. by Philoponus 280.15, Alex. In Meteor. 67.3, Hdt. III.16, Hippocr. De flat. 3.VI, p. 94 Littré, Anacreontea 21 Bergk. It is particularly curious that it is attested for the most immediate successors of Democritus, Antiphon (see DK 87 B 26 = Aet. II.20.15): '(the sun is) a fire which grazes on (= is nourished by) the moist air round the earth' and Hecataeus of Abdera (DK 79 B 9 = Aet. II.20.16): 'the

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<sup>180</sup> [So Taylor 1999, no. 75, p. 94.]

sun is something kindled from the sea'. See no. 821 on the general connections of this passage.

398

<sup>1</sup>'another': i.e. apart from the one on earth.

399

<sup>1</sup>'exactly opposite': Diels, [DK II, p. 105, l. 32 n.] (see Zeller, Ph. d. Gr. I, p. 1107; Eisler, AGPh 31, 1917, p. 53) sees here a translation of a Babylonian expression.

<sup>2</sup>'intercepts and receives into itself' like a mirror. Cf. scholia on Aratus, p. 545, 20 (no. 416): 'shining on to one another like mirrors'. So diaphainein means not 'be translucent', but 'be reflected'.

<sup>3</sup>'the moon receives a little of the fire [of the sun]': cf. Epicur. Epist. II (DL X.94): 'further it is possible that the moon gets its light from itself, and it is possible that it gets it from the sun: for here we observe many things which are their own sources of light, and many which get it from other things'.

400

<sup>1</sup>Cf. Epicur. Epist. II (DL X.95): 'the appearance of the face in it (the moon) may come about either by variation of parts or by interposition [of other bodies], or in as many ways as might be understood as consistent with the phenomena'.

#### IV. The earth

401

<sup>1</sup>See Rehm and Vogel, 'Exacte Wissenschaften' in Gerke and Norden, Einleitung in die Altertumswissenschaft, vol. 2, 4<sup>th</sup> edn., no. 5, Leipzig, 1933, p. 11: 'the possibility is not ruled out that the hypothesis of the sphericity of the earth was already known to Anaxagoras and Democritus, but they rejected it. In the myth in the Phaedo (108cff.) Plato regards it as familiar to his readers'. I do not know whether Rehm and Vogel had in mind the passage of Aristotle cited here or some other passage which has escaped my attention. In any event Themistius' comment obliges us to take the passage as referring to Anaximenes, Anaxagoras and Democritus. But in the time of Anaximenes (and I believe that of Anaxagoras too) scientific criticism of the theory of the sphericity of the earth had little credence, whereas in the time of Democritus it did not provoke any incredulity.

404

<sup>1</sup>This passage is totally mysterious. ocheisthai does not necessarily mean 'moves or floats in the air'; this word means simply 'hovers without any support', and can also apply to a body which stays in the same place. But how are we to understand 'swirling round the middle'? ocheisthai is in the present tense, hence it cannot refer to the original state described in no. 402. Most probably the reference is to rotation round the axis; since in that case the position of the entire earth remains unchanged, one may call such a state 'absence of motion'.

405

<sup>1</sup>'disc-shaped in width': i.e. the horizontal cross-section of the earth is a circle. It must be 'concave' in the sense of the symmetry of all co-ordinate directions in order to satisfy the condition of being 'equidistant in all directions' [see Aet. III.15.7 (no. 403)]. Consequently the earth must contain two depressions, one in which the inhabited part of the earth is situated, the other situated opposite it. See comm. on no. 419.

### c. GEOGRAPHY AND METEOROLOGY

#### I. Geography and Geology

407

<sup>1</sup>Here the reference is not to the whole earth, but only to its inhabited part, Eurasia and Africa. The same holds for Eustathius [cited here]. Hence, when we read in the scholia to the Iliad (VII.466) 'the earth is round and circular, but according to Democritus oblong', that is the result of a confusion.

409

<sup>1</sup>Since Democritus also believed that the universe is eternal, Aristotle thinks that he has caught him out in a logical error.

<sup>2</sup>Cf. Aesop 19 Halm: 'Once the story-teller Aesop happened to wander into a shipyard, and when the shipwrights made fun of him and challenged him to answer, he said "In the beginning Chaos and water came into being, and Zeus, wishing to show what the earth is made of, told it to remove the sea three times. And first it revealed the mountains, and in the second removal it exposed the plains. And if it wants to swallow up the water a third time, your craft will be useless"'. Cf. Aristoph. Clouds 1290: 'Do you think that the sea is larger now than it used to be?' 'No, by heavens, it's the same size; it's not right that it should get larger'. Cf. also Lucr. VI.607ff.

<sup>3</sup>This report is particularly important. Democritus came to the belief that the sea is drying up more and more from his own observation of places where the sea had changed to dry land, and previously wet places which had dried up. But all of that is, according to Olympiodorus' source, merely a consequence of the flood which had occurred at the time of

Deucalion. So Democritus observed something of that kind, which gave him ground for the supposition that in those places which had subsequently become dry, there had at one time been sea. It is not difficult to imagine of what sort those observations were, on the basis of the testimony of Xenophanes, whom Democritus, it seems, was following in this case. See Hippol. Refut. I.14 (DK 21 A 33, Dox. 565): 'Xenophanes thinks that the land became mixed with the sea and in time emerged from the water; he says that the evidence is such things as shells being found in the midst of the land and in mountains, and he says that in the quarries in Syracuse there have been found impressions of fish and seals, and in Paros an impression of a laurel in the depth of the rock, and in Malta traces of all kinds of sea creatures'. The theory of a flood, which Olympiodorus opposes to the doctrine of Democritus, had been proposed for the first time by none other than Xenophanes.

<sup>4</sup>prosechōs: 'in the closest proximity', 'in immediate connection' etc (in the locational sense).

410

<sup>1</sup>This papyrus, written in the reign of Ptolemy Philadelphus [282-46 BCE] has been supplemented by Diels. In supplementing the first column Diels used Alexander's commentary on Aristotle's Meteorologica (67.3ff.: [DKII, p. 106, ll. 10ff., n.]). The source for Alexander's report was Theophrastus: 'as Theophrastus reports'[Alex. 67.9]. In Alexander Diels found a number of expressions, scraps of which are preserved in the papyrus: 'some of them say that the sea is the residue of the primeval moisture ... evaporating ... and some say that the sea is like the sweat of the earth. And a third opinion ... throughout the earth ... a sign ... that salts and soda are buried in it'. These verbal agreements gave Diels every ground to suppose that this fragment contains an excerpt from Theophrastus' On Water (see DL V.45).

<sup>2</sup>'agree with those who say that it [i.e. salinity] comes from the earth': see Ar. Meteor. 353b13ff.: 'some say that the earth is the cause of the salinity. For just as liquid which has been filtered through ash is salty, so this is salty when earth of that kind has been mixed with it'. Alex. In Meteor. 67 (from Theophrastus): 'a third opinion about the sea is that water which has filtered through the earth and has soaked it becomes salty because the earth has those flavours in it, a sign of which is that salts and soda are buried in it, and there are sharp flavours in many places in the earth. Anaxagoras and Metrodorus were of that opinion'. Aet. III.16.5 = Hippol. Refut. I.14.4: 'Metrodorus says that the sea acquires some of the thickness of the earth from having filtered through it, like things which are sifted through ash'. Archelaus ap. D.L. II.17: 'the sea congeals in hollows when it filters through the earth'.

<sup>3</sup>So far no supplementation of the passage which is to any degree convincing has been proposed. Diels [DK II, p. 108, l. 14 n.] supposes that the general sense is clear from Ar. Meteor. 379b4: 'when the sea is separated out into small quantities it quickly putrifies'.



411

<sup>1</sup>'to Egypt': as is apparent from the parallels cited here, this is a clear mistake; one should expect 'to Ethiopia'.

412

<sup>1</sup>The explanation given here totally contradicts the preceding good evidence about Democritus. So one should suppose that the scholiast is mistaken here.

413

<sup>1</sup> Interestingly, Epicurus mentions several different explanations of earthquakes in the same passage (DL X.104), since he thinks that they are all equally correct and acceptable. But he does not mention this explanation of Democritus' at all; evidently it is included among the 'many other kinds of explanation'.

414

<sup>1</sup>'part of this water': 'specifically rainwater' [DK II, p. 107, l. 16 n.].

<sup>2</sup>'when this is driven out by the influx of what is heavier': this is a special case, so typical of Democritus, of the 'struggle for existence' between the atoms (see nos. 10-12).

<sup>3</sup>'aliquando' means here not 'sometimes', as Makovelski and Alfieri translate, but 'finally'.

<sup>4</sup>'forced to make its way through the earth': cf. Epicur. Epist. II (DL X.105): 'earthquakes can also occur when air is trapped within the earth, so that the earth is displaced in small masses and continually moved, causing it to sway' etc. Also Metrodorus of Chios, Sen. Natural questions [Nat. quaest.] VI.19.1-2 (DK 70 A 21).

## II. Phenomena in the heavens

415

<sup>1</sup>On the basis of this very passage Diels (Verhandlungen der 35en Philologenversammlung, Leipzig, 1880, p. 97) tried unsuccessfully to establish a difference of view between Leucippus and Democritus. He was followed by Dyroff, Demokritstudien, Leipzig, 1899, pp. 12-13. In fact both atomists say the same thing about thunder, the only difference being that in Leucippus what is trapped in the clouds is called simply 'fire' which is its predominant element, whereas in Democritus the same mass is called 'an irregular compound'. But one must suppose that that compound is described as anōmalon ('anomalous, irregular') precisely because it consists mostly of fire, but fire in Democritus' view cannot form a stable unity with any other element: sunkrimata puros ['compounds of fire'], polumigei ['very mixed composition']. So we have to distinguish three stages in Democritus: 1) 'the roaring mixture', in which atoms of fire unnaturally put together with atoms of various other kinds

(‘an anomalous compound’) tear apart the covering of cloud with a loud noise and rush downwards; that is thunder. 2) On their way these masses of the compound push up against clouds, which slow them down: this is called ‘collision of clouds’, ‘clouds’ being an objective genitive, not a subjective. These clouds function as a sieve; the larger, coarser-textured atoms are held back, the finer, which give rise to fire (here, Democritus apparently means to draw a distinction between fire as an element and fire as a visual phenomenon, see Dyroff, *op. cit.*, pp. 13-14), are sieved through the cloud. During this sieving process may be observed fire caused by the friction (‘lightning’; fire is the usual effect of friction). 3) This fire, having undergone fundamental cleansing (‘purer and finer’), falls to the ground, and that is a lightning strike (keraunos). So Leucippus had every reason to use the expression puros ekptōsin (‘the discharge of fire’ trapped in the clouds); with the best will in the world I cannot find any contradiction here. Cf. Epicur. Epist. (DL X.101): ‘similarly lightning comes about in many ways; for both from friction and from collision of clouds a conformation of atoms which produces fire slips out and generates lightning ... or through the sieving of the finest particles of light through the clouds and their motion’.

<sup>2</sup>Thus our terrestrial fire is from the scientific viewpoint not fire at all, but an ‘anomalous compound’ with a predominance of fire. Fire falling from heaven is much purer than terrestrial fire, as apparently, is water falling from heaven (see no. 414 with comm., n. 1). Cf. Lucr. II.382-3:

... the fire of the thunderbolt is much more penetrating

Than ours which comes from terrestrial torches.

‘The flame of the heavenly lightning is much finer’ etc. See comm. on no. 281.

416

<sup>1</sup>Cf. Boll and Gundel, Sternglaube und Sterndeutung, pp. 48, 125ff., indicating further literature.

<sup>2</sup>This passage coincides almost word for word with a passage of Aetius on Democritus’ explanation of the Milky Way (no. 418).

417

<sup>1</sup>‘he says’: whether Anaxagoras or Democritus remains unclear. Diels [no ref. given] supposes that phēsi (‘he says’) is a mistake for phasi (‘they say’).

418

<sup>1</sup>Alfieri, *op. cit.*, p. 120, supposes that it is difficult to reconcile nos. 417-8, and that only no. 418 contains Democritus’ own views, whereas no. 417 essentially refers only to Anaxagoras: ‘Perhaps in speaking of ‘the adherents of Anaxagoras and Democritus’ he meant to ascribe this doctrine only to Anaxagoras and was referring the reader to some work of Democritus

in which he had subjected the views of Anaxaoras to examination and criticism'. That is of course possible, but with the best will in the world I see no contradiction between nos. 417 and 418. In no. 417 we read that the Milky Way consists of stars shining with their own light, stars which are not illuminated by the rays of the sun. No. 418 has its own single purpose, to explain why the Milky Way looks to us as something continuous, not merely a number of [separate] stars. Sunaugasmos ('combined illumination') is especially typical of Democritus (cf. no. 416, Aet.). Perhaps this is a translation of Democritus' term sumphasis ['joint appearance']. In his article 'Democritus' conception of the Milky Way' (Lunds Universitets Arsskrift, N.F., Avd. 2, Bd. 30, no. 15, Lund, 1935)(unsatisfactory from the philological standpoint) Lindmark points out that the conception of the Milky Way as consisting of a great many separate stars was characteristic of a great many primitive, pre-Greek tribes (rock-drawings in Sweden, the Swedish Lapps, the book of Daniel, VII.10), from which he concludes: 'It appears that Democritus' conception of the Milky Way cannot be regarded as a notable scientific anticipation, worked out on the basis of atomistic theory'; it was simply 'a very widespread view, to which the atomists themselves did not pay very much attention'. Some mathematician, whom Aristotle makes use of in this case, shows very convincingly the impossibility of Democritus' theory (Meteor. 345a22ff.): 'the Milky Way is always the same, composed of the same stars ... but those which are invisible because of the sun's illumination are always changing, because it [the sun] does not stay in the same place. So when the sun changes place the Milky Way ought to change place too; but that is not observed to occur. Moreover, if the truth is as is demonstrated in astronomical investigations, and the size of the sun is greater than that of the earth and the distance of the stars from the earth is many times greater than that of the sun [from the earth] ... the apex of the cone of rays from the sun would not be far from the earth, nor would the earth's shadow be projected on the stars ...'

### III. The ecliptic

419

<sup>1</sup>Dyroff, op. cit., p. 15, explains this passage as follows: 'In the south, because of the heat which expands everything, the air which supports the earth is thinner; in the north it is frozen into a solid mass, since cold contracts everything. The southern parts of the air are weaker, therefore the earth there is stretched out and slopes down'. Burnet (L'aurore de la philosophie Grecque, p. 400), followed by Alfieri, op. cit., p. 31, thinks that this passage does not contain anything unclear: 'the earth slopes down towards the south, because the heat in those regions makes the air thinner, whereas the ice and cold in the north make it more solid and more capable of supporting the weight of the earth' (Burnet). 'The meaning of this passage is the one Burnet has already given it; of that, I think, there can be no doubt' (Alfieri). I, however, think otherwise. The expression 'down' exists in Democritus' theory only within a cosmos and means 'towards the centre of the cosmos' (or, which is the same 'towards the centre of the earth'). How can the southern part of the earth incline towards

its own centre? And what connection does that have with the solidity of the atmosphere? Of course, Dyroff and later Burnet have in mind no. 376, where it is said that the earth floats on the air underneath it, but in our commentary on this passage we have already indicated that that is the view of Anaxagoras, which cannot have been shared by Democritus. Further, in that passage Aristotle does not speak of 'falling', since he knows that, as Democritus' theory says, the earth, being situated at the centre, does not fall anywhere. And even from the linguistic point of view Burnet's translation is hardly possible. The words dia tēn araiotēta ('because of its rarified texture') which follow the words parekpesein tēn gēn ('the earth slopes down') could hardly have been understood by any ancient reader in the sense 'because of the rarified texture of the air'; everyone would understand it in the sense 'because of its own rarified texture'. Similarly, we have an extremely artificial construction if we read 'the surroundings' as subordinate to 'the southern part', and understand the whole phrase as 'the southern part of the atmosphere', even though the expression 'the surroundings' is sometimes used in that sense (e.g. no. 515, Diod. I.7.4.). I think that the words 'the surroundings' are connected to the comparative 'being weaker' ('the southern part of the earth is weaker than the parts which surround it'). Similarly bebarētai can hardly mean 'slopes down', and Dyroff's translation (op. cit. p. 15) 'that is where the centre of gravity is' is groundless and does not give the appropriate sense; by analogy with such expressions as 'weighed down with taxes' and 'weighed down with grief' etc. this expression must mean 'crushed, pressed down by a weight'. All this gives me the right, I think, to understand parekpesein as 'be sunk down, pressed in, pressed down, concave' (through the force of its own weight) and to be guided in the interpretation of this passage by no. 405: 'Democritus says that the earth is hollow in the middle'. In that case the part of the earth which we inhabit would, in Democritus' view, slope towards the south, and Democritus would take the lowest part of the earth to be in the south; that would give an explanation of why in our inhabited world the ecliptic appears inclined. But the same difficulty remains for this interpretation as for the usual one: how is it that the Nile flows from south to north, if the lowest place lies far to the south? It cannot flow up from below. Hence the whole question needs further careful examination, since so far a great deal still remains obscure. On ancient views on the ecliptic see Rehm, s.v. Eklīptik (RE V, col. 2208); Frank, op. cit., p. 204.

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<sup>1</sup>The meaning of this passage is not totally clear, but apparently it reduces to the fact that the sun has a particular circular orbit. Cf. Epicur. Epist. II (DL X.93): 'the turnings of the sun and moon may come about through the obliquity of the heavens, which are thus necessitated by the seasons, or by the resistance of the air or because appropriate material is always catching fire, while some other is going out, or because from the beginning these stars are caught up in a swirl which gives them a spiral motion'. I cannot accept Frank's proposed reconstruction of Democritus' theory of the solstices (see comm. on no. 394).

#### IV. Descriptive astronomy and the reckoning (?) of the seasons

421

<sup>1</sup>Since I am insufficiently competent in astronomy, I restrict myself in this section (nos. 421-4) almost entirely to presentation of the commentary from various works of Diels.

<sup>2</sup>'Projections': cf. Ptol. Geogr VII.2: 'a sketch of the projection. And there will be an appropriate and summary sketch of such a projection. And it will be a drawing of the armillary sphere on a flat surface' etc. 'So this was a projection of the armillary sphere on a plane' [DK II, p. 141, l. 25 n.]. Cf. Frank, op. cit., p. 21: 'The work entitled Projection dealt with the perspectival projection of three-dimensional bodies onto a plane, perhaps for cartographic or similar purposes'. It seems to me, however, doubtful that the word 'projection' had at that time a wider sense than a map of the starry heavens.

<sup>3</sup>Parapēgma: this was the name of 'a mobile calendar, a list in copper or marble of the days of the solar year according to the zodiac with their usual signs (forecasts of the weather). Alongside the names of the days there were holes into which were fitted the numbers of the [days of] the civil month. See Diels 'Parapegmenfragmente aus Milet', Sitz. Berl. Acad. 1904, pp. 92, 266; Heron de Villefosse, Compt. Rend. de l'Acad. des Inscr., 1898, p. 267. The Parapēgma of Meton and Euktemon (27 June 432) shows almost exactly how Democritus' calendar was constructed. ... See also Pfeiffer, Studien (Bolls Stoicheia 2), pp. 93ff.' [DK II, p. 142, lines 1-11 nn.]. Cf. Schol. Arat. 752, p. 478.8 M.: 'the astronomers who came after Meton set up in the cities placards giving the revolutions of the sun and the nineteen-year periods, saying that in each year there will be such and such a winter and summer and autumn and such and such winds and many things useful for human life ... the Greeks got these from the Egyptians and Chaldeans'. Since these weather forecasts were given only for specified days of the solar year, i.e. of the zodiacal calendar (cf. [Gemin.] Isag. p. 128.24 M.: 'but since they (the authors of the calendar) could not specify a definite day or month or year in which any of these [events] comes about ... they wanted to demarcate the changes of the air by certain definite signs') that could have been done in two ways. Either the days were given solely by the numbers of the zodiacal calendar, and the person using the calendar had to translate them himself into the numbers of the civil calendar. In that event 'it was necessary to know, even if only for one day of the civil calendar, to which date of the solar year it corresponded in a given year (cf. Arat. 1142ff. 'combining ... the signs with the dates of the year' (Diels)). Or they had prepared a movable calendar, constructed as described above. Diels has published and described one such calendar, corresponding to the years 113-110 BCE. Here there are holes for every day, but they are not all filled in with a designation of a date, but only those for which a weather forecast is given. All the weather forecasts for each sign of the zodiac are written on a separate tablet: 'each page is the orbit of a single sign, and the circles are the days for which the sun is travelling in each orbit'. These forecasts are very similar to those given in our text, e.g.: 'According to

Eudoxus and the Egyptians the north and south winds blow, and according to the Indian Callaneus [?] Scorpio sets with thunder and wind’.

422

<sup>1</sup>astrologia: i.e. astronomy.

423

<sup>1</sup>According to Censorinus, the ‘Great Year’ of Philolaus contained 59 years with 21 intercalary months.

424

<sup>1</sup>See comm. on no. 394.

<sup>2</sup>tempestatumque significatus: ‘predictions of the weather’; ‘significatus’ = ‘sign’ (Alfieri)[no r. given].

<sup>3</sup>So Vitruvius excludes those constellations which can be observed in the southern hemisphere and which, e.g. Canopus, the ancients knew of from travellers and merchants.

<sup>4</sup>As we shall show below (n. 9) it is clear that Geminus and Ptolemy have as their source the same calendar. I see no reason to doubt that it goes back to Democritus. Cf. Pfeiffer, op. cit., pp. 84ff. (Diels).

<sup>5</sup>‘on the fourth day’: i.e. on the fourth day of the sign of Scorpio; the period of [i.e. the period during which the sun is in] the sign of Scorpio lasts for 30 days, as does that of all the other signs.

<sup>6</sup>alogchos [‘unlucky’] (see app. crit.) = ‘ill-omened day’ (eulogchos = with a favourable omen): so understood by A. Böckh, Über die vierjährigen Sonnenkreise der Alten, vorzüglich den Eodoxischen, Berlin, 1863, p. 90[DK II, p. 143, l. 15 n.].

<sup>7</sup>ornithiai [‘bird winds’]: ‘north winds, which bring flocks of migrating birds’ (Alfieri) [no ref. given].

<sup>8</sup>Cf. Pfeiffer, op. cit., pp. 93ff [DK II, p. 143, l. 28 n.]. ‘Bruma’ : i.e. the winter solstice.

<sup>9</sup>Under 30<sup>th</sup> Mechir (= 24<sup>th</sup> February) we read ‘According to Democritus, changeable days called the halcyon days’. Similarly in ps-Geminus, Isag. p. 220.15<sup>181</sup>, under Pisces: ‘on the fourth, according to Democritus, there occur changeable days called the halcyon days’. If, guided by this, we identify the 4<sup>th</sup> day of Pisces with 24<sup>th</sup> February, and correspondingly calculate other days of the zodiacal cycle, we shall get a whole series of coinciding dates.

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<sup>181</sup> [Luria’s slip for ‘226.15’.]

16<sup>th</sup> Sagittarius ‘thunder, lightning, rain, wind’ = 14<sup>th</sup> Choiak (10<sup>th</sup> Dec.) ‘thunder, lightning, rain, wind’

12<sup>th</sup> Capricorn ‘south wind blows <mostly>’ = 9<sup>th</sup> Tybi (4<sup>th</sup> Jan) ‘mostly south wind’

16<sup>th</sup> Aquarius ‘west wind begins to blow’ = 12<sup>th</sup> Mechir (6<sup>th</sup> Feb.) ‘west wind begins to blow’

4<sup>th</sup> Pisces ‘there occur changeable days called the halcyon days’ = 30<sup>th</sup> Mechir (24<sup>th</sup> Feb.) ‘changeable days called the halcyon days’

14<sup>th</sup> Pisces ‘cold winds called the bird winds blow for nine days’ = 11<sup>th</sup> Phamenoth (7<sup>th</sup> March) ‘cold winds; bird winds for nine days’

10<sup>th</sup> Gemini ‘rain comes’ = 9<sup>th</sup> Payni (3<sup>rd</sup> June) ‘rain comes on’

29<sup>th</sup> Gemini ‘usually gives a sign’ = 28 Payni (22 June) ‘there is a sign’.

So there can be no doubt that both authors [i.e. ps-Geminus and Ptolemy] were excerpting from the same source.

<sup>10</sup>‘harbingers’: this passage served Frank as the starting-point for interesting but unfortunately groundless conclusions (cf. comm. on no. 394).

<sup>11</sup>ton liba (from leibō [‘pour’]): a rain-bringing, i.e. south-east<sup>182</sup> wind (Alfieri) [no ref. given].

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<sup>182</sup> [LSJ gives lips, the nominative of which liba is the accusative, as the name of the south-west wind.]

## E. THE SENSES AND COGNITION

### a. GENERAL

#### I. History of the topic

425

<sup>1</sup>much the same as most of the others': Democritus' theory of perception was less original than his other doctrines. 'Effluences' and 'images' had already been introduced to science by Empedocles (see no. 427).

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<sup>1</sup>'and': 'and besides he', in contrast to 'the others' (Diels [Dox. 516, l. 10 n.]).

<sup>2</sup>Specifically DK 31 A 69a, B 94.

#### II. The senses are explained by the theory of atoms.

428

<sup>1</sup>'all the objects of sense objects of touch': Frank, op. cit. pp. 96, 176, considers this proposition a characteristic feature of Democritus' philosophy. This thought is even more



crudely expressed by Hipparchus (Aet. IV.13.9-10): ‘Hipparchus says that rays, stretching out from both eyes to their surfaces and grasping them as if with the touch of the hands ...’ See Alex. ad loc., 83.3 [also cited here].

<sup>2</sup>‘moreover, they treat <the> objects which are specific to particular senses <as> common to all senses’. The mss. have ‘they treat as objects specific to particular senses objects common to all’. The correctness of the emendation is apparent from Ar. GA 788b10, where he makes the same objection to Democritus: ‘Democritus is not correct, for he states the cause in general though he has not examined all cases ...’

<sup>3</sup>‘says’: see Theophr. De sens. 65.

<sup>4</sup>‘objects of touch’: see n. 1 above.

<sup>5</sup>pros oligōn: incomprehensible to me. Perhaps it is the same as di’ oligōn ‘after a short interval, soon after that’<sup>183</sup>.

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<sup>1</sup>The complete agreement of the construction of the proof here with that in no. 105 is very striking: here: ‘one might raise the question, if every body is infinitely divisible whether their properties are too ... or is that impossible?’: there: ‘there is a problem, if one supposes that there is a body and a magnitude divisible everywhere (i.e. to infinity!), and this is possible’. The conclusion here: ‘if that is so, it seems to tell in favour of those who posit indivisible magnitudes, for that would refute the argument. But they are impossible; we have discussed them in our treatment of motion’. The conclusion there: ‘if it is impossible that magnitudes should be composed of intersections and points, it is necessary that there are indivisible bodies and magnitudes. But on the other hand if one posits those the consequences are no less impossible, as we have discussed elsewhere’. We have a proof a contrario, with a reductio ad absurdum in either case. Aristotle himself describes his method as follows (De Caelo 279b6): ‘for proofs of contraries are difficulties for their contraries’. So it can hardly be mere coincidence that the conclusions advanced here ‘tell in favour of those posit the existence of indivisible magnitudes’: the entire course of the proof is taken from Democritus; that is confirmed by the content of the cited text. Exactly so the principle ‘Nor does the mind think of external things without perception’ is characteristic of Democritus, not of Aristotle (see no. 72): ‘the phenomena are the sight of things unseen’.

<sup>2</sup>pan ... aisthēton [‘every ... perceptible’] is the subject.

<sup>3</sup>The argument runs as follows: 1. If a sense-impression or sensation is divided to infinity, we must be able in the division to reach perceptible things which have no magnitude; but nothing can exist which is perceptible but has no magnitude at all; consequently, that is impossible. 2. If the case is not so, i.e. if in the division magnitudes are perceived down to a

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<sup>183</sup> [‘Even a little’ is a guess; pros oligōn is not in LSJ.]

certain level, and after that they no longer have any sensible qualities, then it would result that something perceptible consists of imperceptible parts. 3. But that would be possible only if we accepted the atomistic viewpoint and rejected the infinite divisibility of sensations. But atomism is unacceptable.

<sup>4</sup>'for these': i.e. colour, weight etc. 'Perceptibility consists just in this', i.e. in colour, weight etc.

<sup>5</sup>'but it is necessary': i.e. [for a perceptible thing] to be composed of perceptible things, and never to be composed of imperceptible things. This is normal Greek phraseology.

<sup>6</sup>See comm. on no. 283.

<sup>7</sup>'separated in thought': the formulation is Peripatetic, but Democritus expressed a similar thought (see no. 123).

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<sup>1</sup>'has sufficient force': i.e. to come to be perceived. Cf. Alfieri, op. cit., p. 150: 'Has the power to make itself noticed by everyone'. 'dispersed over a long distance' (Diels) [no ref. given].

<sup>2</sup>This passage [Ar. De sens. 445b31ff.] coincides in content with the passage of Theophrastus, and also with the 'cinematographic' theory of vision (no. 282): 'the distance between the extremes is not noticed'. All that makes me think that here too Aristotle is making use of Democritus, correcting him only from the point of view of his theory of the potential and the actual. In fact, in Phys. VIII.5, 250a20<sup>184</sup> Aristotle gives a completely different solution to this question. In Simplicius' account of the dispute between Zeno and Protagoras (ad loc., 1108.18) the same difficulty is raised: 'he also solves the problem which Zeno the Eleatic put to the sophist Protagoras. 'Tell me, Protagoras, ' he said, 'does a single grain or the ten-thousandth part of a grain make a sound when it falls'? And when Protagoras said that it does not he said 'And does the bushel make a sound when it falls, or not?' And when Protagoras said that the bushel does make a sound, Zeno said 'Well now, is there not a ratio between the number of grains in the bushel and a single grain, and between the number of grains in the bushel and the ten-thousandth part of a grain?' And when Protagoras said that there is, Zeno said 'Well now, will there not be the same ratio between the sounds that they make? For as the things that make the sounds are, so are the sounds. And if that is so, if the bushel of grains makes a sound, so will the single grain and the ten-thousandth part of a grain'. In the Physics Aristotle solves the problem, starting from the assumption that very quiet sounds are too weak to set the air in motion, and we can hear only when the air is set in motion: 'that is why Zeno's argument that any part of the grain makes a sound is not correct; for nothing prevents it from not at any time moving

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<sup>184</sup> [250a20 is in VII.5, not VIII.5.]

the air which the whole bushel moves in falling' [250a19-22]. For vision, according to Aristotle, the air plays no role; hence in this case he has to turn to another explanation: here, as in other places, he improves Democritus' theory with the help of formal nominalism: 'they are objects of sight potentially but not actually'. For Democritus, even the smallest body stimulates our sense-organs, but it is too small to be able to be perceived; only when there is a certain density and number of such bodies (in Augustine's words [no. 471 (30)] 'quadam earum constipatione et densitate' ['when they are packed together with a certain density']) do they begin to be perceived. In this case Epicurus followed Aristotle's route; in contradiction to Democritus he thought that bodies which are so small as to fall in between two soul-atoms cannot stimulate our organs at all. See *Lucr.* III.378-82:

'The primary elements of the soul have intervals between them as big as the primary bodies which come into contact with us and can set up sensory motions in the body. For sometimes we feel neither dust which is sticking to the body, nor chalk which has been shaken on to us and settled on our limbs.'

<sup>3</sup>'the interval': the fact that there is an interval between the intermediate sound and the two extremes, i.e. that the melody is not uninterrupted, but consists of separate intervals between extremely small elements of sound, is something which no-one can experience (see comm. on no. 282).

<sup>4</sup>Alexander (*In De sens.* 122.21-3) sees here a criticism of Diodorus Cronus, but Aristotle never mentions Diodorus (see comm. on no. 283).

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<sup>1</sup>'the objects of perception or the motions arising from the objects': as we see from a number of similar passages, the former view was put forward by Empedocles and taken over from him by Democritus, while the latter contains the same theory, improved by Aristotle.

<sup>2</sup>'sound': in the first instance the reference is to thunder and lightning (see no. 480).

<sup>3</sup>'even if': the fulfilment of this kind of conditional is mostly treated in such a formulation as impossible or improbable, e.g. 'if I were immortal'. See Kühner – Gerth, *Ausführliche Grammatik der griechischen Sprache*, II.2, p. 488. What is here being spoken of is the specific 'cinematographic' theory discussed above (no. 282), which is completely alien to Aristotle; but, Aristotle comments, even if we make such an assumption, we must still admit that in the space between the object emitting the sound and the person hearing it one may 'already have heard' every sound earlier than at the final point of its dispersal. In other words, even if no perception comes to be as a certain continuum ('there is no coming to be in their case'), even if there exists merely, as in a film, a series of slides with imperceptible differences of position and sounds, still those images, sounds etc. must already have existed somewhere before they were perceived, although we had not yet perceived them, i.e. to

use contemporary language, they must behave in such a way that if we had experienced them on their way from the source of the sound to us we should have seen an uninterrupted movement. Apart from Democritus the only person who could have been seen as the author of this doctrine is Diodorus Cronus, but see what was said above, no. 24 with comm.

<sup>4</sup>'but': in the principal clause following the subordinate: see Kühner – Gerth, op. cit., p. 287, n. 6.

<sup>5</sup>'[ the stroke] has already occurred': one can be certain of this from seeing it, before the sound of the stroke is heard.

<sup>6</sup>'the transformation of the letters': 'of the sounds' would be more correct. In ancient grammar sounds are commonly confused with letters.

<sup>7</sup>'because they are equal': Democritus' well-known theory that like is known by like. Cf. Theophr. De sensu 50 (no. 478): 'the veins of the eye are wide and free of moisture, so as to have the same shape as the impressions: for each thing is most cognisant of things that are similar to it ... (54) it is absurd to say that similar things are most readily seen'; Sext. M VII.116: 'the ancient ... belief that like things are cognisant of like ... Democritus [seems to have given arguments for this belief]'

<sup>8</sup>gignomenois ['becoming']: in Hellenistic Greek equivalent to 'being'.

<sup>9</sup>'for it make no difference whether they are near or far from one another': the same point is made at De an. 419a15: 'Democritus was not right to think that if the intervening space were empty an ant would be clearly seen in the heavens'. See no. 468.

<sup>10</sup>As Biel correctly remarks (following Thurot) [no refs. given] the word 'continuous' relates to sound and odour, not to air and water. Hence he puts a full stop between 'water' and 'continuous'.

<sup>11</sup>'the objects of sense or the motions arising from the objects': the former is characteristic of Democritus' theory, the latter of the correction of that theory made by Aristotle. Cf. no. 472, De divinat. in somn., 464a5ff, esp. 9-10: 'a certain motion and perception' (= 'a property and a certain motion'); no. 483 (= Ar. De sensu 440a18): 'it is better to say immediately that perception occurs when what is in between the sense -organ and the sense-object is moved by that object by contact, and not by the effluences'. Cf. comm. on no. 472, giving a series of further examples. See also no. 432: 'these are not bodies, but a property and a motion'.

<sup>12</sup>'light ... is neither fire ... nor an effluence from any body': cf. H. Lackenbacher, Wien. Stud. XXXV, 1913, p. 50: 'Democritus undoubtedly regarded light as a body'. It seems to me more probable that Democritus regarded light not as a primary body but as 'an effluence of fire', above all of the fire of the sun, and that in that case Aristotle had Democritus specifically in

mind. Later we read, e.g. in Damian, Optica, p. 4.2, that light is an effluence which also flows out from the eyes of living beings; as evidence for this he cites the fact that nocturnal animals can see in the dark. But these cases concern not light as a primary element, but fire and its effluences.

<sup>13</sup>'anyone else': here, as in a number of other cases, primarily Democritus.

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<sup>1</sup>If all perception is 'feeling', i.e. contact of a body with particles coming in from outside, it is totally impossible that several people in different places should be able to perceive the same thing: that would be just as impossible as for several people at a significant distance from one another to hold one and the same grain in their hand simultaneously. Cf. no. 491: 'and one could say to them 'How can a few fragments of breath fill a theatre of ten thousand people?'' So it is necessary to admit that we do not perceive the same thing, but only exact copies of it, each one different.

<sup>2</sup>henos arithmōi, heterou arithmō<sup>1</sup> ['numerically one, numerically distinct']: arithmos means not only 'number', but also 'reckoning' 'process of counting', but, on the other hand, also 'a member of a uniform series'; cf. e.g. Isoc. Busiris 16: 'including all the numbers, from which [the state would best be administered] ...'

<sup>3</sup>'but they are': here we note a correction of Aristotle's own (see comm. on no. 431, n. 11).

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<sup>1</sup>Bailey, [The Greek Atomists and Epicurus], p. 354, makes the following curious comment on this passage of Lucretius: 'The appeal to sensory experience is very characteristic, and shows an advance on the ex cathedra decisions of Democritus'. But now it turns out to be clear that this passage too is simply taken from Democritus. Cicero also gives the example of the dove, in speaking about the Epicureans (Acad. prior. II.7.19).

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<sup>1</sup>'according to the mixtures': cf. Empedocles, DK 31 B 96, a further extension of whose doctrine is displayed in the corresponding views of Democritus; here we already have the origins of chemistry.

<sup>2</sup>'nothing will be [exactly ] like anything else': cf. no. 6, from which we see that according to Democritus everything is repeated infinitely many times, but that is true only for infinite space.

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<sup>1</sup>'perception and thought': from Democritus' standpoint these are in principle identical.

<sup>2</sup>epiballein: ‘joins on from outside’.

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<sup>1</sup>Diels, Dox., p. 399, translates as follows: ‘there are more sense perceptions than objects of sense, but since the objects of sense do not correspond in number (to the perceptions) we do not recognise them all’. ‘there are more’: ‘since we can have repeated and different perceptions of every object’, Alfieri, op. cit., pp. 134, 377. Lucr. IV.802-3, cited by Diels,

‘and because they are fine-textured, the mind is not able to perceive them, except those it strains to perceive’,

does little to clarify the question. Much more helpful is Aet. IV.9.6, cited here, since analogizein [‘correspond’] (the active form is found nowhere else) means, apparently the same as ‘the symmetry of the pores’ (the correspondence between the shape of the atom penetrating the body and the shape of the atom which is perceived), or the same as ‘fit in’. The ms reading plēthei (‘in number’) is probably corrupt: I assume pathei [‘the experience’], which fits the context well.

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<sup>1</sup>more’: according to Diels’ supposition [DK II, p. 111, l. 24], ‘than the five [senses]’ is understood here: cf. no. 83: ‘all of these; sight, hearing, smell, taste, touch’. The extra sense of wise men and gods is probably gnōmē gnēsiē (‘legitimate thought’), that of animals their innate instincts; cf. no. 86. Zeller, Ph. d. Gr. I<sup>6</sup>, p. 1125, follows Kühn, ps-Galen Hist. Phil., p. 303, in reading ‘than’ instead of ‘and’, and sees here a sarcastic attack on some opponent of atomism (perhaps a Stoic), who concluded from the fact that Democritus placed a high value on innate instincts possessed by animals but lacking in humans that he placed dumb animals not merely above the wise, but even above the gods. This witty emendation seems to me, however, unnecessary.

<sup>3</sup>peri in the sense of ‘in’ is fairly common: ‘peri as in Aet. IV.7.3: ‘the stronger (soul) as it is in the wise’. Cf. Dionysius of Halicarnassus De compos. verb. . 18: ‘there was such insensitivity in him’, Diels, Dox., p. 393.<sup>185</sup>

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<sup>1</sup>‘the opposite’: i.e. [‘which are not sharp, and which are composed of larger parts irregularly arranged’] (Diels [no ref. given]). ‘Opposite structures’: i.e. not pointed, with large shapes positioned in various ways.

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<sup>185</sup> [The quotation from Dionysius is not given by Diels on the page cited by Luria. Perhaps ‘Diels, Dox., p. 393’ should follow immediately the quotation from Aetius, which does appear on that page. If that is so, the quotation from Dionysius is presumably Luria’s own.]

III. Which aspects of the senses are referred by Democritus to external factors and which to internal, according to Theophrastus

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<sup>1</sup>‘changing their position’: cf. no. 55: ‘in reality we know nothing firm, but what changes according to the disposition of our bodies and of the things that enter and impinge on it’. ‘the shape, which changes its position’ is a collective singular (see Kühner—Gerth, *op. cit.*, II.1, p. 347); this expression means ‘atoms which change their position and order’

<sup>2</sup>See no. 430.

<sup>3</sup>tēi krēsei : by this ‘mixture’ is meant the mutual relationship (not merely numerical) between the atoms of the body and the atoms which penetrate it from outside ‘in the dark’. The word diathesis (= diathēkē, no. 55) which occurs in the next clause has exactly the same meaning; see Theophr. De sensu 39 (on Diogenes [of Apollonia]): ‘in those whose disposition [diathesis] is irregular ... so if there were someone of regular mixture (krasis) ...’

<sup>4</sup>‘it would seem absurd’: this contradiction is artificially constructed by the bitterest opponents of atomism, the Peripatetics. It displays the inability of these philosophers to understand the materialistic standpoint sympathetically, rather than any actual logical error on the part of Democritus. In fact, all that interests Theophrastus as a philosopher is that a philosophical system is constructed without logical flaws, and that it explains in the same way all the facts which it adduces. Democritus, by contrast, aims to create a theory which will give the best explanation of all the separate phenomena of nature. Just so, in the passage cited Democritus gives a perfectly clear explanation of the mutual relations between external atoms and atoms of the body. It is indeed the case that in so doing in some cases he puts the bodily reaction in the foreground, in others the shape, in a third kind of case the position and size of the external atoms. But it is noteworthy that even in the perception of the shapes of bodies, which in his view are the only things which exist in reality, he assigns a significant role to our bodily reaction (see no. 434). The real cause of all these objections is this, that in Democritus’ view the reaction of the body (of which the soul is a purely material part according to his theory) is a purely natural, material process, whereas even in the case of Democritus the Peripatetics understood by ‘sensation’ something purely spiritual and dynamic, supernatural and supermaterial. Given that interpretation it was not difficult for them to represent Democritus’ doctrine as a heap of contradictions. Idealists not infrequently try to ascribe the same contradiction to materialism even in our time.

<sup>5</sup>‘relative to perception’: ‘make’ is understood.

<sup>6</sup>The meaning is: ‘If the cause of the differences is in the shape of the atoms, then it is impossible for different people to perceive the same object differently, but even if that is possible, at all events the same person necessarily experiences the same object in the same

way' (Diels [Dox. p. 519, l. 16 n.]). It is striking that we have here a straightforwardly sophistic argumentation, of which there are several examples in the anonymous Dissoi Logoi. The shape of the perceived atoms is in fact only one of the mutually inter-acting factors, the second such factor being the perceiving atom (not to speak of their relative position). Cf. Natorp, Forsch. z. Gesch. des Erkenntnisproblems in Altertum, p. 188; Brieger, Progr. Halle 1884, p. 6; Hart, Berl. Phil. Wochenschr., 1887, p. 173.

<sup>7</sup>As is well known, the Greeks did not say 'one ... another' but 'allos ... allos' [lit. 'another ... another']. Hence the expression 'in relation to another and in another' (pros allo kai en allois), means 'depends on one thing (on the perceiver) and is situated in another (in the things in the external world)'. Cf. comm. on no. 321.

<sup>8</sup>it is reasonable that the better [should have more truth ]than the worse': it is astonishing that there are people who think that such naive arguments are a serious refutation of atomism!

<sup>9</sup>'each': i.e. of the perceived things in the external world.

<sup>10</sup>'in the special case': cf. 'in the special case of the bitter we have appropriate acquaintance'(Diels [Dox. p. 520, l. 2 n.]).

<sup>11</sup>suneseōs ['understanding']: sunesis is not synonymous with aisthēsis ['sense, perception'] as Kranz (DK III, index, p. 412) and Alfieri, op. cit., p. 154, n. 388, suppose. In DK 68 B 9 Diels correctly translates sunimenen by 'grasp' [erfassen]. Sunesis ['grasping'] is in Democritus' view an activity of the atoms of the soul, co-ordinating the different senses (aisthēseis). In DK 68 B 181 sunesis and epistēmē ['knowledge'] are employed as something of the same kind; so sunesis is perhaps gnōmē skotiē and epistēmē gnōmē gnēsiē. To establish that something is bitter one has to employ, not merely the tongue, but also some co-ordinating organ. See comm. on no. 452.

<sup>12</sup>'previously': i.e. De sensu 60, 63, 68 (nos. 71, 504, 441).

<sup>13</sup>'the hot and the cold, [which they] posit [as principles]': Diels sees in this clause an impersonal turn of phrase; in his opinion at the same time it refers to Parmenides [Dox., p. 520, l. 7 n.]. Alfieri, op. cit., p. 154, n. 389, expresses his meaning imprecisely, translating this as 'a general allusion to the school of Parmenides as well'. Given the general context the subject can be only the doctrine of Democritus, but Theophrastus identifies matter simply as 'the cold' and void as 'the hot' (cf. no. 148).

<sup>14</sup>Cf. comm. on no. 369. ['test the truth' (sec. 69): see no. 71, n. 2. Eds.]

## b. THE SOUL

I. The soul consists of atoms of fire. The soul is the principle of motion. The respective definitions of body and soul.



443a

<sup>1</sup>See Frank, *op. cit.*, p. 194; comm. on no. 16; cf. comm. on no. 445.

<sup>2</sup> 'a sort of fire, and hot': probably the only difference between fire and the soul is that in the soul round atoms regularly alternate with atoms of other elements (see no. 454), whereas fire consists solely of round atoms; see Philop. *ad loc.*, 67.10, cited in this section.

<sup>3</sup>'because of its mobility': see comm. on no. 445.

<sup>4</sup>'touches a plane only at a single point': see comm. on no. 131.

<sup>5</sup>Democritus regards this fire as 'discontinuous': see n. 2 above.

444

<sup>1</sup>Despite the fact that Philoponus correctly explains its actual meaning, this comment of Aristotle's served as the source of the assertion of Christian writers that Democritus admitted the existence of an ideal, incorporeal soul.

<sup>2</sup>'each of these': i.e. 'it is both moved and sets things in motion'. See Themist. *ad loc.*, 13.10, cited in this section.

<sup>3</sup>'the soul is the same as the mind': ('soul and mind are the same thing, i.e. fire): see comm. on no. 452.

<sup>4</sup>'this': fire.

<sup>5</sup>mikromereian [lit. 'having small parts']: the same volume with a smaller surface (no. 132).

445

<sup>1</sup>So perpetual motion is an internal property of atoms. Aristotle sees in this a scandalous petitio principii, since the problem is not solved but only moved elsewhere. But it is appropriate for Aristotle least of all to raise this objection to Democritus; his prime mover possesses force (how and from where is unknown) and sets other bodies in motion even more mysteriously than Democritus' atoms of fire, which have the internal property of never remaining motionless and moving perpetually. In Democritus' view perpetual motion is a general property of the sphere, in so far as it touches a plane only at a single point. If in actual experience a sphere does not move continually, but remains motionless unless it is set in motion (although a small impact is sufficient to make it move), that happens simply because in actual experience we do not deal with real spheres, and because what we call a sphere, of course, touches a plane not at a point but on a small surface (see comm. on no. 304). On Daedalus and Philippus see Alfieri, *op. cit.*, p. 129, n. 321: 'This Philippus the comic poet is the son of Aristophanes; he specialised in comedy, and we know that he put on plays by Eubulus (cf. A. Wilhelm, Urkunden dramatischer Aufführungen in Athen, Vienna, 1906, p.

126); so it is thought that the Daedalus here attributed to Philippus is the Daedalus of Eubulus’.

<sup>2</sup>‘interweaves’: on this ‘interweaving’ (periplexis or, as Democritus called it, epallaxis), see comm. on no. 313.

<sup>3</sup>See comm. on no. 452.

446

<sup>1</sup>‘by the number’: i.e., probably, ‘by the force of definite mathematically formulated laws’; cf. Ar. De caelo 303a8: ‘in a way they too (Leucippus and Democritus) make everything into numbers and composed of numbers; even if they do not say so plainly, all the same that is what they mean’. See no. 117 with comm.; Frank, op. cit., p. 220 was the first to cite this passage. So the creator of the fictional biography of Democritus used a good source, as in several other places, when he described the relation of the soul to the body as a ‘harmonic proportion’: Boethius, De musica V.1: ‘doubtless knowing that the whole structure of our body and soul is held together by musical harmony. For as our bodily states are, so even the pulse is stimulated by the movements of the heart. Which he [Democritus] is said to have told the physician Hippocrates, when he [Hippocrates] visited him in prison to treat him, when all Democritus’ fellow-citizens thought him insane’.

447

<sup>1</sup>‘things grasped by the mind’: this is an Epicurean formulation, but the same concept goes back to Democritus.

<sup>2</sup>‘shapes’: see no. 199.

448

<sup>1</sup>‘everything has some kind of soul’: but at very different levels, in keeping with the ‘mixture’ of atoms, i.e. percentage of soul atoms in the body (the highest percentage is that in people, 50%). Cf. nos. 454, 460, and also Hermipp. De astrol. (Ioann. Catrares) II.1.11, p. 23 Kroll (no. 556): ‘the mixture in animals did not come to be all alike; but those which consisted mainly of the earthy [element], plants and trees ...’ But see comm. on no. 586.

<sup>2</sup>ta nekra tōn sōmatōn: ‘dead bodies’, more precisely ‘corpses of bodies’. As regards corpses, Democritus may have been talking of people prematurely buried, or of that minimum of life which he ascribed to plants and even perhaps to stones. Democritus could not, of course, have talked of personal consciousness in corpses. That is an Epicurean slander, see no. 586.

<sup>3</sup>In Diels’ opinion the reading aphanōs [‘unapparent’] is untenable in view of passage no. 586. Cf. Hermes, 13, 1878, p. 4.

451

<sup>1</sup>'fire and air': a contamination of Democritus' doctrine with those of Diogenes of Apollonia and Hippocrates (see comm. on no. 455).

II. Soul and intellect. Their location in the body. Thought.

452

<sup>1</sup>'soul is the same as mind': this identification had a polemical character in Democritus. At the time when the Pythagoreans and other idealist thinkers understood by mind the capacity to grasp the external world immediately, without the aid of the senses ('a power to grasp the truth'), Democritus totally rejected the possibility of the existence of such a power. As we shall see below (no. 455) Democritus also accepted the existence of a co-ordinating organ of thought (to hēgemonikon ['the controlling [part]']), but that organ too, like every other part of the body, he regarded as consisting of interwoven atoms of body and soul, so that in principle there is no difference between soul and mind.

453

<sup>1</sup>'in the whole of the perceptive body': cf. no. 456: 'in the whole body'. See also no. 461.

454

<sup>1</sup>The passage of Lucretius demonstrates the incorrectness of Aristotle's criticism in no. 453: the atoms of soul and body are not simultaneously in the same place, but side by side.

<sup>2</sup>singula privis ('one after the other'): apparently this proportion exists only in a healthy person. In animals, plants, stones etc. the percentage of atoms of soul is, of course, correspondingly lower; in a sick person this alternation is disturbed (see no. 460).

455

<sup>1</sup>This is virtually a word for word quotation from Epicurus, as is shown by a scholium on Epist. II (D.L. X.66): 'and it has a non-rational part, which is scattered throughout the rest of the body, but the rational part is in the chest, as is clear from fear and joy'. Lucr. III.140-5:

'And it stays firmly fixed in the middle, in the chest. For here fear and dread leap up, and round those regions joys soothe us. Here, then, is the mind and the intellect; the other part of the soul, scattered throughout the whole body, obeys and is moved by the authority and impulse of the mind'.

Nevertheless, we have no right to maintain that Aetius did not have good information about Democritus and that on this question Democritus' doctrine did not coincide with that of Epicurus. As we see from nos. 453, 454 and 456, according to Democritus the atoms of the soul are dispersed throughout the entire body; so, strictly

speaking, according to Democritus any part of the body is endowed with the capacity for perception (nos. 461, 453, 456; thus, for instance, people can see things in dreams though their eyes are closed), but there also exist co-ordinating centres. It is perfectly possible that, for Democritus, there were two such centres, ('in the chest' and 'in the brain'; if so, Plato was a follower of Democritus on this question), or even more. In antiquity the prevailing opinion was that Democritus regarded the brain as the organ of thought; see the pseudo-Democritean treatise On the nature of man (ps-Hippocr. Epist. 29.IX, p. 394.8ff. Littré): 'the brain guards the summit of the body ... Double bones ... conceal the brain, which is the guard over thought'. See also Pl. Phaedo 96b: 'whether blood is that with which we think, or air or fire, or none of these, but it is the brain which provides us with the senses of hearing and seeing and smelling. And memory and belief would arise from them, and from memory and belief, when they have achieved stability, we come to have knowledge of those things'. Cf. Hippocr. De morbo sacro 14: 'as long as the brain is undisturbed, a man thinks'. (16-17): 'This is why I think that the brain has the greatest power in a man. For it is the brain which interprets for us things happening in the air, if it is healthy, and the air provides it with intelligence. And the eyes and ears and tongue and hands and feet carry out whatever the brain discerns [should be done]. And in every part of the body there is thought, in so far as it has air in it. But it is the brain which reports to the intellect ... so I say that the brain is what interprets the intellect ... ' In Hippocrates the vital substance is not fire, but air; that indicates also the influence of Diogenes of Apollonia. Frank, op. cit., p. 378, n. 354, sees the influence of Democritus: 'Here (Phaedo 96b) are theories ascribed especially to Democritus, for instance the theory of the brain as the seat of the cognitive faculty; similarly what is said after that about the origin of human knowledge may have been taken over from Democritus'. If this is actually a legacy of Democritus, we must suppose that its intermediaries were the Pythagoreans, among whom, as was then supposed, that doctrine had existed from the earliest times. DL VIII.30 ascribed that doctrine to Pythagoras himself: 'the empire of the soul extends from the heart to the brain; the part in the heart is spirit, the part in the brain intelligence and mind'. Similarly Athenaeus II.65 ( 'the philosophers did not allow us to eat the brains of pigs, saying that those who partook of them, as of beans ... at any rate none of the ancients ate it [the brain], on the ground that virtually all the senses are in it'), setting out a similar doctrine, no doubt has the Pythagoreans in mind. However, see Alcmaeon, DK 24 A 5, 8 and 13; at DK 24 A 11 Diels includes both the above passages (of Plato and Hippocrates) among the testimonia on Alcmaeon without any reservations.

²tēn sunkrisin ['the combination']: an Epicurean technical term, meaning 'the organism'; cf. schol. ad Epicur. Epist. I (DL X.66): 'the parts of the soul are dispersed throughout the entire combination'.

<sup>1</sup>Since Democritus is here named as a supporter of the doctrine that the life-giving centre is not located in the heart, it is perfectly possible that the critique of the doctrine that the soul enters the heart which is already formed, maintained in the adjoining phrases, and based on the anatomy of animals, has some connection or other with Democritus.

460

<sup>1</sup>'in the correct proportion': see comm. on nos. 441 and 459. If the correct alternative arrangement is upset, since in one part of the body the atoms of fire (of the soul) are immediately adjacent to one another, and in another they are not there at all, then the person becomes too hot or too cold, and in that case he thinks what is incorrect ('thinks other' [than he should] or 'thinks badly'). See H. Diller, Philologus, Suppl. Vol. XXVI, part 10, p. 63. And conversely, if the body is too hot or too cold, the atoms lose their correct consecutive alternation. Democritus called this alternation 'mixture' (krēsis) (no. 460), cf. no. 441: 'and further, they vary in mixture according to their states and ages'; Hermipp. De astrol. II.1.11 (no. 556): 'the mixture of animals did not come into being all alike'. That completely corresponds to the meaning which Democritus gave to the expression krēsis (see no. 342, [Alex. De mixt. 2]): 'Democritus thinks that what is called mixture comes about through the juxtaposition of bodies, when the things that are mixed are split up into small parts whose positioning next to one another constitutes the mixture; he says that in the beginning things are not truly mixed'.

<sup>2</sup>'makes the soul out to be a body': Diller, Philologus Suppl. Vol. XXVI, part 3, compares Hippocr. De aër., aquis, locis 16.5-8 Littré.: 'for there do not occur any disturbances of the mind or violent changes in the body, as a result of which it is more likely that anger would be intensified and share in the mindless heat (on the meaning of this term see nos. 549-50 w. comm.) than if their dispositions were always the same'.

<sup>3</sup>'from earlier thinkers': the conception of the soul as a material entity is characteristic of the whole of Ionian philosophy: 'Democritus was no exception ... It was also characteristic of this whole tendency that thought and perception reduce in one way or another to the physical condition of the percipient' [This quotation is not ascribed to any author.] Cf. no. 73 with a reference to Empedocles and Democritus (Diller, op. cit.). Diller connects the doctrine of the uniform distribution of 'the hot' in the body with Democritus' ethical doctrine on 'cheerfulness' (euthumia).

<sup>4</sup>'condition': see comm. on no. 441.

461

<sup>1</sup>Cf. Hippocr. De morbo sacro 17: 'the whole body shares in thought, in so far as there is air in it'. If fire is substituted for air we have the doctrine of Democritus.

### III. Breath

462

<sup>1</sup>tou zēn oron einai tēn anapnoēn [‘breath is the limit of life’] is untranslatable, meaning (cf. Philop. ad loc. 68.28, cited here) that life ceases simultaneously with breathing. Alfieri, op. cit., p. 32, translates: ‘the limit of life is marked out by breath’. sunagontos: ‘compresses’; since the surrounding air is much colder than our body it compresses the body, since that is a property of everything cold (Philop. ad loc., 63.20). to sunagon kai pēgnuon (‘that which compresses and condenses’) is incorrectly translated by Alfieri, op. cit., p. 33. He artificially constructs an opposition between ‘that which compresses’ (to sunagon) and ‘that which refrigerates or condenses’ (to pēgnuon). “Compressing” (i.e. driving out of the body, Luria) and “condensing” must mean forming a compact mass which has lost the extreme mobility characteristic of the soul’. In order to arrive at a meaning so alien to Democritus Alfieri resorts to conjecture: ‘It seems to me’ he says, ‘that the sense demands that to be supplied before pēgnuon’. But to sunagon kai pēgnuon means simply ‘compression with condensation’, which causes the ‘expulsion’ of fire from the body.

<sup>2</sup>ekpurēnizesthai (‘are squeezed out [like the stone of a fruit]’) is undoubtedly a purely Democritean expression, not noticed by Diels-Kranz.

<sup>3</sup>hupokeimenon [‘substrate’]: here ‘receptacle’, i.e. ‘body’.

<sup>4</sup>‘because of their lack of corners’: see comm. on no. 131.

463

<sup>1</sup>‘has nothing to do with that kind of causation’, i.e. teleological causation. Aristotle means simply that Democritus, like other investigators of nature, wanted nothing to do with teleology, and that is clearly understood. But some scholars have drawn from this the surprising conclusion that in Democritus’ time the teleological world-view had not yet been invented, and hence they regard as untrustworthy those reports of Democritus according to which he attacks the teleological world-view. But the teleological world-view is much more ancient and primitive than the theory of adaptation; it is characteristic of all religious systems except those which are absolutely primeval. The expression ‘has nothing to do with’ does not mean that Democritus did not know of such theories, but simply that he never resorted to them. Among ‘the other investigators of nature’ there are, of course, included contemporaries of Aristotle, and they were certainly sufficiently familiar with the teleological causation of the Socratics.

<sup>2</sup>See no. 466 with comm.

<sup>3</sup>In this case too Aristotle demands a teleological explanation from Democritus: that is the meaning of his criticism. For diasaphēsai (here in De spiritu 3) does not mean ‘explain precisely’, but has the sense ‘honestly and directly name the goal for the sake of which all this was arranged’.

465

<sup>1</sup>Cf Lucr. IV.116-8: ‘First of all there are animals some of which are so small that a third part of them cannot be discerned by any means. How is one to imagine any of their internal parts?’.

‘How greatly would the revelations of the microscope have strengthened his argument!’ (Munro) [no precise ref. given].

#### IV. Souls are mortal.

466

<sup>1</sup>Cf. Zeller, Ph. d. Gr. I,2, p. 119 and also no. 463 (Ar. De respir. 471b30). ‘things that happen to the body, not to the soul’: in spite of Zeller’s opinion there is no misunderstanding or textual corruption here. The meaning is ‘this is a change in the body, not in the soul’ for the Democritean soul, consisting of atoms of fire, is in the view of the author of this report not spirit but matter.

<sup>2</sup>Not even Lactantius could bring himself to maintain that Democritus believed in immortality, since Democritus’ doctrine was too well known to everyone. It was only considerably later that Christian writers began to maintain that. There was left only one way to preserve the authority of providence: to represent Democritus’ death as a punishment for his atheism.

<sup>3</sup>Philo De somniis I.31; III.211.17 C-W goes back to the same doxographic source as Lactantius: ‘are the souls of the dead extinguished and destroyed along with their bodies, or do they survive for a very long time, or are they totally indestructible?’.

<sup>3</sup>somniavit [‘dreamed’]: ‘it appeared to him as in a dream’, ‘he had a dim presentiment’

#### c. SIGHT AND THE THINGS PERCEIVED BY SIGHT

##### I. What images (eidōla) are in general

468

<sup>1</sup>See no. 431 with comm., n. 9.

469

<sup>1</sup>See comm. on no. 477.

471

<sup>1</sup>See comm. on no. 484, n. 25

## II. Images as the source of dreams and as emanations of gods

472

<sup>1</sup>that... rather than that given by Democritus': despite the fact that Aristotle contrasts this theory of his with that of Democritus, strictly speaking he repeats Democritus' doctrine, simply substituting 'a certain motion' for 'forms and effluences'. This is perfectly clear from comparison of this passage with the evidence of Plutarch (no. 476) and Sextus (no. 472a):

Democritus corrected in Aristotle

Democritus in Plutarch

(Ar. De divinat. In somn.)

reaching people's souls when they are  
dreaming ... and produce perception  
in the body during sleep ...

Democritus says that the images  
penetrate ... our bodies and produce  
visions in sleep ... (no. 472a, Sext. M  
IX.19: 'some images approach people) ...

However they happen to arrive... being  
transmitted

they come from things of every kind

they are more perceptible (if) the air is  
less disturbed

keeping their images separate from one  
another ... they are best able to do that  
when they travel quickly without  
hindrance through smooth air.

Those which are transmitted (in the  
opposite case) tend more to be dispersed

being rough and uneven it distorts and  
deflects the images in all sorts of ways,  
and weakens their clarity by slowing  
down their flight.

some people who are out of their minds

[when the films come] an  
abundant flow,



foresee things ... and melancholic people hit  
the mark through their impetuosity ...and  
quickly imagine what is coming next.

arriving quickly from things that are  
tumid and heated, produces clear and  
significant impressions.

Exactly the same conclusion, which contradicts Aristotle's entire world-view 'if it were god who was sending [these images]', fully corresponds with the words of Democritus reported by Sextus [M. IX.19, no. 472a] 'Democritus says that certain images approach people ... as a result of which the people of old came to believe that there are gods' (cf. the title 'On images, or On foreknowledge' [DL IX.47]. One should also note that the Aristotelian expression 'if it were god who was sending these images' occurs in a similar context in Hdt. VII.15: 'if it is god who is sending them'. (Cf. VII.16: 'but they are not divine. The wandering dreams which come to people are... mainly visions of what they have been thinking about during the day'.) Similarly in Plutarch (no. 465) the connection between Aristotle and Democritus in the area of the theory of dreams is described in the following words: 'wishing to glorify Aristotle's opinion you [i.e. Favorinus] have set that of Democritus alongside it like a shadow'. See my 'Essays on the ancient theory of the interpretation of dreams' (Proc. of the Acad. of Sciences of the USSR, 1927, pp. 1051ff. and also Acts of the Acad. of Sciences of the USSR, 1929, pp. 140ff. Further, we noted above that this trick, by which Democritus' explanation is taken over with just the change of 'images and effluences' to 'movement of the air' is absolutely typical of Aristotle (see comm. on no. 430, n. 2, on no. 431 and on no. 483, n. 1). We see also in Sophonius' commentary (no. 472a, beginning) how Aristotle imagined these 'movements': 'But we totally refuse to say that images travel, and instead of these we introduce certain movements ... by which the air is shaped [in certain ways], and which penetrate through our ears and nostrils' etc. Cf. Galen De Hipp. et Plat. Dogm. VII.7 (V. p. 643 K., p. 643.3 Müll., 319 Us.): 'Aristotle is much superior; he does not make a physical image travel from the object seen to the eye, but instead a property caused by the alteration of the surrounding air' (= ib., p. 639 K., p. 639.3 Müll.) But even here Aristotle is not independent; he merely modifies in the spirit of his own mechanics the improvement of the theory of 'images' which Democritus had himself introduced into his theory of vision (nos. 477-8), and which Aristotle extended to visions during sleep (see also comm.. on no. 431, n. 11). This becomes even clearer on comparison of two totally analogous passages of the commentary of Michael of Ephesus, the first of which goes back to the treatise of Alexander of Aphrodisias On daimones:

Mich. Ephes. In De divinat. In somn. 2,  
p. 84.16 ff.

their minds are stirred up (thurokopeisthai)  
by the images and forms which are in them.

p. 84.3

the mind is set in motion by the  
motions and forms which are in them ...

The 'images' which we meet in this excerpt are absent in Aristotle, who changes them to 'motions'. 'Images' is a specifically Democritean expression, which Alexander can have copied only from Democritus; consequently, the Aristotelian passage so closely resembled Democritus that it could be supplemented from him. (On 'have someone knock at the door' (thurokopeisthai) see n. 15 below.) The later Peripatetics were much better at removing these traces of Democritean provenance and constructing a completely idealistic theory. Cf. Ael. VH III,11: 'The Peripatetics say that by day the soul, being enslaved to the body, is bound up with it and cannot discern the truth in its purity, but by night it is released from this servitude and takes its place in the chest and so becomes more prophetic, which is the source of dreams'. This is something completely different from the 'Aristotelian' theory of the treatise On dreams, where the soul is seen as a part of the body ('and produce perception in the body during sleep'), which we never find elsewhere in Aristotle. We reach the same results if we compare this passage of Aristotle (464a5-464b5) with the preceding 463b12-31. For here, as in no. 101(GC 315b28ff.), Aristotle, strictly speaking, says the same thing twice over, the first time perfectly precisely, the second time more freely, paraphrasing his source, Democritus. For instance, here [464a22] 'people you come across at random can see the future', there [463b15-16] 'the most simple people foresee the future'; here [464a21-2] 'if it were god who was sending this', there [463b16] 'it is not god who sends this'; in both passages 'melancholics' [463b17, 464a32] etc. But there is a difference: here, following Democritus, Aristotle want to have nothing to do with god ('if it were god who was sending this ...') and he explains everything by purely physical causes, whereas there [463b13-14] Aristotle is prepared to consider dreams [not]<sup>186</sup> as 'sent by god', but as 'daimonic' [daimonia], i.e. sent by daimonic beings.

<sup>2</sup>'random people': cf. Mich. Ephes. ad loc., 84.3: 'and they give another explanation of why random people, but not the wise, foresee the future; they say that such people's minds are empty of the finest thoughts, which arise from philosophy, and lacking other concerns they are easily stirred by things that impinge on them, while the minds of the wise are concerned with many things and moved by them, and so they do not see what impinges on them, just as when awake people who are absorbed in thought about something do not notice someone passing by (for the larger motion obliterates the smaller), and similarly in sleep the mind which is being moved by the motions or images which it contains does not see the things that impinge on it'.

<sup>3</sup>'for they would occur by day': cf. Cic. De divinat. II.61.126: 'If it is god who gives us these images so that we can foresee things, why does he not give them to people who are awake, rather than to people who are asleep?'

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<sup>186</sup> [This insertion is necessary to make Luria's note accurately represent Aristotle's text at this point, since Aristotle says that dreams are not sent by god, but are daimonia, lit. 'appropriate to or belonging to daimones' (i.e. creatures intermediate between the divine and the human), since nature is daimonia, but not divine. The Oxford translation (Barnes ed., I, p. 737) renders daimonia as 'mysterious'.)]

<sup>4</sup>'if it were god who was sending them': see n. 1 above.

<sup>5</sup>'their own motions': see Mich. Ephes. ad loc., 84.16.

<sup>6</sup>'through their impetuosity': see Mich. Ephes. ad loc., 85.5 (this section of comm., nn. 1,2 and 9).

<sup>7</sup>'as if shooting from a distance': for the explanation of this see Ar. De divinat. In somn. 463b16ff.: 'those whose nature is as it were garrulous and melancholic see all kinds of things; because they are moved in many kinds of ways they hit upon similar thoughts<sup>187</sup>, and are lucky in those cases... as the saying goes 'If you throw [the dice] many times, some time your luck will change', which is what happens in these cases'.

<sup>8</sup>'because they are unstable they quickly imagine what is coming next': see J. Volkert, Die Traumphantasie, Stuttgart, 1875, p. 15: 'In dreams the images chase and grab hold of one another on the strength of chance similarities ... All dreams are permeated with such slovenly, free-and-easy associations'. A. Maury 1) 'Analogies des phénomènes du rêve et de l'aliénation mentale', Annales méd. psych., 1854, p. 454, 2) Le sommeil et les rêves, Paris, 1878, pp. 121ff. Maury draws an analogy between dreams and certain psychological disorders, as is also done in the passage of Aristotle cited here. And like the author of the theory cited by Aristotle he thinks it characteristic of the 'deceptive and incorrect association of ideas' in dreams that mere assonance of words creates association of conceptions in dreams. He gives particular examples, such as 'pèlerinage [pilgrimage], the chemist Pelletier, pelle [shovel]', 'the flower Lobelia, General Lopez' etc.

<sup>9</sup>'like': see Mich. Ephes. ad loc., 86.5: 'so like such poems [see next note], the insane look at what is associated by similarity (he has said what insane people he means, namely the moderately insane); for their impetuosity does not allow those things to be displaced. For as a violent wave is not displaced by another, but rather displaces what it collides with, so the violent motion of the insane is not displaced by another motion'.

<sup>10</sup>'the poems of Philaigides': the poet Philaigides is unknown to us. We know of him only from this reference in Aristotle (or, earlier, from Democritus): 'they say things which are connected by similarity ... and so they go on stringing things together'. We may conclude from this that these were 'strings of verses' with assonances in the style of folk-poems. On rhyme in Greek popular literature see my article in Journal of the Ministry of Public Education, Dec. 1917, pp. 349ff. 'Aphrodite ... phrodite' is a new pattern of that kind of rhyme.

<sup>11</sup>'say and think': 'say' relates primarily to Philaigides, 'think' to the insane, who string together not merely words on the basis of assonance (laloi = 'speaking strange words') but also a long chain of thoughts whose content has something or other in common (by way of

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<sup>187</sup> [i.e. (as suggested in the Oxford translation, Barnes v. 1, p. 737) thoughts resembling the facts.]

association of ideas). Similar phenomena may actually be observed in particular categories of the insane. Cf. E. Kräpelin, Psychiatrie, Leipzig, 1923, p. 1196: 'They constantly jump ... from one idea to another which is similar or frequently connected with it, without reference to the point'; E. Bleuler, Lehrbuch der Psychiatrie, Berlin, 1923, p. 54: 'Secondary associations, which can also occur to healthy people, but are suppressed by them, concern the sick person just as much as the main theme'. N.I. Ozeretski, Psychopathology of the Development of the Child, Leningrad, 1934, pp. 145, 158, provides examples of the passion of the insane for rhyme noticed earlier by Aristotle: 'Sometimes their speech is interwoven with rhymes arising solely on the basis of simple assonance'.

<sup>12</sup>Since we may have here simply an example of 'saying what is associated by similarity' it is totally unacceptable that some ancient scribes and, following them, all modern editors have deleted the word 'phroditēn'. Without this word the example has no sense, and in his German translation of Aristotle's Parva Naturalia, Stuttgart, n.d., p. 75, Bender was quite right to put a question mark at this point. Since phroditēn can scarcely be a Greek word, I assume here the ancient form phrouditēs = prooditēs ['one who goes in front (to show or make the way)'], which survived till the 4<sup>th</sup> century BCE (cf. phroudos, phroimion, phrouros etc.). On the other hand, cf. ps-Ar. Probl. 880a30: 'Why are melancholic people addicted to sex?'

<sup>13</sup>'appearances in the imagination are similar to reflexions in water': cf. Mich. Ephes. ad loc., 88.16ff.: 'for as in moving water what looks like the image of a man is often not the image of a man, but of a horse, but it has a certain resemblance to a man because of the motion of the water, so in dreams the image shifts from one thing to another. So someone who can understand the similarities, i.e. someone who can judge that the dream images which change from one thing to another are like images in moving water, will not be deceived, but will judge that this thing that appeared as the image of a man was not of a man, but of a horse which had changed to a man. Nevertheless, when I have seen a horse, such and such a thing will happen to me, but not the thing which happened as a result of my seeing a man'.

<sup>14</sup>'their own motions do not concern them': this is a comment on Aristotle's expression (see n. 5 above).

<sup>15</sup>thurokopeisthai ['have someone knock at their door']: this peculiar expression evidently belongs to Democritus. Cicero ND I.41.114 translates it by 'pulsari' ['to be battered']: 'Without any let-up he [i.e. the Epicurean god] is battered ... by the everlasting impact of the atoms'. Cic. De divinat. II.58.120 (= 61.126): 'Our minds ... as Democritus thinks, are battered by chance visions from outside', II.67.137: 'No kind of thing can be thought of except through the impact of images'.

<sup>16</sup>'images': see n. 1 above.

<sup>17</sup>'imprints': In Democritus similar imprints on the air play an important role in visual perception (see no. 478), but in Plutarch (no. 476) we encounter a similar impression applied to dreams: 'images with imprinted likenesses of the bodily shape'. Irenaeus (see no. 472a) evidently translates the same expression 'images and imprints' by the words 'figuras expressas' [lit. 'imprinted shapes'] (the topic is 'images' of gods) and ascribes that doctrine to Democritus ('Democritus was the first to say ...'). Hence we may suppose that in his work On daimones, along with images and imprints Alexander also took from Democritus the expressions 'in between' and 'have someone knock at the door', which are also missing in Aristotle. With 'images' and 'imprints' we may compare 'litterae' ['letters'] and 'sigillum' ['seal-impression'] in Augustine Ad Euodium CLXII.4 =PL 33, p. 706: 'If someone were to maintain that dream appearances, which look like bodies, must be corporeal, he thinks that he is saying something ... indeed it is [the opinion] of many extremely intelligent people ... Whether these things are in the mind like letters written in ink on parchment, where both the parchment and the ink are substances, or like a seal-impression in wax ...'

<sup>18</sup>This saying (cf. no. 801a) is constructed according to the typical formula regularly encountered in Artemidorus: 'the dream ... signifies'. The question of whether the future can be predicted on the basis of dreams during the day was discussed in the literature on dreams, cf. e.g. Artemidor. I.7: 'there is no difference ... between night and day as regards foreknowledge'. Democritus took the opposite view, as we learn from the passage of Aristotle cited in this section (De divinat. in somn. 464a5ff.). In his opinion images which predict the future occur to people only by night: 'they are more readily perceptible at night because those which are transmitted during the day are more readily dissolved; for at night the air is less disturbed since the nights are calmer'. So in his opinion dreams which occur by day have no significance for predicting the future. It seems that our passage is making fun of normal dream-interpretation; sleeping during the day, if it is not the result of laziness or bad upbringing, is a sign of bodily disturbance or serious mental distress. Cf. a similar ironical interpretation of a dream<sup>188</sup> in Antiphon, under the influence of Democritus (DK 87 A 8 = Clem. Strom. VII.24: 'Someone asked Antiphon what was portended by something which had happened to him; his sow had eaten her piglets. When he learned that he had starved his sow, he said 'Be glad of the sign, that though it was so hungry it did not eat your children'').

The gods

472a

<sup>1</sup>'images': the first half of the passage of Sophonius corresponds virtually word for word with the passage of Sextus which follows.

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<sup>188</sup> [The story about Antiphon does not concern the interpretation of a dream, but the significance of an actual event.]

<sup>2</sup>'but we deny': cf. comm. on no. 472, n. 1.

<sup>3</sup>'some are beneficial, others harmful': Cf. Cic. ND I.43.120 (cited in this section): 'Living images, which either benefit or harm us'.

<sup>4</sup>eucheto ('hoped')<sup>189</sup>: see this section, n. 17.

<sup>5</sup>'from which [Images]... the ancients came to believe in the existence of gods, though apart from them there is no god': cf. no. 472, Ar. De divinat. in somn. 2 'if it were god who was sending that', with comm., and also the title of a work of Democritus, On Images, or On Foreknowledge, D.L. IX.46, no. 472a.

<sup>6</sup>'clearly recognised': the right conclusion; Democritus' gods must of necessity send people both good and evil.

<sup>7</sup>'the air is full [of images]': see DL Prologue 7 (no. 472a): 'the air is full of images', ps-Hippocr. Epist. 10.3 (see below): 'the air is full', Cic. De divinat. I.67.137: 'Everything is full of images'.

<sup>8</sup>Diels (DK II, p. 140, l. 1) puts a question mark after 'On Foreknowledge', without any justification, and notes 'probably aporroïēs ['effluence'] as Krische saw'. But here in Sext. M IX.19 it is said perfectly clearly 'the images ... foretell people the future'. This is the only view of 'foreknowledge' which Democritus allows, for Sextus adds 'there is no god other than these', and, consequently, no 'foreknowledge'. It is true that we read in DL III.24 'Plato ... was the first philosopher ... to name ... divine foreknowledge'; see R. Bentley's comment on this passage (Letters of Phalaris, German translation by W. Ribbeck, Leipzig, 1857, p. 523): 'So before Plato's time pronoia did not mean divine foreknowledge or anything attributed to the Divinity, but simply human deliberation and forethought'. But here Diogenes, in his desire to glorify Plato, ascribes to him whatever he pleases; so it seems to me inadmissible to rely on this testimony. See DK III, pp. 374-5, s.v. pronoia.

<sup>9</sup>Since this passage, in which Democritus is named several times, had already been published by Usener (Epicurea, fr. 237) in 1887, it is quite incomprehensible to me why Diels omitted it (obviously intentionally) from his collection. Augustine, of course, simply copied a great deal from Cicero (ND II.30, 76, De divinat. II.67.137, see no. 474 with comm.), but there is a certain amount which is not in Cicero and which must go back in part to some good early source, perhaps the same one as was used by Plutarch and also by the author whom Diogenes uses in Ch. 7 of his Prologue, since there are many verbal coincidences. I print in italics those passages which do not have an original in Cicero; all the rest are, obviously, fairly clumsy additions of Augustine's own.

<sup>10</sup>'those people': i.e. Cicero.

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<sup>189</sup> [The more usual sense 'prayed' fits the context. See n. 17.]

<sup>11</sup>'eternal': Cicero [ND I.12.29, also in this section] says exactly the opposite: 'He [Democritus] denies that anything is eternal'.

<sup>12</sup>'like vapour': similarly in DL Prologue 7, also in this section: 'by effluence from evaporation'. See no. 383 and comm. on no. 501.

<sup>13</sup>The doctrine of 'images' as duplicates of gods and people, especially the dead, who often appear in dreams to their friends and relatives and are externally very like the god or the dead person, but are actually no more than thin, hollow shells, existed in Greece from the most ancient times; to these 'images' was often ascribed the gift of prophecy. See E. Rohde, Psyche. Seelenglaube und Seelenkult in den homerischen Gedichten secs. 1-3; A. Körte, s.v. eidōlon, RE V, col. 1122, where the relevant material is collected. The Persians had similar conceptions, but their word for word coincidence with the evidence for the atomists admits of no doubt that those Persian conceptions, even if they were one of Democritus' sources, acquired there a strongly atomistic colouring.

<sup>14</sup>'images and imprints': cf. Mich. Ephes., comm. on no. 472, nn.16 and 17.

<sup>15</sup>'deny ... that there are gods': see n. 17 below.

<sup>16</sup>In this excerpt Cicero gives three explanations for the perception of gods. First, 'images and their wanderings'; this hendiadys means 'images moving around'. These 'images' are mentioned twice more elsewhere (ND I.43.120)<sup>190</sup>. Second, 'our thought and intelligence'; later these are called principles of the mind, i.e. 'soul atoms' (ND I.43.120). Third, 'that nature which pours and sends out those images'. This is obviously identical with the expression in the passage which follows: 'huge images, big enough to surround the entire world'. Augustine follows Cicero (De divinat. II.67.137) in describing them as 'solid bodies'; from them 'there flow images which are not themselves solid'. Of course, Democritus called none of these three kinds of things 'god', since he denied the existence of gods. But since he called them 'greater than human' or 'divine' or 'more divine', Cicero made them into gods (comm. on nos. 572-6).

<sup>17</sup>'he eliminates the divine... altogether': Cicero draws the correct conclusion from Democritus' views (ND II.30.76, cited in this section). The attempt of Apuleius to keep Democritus as a religious believer (cited in this section, at the end) is hopeless. Yet in this regard it remains incomprehensible why Democritus should have spoken of 'praying' (see Themist. In De divinat., Sext. M IX.19, Plut., De defectu orac., all cited in this section). But on the one hand euchesthai is very often used in Greek in a weakened sense, 'want' or 'hope', and on the other the expression may have occurred in an ironical context, such as 'if it is necessary to pray, it would be most sensible to pray for this, to meet etc.'

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<sup>190</sup> ['twice' leads us to expect a second reference. Perhaps L accidentally omitted ND II.30.76 (also cited in this section) which mentions Democritus' positing 'simulacra' ('images') of the gods.]

<sup>18</sup>'Democritus' native city': the reference is to Abdera, which was celebrated as 'the city of fools'.

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<sup>1</sup>See comm. on nos. 572, 572b.

474

<sup>1</sup>'everything is full of images' is a quotation from Democritus, see comm. on no. 472a, n. 7.

<sup>2</sup>'through the impact of images': see also Cic. De divinat. II.61.126: 'for whether it is an impact coming from outside that moves people's minds when they are asleep, or whether they are moved by themselves ...' This is evidently a translation of the Democritean expression 'have someone knock at the door', see comm. on no. 472, n. 1.

475

<sup>1</sup>'like a shadow': we see from this that Aristotle's theory of dreams was only a little different from Democritus' doctrine; see comm. on no. 472.

476

<sup>1</sup>Living beings contain more atoms of fire than non-living: these atoms are the most mobile.

<sup>2</sup>hekastōi is the instrumental dative: see Kühner – Gerth, op. cit., p. 428.

<sup>3</sup>pros orgōntōn kai diakaomenōn [lit. 'from things which are tumid and heated']: 'from those in a state of excitement': see comm. on no. 472, n. 1.

<sup>4</sup>'like the people of Aegium or Megara': the people of Aegium in Achaea asked the Delphic oracle, after a victory over the Aetolians, who were the bravest of the Greeks. The oracle replied 'Your race, men of Aegium, is neither the third nor the fourth for bravery'. Since a similar story was told about the Megarians, here in Plutarch and also in Alciphron, Epist. II,34, both peoples are mentioned. Cf. Leutsch – Schneidewin, Paroemiographi Graeci, vol. 1, Göttingen, 1839, p. 19; Alfieri, op. cit., p. 114, n. 282.

<sup>5</sup>In Diod. III.50.4 we find an explanation of the fata morgana from the same atomistic standpoint; it may perhaps go back to Democritus himself, via Hecataeus of Abdera, whom Diodorus uses at every step: 'A remarkable phenomenon occurs in this area, and by land in Libya beyond the Syrtes. At certain times, especially when it is calm, there are seen in the air objects in the form of all kinds of creatures. Some of these remain still while others move, and some run away from people, while others chase them. They are all of enormous size, and cause immense fear and terror to those who are unfamiliar with them. When those which chase people catch them they flow over their bodies, cold and throbbing, so that foreigners who are unfamiliar with them are totally terrified, but the locals who



encounter these things frequently think nothing of the matter. Though this seems something astonishing, like a mere fiction, some natural philosophers try to explain it as follows. They say that in that area some winds do not blow at all, while the others are extremely gentle and quiet; and in the air there is often an amazing calm and stillness because there are no enclosed valleys or shady hollows nearby nor are there any mountain crests or large rivers, and as a whole the nearby land bears no crops and so does not give out any exhalations; all of these are the normal causes of winds. So, as we see sometimes all kinds of shapes in the clouds on wet days, that happens in Libya too when the land is in the grip of extreme heat, when the condensed air is formed into many shapes. When a calm prevails ... this heavy air settles on the ground in whatever shape it has happened to take; and then since there is nothing to disperse it it approaches whatever creatures happen to encounter it. Their movements in either direction are said not to signify any intention, for it is impossible for voluntary pursuit or avoidance to exist in anything inanimate. But it is the creatures [who come into contact with them] who are unknowingly [the cause] of their movements in the air. For as they approach they violently repulse the underlying air, and so the image composed of air retreats and gives the appearance of flight, but when the creatures retreat from it it turns round and follow them, and the causation is reversed, as if it [the image] desired void and rarefaction. So it seems to be pursuing those who are running away from it, as it is dragged along and falls forward in a mass because of the reversed flow [of the air]. And when those who are running away turn round or stop, as one would expect they come into contact with the particles of the accompanying image, which is shattered by the collision with a solid body, and as it flows all over the bodies of those who encounter it it cools them’.

### III. Appearances (emphasis)

477

<sup>1</sup>‘nothing was yet clear’: this must mean that there later appeared a systematic treatise on optics, which Aristotle rated so highly that he regarded all earlier work merely as ‘prehistory’. Theophrastus says the same about Democritus’ knowledge in the field of perspective (no. 478): ‘though he tries to say how magnitudes and distances appear, his exposition is inadequate’. But besides Vitruvius (no. 139), who speaks of Democritus’ discoveries in the field of perspective, Aetius (no. 479) also says that Democritus had his own theory of the refraction of light rays. Since it does not appear that Aristotle himself made any further contributions to the field of optics, and since, moreover, we do not know of any epoch-making treatise from the period between Democritus and Aristotle (and Aristotle himself modestly adds ‘so it seems’) one should not ascribe especial significance to this passage.

<sup>2</sup>‘images ... impact’: according to no. 478, which is worthy of much greater credence, it is not ‘images’ which impact the eyes, but their imprints on the air; ‘images’ play that role only for vision which does not make use of the eyes (dreams and imagination). Either

Democritus changed his mind at some point, or Alexander uncritically ascribes Epicurean opinions to Democritus. Alexander's mistake is also repeated by Aetius, DL [both in] (no. 469) and others. Cf. E. Haas, 'Antike Lichttheorien', AGPh 20, 1907, pp. 362ff.; Zeller, AGPh 15, 1902, p. 138. It is impossible to find a contradiction [on this point] between Leucippus and Democritus, since all the passages cited in no. 469 mention not only Leucippus but Democritus as well.

<sup>3</sup>'by the juxtaposition to one another': see no. 282.

478

<sup>1</sup>'by the thing seen and the person seeing': both the thing seen and the observer have a part in the formation of the imprint. I take it that this imprint must be flat and transparent (sustellomenon)<sup>191</sup>, reduced in size according to the laws of perspective; cf. Vitruv. VII.11 (no. 139): 'how the lines must naturally correspond to the direction of the eyes and the extension of the rays of light, once a certain place has been fixed as the centre'. The imprint is reduced as it travels along 'the path prepared by the rays issuing from the eyes' [no ref. given]; see no. 480: 'the light meets our sight'.

<sup>2</sup>stereon here means not 'protuberant, convex' but 'compact, solid', cf. 'thick' below and later 'the sun ... thickens the air'. This 'image' moving along a ray is taken from Empedocles (see Aet. IV.13.4), and is perhaps what Hestiaeus of Perinthus later called a 'ray-image' (aktineidōlon) (Aet. IV.13.5).

<sup>3</sup>ho exō chitōn: 'the outer coating'.

<sup>4</sup>hē puknē kai ischura sarx: 'dense, strong tissue' i.e. 'the cornea'.

<sup>5</sup>sompha ('of a porous structure'): within this thick liquid there are many empty channels.

<sup>6</sup>for things of the same kind': see nos. 315ff.

<sup>7</sup>'into wax': cf. comm.. on no. 472, nn. 16 and 17, and Pl., Tht. 191c-d: 'now suppose ... that in our souls there is a lump of wax, bigger in some people and smaller in others, in some people made of cleaner wax and in others of dirtier, in some people made of harder wax and in others of softer'. The last passage goes back ultimately to Democritus. See E. Hoffmann, 'Die Herkunft des Wachsbilder im Theätet', Sokrates 47, 1921, pp. 56-8. Cf. Pl., Phil. 39a-b. See also S.V. Melikova-Tolstaya, 'Gorgias' Theory of Vision', Archive of the

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<sup>191</sup> [The word order of L's note suggests that he intends 'transparent' (prozrachnim) as a translation of sustellomenon. But sustellomenon means 'compacted', not 'transparent', and its subject is not the imprint on the air, but the air between the eye and the things seen, which Theophrastus here describes as 'compacted by the thing seen and the subject seeing'. Since sustellomenon can mean 'reduced in size', it is possible that L intended it to translate that phrase (see above), and that it has been misplaced in his text. But that still leaves the difficulty that what is reduced in size is, according to L, the imprint, whereas what is sustellomenon is not the imprint but the air between the perceiver and the thing perceived.]

History of Science and Technology VII, 1935, pp. 367ff.; P. Friedländer, Platon II, Berlin and Leipzig, 1930, p. 484, n. 1.

<sup>8</sup>'posits an effluence [from the external object]': this need not mean that in a treatise On Forms (Peri Ideōn) Democritus gave a different account of visual perception from the one in the work cited by Theophrastus. Theophrastus says simply that Democritus explained sensations in general, e.g. hearing, seeing in dreams, via 'images'; so if he sees the cause of visual perception as impressions on the air, that is illogical. On Forms (Peri tōn Eidōn) may, finally, be a mistake for On Images (Peri tōn Eidōlōn), but it is more probably Theophrastus' translation into Attic dialect of Peri tōn Ideōn.

<sup>9</sup>'impossible': if one accepts my suggestion that according to Democritus the imprint is flat and transparent this objection lapses.

<sup>10</sup>'empsychoteros': cf. no. 490. [See translator's note.]

<sup>11</sup>'pushing away': the air near the sun is heated, and in expanding it repels and squeezes the surrounding layers of air. Democritus' discussion is restored differently by Lackenbacher, op. cit., p. 50: 'Undoubtedly Democritus thinks of light as a body; since two bodies cannot be at the same place at the same time, the air retreats from the sunbeam, and in so doing collides with other air atoms, so that the space between the individual air atoms becomes smaller, i.e. the air is condensed'. We have already seen from no. 431 that according to Democritus light is not an element in its own right, but merely a property which comes into being thanks to effluences from fire. So what Lackenbacher says must be corrected in that sense.

<sup>12</sup>'metadidonai: 'assign a share'.

<sup>13</sup>'to explain the impression by differences in colour': Lackenbacher, op. cit., p. 52, attempts to explain this contradiction as follows, that 'this doctrine (of the image) is merely cited, and is taken from the doctrine of someone else. In fact the doctrine of the image is found in Anaxagoras, from whom, it seems, Democritus reproduced it'. That Democritus' source here is Anaxagoras is very likely: see Theophr. De sensu 27 (DK 59 A 92): 'seeing occurs via the image in the eyeball, which is not visible against the same colour, but against a different one ... in some cases the different colour is present at night'. This doctrine corresponds totally with Anaxagoras' overall theory, according to which sensations arise from opposition, since according to Anaxagoras like is not subject to the influence of like. Democritus accepted this theory, despite the fact that he adhered to the opposite view ('only like can influence like'). But, despite Theophrastus and Lackenbacher, I do not find here any contradiction with the fundamentals of Democritus' doctrine. In Democritus' view colour simply does not exist 'by nature' and the same thing can be differently coloured depending on where we observe it from. Consequently, according to Democritus atoms of the same shape can affect each other, though they are differently coloured because of their different

position. On the other hand, Democritus was well aware from experience that something situated against a background of exactly the same colour becomes invisible. Cf. Pl. Tim. 67d: 'equal (parts) ... are imperceptible; we also call them transparent'.

<sup>14</sup><ellip>ōs ['inadequate']: see no. 139 with comm. and comm. on no. 477, n. 1.

<sup>15</sup>We find Cicero making fun of the dispute between the partisans of 'images' and of 'rays' in Ad Att. II.3: 'When you complain that the windows are too narrow, you should know that you are finding fault with the Education of Cyrus. For when I said the same thing, Cyrus (Cicero's architect) used to say that the views given by rays coming from broad sources of light are not so pleasant. For 'let vision be A, the thing seen B and C, and the rays D and E'. For you see the rest. For if we saw things via the impact of images, the images would struggle very much in the narrow spaces. But now that flood of rays comes about very nicely'. The theory of 'rays' is Aristotle's, see Aet. IV.13.2: 'some of the Academics say [that vision occurs] when certain rays turn back the sight after impacting on the object'. Zeller mistakenly attributes this theory also to Leucippus, Democritus and Epicurus (Ph. d. Griech. I.2, p. 1127, n. 1) on the basis of the reading of a single passage of Aetius [IV.13.2]; Diels brilliantly points out (Dox. 55) that we have here a case of dittography in the manuscript. There are traces of this dispute also in Aet. V.12.3 ('Why do offspring resemble others, but not their parents?'): 'the Stoics say that ... resemblances to others are caused by the reception of effluences and rays, not by images'. Mathematical optics, based on the work of Eudoxus and working wholly in that direction, did not make any attempt to discover whatever might be the metaphysical preconditions of optical illusions; cf. Damian. 24.7: 'optics does not undertake physical enquiries, nor does it investigate whether effluences are transported to the surfaces of bodies by rays flowing out from the eyes, or images flow in a straight line from the perceived objects into the eyes, or the air in between is expanded or contracted by the luminous breath coming from the eye, but considers merely whether on each hypothesis the straightness of the motion is preserved ...'

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<sup>1</sup>Here, as generally in the explanation of visual perception, Aetius speaks only of 'images'; he wants to have nothing to do with 'imprints' or 'rays'. But we know from Apuleius that the theory of reflection based on 'images', belonged to Epicurus alone; 'other philosophers' (hence including Democritus) obviously maintained another view. See Apul. Apologia 15: 'Whether, as Epicurus says, images flow out from our bodies like sloughed-off skins and then, when they collide with something smooth and solid, are broken up, reflected and pushed backwards and so are picked up in reverse; or, as other philosophers argue, our [visual] rays, whether poured out from within our eyes and then mixed with external light and so united, as Plato thinks, or merely sent out from the eyes without any external help, as Archytas imagines, or driven by the force of the air, as the Stoics suppose, once they have collided with any smooth, shining, solid body, bounce back to our face at the same angle as

that at which they were emitted, and so form an image in the mirror of the external things they touch and see’.

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<sup>1</sup>DK put a full stop after kata diadosin<sup>192</sup> and suppose that this must be understood ‘in an astrological sense’ [Il.p. 112, l. 37n]. Given my punctuation this expression has very much the same sense as in Theophr. De sensu 54, no. 478 with comm., n. 12: ‘and to give the rest of the body a share in perception’. ‘as the mathematicians say’ refers only to the citing of the expression kata diadosin.

<sup>2</sup>‘the light meets’: see comm. on no. 478, n. 1.

<sup>3</sup>See no. 431.

#### IV. Colours

481

<sup>1</sup>See no. 484.

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<sup>1</sup>tropēi (‘dependent on position’): see nos. 230, 248, 433, 434, esp. no. 433, Philop. In GC 314b15: ‘for the same body looks white at one time and black at another ... as the atoms in the compound are rearranged and reordered’; n.434, Philop. ib. 315b9: ‘similarly when the sun’s rays strike the pigeon’s neck it presents the appearance of different colours according to the different positions of the body’.

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<sup>1</sup>Cherniss, op. cit., p. 166, n. 102: ‘The theory is here attributed to “the ancients”, by whom Aristotle means ... and the Atomists (cf. De sensu 442b10-12, Theophr. De sensu. 73, Alex. De sensu 56, 12ff.), although he knew that the latter considered color only as a secondary manifestation of the position of the atoms (GC 316a1-2), so that for them color was not an effluence but the effect on the organ of sight of the position of parts in the effluence’. Obviously this remark concerns not the substance of the question, but the imprecise employment of the expression by Aristotle or Democritus.

<sup>2</sup>‘by touch’: see no. 428.

<sup>3</sup>‘it would be better to say’: see comm. on no. 431, n. 11.

<sup>4</sup>‘in the case of things situated next to each other’: see no. 282 with comm.

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<sup>192</sup> [In fact DK’s punctuation in the 5<sup>th</sup> and 6<sup>th</sup> edns. is identical to L’s, with a comma, not a full stop, after diadosin.]

<sup>5</sup>'later': specifically in the last part of the Physics; see no. 429, end.

<sup>6</sup>'the intermediate colours': see no. 484: 'he says that there are four simple colours, white... black ... red and green ... and the others are mixtures of those'.

<sup>7</sup>'the absurd conclusion': namely that, as well as atoms of space they [the atomists] have to allow atoms of time. See comm. on no. 282.

<sup>8</sup>'as a specific conclusion': see comm. on no. 282, n. 3.

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<sup>1</sup>Cf. Baumhauer, Sententiae veterum philosophorum graecorum de visu, luminibus, coloribus; W. Kranz, 'Die ältesten Farbenlehren der Griechen', Hermes 47. 1912, pp. 126ff.; see below, n. 25.

<sup>2</sup>'arranged obliquely': that means, obviously, that the atoms are arranged in a chequerboard pattern, so that they touch only at the corners in a small space.

<sup>3</sup>'than one another': not the hard in comparison with the soft, as Diels [DK II, p. 120, l. 24n.] and Alfieri [no ref. given] suppose, but in general, some of them in comparison with others, whichever they are. On this Makovelski, Democritus, Baku, 1926 is entirely right.

<sup>4</sup>melan means not just pure black, but any dark colour, especially dark blue (Kranz, Hermes 47, p. 135). This is very important for the doctrine of mixed colours set out below.

<sup>5</sup>'the combinations': cf. Ar. GC 329b26: 'heat is what combines like things (for separating, which is what fire is said to do, is combining things of the same sort)'.

<sup>6</sup>'green wood': does not refer to colour. The reference, as in Od. IX. 320, 379, is to 'fresh' i.e. sappy, as opposed to dry, wood. Kranz, op. cit., p. 132.

<sup>7</sup>'green': 'though this passage too is corrupt, its meaning is clear thanks to Theophrastus' criticism' (Kranz, op. cit., p. 132). That criticism follows below, but Democritus, after all, was not mad and cannot have defined the colour green as 'some combination of solid and void', for according to him everything in the world is of that sort. In my opinion Theophrastus is criticising the form of Democritus' exposition, rather than his thought; specially significant is the fact that Theophrastus speaks of this in connection with Democritus' strange general explanation of the colour green. The key to the solution of the problem is given by the word 'their'; 'their colour' cannot under any circumstances mean 'the colour of the solid and the void', since void does not have any colour. That, of course, means only one thing, 'the colours green and red'. In that case 'from the solid' will mean 'from the same solid as the colour red'. Consequently, Democritus regards green as a variety of red, distinguished only by the position of the atoms and the quantity of void. Later (77) we come across the same theory, according to which green is merely a variety of red: 'leek-green [i.e. dark green] of purple and dark blue, or of green [i.e. light green, greenish-yellow] and purplish'. That

strange passage prompted W. Schultz, Die Farbenempfindungssystem der Hellenen, Leipzig, 1904, pp. 56ff. to understand prasinon ['leek-green'] simply as 'violet'; but that is impossible, since prasinon regularly means simply 'green'. The 'reddish reflection' which Kranz refers to (op. cit., p. 135) is an altogether weak retreat from his position. However, Kranz himself has to admit [ibid.] that 'It remains incomprehensible how purple as well as blue-green is visible in dark green'. By way of example Democritus adds 'Sulphur is that colour', i.e. a mixture of green and purple. But sulphur has no red in it, and Kranz' citing [ibid.] of Goethe's words 'the colour of sulphur, which tends towards greenish' is evidence for precisely the opposite. We are led to the same conclusion, that Democritus regarded red and green as varieties of the same colour, by the words (78): 'if green and white are mixed, we get flame-colour', but we leave that passage aside, since it has been conjecturally restored. But what comes next sounds totally unconvincing (78): 'Red mixed with white makes green'. Hardly anyone follows Kranz, who maintains (op. cit., p. 136) that for the sake of his imaginary theory of the displacement of one colour by another Democritus neglected experience and obvious truth. Alfieri, op. cit., p. 158 is obliged to translate this passage as follows: 'Red mixed with white makes green pure and free of black', which is impossible; from the linguistic point of view we should have to have to chlōron, not chlōron. Alfieri supports his interpretation as follows: 'Democritus cannot have got green from the mixture of red and white'. But that case, as we have already seen, is precisely typical. It is only in that connection that we can understand the mention (78) of green fruit which later turns red; their green colour is here treated as a weakened red. Finally, everything becomes perfectly clear thanks to Theophrastus' criticism [82]: 'Democritus', he remarks, 'never says that green and red are opposite colours; consequently, he obviously thinks that they are not opposite, but that is totally astonishing, since everyone regards these as opposite colours'. All of this makes me think that Democritus was profoundly colour-blind and unable to distinguish green from red. When Schultz speaks of the colour-blindness of the Greeks and especially of their insensitivity to bluish-yellow, that is quite incredible, since Theophrastus attacks Democritus for precisely that 'blindness'. But hardly anyone will object in principle to the suggestion that Democritus was colour-blind, all the more because even now there are more colour-blind people than is generally thought.

<sup>8</sup>'and black' (i.e. dark blue): see n. 4 above.

<sup>9</sup>'intermediate': i.e. a portion larger than the portion of black and smaller than the portion of red. (mediocrem: Diels, Dox).

<sup>10</sup>isatin ('dark blue'): darker than indigo, with a very black and yellow-green tings (Kranz, op. cit, p. 135).

<sup>11</sup>to prasinon ('leek-green'): in Aristotle this regularly means a pure green (Prantl, op. cit., pp. 116ff; Kranz, op. cit., p. 135).

<sup>12</sup> to theion: see critical apparatus. In any event in the given context this cannot mean 'divine', as Makovelski thinks, but simply 'sulphur'; see n. 7 above.

<sup>13</sup> to karuionon ('nut-brown'): 'If nut-brown has to consist of yellow-green and bluish colour, then obviously what is spoken of here is not the bright colour of the solid rind, but a dark brown colour' (Kranz, op. cit., p. 136). Cf. Alfieri, op. cit., p. 158, n. 404: 'Karuionon (nut-green) is not the bright colour of the shell of the nut, but the dirty brown colour which is obtained by pressing the green shells: cp. Etym. Magn. karuobaphēs: Plin. NH\_XV.87'. The passage of Pliny cited reads 'the shell of the walnut (caryon) is used for dyeing wool and a red hair-dye [is obtained from the young nuts]'

<sup>14</sup> daskion ['shadowy']: 'yellow-green' does not mean simply 'dark-coloured'. Hence one cannot relate the ms. reading askion ['lacking shadow] to black and white, understanding 'one another' after 'exclude'. Alfieri, op. cit., p. 158 translates 'that which is lacking in shadow also eliminates the presence of black', and Makovelski, op. cit., p. 101, 'things lacking in shadow in turn exclude dark colour'. A similar translation would of course be possible if we accepted Kranz' reading (he deletes chlōron, so that the supplementation kai leukon relates to the preceding 'from yellow-green and bluish'), though the theory which one would have to postulate on that reading would be quite strange, but neither Makovelski nor Alfieri accepts Kranz' conjecture. Together with Mullach and Diels (Dox.) I have no doubt that the word to be read after to gar must mean 'shadowy', not 'lacking shadow' or 'not casting a shadow'. Their attempts at textual emendation are given in the critical apparatus. I should like, finally, to point out that in the word askios we may have an intensifying alpha (see Kühner – Blass, Ausführliche Grammatik der Griechischen Sprache, vol. I, Hanover, 1890, p. 324: 'alpha intensivum: askios – densely shadowed'). A similar archaising usage (cf. II. XI.55: axulos ['heavily wooded'] would be perfectly appropriate for Democritus; cf. abios ('abundant') in his follower Antiphon [DK 87 B 43]. But we have evidence telling against this in the circumstance that here in Theophrastus (73, 79) we come across the word askios precisely in the sense 'not casting a shadow' (see n. 23 below). I have therefore attempted to restore another archaic word, daskion, which is frequently found in the ancient poets (Homer, Pindar, Sophocles, Aeschylus, Euripides et al.).

<sup>15</sup> 'makes yellow-green': see n. 7 above.

<sup>16</sup> euagēs ('bright, clear'): 'the poetic word is apparently, like moira ['fate, lot, portion'] and misgein ['mingle'] a quotation from Democritus' (Kranz, op. cit., p. 136; cf. no. 281 with comm.).

<sup>17</sup> diacheisthai ['relaxed']: 'the bright yellow-green colour changes gradually to a darker one. See Pl. Tim. 46d: 'cooling and heating, congealing and relaxing'; Theophr. De caus. plant. III.4.1: 'heat and permeate ... for that is when permeation most occurs'; IV.12.12: 'the grains of corn are more quickly permeated when they are exposed to the sun'. Though I here cite



Kranz, Hermes 47, p. 132, n. 3, his interpretation is not totally convincing; the meaning 'ripen' also remains perfectly possible.

<sup>18</sup>'the principles' (of colour): cf. (59): 'white and black are the principles'. Cf. Baumhauer, *op. cit.*, p. 71.

<sup>19</sup>'for the others posit [only] white and black'. That is not true; cf. Aet. I.15: 'Empedocles [said that they are] four, equal in number to the elements; white, black, red and green'<sup>193</sup> (Dox. p. 222). Apparently, Theophrastus did not know of Empedocles' four colours.

<sup>20</sup>sumphusin ['structure'] and sundeseis ['combinations'] here mean much the same as 'relative position' (for like atoms attract one another).

<sup>21</sup>prokrossas and below agnumenas (see critical apparatus): 'with the contour of a broken line, similar to teeth [of a wheel], steps or palisades'. Cf. Dox. 523: 'Theophrastus has preserved the Democritean term, and even what follows does not seem to differ much from Democritus' words. II. XIV.35 uses prokrossas erusan ['they drew them up stepwise'] of ships drawn up on shore in a semicircular arrangement, so that one projected from another like pinnacles on a wall, which are called krossai at XII.258 and 444, explained by Aristarchus as either pinnacles or steps (schol. on XII.258: 'krossai are the headings of memoranda, or the flights of steps round an anchorage'. Cf. Lehrs, De Aristarchi studiis Homericis, p. 231, n. 2 (Porph. and Nicanor ad loc.); Hsch. s.v. krossas. Hdt. VII.188 imitates Homer. ... From Democritus' use of prokrossos it is clearer that when pinnacles are combined in this shape ^^^^ they signify a mound, because of the shape of the mounds, no less than ascending stairs (anabasis, scalae) (cf. Pl. Rep. 515e; Plut. Rom. 20) because of the rising of the steps (cf. Hdt. II.125), and hook-nosed heads surrounding an Argolic wine-bowl are called prokrossoi at Hdt. IV.152 ... morphai agnumenai ['broken shapes'] are for Democritus those which when combined make not a straight line but one which is as it were broken'.

<sup>22</sup>'the ascent': cf. Aeneas Tact. 3.3: 'by each ascent'. 'To the anabasis ['ascent'] of the besieged there corresponds the mound of the besiegers, which was often equipped with palisades and towers' [DK II, p. 122, l. 9 n.]. Kranz is somewhat sceptical about the whole attempt to correct the text: 'This is as much as one can guess from the irremediably corrupt words; for neither agnumenos helps at all (for t is not the atomic shapes which are broken, but at most the planes), nor ta pro tōn teichōn chōmata (Mullach reads sōmata ['bodies']<sup>194</sup>); for what are 'the mounds in front of the walls'? The combination of the singular 'ascent' with this plural is noteworthy. A technical expression must be concealed in sōmata' [*op. cit.*, p. 131, n. 2].

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<sup>193</sup> [The ms. reading is ōchron, whose primary meaning is 'pale', though it sometimes means 'yellow' (see LSJ). Luria's 'green' presumably translates chlōron, which Diels suggests as an alternative reading at Dox. p. 222.]

<sup>194</sup> [According to DK sōmata is the reading of the mss., chōmata Mullach's suggested emendation.]

<sup>23</sup>'casts no shadow': 'a vertical, stepwise positioning of atoms (as a staircase shows) in which the surfaces are arranged at right angles to one another, casts no shadow when the sunlight falls on it from in front' (Kranz, op. cit., p. 131).

<sup>24</sup>ex hōn: 'from what principles', 'proceeding from where', or even, as Alfieri translates (op. cit., p. 160), 'on the basis of what atomic shapes' (of course, that is a weak expression, all the more so because those words are followed not by tetheiē but by tetheiēsan, as Alfieri himself points out). But this gives no reason to go along with Usener and Diels in changing ex hōn to zōiōn ['in the case of [some] animals']. Usener cites as the basis for this change a single passage of Aristotle, GA 785a21: 'it is said that cranes turn darker as they grow older'. But that comparison does not work; here the topic is change of colour given change in the position of object and observer, there change of colour in connection with growth. We have a better parallel to our passage in no. 434 above: 'when people are looking from different position it [the pigeon's neck] looks ... golden to some and black to others'.

<sup>25</sup>'nature': 'the atoms (see no. 196 with comm.) come inside in vision', so that the observer can perceive that internal structure of bodies. This objection is entirely sophistical, above all because, as we have already seen, Theophrastus knew very well that Democritus accepted not only effluences from the surface of objects, but also rays in the opposite direction, from the eye to the object. Moreover, the atomic structure of the object has great significance for the perception of its surface: we perceive precisely the atomic structure of the surface, though we do not see the individual atoms. Exactly so we must in no way suppose that effluences flow from empty pores as well, and that that emptiness produces a representation in us. It is precisely the lack of an effluence in specific places which allows us to conclude that there are pores there, for 'effluence from the void' is a conclusion of the Peripatetics. In so far as we know of something via effluences and in so far as in one way or another we perceive the presence of pores in that thing, then in their opinion effluences must flow from those pores also. This is precisely the argument Augustine uses to postulate effluences from individual atoms (no. 471): 'I ask whether images flow from the atoms themselves? If they do, how are there then atoms from which other bodies split off? If not ... how do they know the atoms, which they have not been able to think of?' Both objections stand side by side, and I can only be astonished that Kranz not only shares Theophrastus' view (op. cit., p. 131 'The theory of the aporroē ['effluence'] which does not fit into this system, since nothing can flow from the void, the nature of which is nevertheless important for the individual sense-impression') but also manages to maintain that Democritus actually accepted effluences from the void (p. 135: 'how we may think of effluences from the void, which they nevertheless seem to accept, at least in their optics')<sup>195</sup>. This is very typical of the failure of Kranz' work. He seeks to show that Democritus had no understanding of the technique of painting and that he arrived at his

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<sup>195</sup> [This sentence is not to be found on p. 135, nor, as far as I can see, anywhere else in Kranz' article. I presume that Luria is citing some other work of Kranz'.]

system of colours purely theoretically (pp. 132, 134ff.): in his opinion it was not Democritus but Plato in the Timaeus who tried to construct a doctrine of colours, relying on artistic practice. Of course, he remarks, Democritus himself speaks of mixing colours and the addition of this or that colour, but ‘these expressions must not mislead us’ (p. 134). Democritus’ words ‘to be clear to sight’ serve as a proof: ‘from which it follows that this is an analysis of sense-impressions’ (Kranz, [ibid.]) and that Democritus investigated the combination of colours not chemically but physically. This is to forget that in most cases the results of both kinds of combination, physical and chemical, are identical, which is why for Democritus there was absolutely no necessity to distinguish those kinds; but obviously for Democritus, whom Aristotle himself regards in contrast to Plato as a paradigm investigator of nature, of whom he speaks repeatedly (GC 316a: the successors of Democritus ‘are at home in natural questions’, it is characteristic of them to ‘be persuaded by appropriate arguments concerning nature’, for the Platonists it was characteristic to have ‘lack of experience [hindering] a synoptic view’, they ‘do not investigate the facts’ or ‘they look at only a few things and draw conclusions too easily’), practical observation played a very major role. Another demonstration of Kranz’ is the following: in (76) it is said that to get ‘the most beautiful of all colours’ one must add only a little green ‘for one must not add in a greater quantity’. ‘But in practice one may add in as much green as one likes’ (Kranz, op. cit., p. 134). Consequently Democritus could not have had the least conception of the actual mixing of colours. But here the question is simply how much green one must add to get the most beautiful colour, and no-one can prohibit Democritus from having his own aesthetic criteria; Kranz’ tastes are not obligatory for him. But it is interesting that, instead of trying to investigate on the basis of modern science what is fruitful and correct in ancient science, Kranz does exactly the opposite; he tries to show the worthlessness of contemporary science with the help of ancient. ‘However, even contemporary chemistry reaches the point of recognising in the molecule a definite ordering of atoms, and even accepts definite forms of molecule’, he exclaims in distress (p. 131). He speaks, for example, ‘of the courageous attempts (of antiquity) to solve the greatest difficulties with the aid of swift conclusions’ [p. 132], and adds ‘Here, however, we must not forget modern science, which admits the transformation of the heat rays of the spectrum into rays of red light’ [p. 132, n. 2]. All these sad reflections lead Kranz to the conclusion: ‘the endless play of colours which delights our senses is not the act of blind necessity, but of the Demiurge: man may approach him only with reverence’ (p. 139). Sapiienti sat.<sup>196</sup>

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<sup>196</sup>[These concluding remarks seriously misrepresent Kranz’ article. The passages cited from pp. 131-2 do not, as Luria suggests, seek to denigrate modern science by comparison with ancient, but simply to point out certain analogies between the two on particular points. (It is worth noting that Luria’s translation begins both quoted sentences with vprochem, (‘however’, suggesting contrast, whereas Kranz has ‘übrigens’ (‘moreover’), indicating similarity of view.) The passage ‘the courageous attempts ...’ is in fact taken from a specific criticism of Democritus’ excessively brief account of the primary colours, not from a passage of praise for ancient science in general. It is hard to see what is ‘sad’ in these remarks, or why the quotation from p. 131 should be taken as an expression of distress. Finally, the thesis stated in the concluding quotation is not Kranz’ own, but Plato’s in the Timaeus.]

<sup>26</sup>for it seems that way to everyone': on Democritus' colour-blindness see n. 7 above.

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<sup>1</sup>diatagēi te kai ruthmōi kai protropēi ['arrangement and shape and position']: see nos. 238ff.

## d. THE OTHER SENSES

### I. Hearing

489

<sup>1</sup>See no. 480.

<sup>2</sup>'lightning': see comm. on no. 431.

490

<sup>1</sup>That this theory was first stated not by Epicurus but by Democritus is attested by Plutarch himself below.

<sup>2</sup>'parts': 'between the parts'. The parts are not the atoms, but volumes of air, which, we know, consists of atoms of different kinds (panspermia), consequently something like 'molecules'. Cf. comm. on no. 494, n. 2. In fact, atoms cannot be compressed, since they 'are not subject to external influence'; when the temperature falls it is not the atoms which are reduced in size, but these parts ('volumes', i.e. the empty spaces contained in them), even when the expanse of space between these 'molecules' increases. In the same way the word endiespartai ['is scattered'] relates to the empty spaces between atoms, but the word memiktai ['is mixed'] to the spaces between 'parts of air'.

<sup>3</sup>'is muffled': i.e. becomes unclear, inaudible. Cf. below: 'muffle' i.e. silence.

<sup>4</sup>'large distances': i.e. within a single part ('volume'), between the atoms composing that volume. See here, at the beginning; no. 494 (Alex. ad loc. 68.13, at the end).

491

<sup>1</sup>'the fragments of sound' relates equally to 'of the same shape' and to 'roll around with': a) the air is split up into particles of the same shape as the various particles of the sound; b) each of these particles rolls along with a sound-particle of the same shape.

<sup>2</sup>'how could a few': see no. 432.

493a

<sup>1</sup>Just as images (eidōla) are bodies similar to the objects which emit them, and so are capable of causing harm (the evil eye, see no. 476), so sounds which reflect harmful or shameful objects can do harm, for they are either 'bodies of the same shape', or the 'shadow of the deed'. So one should euphēmein ['avoid blasphemous or ill-omened speech'] and not utter such words.

### II. Taste

494

<sup>1</sup>'consistencies': see Ar. De sensu 441a11ff.: 'We see the flavours changing through heat, when the pericarps are removed and they are exposed to the heat of the sun or to fire. That is not because they [the flavours] are drawn out of the moisture, but they change in the pericarp itself, and when they are extracted and left to lie, over time they become sour instead of sweet and bitter and all sorts of things, and when they are boiled they change, so to speak, into all kinds of flavours'.

<sup>2</sup>'parts of the water, molecules': see comm. on no. 490, n. 2. If my understanding is correct, it may turn out that two such 'molecules' of water can be seen as 'molecules' of two distinct substances perceptible by taste, for in this the only significant atoms are those which stimulate our sense of taste, though they may be very few, i.e. those atoms which are 'related' to the atoms of the body. In virtue of changes in the order and position of such (and only such) atoms in a single 'molecule' it becomes a 'molecule' of a different substance perceptible by taste.

<sup>3</sup>'different flavours coming into being', specifically 'over time': see n. 1 above.

495

<sup>1</sup>'of different shape': see nos. 238ff.

<sup>2</sup>The passage is not entirely clear. The meaning is given in the translation.<sup>197</sup> 'peculiar to each': this of course depends on the different atomistic structure of different people's sense organs.

496

<sup>1</sup>'the other substances': cf. Theophr. De caus. plant. VI.1.5: Diels [Dox. p. 518, l. 2 n.] suggests addition 'and it relaxes what is compacted'.

<sup>2</sup>'with hooks': cf. 'with many hooks' [trans. 'zigzag'] just below (Diels).

<sup>3</sup>'would be mixed in', for if that were actually so, as Alfieri correctly remarks (op. cit., p. 151, n. 384) the whole body would have become salty, which is not the case.

<sup>4</sup>'for the pungent has many angles' contrasts with 'the pungent is round': cf. here 'the pungent ... is round and angular'. The discussion of 'round substance' is omitted either by Theophrastus or in the ms tradition (see comm. on no. 503).

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<sup>197</sup> [Alexander appears to be objecting to the atomists' theory that differences of flavour are determined by differences of shape of the atoms composing the thing tasted, the objection being that shapes are 'common sensibles', i.e. objects perceptible by more than one sense, whereas tastes are peculiar to the sense of taste. (That could be at most an objection to the identification of tastes with shapes, not to the thesis that tastes are determined by shapes.) L translates 'though the shapes of the atoms are perceived in common by everyone, they turn out in taste to be peculiar (to each individual)'.]

<sup>5</sup>'for the angular is of that kind', i.e. the effect produced by 'round atoms' thanks to their size and round shape (specifically heating and softening) is also produced by angular atoms thanks to their 'roughness'; cf. (65) 'being rough and angular ... they heat the body', and also comm. on no. 503.

<sup>6</sup>'similar': as Diels remarks [DK II, p. 118, l. 27n.]Theophrastus was unwilling here, as in some other places, to set out his usual special account of oily and harsh flavours (cf. De caus. plant. IV.4.1; Ar. De an. II.10).

<sup>7</sup>'unmixed with the others': cf. Ar. MM 1204a38: 'the good is unmixed with bad things'; Top. 119a27 (Diels [Dox . p. 518, l. 20n.]).

<sup>8</sup>'in each', i.e. each flavour, 'there are many', i.e. shapes. 'and the same one', i.e. the same flavour.

<sup>9</sup>The sophistic-eristic character of these objections, as of the totally identical objections in no. 498, becomes apparent on the comparison of this passage with no. 441 (69): 'and in general the greatest contradiction, which pervades the whole theory, is his both making them states of perception and distinguishing them by their shapes'. There Theophrastus regards it as inadmissible to explain perceptions simultaneously by the shapes of the atoms and by the properties of the perceiving organ; here he finds fault with Democritus for not doing so. It is perfectly possible that in setting out his doctrine of 'substances perceptible by taste' Democritus touched on the role of the perceiving organs only in passing, even though of course he knew perfectly well how important a role they play; as is well known, he himself always emphasised that. Alfieri makes the same point, op. cit., p. 140, n. 356.

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<sup>1</sup>This passage is a criticism of Democritus. 'the powers' refers to the powers of substances perceived by taste, independent of sensation, or in other words the properties of substances perceived by taste (Alfieri, op. cit., p. 140, n. 355). Cf. Langerbeck, op. cit., p. 110, n. 1. See comm. on no. 496, n. 9.

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<sup>1</sup>'prior': i.e. 'on the surface of each substance, as Makovelski and Alfieri translate. Thus, for instance, the fact that we almost always experience sweetness in a sweet substance is explained by the fact that the corresponding atoms are situated on the surface and are all the time secreted on to our tongue; but in that 'substance' there are a small number of other atoms, corresponding to every other taste ('the appropriate ones in each case').

<sup>2</sup>'in bringing these things about': this is the constant, boring refrain of idealistic philosophy; see e.g. no. 463. A parody of Democritus' doctrine of taste is found in a fragment of the comic poet Damoxenus of Athens (Athen. III, p. 102 B = 349 K, The Foster-brothers, fr. 2 = DK 68 C 1):

So when you see an ignorant cook  
 who hasn't read the whole of Democritus ...  
 and Epicurus' Canon, smear him with shit and  
 send him away as you would from a school. For  
 this is what you have to know, first of all, my dear sir, how the glaukiskos  
 [a kind of fish] is different in summer and winter, and then what fish is best  
 at the setting of the Pleiades and at the solstices. For their alterations and motions  
 cause changes in food, which are a terrible trouble for people, you know.  
 But what is taken at the right time does one good. -- Who understands this?  
 -- That is why colic and wind make the guest disgrace himself. But the food I  
 provide is nourishing and digestible and wafts through the body properly.  
 So its humour is distributed evenly into the pores everywhere. For, Democritus  
 says, things which are where they ought not to be make the person who eats them  
 arthritic.  
 -- And you seem to me to know something of medicine too  
 -- Like everyone who knows the secrets of nature.

### III. Smell

501

<sup>1</sup>some [reduce smell] to moist exhalations (atmis), others to dry (anathumiasis)'. Then Aristotle goes on: 'for vapour (atmis) is a kind of moisture, but the other is a smoky exhalation, and water is composed of the former, but a certain kind of earth of the latter'. Meteor. 387b7: 'oil gives off fumes but not vapour, while water gives off vapour but not fumes'. In other places Aristotle regards vapours as a kind of exhalation (Meteor. 341b7): 'there necessarily occur exhalations ... of two kinds, one containing more vapour, the other more wind. The former is the vapour of the moisture within and on the earth, the latter a smoky exhalation from the dry earth itself. The windy exhalation rises above [the other] because it is warm... (359b8) for there are two kinds of exhalation ... moist and dry ... the moist does not occur without the dry nor the dry without the moist, but they are all named according to the predominating characteristic'. As we see, there is a similar evaporation,



both moist and dry, from every body: this is the Democritean 'effluence' or 'stream of atoms'.

<sup>2</sup>"exhalation' ... is applied in a similar way to 'effluences': on 'exhalations' in Democritus see no. 383, ps-Plut. Plac. I.4.3: 'the bodies (i.e. atoms) which are exhaled'; no. 472a (Aug. Ad Diosc. 118.27): 'Images ... are carried away from bodies in a continuous emanation like vapour'; the imitation of Democritus in DL Proem. 7: 'the air is full of images ... flowing off because of exhalation ... '(no. 472a). Cf. nos. 375, 428.

#### IV. Touch (cold and heat)

503

<sup>1</sup>From what follows we see that Democritus comes to what is at first glance a contradictory conclusion: heat is produced on the one hand by round atoms with no angles, on the other by angular atoms 'for the angular produces that effect' (no. 496, Theophr. De sensu 67). Of course that contradiction would be eliminated by accepting that Democritus always regarded roundness as a kind of angularity; see Aristotle, no. 131 [De caelo 307a16]: 'according to Democritus the sphere cuts in virtue of being a kind of angle' (i.e. a polygon), with Simplicius' commentary [662.11-12]: 'the sphere is bent at every point, so as a whole it is appropriately called an angle'. This is in agreement with no. 496 (67): 'pungent taste is ... both round and angular'. In that case it would be necessary to accept Diels' conjecture [DK II, p. 118, l. 26] of 'roundness and angularity' instead of 'roundness and absence of angularity' in no. 496 (67), though the words which follow 'for the angular leads to that result' are inappropriate for that correction. All this, however, seems implausible to me; the expression 'the pungent is angular' indicates definitely that there followed 'and the pungent is round' which has subsequently fallen out. So in both the passages just cited 'round' and 'angular' have to be understood as alternatives: both round and angular atoms can produce 'the substance of pungent taste' and its accompanying sensation of 'heat', but that is to say that there are two kinds of 'substance of pungent taste', just as there are two kinds of white colour; see no. 484 (73): 'white is what is smooth ... hard, white things are composed of such shapes ... those which are friable and brittle are composed of round [atoms] positioned obliquely ... '. But both round and angular atoms each in their own way separate the atoms of the body from one another and so increase the size of the body, and in so doing produce heat, see e.g. no. 505 [Simpl. In De caelo 564.24ff.]: 'those which separate and divide cause the sensation of heat, those which combine and compress that of cold'. So passage no. 504 [Theophr. De sensu 65], where we read 'the angular compress and draw together, and therefore heat [the body]' is in clear contradiction with the remaining passages, so that the ms. reading is impossible and we have to postulate an omission. We have, as I have done in the text, to read 'expand rather than'. This theory was later taken over by Plato, except that, in order to escape the paradox 'the sphere as a whole is an angle', he conceived the atoms of fire as not spherical but pyramidal. Ar. De caelo 307b10ff., which, as Simplicius correctly remarks (ad loc., 670,6) discusses Plato together with others, also refers, I am sure,

to Democritus: ‘some who try to discuss its power (i.e. the power of fire) ... say that what has large parts is cold because it compresses (see no. 504, cited above) and does not pass through the pores. So it is clear that the hot would be what passes through, and that is always what has small parts’. See the corresponding passage of Plato, Tim. 61e ff.: ‘the ... fineness of the sides and the sharpness of the angles and the smallness of the parts ... always cut quickly through whatever they meet with ... separating and dividing up the bodies into small parts it caused, as one would expect, that effect that we now call heat. The opposite of these is clear, but all the same let nothing be missing from the account. When those fluids surrounding the body which are composed of larger parts enter and push out those composed of smaller parts they cannot reach the places where the latter were situated, and they push our moisture along with them and make it uniform and motionless instead of varied and in motion, solidifying it as a single mass. And this unnatural unity naturally fights back, pushing itself in the opposite direction , and this battle and earthquake causes shaking and shivering (cf. no. 506), and this effect and its cause acquired the name of cold’. The ‘battle’ mentioned here, accompanied by trembling and shivering (cf. no. 506), is extremely typical of Democritus (see no. 12): hence it seems that in all essentials Plato here goes back to Democritus. For Democritus, cold is produced by large, twisted, spiral (skalēna)<sup>198</sup> atoms, which penetrate between others with difficulty; see also comm. on no. 507.

<sup>2</sup>See comm. on no. 462.

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<sup>1</sup>‘changing shape’: here refers not to atoms’ changing from one shape to another, since atoms are not subject to external influence, but only to changes in the position, order and structure of the atoms in perceived bodies.

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<sup>198</sup> [L translates the Greek word skalēna by izvilistimi i vitimi, ‘twisted and spiral’. But the Greek word means ‘uneven’ (e.g. an odd number) or ‘unequal’ (e.g. a scalene triangle, i.e. one with sides of unequal length). As a description of atoms it would most naturally mean ‘having unequal dimensions, asymmetrical’. Acc. Theophr. De sensu 66 by skalēna atoma Democritus means atoms which interlock with one another, which suggests that the sense may be ‘having an irregular or uneven outline’. That approximates to L’s rendering, but ‘twisted’ and ‘spiral’ seem excessively specific. As L does not identify the passage which he is translating here, it is impossible to check the context. It does not seem to be no. 507.]

<sup>1</sup>skalēnōn kai trigōnoeidōn ('triangles with twisted sides'<sup>199</sup>): triangles of that kind hook on to the neighbouring atoms and thanks to that tighten the whole body.

<sup>2</sup>'shivering and shaking': as in Pl. Tim. 62b, comm. on no. 503, n. 1.

<sup>3</sup>'roughness': there are then two kinds of 'roughness'. One of these depends on angular atoms with straight sides; that kind of 'roughness' cuts into the body, increases its size and consequently produces heat (no. 496, Theophr. De sensu 65). The other is caused by atoms of twisted shape (ta skalēna)<sup>200</sup>, and compresses the body and produces cold.

<sup>4</sup>'seeds': cf. the Democritean expression panspermia ['a collection of all kinds of seeds'].

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<sup>1</sup>'a large space outside': this does not mean that bodies are expanded by cold, for what is here referred to is not the expansion of volumes of air, but the coming into being of empty spaces between such volumes precisely as a result of their compression. See further comm. on no. 490.

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<sup>1</sup>'the motion (of the sphere) occurs at a point': see comm. on no. 131.

#### e. Miscellaneous

510

<sup>1</sup>'in the body, not the soul': Zeller, Ph. d. Gr. I.2, p. 1119, n. 1, regards this passage as corrupt and suggests reading 'of the soul, not the body'. This is unnecessary, since from the point of view of later doxographers, Democritus' totally material 'soul' was something material, not spiritual. That is exactly what Aetius means by the expression 'in the body, not the soul'. Alfieri thinks the same, op. cit., p. 36, n. 145.

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<sup>1</sup>'new things every day' (i.e. 'with new thoughts for the new day): this dictum of Democritus' goes back to Heraclitus DK 22 B 6 = Ar. Meteor. 355a13: 'the sun ... as Heraclitus says, is new every day'. In two of the three passages of Plutarch cited in the text there is reference, as in Heraclitus, to the sun.

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<sup>199</sup> [On the translation of skalēnon see preceding footnote. 'Interlocking triangles' appears a more plausible translation.]

<sup>200</sup> [See preceding footnotes.]

<sup>1</sup>Democritus' physiological investigation On Laughter, which Cicero apparently refers to here (De orat. II.58.235) may have been, as was first suggested by A. Kiessling, Horaz, vol. III, Berlin, 1889, p. 183, a major source for the conception of the 'perpetually laughing philosopher' which is widespread in later writers.

## F. BIOLOGY

### a. ZOOGONY

#### I. How animals arose from the earth

<sup>1</sup>It should be noted that here the subject does not necessarily have to be the emergence of the first people immediately from the earth: it is perfectly possible that according to Democritus it was not people but much more primitive beings which emerged from the earth, and that it was only as a result of a long development that people were formed from those beings. Unfortunately this passage of Aetius is hopelessly corrupt, but all the same not only my attempt at restoration of the text, but also that of Diels (see app. crit.) lead to that sense, for although Alfieri op. cit., p. 163 translates eideōn anarthrōn as ‘unarticulated limbs’ that is a clear mistake, since eidos can mean only ‘species’ or ‘individual’ (see e.g. Bonitz, Index Aristotelicus). Sustasis means not only ‘combination’ or ‘coagulation’, but also ‘coming into being’ generally; e.g. Arius Didymus Epitome physica 21 (Dox. 458): ‘from it (i.e. fire) as the original stuff the other things come to be by a process of change, and they are all ... finally dissolved into it, so that their coming to be is conferred by it’; Galen, Hist Philos. 8 (Dox. 605): ‘principle’ is said in three ways, first as cause, secondly by way of coming to be, thirdly by way of demonstration ... by way of coming to be when we investigate which part has come to be first’; Aet. I.3.4 (Dox. 278): ‘animals come to be from pure... air’; I.6.3 (Dox. 293): ‘mind has come to be ... in the head’. In any case Alfieri translates zōogonountos as ‘having generated worms’, and so he too does not accept that according to Democritus people came into being immediately from the earth. Löwenheim (op. cit., pp. 111ff., 160ff.) also cites an interesting passage from Redi, Experimenta circa generationem insectorum, Opuscula v. 1, Amsterdam, 1686, p. 9, n. 268, who writes: ‘People came into being, as Democritus says, in the form of little worms, which thereafter gradually and imperceptibly received human form’. Löwenheim supposes that Redi had at his disposal some piece of ancient evidence unknown to us; but it is possible that the whole of Redi’s testimony had its only source in Lactantius’ words ‘like worms’ (cited here). Further, Löwenheim relies on Aet. V.19.2 (Dox. 430): ‘Epicurus and his followers ... say that animals come to be by change from one another, for they are parts of the cosmos’. If this refers to transformation from one form to another, that could be seen as a particular form of the theory of the origin of species, going back to Democritus. But the words ‘for they are parts of the cosmos’ indicate rather another meaning, namely that after death animals are dissolved into their atoms, from which other beings are later constituted. See also S. Luria, ‘Predecessors of Darwinism in antiquity’, Archive of the history of science and technology IX, pp. 129ff.; Zeller, ‘Über die griechischen Vorgänger Darwins’, Abh. d. Berl. Akad. d. Wiss., 1878, pp. 111-25; H.J. Lulofs, 1) ‘De ouden oven apstamming en erfelijkheid’, Nederl. Tijdschrift vor geneeskunde, 1923, I, pp. 878-94; 2) ‘Hippocrates’ geschrift “Over lucht, water en bodem” in zijn historisch-geographische beteekenis’, Tijdschrift van het koninglick nederlandsch aardrijkskundig genootschap, 2-e ser. dl. XXXIII, 1916, Afl. 4, pp. 522ff.

<sup>1</sup>On the authorship of this theory see comm. on no. 382; Diodorus (I.6.3) ascribes it to 'those who think that the world comes to be and perishes'.

<sup>2</sup>'putrid areas covered with thin membranes': cf. Hermipp. II.1.6: 'membranes like bubbles'; Tzet. Schol. ad Hesiod. III.58: 'putrid and bubble-like membranes'; Pl. Phaedo 96b: 'when what is hot and cold putrifies, as some people say, then animals are generated'; Harpocration s.v. embios ['alive']: 'Antiphon, Truth bk. 1 'and the putrefaction of wood would come to be alive''; Aet. II.7.2: 'Leucippus and Democritus stretch a coat and a membrane round the cosmos'; Hippocr. De carn. : 'putrid areas like coats'; Nemes. De nat. homin. 2.46: 'It is the work of providence to preserve the being of mortal creatures which are born from one another; I mean those which do not come from putrefaction, when in succession to one thing the putrefaction preserves others in being; now the greatest work of creation is to make things from nothing'. This expression 'putrefaction' has, of course, a transferred sense; the appearance of a 'putrid ulcer' is the beginning of the process of forming skin. I think that this expression was taken from observation of the healing of a wound; when the hot surface of the wound comes into contact with the cold air something like a crust is formed, and when that falls off new skin appears. This formation of a scar could in antiquity have occurred only rarely without suppuration, hence the expression 'putrefaction', which here strictly speaking does not mean anything diseased (F. Dümmler, Akademika, Giessen, 1889, p. 229).

<sup>3</sup>This doctrine goes back to Empedocles: see Aet. V.19.5, Dox. 430, DK 31 A 72: 'all the kinds of animals were distinguished according to these mixtures; some had a drive towards water, others, which contained more of the fiery element, flew up into the air, and the heavier settled on the earth'.

<sup>4</sup>One should pay attention to the expression 'the reptiles and the rest'; it would scarcely have been possible if at that time mammals too had come into being. We must suppose that Democritus regarded reptiles as the most highly developed of the animals which were born from the earth.

<sup>5</sup>'of the same kind': see no. 315 ff.

<sup>6</sup>The hitherto anonymous dialogue Hermippus was ascribed on the basis of two mss in Turin (Pasini, Codices bibliothecae regiae Taurinensis, vol. 1, pp. 151, 384) by Elter (Byz. Zeitschr. VI, 1897, p. 164) to Ioannes Catrares (cf. Diels, Procli Diadochi in Platonis Timaeum commentarius, II, p. III, n. 2; Boll, 1) Neue Jahrb. f. klass. Philol. 16, 1913, p. 119, 2) Sitzungsb. d. Heidelberg. Akad. 1912, no. 8). Its Christian cosmology is clearly transformed in sec. 5 to the doctrine of Democritus, as was first noticed by Norden, Jahrb. f. Philol., Suppl. XIX, p. 423. Besides the membranes, from Hecataeus-Diororus (I.7.5), there is also repeated (9,10) the observation that the earth no longer brings forth larger animals [DK II, p. 136, ll. 21-5].

<sup>7</sup>See n. 2 above.

<sup>8</sup>'sufficiently baked, ripened': see comm. on no. 534.

<sup>9</sup>After 'plants' there follow the words 'according to the mind of the creator', a typical Christian insertion.

<sup>10</sup>pneuma ['spirit'], translated back into Democritus' language and form of thought, gives, of course, 'fire' and 'psychic heat' (= the heat of the soul-atoms).

<sup>11</sup>endosimon: 'occasion, opportunity, prelude, [signal (to start a race)]'; [with] 'from that' is understood 'time'; this seems to mean 'according to the model of that time', i.e. a weak reflection of that time. Alfieri, op. cit., p. 191, translates, perhaps correctly 'As having then been given the start by him' (i.e. the divine Artificer). If his translation is correct, this too is a Christian insertion.

<sup>12</sup>pagenta: 'frozen', i.e. cold-blooded.

<sup>13</sup>See n. 3 above.

<sup>14</sup>phuta te kai dendra: 'plants and trees'.

<sup>15</sup>'more bloodless': the comparative degree is interesting. Hermippus' source does not know of any bloodless animals (a large class of animals in Aristotle's system), but simply more or less bloodless animals.

<sup>16</sup>'more divine': this may go back to Democritus, but in that case the reference is to a better combination of fire-atoms; cf. Dio 36.1: 'Homer, by getting a share in the divine nature ...'; cf. comm. on no. 472a, n. 4.

<sup>17</sup>The last offshoot of the Democritean World System transmitted by Hecataeus' [DK II, p. 137, ll. 24-5].

<sup>18</sup>The Greeks': pagan scholars.

<sup>19</sup>'putrid membranes like bubbles': see n. 2 above.

<sup>20</sup>'humans': this was not the view of Democritus (see n. 21 below).

<sup>21</sup>After these words there follows: 'that the earth was able to generate animals is shown from many cases, including the mice which are generated in Egyptian Thebes after the retreat of the Nile flood'. This report of the generation of mice from the earth in Egypt is simply an abbreviation of a story in Diodorus, attributed by him to Egyptian sages (I.10.2): 'they try to find evidence of the original birth of animals in the fact that that even now at certain times in the area of Thebes the land generates so many mice of such a kind that those who see it are astonished. For some of them are completely formed as far as the chest and forelegs and they can move, but have the rest of the body unformed, still

consisting of mud. And even in our day according to what the Egyptians say one can clearly see living creatures being generated in the residue of the waters. For they say that when the sun dries out the mud after the river has gone down animals are generated, some completely formed, others incomplete and similar in nature to the earth'. The story is placed not in the introduction but in the so-called 'Egyptian Antiquities' where in general there can be found much that does not agree with the doctrine of Democritus; this passage contradicts the reports of the introduction (no. 515: 'the earth ... can no longer give birth to any of the larger animals') and of Ioannes Catrares, II.1.18: 'it is no longer capable of generating animals of any size'. Diodorus himself (or, more precisely, his source) feels that this story does not cohere with the doctrine which he is summarising; he comments that the fact which he is reporting is an exception (I.10.3): 'for now, when the earth does not produce such a thing anywhere else, it is only here {in Egypt} that one can observe any animals being generated in this extraordinary way'. Consequently we are not obliged to regard the concluding lines of Tzetzes as going back to Democritus, and Diels had no ground for including these words in his collection of testimonia on Democritus. So the word 'humans' in Tzetzes [n. 20 above] need not necessarily have been taken from Democritus.

<sup>22</sup>The authorship is very dubious. In Geoponica XV.2.21 (= fr. 81 Wellmann) there is preserved a passage of very similar content, but with many exaggerations of a magical character, and since, according to the generally accepted view the source for the Geoponica was not Democritus of Abdera but Democritus Bolus of Mendes, it would be possible to regard the passage of Columella as taken from the latter. M. Wellmann supposes ('Die Georgika des Demokritos', Abh. d. Berl. Akad. d. Wiss., 1921, no. 4, pp. 24-5) that the custom described here is of much later, African, origin. But the belief in spontaneous generation is, as is well known, very ancient, and is in complete concordance with the zoogony of Democritus of Abdera. Further, in Columella (fr. 80 Wellmann), in contrast to the Geoponica, there is no mention of any magical rites. Moreover, Democritus Bolus, of course, took over a great deal from Democritus. Therefore, along with Diels and Kranz [DK II, p. 149, l. 16n.] I suppose that the authorship of Democritus of Abdera remains possible. Cf. Kroll, Hermes 69, 1934, p. 230.

## **II. Are changes determined by their cause or by their end?**

### **Instinct and intellect**

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<sup>1</sup>This theory belongs to Democritus. In addition to the grounds already given (comm. on no. 31), the following should also be pointed out:

1. Zeller (Abh. d. Berl. Akad. d. Wiss., 1878, pp. 111-25) brilliantly proved that this doctrine does not belong to Empedocles. Despite that, Diels listed this passage as a fragment of Empedocles (DK 31 B 61); therefore, Zeller's work had remained unknown to him.



2. Zeller's thesis that this theory was invented by Aristotle himself solely for the purpose of immediately refuting it does not stand up to criticism, as Löwenheim showed, in view of Aristotle's words 'those who say that', and Aristotle himself comments (De cael. 297b6): 'Proofs of the opposite [theses] are difficulties for their opposites'. Ross (Aristotle, Physics, p. 528) makes the same supposition, drawing the correct conclusion from the infinitive sumpesein ['falls out by chance']: 'The construction is due to the fact that Aristotle is in effect quoting a view held by certain other thinkers'.

3. Despite Zeller, Aristotle's remark (De respir. 472a2): 'like the other natural philosophers, he too [i.e. Democritus] makes no use of this cause' (i.e. the final cause) does not mean that the teleological world-view was unknown to Democritus and that he had no quarrel with it, for it was very ancient, but simply that he himself wanted to have nothing to do with that outlook. Cf. Aristotle's words in no. 23 (GA 789b2): 'Democritus ... was not willing to speak about the goal, but reduces everything ... to necessity'.

4. Zeller was himself obliged to add that 'we could have looked for the author of this theory above all in Democritus of Abdera'. But at the same time his reasons for denying Democritus' authorship turned out to be imaginary. Philoponus<sup>201</sup> comments: 'this opinion seems to have been held by those of the ancient natural philosophers who say that material necessity is the cause of what happens, and of the later philosophers by the Epicureans', and therefore above all by Democritus, who was famous as an 'admirer of necessity' (see no. 517, Ar. GA 789a12: 'of necessity'). This doctrine is also in complete agreement with his other applications of 'the theory of adaptation' cited in no. 517. On the connections between Darwin and this passage of Aristotle see my article in Archive of the history of science and technology IX, pp. 143-4.

<sup>2</sup>as Empedocles says': as Zeller shows, this comment cannot at all mean that the entire doctrine cited here also belongs to Empedocles. This is merely a parallel drawn by the inventors of this theory, as Philoponus points out (315.4): 'they take up the examples of the monsters spoken of by Empedocles, as he himself says that the monsters which came into being at the beginning did not survive'. Ross (Aristotle, Physics, p. 528) comments on this passage: "ta bougenē androprōra ['a race of cattle with the faces of men'] the phrase occurs in Empedocles fr. 61, but with reference simply to the production of such creatures. A reference to their perishing in the struggle for existence may have followed; or, as Hamelin suggests 'as [Empedocles speaks of the race of cattle] with faces of men' may refer to 'such as were not like that', rather than to 'perished and perish'".

<sup>3</sup>'things that are enlarged become sharper and sharp things get more enlarged': the first part is comprehensible, for where some material is subject to twisting (specifically, on the outer side of the curved portion of the jaw) it splits up into small sharp fragments. But what can be the meaning of 'sharp things get more enlarged'? I can interpret this only as a

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<sup>201</sup> [The quotation is actually from Simplicius In Phys. 372.9-11, cited at the end of text no. 516.]

necessary consequence of the first part: ‘and (therefore) the sharp fragments separate from one another’.

<sup>4</sup>Supporters of the teleological construction of nature cite the fact that not only lions but eagles too are supposed to be so constructed that their claws retract and so are not worn down. Plut. De curios. 520F: ‘eagles and lions draw in their claws when they walk’.

<sup>5</sup>‘and everything happens the same way even now’: consequently, Philoponus<sup>202</sup> regards it as necessary to give special emphasis to Aristotle’s passing remark ‘they perished and perish’, as a formula expressing the creed of the materialists who are being refuted.

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<sup>1</sup>That the non-teleological part of this explanation of the appearance and shedding of teeth belongs to Democritus is attested by Aristotle himself [GA 789b3-7]: ‘Democritus, [however, neglecting the final cause] reduces [to necessity all the operations of nature]. Now they are necessary ... but yet they are for a final cause [and for the sake of what is best in each case]. Thus nothing prevents the teeth from being formed and shed in this way; but it is not on account of these causes’. Philoponus shows this especially in connection with the question of the warmth of milk; true, at first glance one might suppose that what we have here is not an exposition of Democritus’ views, but simply a continuation of Aristotle’s criticism of Democritus, since immediately before Aristotle criticises Democritus’ assertion that teeth appear prematurely as a result of suckling. All of the arguments which Aristotle brings against this theory retain their full force against the variant which has to do with the warmth of the milk. Consequently we have no reason not to believe Philoponus when he maintains that Democritus set out precisely that point in his own theory. The doctrine that ‘in most processes the motive cause is the air’ also belongs to Democritus (see no. 518).

518

<sup>1</sup>‘nor the air in it’ [i.e. the embryo]: as we have seen above (no. 517, end), Aristotle has no objection to the theory that it is the air which forms the organs. But in that breath he sees, not a self-sufficient cause, but only an instrument of the Demiurge, as generally in the case of ‘natural necessity’. It may be that here too he understands ‘air, breathed out by the Demiurge’.

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<sup>202</sup> [Presumably a slip for ‘Simplicius’, who is being discussed here.]

<sup>1</sup>Cf. DK 31 B 92: 'Empedocles says that the cause [of the sterility of mules] is the mixture of seeds...' This was apparently the explanation which Philoponus ascribes to Democritus, since he mistakenly read sporous ['seeds'] instead of porous ['passages']

<sup>2</sup>heteromorphous ('of inappropriate form'): the same as 'the passages are spoiled' in Aristotle [cited in this section]. This passage shows at the same time that the correct reading is porous, not sporous, as in Philoponus.

<sup>3</sup>From nos. 516-9 it is perhaps possible to conclude that for Democritus changes in organs come about 'spontaneously', 'by force of natural necessity', e.g. in no. 516 by force of the laws of bending; but among living things only those individuals survive which are subject to advantageous changes; all the others die out. Artificial changes (cf. such an unnatural creature as the mule) cannot be perpetuated by heredity. It seems that on this question Aristotle contrasts Empedocles, who accepts the inheritance of acquired characteristics, with the Democriteans, 'those who think that everything happens spontaneously' (PA 640a19 ff.): 'Therefore Empedocles was not right to say that animals have many properties because it happened that way at their birth, for instance that the spine is the way it is because it happened to get broken by being twisted; first of all he is unaware that there must be component seed with that power, and then that there existed the efficient cause, prior not only in definition but also in time; for man generates man, so that through such and such a cause such and such came to be in the case of such and such an individual, and similarly even in cases which seem to come about spontaneously'. See also Mich. Ephes. ad loc., 4.20: 'Empedocles said that many properties belong to animals accidentally and by chance. He said that the spine has the vertebrae by chance and accidentally; for, he said, it was single and continuous like a staff or a reed, but it was broken when the animal twisted or bent over; he was unaware first that the seed ... and it has its joints not because it was broken by being twisted or bent'. Regarding the ancient dispute over inheritance (Hippocrates, Antiphon) see H.M. Lulofs 1) De ouden over afstamming en erfelijkheid, pp. 878-84, 2) Hippocrates geschrift: 'Over lucht, water em bodem' in zijn historischgeographische beteekenis, pp. 522ff. See further my article, Archive of the history of science and technology IX, pp. 139-43, which (together with Löwenheim, op. cit., pp. 164ff.) discusses an interesting passage of Aristotle (HA 491b26, 533a1) dealing with rudimentary organs in animals.

520

<sup>1</sup>By the 'sixth sense' in animals Democritus perhaps means unconscious instinct, thanks to which animals are capable of many things for which humans need reasoning or a teacher. Epicharmus drew attention to this (DK 23 B 4):

Eumaeus, wisdom is not one single thing,

But everything which is alive has intelligence.

For the hen, if you will pay close attention,  
Does not give birth to living offspring  
But lays eggs and brings them to life.  
Nature alone knows what wisdom is,  
For it is taught by itself.

521

<sup>1</sup>sumpepēge: “the embryo is contracted “... Cf. the contraction of the embryo in On airs, waters, places 73.8, 76.1’ (Diller, ‘Wanderarzt und Aitiologie’, Philologus XXVI, 3, 1934, p. 112).

<sup>2</sup>That is exactly the doctrine of the relaxing effect of the south wind and the tightening effect of the north wind, as set out in On the sacred disease, ch. 13 and in On airs, waters, places, chs. 5, 6, 10 and esp. 60.3. On airs, waters, places applies it to the case which Democritus specially mentions; under the influence of the south wind miscarriages frequently occur (57.25), but less frequently under that of the north wind (58.33). The agreement is striking’ (Diller).

### III. Embryology

522

<sup>1</sup>‘seed’: i.e. for Democritus body-atoms, which do not consist of fire, and soul-atoms, which are fire. In later terminology the former are material, the latter spiritual (pneumatika) or powers (dunameis). From Democritus’ standpoint soul-atoms are also bodily (sōma) and material (hulē), because in his view the soul is also material.

525

<sup>1</sup>Pl. Tim. 91a: ‘the compacted marrow that runs along the neck through the spine. That is what we have previously (73b-c, 74b) called ‘seed’’. See also apparatus criticus.

526

<sup>1</sup>Anaxagoras: DK 59 A 107.

<sup>2</sup>Alcmeon: DK 24 A 13.

527

<sup>1</sup>sunousias apousian (sc. spermatos) [lit. ‘the discharge (sc. of the semen) of intercourse’]: the double genitive = ‘the discharge of the semen during intercourse’.

<sup>2</sup>This passage is an attack on the doctrine of the heretic Monoimus, which is in all essentials Pythagorean; this later Pythagoreanism had a strongly Democritean colouring, as is shown e.g. by Hipparchus' treatise On cheerfulness (DK 68 C 7) or Porphyry's On abstention from animal food. Characteristic of the Pythagoreanism of Monoimus are the monad, harmony, the indivisible, the octahedron, the pyramid and other bodies 'of which fire, air, water and earth are composed'.

<sup>3</sup>See no. 525, with app. crit.

<sup>4</sup>brief epilepsy: see no. 804a.

<sup>5</sup>The words plēgēi merizomenos ['separated by a blow] were first ascribed to Democritus by F. Lortzing, 'Über die ethischen Fragmente Demokrits', Progr. Berlin, 1973, p. 22. Cf. Daremberg ad Oribas. I, p. 668.

<sup>6</sup>With the expression plēssomena ['struck'] cf. no. 528, with comm., n. 3<sup>203</sup>.

528

<sup>1</sup>'breathy': We have seen from no. 518 how much significance Democritus gives to breath in the human organism.

<sup>2</sup>the discharge [of semen] through the pressure of the breath': consequently the 'blow' mentioned in no. 527 comes about through the 'impetus of the breath'.

529

<sup>1</sup>This report cannot relate to Democritus, not only because it contradicts all the other evidence about him, but also for the following reason: in Aet. V.5.7 we read almost the same thing in a slightly altered form: 'Aristotle and Zeno say that the female emits a moist substance like the sweat of athletes, but not semen'. Undoubtedly both passages have the same source, and since Aetius reads 'Zeno' instead of 'Democritus' we must suppose that we are dealing with a mistake in the ms. tradition of Nemesius.

530

<sup>1</sup>'but not because of heat and cold' (as Empedocles thought): cf. Ar. GA 764a2: 'Empedocles says that what enters the womb when it is hot becomes male and when it is cold female'.

<sup>2</sup>'predominates': this struggle for existence between the particles of seed is very typical of Democritus; see no. 12. The victor is that particle which has reached the appropriate place before the others. See no. 532: 'the originating particle has been first to occupy the place' [Censorinus].

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<sup>203</sup> [Presumably '3' should read '2'.]

<sup>3</sup>'he calls the particles seed': from every part of the body there is emitted a miniaturised copy of that part, and all these particles together constitute the seed, as Philoponus goes on to explain.

<sup>4</sup>The mss., it is true, read 'Plato says that from the whole...', but we know from Aet. V.3.4 that Plato's view was totally different; in his view seed is emitted, not from the whole of the body, but only from the spinal marrow ('Plato says that it is an emission from the spinal marrow' [Aet.]). Plato's own testimony agrees with all that (Tim. 91b): 'we have said that the seed ... comes from the marrow of the spine'. Further, Philoponus himself indicates (167.33) that this passage of his commentary is a testimonium about Democritus. And, finally, that testimonium agrees almost word for word with another testimonium of Philoponus (167.13) about Democritus [also cited in this section]. All that makes me think that the word 'Plato' has got into the ms. tradition purely by mistake.

<sup>5</sup>'the supremacy of the part ... makes the female': the supremacy of one part over another, which corresponds to it, but is of the opposite sex.

<sup>6</sup>'thoughtlessly': a thrust against Empedocles; cf. no. 101.

<sup>7</sup>'resemble the mother': for Democritus explains the resemblance of parents and children in an entirely different way (see no. 532).

<sup>8</sup>'a complete head': i.e. an altogether tiny copy of it, invisible because of its smallness (n. 3 above).

<sup>9</sup>'in those parts': i.e. between those parts of the body, between the womb and the perineos (which is the name for the area between the back passage and the external male genital organ, the male analogue of the womb<sup>204</sup>): more correctly, between altogether tiny, invisible copies of those parts of the body, which are situated in the womb, and their relative arrangement in the womb corresponds to the relative arrangement of their originals in the body as a whole.

<sup>10</sup>'the womb prevails over the perineos': here too the reference is not to the organ itself, but to its 'microscopic' copy in the womb.

<sup>11</sup>'from which it grows': the internal sexual organs of the future individual develop subsequently from the 'microscopic' sexual organ which prevailed in the struggle for existence, i.e. in this case from the womb (since the perineos was conquered and turned into the womb), and the whole animal comes to be of the female sex. It should be noted

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<sup>204</sup> [In fact Philoponus' description of the perineos at 167.21-2 (part of sect. 530) makes it clear that the term applies, not to an external area of the body, but to an internal organ, apparently a seminal duct. The term can also be applied to the penis, but here the perineos is distinguished from the aidoion, which must, in the context of male anatomy, be the penis.]

that, in contrast to the 'images' in psychology, in this case there is emitted from each part of the body not a 'stream' of innumerable forms, but only one.

531

<sup>1</sup>If we take this report literally and give it full credence we have in that case to acknowledge a substantial difference of view between Leucippus and Democritus. But this still does not in any way show that there existed works of Leucippus; it could simply mean that for some reason Democritus was not willing to put that doctrine into the mouth of Leucippus, but ascribed to him only a brief remark which in any case contained in a nutshell Democritus' embryological theory in its entirety (for the 'parts' are, of course, the extremely tiny copies of both sexual organs, which battle with one another in the womb).

531a

<sup>1</sup>As we have seen from the previous passages, the sex of the embryo depends on the result of the bitter struggle waged in the mother's womb by the tiny particles, the copies of the organs emitted from the seed of the father and the mother: if the particles from the father prevail over those from the mother a male is born, if the opposite, a female. At the same time this passage is the basis for the view that seed emitted from the right-hand part of the male body generates a male and from the left a female (the testicle which is not to have any part in fertilisation is tied up). That was the view of Anaxagoras and other natural philosophers (Ar. GA 763b31): 'Anaxagoras and other natural philosophers ... say that the male comes from the right and the female from the left'. Democritus' view is opposed to that (no. 530, Ar. GA 764a6: 'Democritus of Abdera'). In another passage of the same work (765a3) this view is again opposed to that of Democritus and Empedocles (according to the latter the difference between male and female is determined by the amount of heat in the womb): 'the same argument can be brought against those who say that the male comes from the parts on the right and the female from those on the left as<sup>205</sup> against Empedocles and Democritus'. Like Anaxagoras, Hippocrates maintained that view (Aphorisms V.48): 'Male foetuses are found on the right, female on the left'. The same view was held by Leophanes, unknown to us, who is cited by Aristotle GA 765a21ff., and who gives the same practical advice as in our passage: 'some ... say that when the right or left testicle of a male when mating is tied up the offspring is male or female. That is what Leophanes said'. The same Leophanes is contrasted with Leucippus and Democritus in Aet. V.7.5: 'Leophanes, who is mentioned by Aristotle; the one sex from the right testicle, the other from the left'. Finally, the tying up of the testicle is found in Hippocrates De superfet. 31 = VIII, p. 50 Littré, Pliny (NH VIII.47.188: 'A ram ... generates females if the right testicle is tied up, and males if the left'; cf. XXX.16.149) and Palladius (IV.11.6: 'the Greeks assert that if you want male offspring you should tie up the bull's left testicle before mating, and the right if you want

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<sup>205</sup> The reading of some mss. hōsper ['like'] instead of hosper ['as'], which is the basis of the Russian translation by Kartsov, p. 161: 'like, for example, Empedocles and Democritus' contradicts the entire context of Aristotle.

females'). See also Colum. VIII.3.12; Geopon. XVII.16, XVIII.37; Hippiatr. I.5, VII.3.12. So it would seem that such a recommendation is impossible for Democritus of Abdera, and we must see here either a citation from Bolus or a forgery. But Aristotle was a considerable pedant in his systematisation. So in another passage of the same work (765a34-b2) he indicates that in essence there is no contradiction between this view and that of Empedocles, which he had previously opposed to each other: 'there is something to be said<sup>206</sup> for thinking that heat and cold are the cause of male and female births and that the difference comes about from right and left, for the right of the body is hotter than the left'. So we cannot be sure that there is in fact a contradiction between the views of our passage and those of Democritus included in the preceding passages. The sex of the embryo depends on whose particles, those of the father or of the mother, prevail. But apparently Democritus thought that the stronger particles are those which are situated in the right testicle of the father, and the weaker those on the left; so by tying up the right testicle we artificially weaken the particles from the father and increase the chance that the mother will prevail, and by tying up the left we achieve the opposite result. Hence we have insufficient grounds to maintain that this passage is spurious.

533

<sup>1</sup>The logical structure of this passage of Aristotle (GA 769a) is convoluted, but it is possible to reveal its meaning. On the question of the resemblance of parents and children there are two views: [1] 769a9: 'some say [that the child is more like that parent from whom comes more semen] ...; [2] 769a26: 'but those who take the remaining (= the other, cf. 639a22) view [about the resemblance and the rest] have a better account' ('it remains' in Aristotle often means 'it is left to us to draw the conclusion', see Bonitz, op. cit.). Strictly speaking these two views lead to the same conclusion and differ only in details: (769a9) 'it [the embryo] is more like the parent from whom comes more semen' and (769a34) 'from which of the parents has come the most, it is similar in form to that one'. The former view meets the following objection; the resemblance between one of the parents and the child is explained by the fact that the amount of seed from that parent was greater than that from the other. But the same explanation is given for the embryo's being male or female. It would be logical for sons always to resemble their fathers and daughters their mothers. But how, for instance, is it possible for a daughter to resemble her father? 'For it is impossible for more seed to come simultaneously from both' [769a21-2]. The latter view does not provoke a similar objection; consequently, those thinkers gave a different explanation of the fact that some children turn out to be male and others female, all the more so because their doctrine is described as 'better in other respects and in this' [769a27], a typical characteristic of Democritus' doctrine (see no. 101). Democritus, as we have just seen (nos. 530-1) explained 'male and female' in another way ('by victory in the battle'), and that

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<sup>206</sup> A little earlier (764a12) Aristotle declares 'Indeed Empedocles has recklessly assumed' [that the difference between male and female is due to heat and cold].



objection does not touch him. Further, the doctrine of panspermia [‘a mixture of all kinds of seeds’], of polumigeis chumoi [‘humours mixed together’] etc., which is briefly described here, is, as we have already seen, specifically Democritean (panspermia occurs in Plato in an idealistic transformation of Democritus’ doctrine (Tim. 91c), but Aristotle cannot have Plato in mind here). It is true that Aristotle mentions Democritus in setting out the former view, not the latter (769a17). But that should not mislead us; Aristotle does not here call Democritus an adherent of the former view, but merely remarks in passing that the objection brought against that view does not touch Democritus, in so far as he explained the sex of the child otherwise. The incorrectness of his view must therefore be established in another way (‘they [Empedocles and Democritus] say what is on other grounds impossible’ [769a17-18]). Consequently Aristotle here disturbs the connection of his exposition, and gets ahead of himself by alluding in passing to the second view, which he subsequently (769a26) sets out in more detail.

534

<sup>1</sup>The contradiction with the rest of the evidence for Democritus (who precisely opposed Empedocles’ explanation of the formation of the different sexes thanks to heat and cold) is readily eliminated by the fact that the subject here is the origin of life, when there were as yet no sexual relations. Hence in this case Democritus can adhere to Empedocles’ doctrine without any change.

537

<sup>1</sup>Plutarch’s dialogue On the love of offspring discusses in detail the amazing instincts of animals; that topic goes back ultimately to Democritus (see no. 562). Similarly, the contrast between the altruistic tendencies of animals in relation to their young and the egoistic interest of people in the education of their children (495a: ‘human nature alone is lacking in freely bestowed love and is incapable of loving without needing something ...’; 495b: ‘it is disgraceful that for animals the having of young is a natural favour, but for humans they are loans and resources and pledges to be redeemed’) is ultimately an attack on Democritus’ theory (Stob. IV.33): ‘for all (animals) naturally beget offspring without any view to their usefulness ... but humans have come to believe that there is some advantage to be got from their children’. Consequently, in this work there is much that comes from Democritus, but we are no longer able to trace it. I make room only for the passage which immediately follows the one cited, since it contains the characteristic Democritean thoughts (also in nos. 535-6) ‘the embryo is fed in the womb’, ‘moulded’.

## **b. THE BODILY ORGANS**

## I. The natural origin and functions of the organs

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<sup>1</sup>not those usually so called [phlebes, 'veins']: in later times only veins were called phlebes, but in Democritus' time the sense of the word was different.

<sup>2</sup>Boethius' source was an episode, now lost, from the epistolary novel about Democritus and Hippocrates. Consequently it was a very cloudy source, but it contained, as we know, many interesting quotations and reminiscences of the genuine works of Democritus. We cite this passage because it is an interesting parallel report to 'pulse' (phlebopaliē).

<sup>3</sup>'in prison': this arrest of Democritus contradicts the report of the novel as it is known to us.

541

<sup>1</sup>pachutatas ['very broad']: Alfieri's translation (op. cit., p. 169) 'always denser' seems to me arbitrary.

<sup>2</sup>'this': does this refer to the nutriment (Makovelski) or to the head (Alfieri)? It is clear from the context as a whole that Alfieri is mistaken here too: anadidosthai does not mean 'grow' (Alfieri) or 'is directed' (Makovelski), but 'spreads through the whole body'. kai: 'and above all', 'and especially'.

<sup>3</sup>exōthen here means not 'inwards from the surface' (Alfieri), but, as Makovelski supposes, the same as exō ['outside'] (cf. Bonitz, op. cit., p. 263a45). In special cases exōthen can mean much the same as eis ta exō ['to the outside'], as Bonitz remarks (op. cit, p. 263a56).

<sup>4</sup>'the force' = 'the most generative element'.

<sup>5</sup>anathornusthai ['rush up']: 'often encountered in Aelian, but one cannot be certain that this expression is taken from Democritus' [DK II, p. 126, l. 10n.]<sup>207</sup>.

<sup>6</sup>'the greater part': not all the moisture is secreted out, part of it is absorbed by the organism.

<sup>7</sup>exōlisthe does not mean 'gradually grows' as Alfieri supposes, but 'is scattered by the wind'; cf. Plut. De Pyth. orac. \_398b: 'the atoms are scattered and dispersed'. (Simpler: 'fall off' edd.)

542

<sup>1</sup>gumnoi: not 'naked' (Alfieri), but 'unarmed'; cf. gumnēs, gumnētēs.

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<sup>207</sup> [Diels' text reads 'Often in Aelian, so (daher) not certainly from Democritus'.]

<sup>2</sup>'weaker': so by phlebes Democritus understands not only blood vessels and nerves but also muscles.<sup>208</sup>

<sup>3</sup>The presence and absence of horns in cattle was the subject of lively disputes in the mid 5<sup>th</sup> century BCE. See Hdt. IV.29; for Anaxagoras' opinion see Plut. Pericl. 6. Cf. H. Diller, Philologus, Suppl. XXVI, part 3, p. 45, n. 78.

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<sup>1</sup>hē ekphusis ['the outgrowth]: in the concrete sense 'the shoot, sprout'. Here very much the same as the phrase 'the circle of the base of the horns' which follows.

<sup>2</sup>proagei: 'makes it bigger'.

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<sup>1</sup>'can': cf. Ar. HA 555b5: 'the spider jumps and emits [its web] immediately'. That young spiders begin to spin their web immediately after hatching is maintained by Brandt and Ratzenburg, Medizinische Zoologie, vol.. II, p. 91; cf. H. Aubert and F. Wimmer, Aristoteles Tierkunde, Leipzig, 1868, pp. 11, 280.

<sup>2</sup>perittōma: 'secretion, excrement'.

<sup>3</sup>phloios ['bark']: the word is also applied to the skin of animals, e.g. Ar. HA 558a28: 'the young of the snake is not surrounded by a shell-like carapace'; Aet. V.19.4: 'Anaximander says that ... the original animals were surrounded by thorny skins'.

<sup>4</sup>hues trichas ['pigs (lose their) hair']: see app. crit. The ms. variants are very unclear, and, obviously, the text is partly corrupt. The following is all that can be understood: here, apparently, it is said that the material for the web is excreted from the surface of the body, like some sort of shell (Aubert & Wimmer, op. cit.). They translate: 'From the surface of the body like a shell or the shedding of hair, as happens with porcupines'. Alfieri, op. cit., p. 167, translates: 'From the body like some kind of shell, or as some animals do who protect themselves with their own spines, e.g. porcupines'. But ballein tini ['hit with something thrown'] cannot mean 'defend oneself', and porcupines do not shed their hair. Therefore I have decided to emend the text (see app. crit.). The passage remains sufficiently difficult (it might perhaps be necessary to insert after phloion the name of an animal in the nominative case), but at least it makes sense. Anyway, as is known, pigs lose their bristles when they moult.<sup>209</sup>

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<sup>208</sup> [See translator's n. 81.]

<sup>209</sup> [See translator's n. 82.]

<sup>5</sup>On the particularly complex anatomy of the glands in spiders see Brandt & Ratzenburg, op. cit. (see also pl. XI, fig. 5). They are situated inside the body, so that Democritus was right (?Edd.). (Aubert & Wimmer, op. cit., p. 281).

## II. Multiple births. Monsters.

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<sup>1</sup>Diels [DK II, p. 215, ll. 2-4] thinks that the passage cited from Theophylact goes back to Bolus simply because later (p. 27 Boissonade) Democritus is cited as a source along with Bolus. But this is all the less convincing because Diels ascribes the passage of Aelian to the authentic Democritus. The fertility of the hare is of course explained by Democritus in the same way as the fertility of the dog, i.e. by the special features of the construction of the womb, but that construction is in its turn something which has survived in the daily struggle. That kind of explanation was a polemical one, an answer to attempts to interpret these phenomena teleologically; see Hdt. III.108: 'divine providence, being wise, as is appropriate for it, has equipped all those timid, edible creatures with great fertility, so that they do not die out through being eaten ... so the hare is fertile; it alone of all animals conceives by superfetation, and some of its offspring in the womb have hair while others are naked, and some are just being formed in the mother's womb while others are being born...'; Pl. Prot. 321b: 'Prometheus gave fertility to those animals which were being consumed by them [beasts of prey] as a way of preserving their kind'.

<sup>2</sup>'in their wombs': Democritus and Hippocrates always speak of many wombs with numerous depressions in each: see Ael. cited here: 'they have many wombs and receptive places'; ps-Ar. Probl. 892b2 [also cited here]: 'they have many wombs and places'. So Diels [DK II, p. 125, l. 9n.] is wrong to see the words 'they have many wombs' as an inexact expression instead of 'their wombs have [many]pouches'.

<sup>3</sup>Cf. Hdt. III.108: 'the lioness, which is extremely strong and fierce, gives birth to a single cub once in her life; for in giving birth she expels her womb along with the young. That is the cause of it.' Ar. HA 579b2ff.: 'the story about its expelling the womb in giving birth is fanciful, and was made up to explain the rarity of lions, since the person who made up the story could not explain it. For lions are few in number, and they are not found in many places, but in the whole of Europe only in the area between the rivers Achelous and Nessus' (cf. Pausan. VI.5.4.: 'the mountainous part of Thrace, inside the river Nessus which flows through the territory of Abdera ... contains ... lions ...'). The mention of the river Nessus, which flows into the sea at Abdera, makes it highly likely that this entire criticism of Herodotus was taken by Aristotle from Democritus. Democritus spoke of the fact that the lioness has few cubs and explained that by the construction of her womb; but that did not prevent him from criticising the absurd legend that the lioness gives birth only once in her life and in so doing expels her womb along with the young.

<sup>4</sup>Wellmann was the first to point out that the two final passages have their source in Democritus.

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<sup>1</sup>'monsters': this term refers to monstra per excessum ['monsters by excess'], e.g. children with two heads etc. (Alfieri, op. cit., p. 165).

<sup>2</sup>'quick' is obscure. The sense should be 'fertilisations occurring quickly one after another', but 'quick' does not have that meaning. Philoponus understands as follows: since fertilisation is very brief and soon reaches its conclusion, the female can be impregnated again in the course of the time it takes for the seed from the first impregnation to reach its place.

<sup>3</sup>epallattein ['get mixed up, intermingled']: 'are non-uniform', i.e. of two colours.

### c. THE CAUSES OF ANIMALS (ΑΙΤΙΑΙ ΠΕΡΙ ΖΩΩΝ)

#### THE KINDS OF ANIMALS

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<sup>1</sup>'The causes of animals': see H. Diller, Philologus, Suppl. XXVI, part 3, p. 45: 'here were given 'explanations' of the strange behaviour of camels when mating (no. 560), the fertility of pigs and dogs (no. 545), the connection of miscarriages with particular atmospheric conditions (no. 521), the growth of antlers in deer (no. 541), the formations of horns in cattle and the absence of horns in certain types of cattle (no. 542). These problems in the field of zoology were in part earlier than Democritus (Hdt. IV.29, III.108). Facts assembled by attentive inquiry were investigated from the point of view of their causes. Their exposition and explanation, if we may trust the reports of Aelian, were very detailed. One explanation was sometimes given along with another, e.g. to the question of the sterility of mules there was added an answer to the question (a characteristic kind of question at the end of the 5<sup>th</sup> century) how people first arrived at the idea of breeding mules. All these discussions are connected by a single idea: the question of the causes of abnormal phenomena'.

<sup>2</sup>Democritus divided all living creatures into these kinds ... but ... he did not add 'heavenly' creatures (ourania), as Plato and Aristotle later did' (A. Palm, Studien zur Hippokratischen Schrift peri diaitēs, Diss. Tübingen, 1933, p. 36).

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<sup>1</sup>Must we not conclude from this that Democritus was already familiar with the division of living creatures into ‘those with blood’ and ‘bloodless’, two of the highest kinds in Aristotle’s classification?’ (Palm, op. cit., p. 35). See also Th. Gomperz, Griechische Denker, III, pp. 113, 414. Zeller rejects this view without any grounds (Philos. d. Gr., I.2, p. 555 A).

## PARTICULAR KINDS

### I. Mammals

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<sup>1</sup>‘heat, the spirited’: ‘the hot as the explanation of ‘the spirited’ ... this word is used in precisely this sense in reports of Democritus’ (H. Diller, Philologus, p. 63, n. 102). See the same expression in Hippocrates (comm. on no. 460).

### II. Birds

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<sup>1</sup>‘the taloned, flesh-eating’: the word understood is ‘birds’ not ‘animals’, as Alfieri mistakenly supposes (op. cit., p. 172 ‘among all carnivorous animals’), for according to Democritus lions are born with their eyes open [no. 549].

<sup>2</sup>diairei [‘separates’]: by day, as Alfieri correctly comments (op. cit., p. 172, n. 442).

### III. Fish and aquatic animals

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<sup>1</sup>‘obtained by digging’: cf. ps-Ar. De mirabil. 835b15ff.: ‘They say that in Heraclea in Pontus and in Rhegium there are fish obtained by digging, and they are mostly in rivers and wet places. When these places are dried out they collect together under ground for some time, and when the ground dries out more they burrow into the mud seeking moisture, and when it is drying out they remain in the moisture, like animals which are content with their holes. And when they are dug up before the waters reach them, then they move. And they say that in Paphlagonia these fish are found deep down, and that these are the best, and it is not open water nearby nor flowing rivers but the land itself that generates them’ (probably it is the fish on dry land that are referred to). In the gastronomic poem Luxury by Archestratos, a contemporary of Aristotle (c. 300 BCE) there is the following passage (Athen. VII.131, p. 326 F):

In Aenus and Pontus buy the eel

Which some call the creature dug out of the sand.

Athen. VIII.2, p.. 331c-d: ‘Of the fish which are called ‘fish got by digging’ some are found in Heraclea and round Tios in Pontus, the Milesian colony; Theophrastus discusses them ...

the same thing happens to them as to the fish in Paphlagonia called ‘the fish got by digging’. People dig to a great depth in places where there is no inflow from rivers or any other stretches of water, and live fish are found in them’. The first part of these reports is confirmed by contemporary science. Brem, who also cites this passage (The life of animals, vol. VIII, p. 329), speaks in the introduction to the volume Fish of the capacity of many kinds of fish to move on land and bury themselves in the soil (op. cit., pp. 260, 263). This is especially characteristic of the Labyrinthici, the best-known example of which is *Anabas scandens* (p. 329). In Russia and Eastern Europe *Misgurnus fossilis* is quite widespread; when the water dries up it buries itself in the soil and is capable of living without water for a comparatively long time (p. 376). The ancient authors may also perhaps have been referring to the common eel (*Anguilla vulgaris*), which is widespread in the Black Sea (Pontus); it also buries itself in the mud and can live for a day or even longer without any water (p. 425). A typical example of similar fish is *Polypterus bichir* of Upper Egypt (p. 444), but the ancient authors can hardly have been referring to it.

<sup>2</sup>those that are frozen in the ice’’: see Athen. VIII.2, p. 331 C: ‘this same philosopher (sc. Theophrastus) tells of fish which are frozen in the ice in winter, which do not perceive or move until they are thrown into the frying-pan and cooked’. There is no reason to doubt the reliability of these testimonies, though Lucian regards the stories as inventions, nor of the many totally true reports from southern Russia. See the parody of it in [Lucian’s] True stories 2.2: ‘the whole sea was frozen ... so that people went out and ran about on the ice ... we dug a huge cave in the water and stayed in it ... feeding on fish; we found them by digging’. Brem regards as false the assertion that the edible frog can be frozen in the ice and revive again in the spring, but I have myself observed some *Hyla arborea* [tree frogs], which were lying in the winter stiff, hard, motionless and totally frozen, become soft, mobile and agile again in the spring.

<sup>3</sup>Democritus’ view, that there exist amphibious fish, has been brilliantly confirmed. We do not know whether he knew of *Protopterus annectens* of Upper Egypt, which, like all other amphibians, has both gills and lungs (Brem, op. cit., p. 466). But both the Labyrinthici mentioned above and our own *Misgurnus* also have, as well as gills, specialised organs which can be regarded as something like primitive lungs (see above). In the case of a *Misgurnus* which has been caught one may observe that when the water turns bad it sticks its head out of it to breathe air; this may perhaps be what is indicated by the comment ‘some make use of air’ [no ref. given].

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<sup>1</sup>ta hupera kai ta pēnia [kinds of pupa]: what sorts of geometer-butterfly (Geometridae) the author was referring to is unknown. That these are geometers is quite clear from the description of the caterpillars. From what follows this remark: ‘each of the hatched-out butterflies retains the colour of the caterpillar’ we may conclude that the reference is to the gooseberry moth (*Geometra grossularia*, *Abraxas grossulariata*), for only in that geometer

is the colouring identical with that of the caterpillar (see Aubert & Wimmer, op. cit., p. 509). I have not had access to the English translation of the Historia Animalium by [D'Arcy] Wentworth Thompson (Oxford, 1910) cited by Alfieri.<sup>210</sup>

<sup>2</sup>There is hardly any need to point out that this time Democritus is entirely right. See no. 465 w.comm.

#### **d. THE CAUSES OF PLANTS (ΑΙΤΑΙ ΠΕΡΙ ΦΥΤΩΝ)**

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<sup>1</sup>K. Reinhardt, Poseidonios, Munich, 1921, p. 370 thinks that the cited paragraph goes back not to Democritus, but to the doctrine of the Stoics: 'A ... series of steps ... which arises from the observation of the form and its establishment, or more precisely from the relation between the position of the principal part and the character of the kind. But that is no longer Presocratic, but Stoic'. That was probably what Diels previously supposed (VS II, 2, p. 136); but now DK [II, p. 136, ll. 25-9] contains the comment: 'the paradoxical inclusion of plants among the animals, in which the roots are compared with the head ... reminds us of similar metaphors in Empedocles (DK 31 A 70), whose theory seems to have been made use of by Democritus'. The two other passages cited here show that Kranz, not Reinhardt, is right.

<sup>2</sup>'animals': 'these are obviously nothing other than animals with little motion, parts of which, like plants, cling to rocks or something like that' (Reinhardt).

<sup>3</sup>The author is not Aristotle, but Nicolaus of Damascus; see Nic. Dam. De plant. 5, p. 4 Meyer.

<sup>4</sup>Elsewhere in the Arab writers Abrucalis is Pythagoras<sup>211</sup> or Herophilus' [DK II, p. 297, l. 2 n.].

<sup>5</sup>Plato: Tim. 90a: 'This is what one must think about the most authoritative part of our soul; god has given each of us a guardian spirit, and we say that it dwells at the top of our body ... we speak most correctly when we say that we are not an earthly plant but a heavenly one ... [For it is from heaven] that the divine being has suspended our head and our root...' This teleological-religious distortion of the thought of Democritus is therefore also, despite Reinhardt, earlier than the doctrine of the Stoics.

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<sup>210</sup> [Thompson's note ad loc. reads: 'pēnion (lit. spindle) and huperon (pestle) are evidently chrysalids derived from the 'looped' caterpillars of the Geometridae; and the reference to colour is suggestive of the common currant-moth Abraxas grossulariata']

<sup>211</sup> [DK has 'Protagoras', not 'Pythagoras'.]





## G. HUMAN SOCIETY

### a. THE HISTORY OF HUMAN SOCIETY

#### I. The beginnings of human society

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<sup>1</sup>This passage of Galen on Democritus first became known in 1932 from the preliminary report by Walzer, Sitzungsb. d. Berlin. Akad. d. Wiss., Phil.-hist Klasse, p. 454) of a newly discovered Arabic translation (from the Syriac, which was translated from the Greek) of Galen's treatise On medical experience, where, as Walzer reported, we read, among other things 'It is as Democritus says, that experiences (peirai) and vicissitudes (periptōseis) have taught men this, and it is from their wealth of experiences that men have learned to perform the things they do'. By the bracketed words peirai and periptōseis, which render pretty exactly the corresponding Arabic expressions at-taġârîb and wa-n-nawâ'ib, Walzer emphasised the close resemblance between this passage and those of Diodorus and Diogenes of Oenoanda which are cited immediately after it; we have peira in Diod. I.8.7 and [both peira and] periptōseis [in Diog.]. Therefore in his supplementations to Diels' vol. III (5<sup>th</sup> edn., p. 654) Kranz included a citation of this passage in a note to the excerpt from Diodorus (DK 68 B 5).<sup>212 213</sup> In 1944 Walzer published the complete Arabic text of Galen with a translation and commentary, in which he expanded these ideas.

<sup>2</sup>As early as 1912 Reinhardt showed in his article 'Hekataios von Abdera und Demokrit', Hermes 47, 1912, p. 492, that Diod. I.8.1, (taken from Hecataeus of Abdera, a follower of Democritus), and the passage from Tzetzes' commentary on Hesiod [also cited here], which is similar in content, had their original source in Democritus. That discovery of Reinhardt's was widely accepted, and the corresponding passages were included by Diels in his collection (DK 68 B 5), and have also been included in all later collections based on that of Diels, and discussed in all works on Democritus which have appeared. E. Norden, Agnōstos Theos, Berlin, 1913, p. 397 described Reinhardt's article as 'ergebnisreich' ['having important results, influential'] and pointed out that that scholar's conclusions were supported by considerations of a formally-stylistic character; W. Uxkull-Gyllenband, Griechische Kulturentstehungslehren, Berlin, 1924, p. 25, saw in Reinhardt's discovery

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<sup>212</sup> I made use of these citations in my book Essays in the history of ancient science, Leningrad, 1947, pp. 248, 265, 368.

<sup>213</sup> [In the 6<sup>th</sup> and subsequent editions of DK the passage is quoted in the supplement (Nachtrag) to vol. II, p. 423, ll. 17-24.]

‘knowledge of the highest importance’, and devoted a special section, ‘Die konstruktive Theorie des Atomismus’ (pp. 25-34) to the passage cited by Reinhardt.<sup>214</sup>

The first challenge to Reinhardt’s thesis was made by [H.] Dahlmann in his dissertation De philosophorum Graecorum sententiis ad loquellae originem pertinentibus capita duo, Leipzig, 1928. His starting-point was the fact that in the scientific part of the works of Hecataeus and Diodorus there is nothing specifically atomistic (p. 24); hence the part devoted to human society cannot have its source in Democritus either: ‘since that part of the passage of Diodorus which we have been able to compare with the doctrine of the atomists cannot be taken back to Leucippus or Democritus, it is not likely that the subsequent pronouncements of Diodorus setting out his zoology depend on them’. Dahlmann comments that from the fact that Hecataeus came from Abdera it does not at all follow that he was a follower of Democritus (p. 24). On the other hand, on chronological grounds it is impossible to suppose that the doctrines of Epicurus, however much they resemble the views set out by Diodorus, were the source for the theories of Hecataeus of Abdera. Hence Hecataeus’ sources must have been earlier philosophers, especially Empedocles and Anaxagoras. These conclusions of Dahlmann’s seemed so convincing to Kranz that in his last [i.e. 5<sup>th</sup>] edition of Diels, while leaving the cited passages in place out of respect to Diels, nevertheless in his ‘Berichtungen’ [‘reports’] (vol. II, p. 425), he judged it necessary to add ‘For weighty arguments against Reinhardt’s tracing of the chapter of Diodorus back to Democritus see Dahlmann’.<sup>215</sup>

But in his review of Dahlmann’s book (Philologische Wochenschrift 49, 1929, pp. 666-76) Philippson pointed out the insufficiency of his arguments. Reinhardt (op. cit., p. 499) correctly observed that Hecataeus had to eliminate clear traces of atomistic doctrine, in order to be able to put Democritus’ doctrines into the mouths of ancient Egyptian sages. Leaving aside the doctrine of atoms, the cosmology set out by Hecataeus displays a striking similarity to that of Democritus (see nos. 288-91). An even more striking resemblance between Hecataeus and Epicurus and Democritus is displayed by the doctrine of the origin of human society. Therefore Philippson considers that the thesis of the close dependence of Hecataeus on Democritus has been demonstrated, but thinks that the borrowing proceeded via a second hand, that of Epicurus. For us the question of the route of the borrowing from Democritus is not essential; but we have to note that an important passage of Clement, included in Diels’ collection ([DK 68 B 4], II, p. 133, ll. 6-14), leaves no doubt of the fact that Hecataeus not only came from Abdera, but was an Abderite in the philosophical sense, i.e. a follower of Democritus; see Clem. Strom. II.130 [DK loc. cit.] (II, p. 180, 14 St.<sup>216</sup>): ‘the Abderites teach that there is an end ... and Hecataeus says that it is self-

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<sup>214</sup> See also E. Hoffmann, Die Sprache und die archaische Logik, Heidelberg, 1925, pp. 19ff.; E. Reitzenstein, Theophrast bei Epikur und Lukrez, Heidelberg, 1924, p. 65ff.

<sup>215</sup> [L’s ref. is to the 5<sup>th</sup> edn. In DK 6<sup>th</sup> and subsequent edns. Kranz’s comment on Dahlmann’s criticism of Reinhardt is replaced by a simple reference to Dahlmann’s book, v. II, Nachtrag, p. 423, ll. 31-2.]

<sup>216</sup> [The correct Stobaeus reference (given in DK) is II.184.10.]

sufficiency'. But if that is so, it is extremely improbable that Hecataeus was acquainted with the theories of his teacher Democritus via the intermediacy of Epicurus, as Philippson thinks, all the more so because the Epicureans were engaged in a bitter, principled attack on Democritus and his followers. This dispute, I suppose, has been finally settled at the present time by the new evidence from Galen published by Walzer. Even in phraseology it is extremely close to the passages of Diodorus and Tzetzes and the passage of Hippocrates which I have cited, and it can hardly be doubted that in all these cases we have basically just a paraphrase of Democritus. Moreover, the typical expressions peirai and periptōseis [see above] allow us to see a paraphrase of this doctrine also in the passage of Diogenes of Oenoanda (most probably via the intermediacy of Epicurus).

<sup>3</sup>'disorderly and bestial': these words are part of a characteristic formula occurring in a series of narratives of the beginnings of human life, and show that Democritus belonged to a tradition which had existed long before him, partly borrowing from it and partly attacking it. This material has been carefully collected and convincingly illuminated from the stylistic viewpoint by Norden, Agnōstos Theos, pp. 370-1, 373-5. An excerpt from an ancient Orphic poem on this topic has been preserved for us by Sextus, M IX.15: 'for life long ago was bestial and disorderly "for there was a time", as Orpheus says "when men lived by eating one another's flesh, and the stronger man slew the weaker"'.

This ancient, fairy-tale formula 'there was a time when' [= 'once upon a time'] was apparently also contained in Protagoras' description of the earliest fortunes of mankind (Pl., Prot. 322a): 'for there was a time when ...'. Later we come across the same fairy-tale formula in the tragic poet Moschion (Stob. I.100 Wachsm. = TGF, 2<sup>nd</sup> edn., Moschion fr. 6, p. 813):

First I shall disclose in my discourse  
The original state of human life;  
For there was once that time  
When the ways of men were like beasts ...  
And their fleshy food provided them  
With meals in which they killed each other ...  
And the weak was food for the stronger.

We also come across the expression 'bestial' in the picture of primeval life in Eur., Suppl. 201-2:

I praise that god who separated  
Our life from the confused and bestial.

The same formula is used by other writers later than Democritus, for instance Critias, who gives an oligarchic reworking of Democritus' doctrine of primeval society (Critias, fr. 1, Nauck [= DK 88 B 25]):

There was a time when the life of men was disorderly

And bestial, and a slave to strength.

Later the same formula is employed by Euhemerus (Sext. M IX.17 = fr. 1 Némethy): 'Euhemerus ... says, when the life of men was disorderly, those who were superior to the others in strength ...'. To this list, compiled by Norden, I add two further examples:

1) Diod. I.90.1, a passage which goes back to Hecataeus of Abdera: 'when in the beginning men gathered together, having previously lived a bestial life, first of all they made war on each other and ate one another, the stronger always subduing the weaker'. See Uxkull-Gyllenband, op. cit., p. 27, n. 15.

2) The story in Achilles Tatius II.11<sup>217</sup> of the invention of purple dye is taken from some similar narrative of the primeval life of man. It begins with the words 'there was a time when ...'.

Hence Democritus' narrative is one of a long series of similar narratives. Its distinctive features are the following: 1) the absence of any idealisation whatsoever of primeval society; 2) the absence of any mention of a god or hero as a saviour of mankind; 3) the absence of any mention of the original sin characteristic of the Orphic-Pythagoreans, the use of meat as food; 4) the absence of any mention of the establishment of reverence for the gods as a major discovery on the part of mankind.

<sup>4</sup>to kathestōs, hē katastasis: this is a characteristic, stereotyped expression in narratives of the sort cited above, meaning 'way, state of life'. See in the passage of Moschion cited above: 'the original state of human life'; Hierocles ap. Stob. I.734.1 Hense: 'the state of society from the beginning'. The work of Protagoras which Plato perhaps had in mind was called On the original state of things (Peri tēs en archēi katastaseōs, Diod. X.55).

Democritus also used the word katastasis in this sense; see. no. 562: 'people think it necessary to have children, from nature and from a long-established way of life'. Norden, op. cit., p. 372, n. 1, cites some further examples of the use of katastasis in this sense; Isoc. 3.26: 'if one must speak of the ancients ... it is clear that they too prefer this way of life'; Athen. XIV.627e: 'Homer, observing the ancient way of life of the Greeks ...'. See Norden, op. cit., pp. 371, 399.

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<sup>217</sup> [See comm. on no. 559, n. 1.]

<sup>5</sup>sporadēn [‘scattered about’]: cf. Pl. Prot. 322b: ‘in the beginning people lived scattered about’; Laws 680d-681a: ‘assigning to savagery the original state ... of those people [i.e. the Cyclopes] ... who lived scattered about’.

<sup>6</sup>‘they came to each other’s assistance, prompted by their own interest’: cf. Diod. I.90.1: ‘learning, from considerations of their own interest, to gather together’; Tzetz. 2.35 [also in this section]: ‘they aided each other against the wild beasts’. Uxkull-Gyllenband, *op. cit.*, p. 31, thinks that this association came about on the strength of the principle set out by Democritus in nos. 11 and 316 [Aet. IV.19.3 = DK 68 A 128]: ‘birds of a feather flock together’ and ‘god always brings like together with like’, and hence that it is not Aristotle but Democritus who regards it as a characteristic mark of man that he is a political animal. This assertion seems to me false: see excursus on no. 103. Learning from considerations of one’s own advantage is a basic principle of Democritus’ theory of development (see A. Kleingünther, ‘Prōtos heuretēs’, Philologus 26, 1933, pp. 106ff.): interest – need – necessity. See below [Diod. I.8.7, cited in this section]: ‘it was need which was the teacher of mankind in everything’; Hippocr. On anc. med. 3 [also in this section]: ‘through this need’; Diog. of Oen. [also in this section] ‘for needs gave rise to all (the crafts); Tzetz. [also in this section] ‘having necessity as their teacher’. Cf. comm. on no. 568, where parallel passages of Plato are cited. This theory, which rejects an omnipotent god, providence, the cult of law and the state and the concept of the absolute good (to kalon), and regards need as the basis of everything is attacked by Plutarch (De lat.viv. 4, Epicur. fr. 524 Us): ‘if anyone sings the praises of god and justice and providence in natural philosophy, and of law and society and political community in ethics and of the fine, not need, in the political community’. This theory was also maintained, no doubt for polemical purposes, by Euripides (Aeol. Fr. 19 N): ‘what is shameful, if it does not seem so to those who are doing it?’.

<sup>7</sup>‘many of them perished ... from cold and lack of food’. Cf. in this section Hippocr.: ‘eating such food ... the weaker ones perished’; Tzetz.: ‘since the only food they ate was what was available day by day, when winter came many perished’. Contrary to this, Protagoras regards conflict with wild animals as the cause of the destruction of the primeval people (Pl., Prot. 322b: ‘they were destroyed by beasts’).

<sup>8</sup>‘from experience’: cf. this section, beginning: ‘D. says experience ... has taught men this and it is from their wealth of experience that men have learned’. As Uxkull-Gyllenband correctly points out (*op. cit.*, p. 31), Democritus was in that case merely developing the view of Xenophanes (DK 21 B 18): ‘the gods have not revealed everything to men from the beginning, but by seeking over time they discover what is better’.

<sup>9</sup>‘once they had discovered fire and other useful things ...’: Uxkull-Gyllenband (*op. cit.*, p. 34) thinks that Lucr. V. 1350-1:

Plaited garments came before woven clothing

And weaving after iron, since the loom is made with iron

goes back to Democritus, and that Plato was attacking that assertion of Democritus at Laws 679a in showing that weaving is possible without the aid of iron tools: 'none of the crafts of weaving needs iron'. Cf. Pl. Prot. 322b: 'and man invented houses and clothes and shoes and bedding and food from the land...'; Laws 679a: 'and they had plenty of clothing and bedding and houses and implements, both those that need fire and those that do not'.

<sup>10</sup>'who had hands to assist them in everything': Anaxagoras supposed that it was precisely having hands which made possible the development of man, which distinguishes him from all other animals; Aristotle, on the contrary, thought that the reason man has received (from 'rational and wise nature', i.e. from god) suitably constructed hands is that he is the most rational of animals: PA 687a7ff.: 'Anaxagoras says that is because he has hands that man is the most rational of the animals. But it is reasonable that because he is the most rational he should receive hands. For the hands are a tool, and nature, like a wise man, always assigns each tool to a being that can use it'. Galen, De usu part., I.3.1 (III.5 K.; I.4.3 Helmr.): 'it is not because (man) has hands that he is the wisest, as Anaxagoras said, but it is because he is the wisest that he has hands, as Aristotle most correctly says'. Metrodorus of Lampsacus was close to Anaxagoras' view (DK 61.6): 'if the hands are destroyed wise Athena is ruined'. Of course, Democritus and after him Epicurus cannot have shared Aristotle's viewpoint; cf. Lucr. IV.822ff.: '{we wish you to avoid this error) ... you are not to suppose ... that the hands ... are given to us as servants on either side, so that we can do what is useful for our life'. According to Democritus and Epicurus, because of the upright posture of his body man has had many more opportunities for activity than the other animals; he has constantly exercised his hands, and because of this they have become continually more suitable for practical activity; see no. 572a and especially comm. on no. 517. Cf. Uxkull-Gyllenband, op. cit., p. 33.

<sup>11</sup>This idealised picture of the life of primeval people is without doubt foreign to Democritus. It is characteristic of Lucretius and probably goes back to Epicurus. See Uxkull-Gyllenband, op. cit., p. 33: 'Here we see the same conception, even down to the details, as in Diodorus, but a difference emerges. Even though the primitive people are pictured in their needy state, all the same this state is represented as fortunate in its innocence. We found this motif in Plato, where we clearly saw that it did not fit in to the order of his subject-matter, and anything like that is of course unthinkable for Democritus. But there is a parallel in the history of civilisation in Lucretius, who follows Epicurus; it thus becomes clear that the positive valuation of the primitive state must come from Epicurus'.

## II. The habits of animals as an example to humans

<sup>1</sup>As we have already seen (no. 86, cf. no. 572) Democritus regarded animals as in certain respects coming to resemble sages and gods, rising above the normal human level. The things that sages and gods understand thanks to the force of their intellect are done by animals by natural instinct, ‘a sixth sense’ in Democritus’ words (‘there are more senses than the five’, no. 572), which is a faultless guide in life. Democritus’ source for this view of his was Homer, i.e., more correctly, popular conceptions, folklore. See Od. XVI.161-2:

The gods do not appear plainly to all

But Odysseus and the dogs saw ...

See Rohde, Kl. Schr. I, p. 212, n. 1: “Democritus says that the non-rational animals have more senses (than five)”. That could well be a popular belief. Animals see spirits which remain hidden to man. Cf Tylor, Primitive Culture II, 179’. The possession of such special senses (which are had, not only by animals, but also by the possessed and the insane) Democritus called theion (‘divine’); like humans, many animals see things in dreams. Since Democritus himself emphasised that these dreams are not sent by god (no. 472: ‘for they would come by day and to the wise, if it were god who was sending them’ Aristotle thinks it incorrect to call them theia and prefers to use the more modest name daimonia [lit. ‘pertaining to daimones’, i.e. ‘supernatural, mysterious’]<sup>218</sup>; see Ar. De divinat. in somn. 463b 12ff.: ‘and in general, since the other animals also dream, dreams would not be sent by god, nor do they occur for that reason, but they are mysterious (daimonia); for nature is mysterious, but not divine’. Such ‘divine’ animals were obviously, according to Democritus, the spider, which has [the skills of] weaving and mending, the swallow, which knows how to build its house, and the swan and the nightingale, which sing beautifully. To these there were probably added the ant and the bee, as remarkable builders and collectors of stores for the winter, and among birds the eagle, which is distinguished for its intelligence and resourcefulness; see Ar. GA 761a3ff.: ‘the coming into being of ... hornets and wasps is reasonably thought not to be remarkable; for they have nothing divine about them, as bees do’; HA 619b6ff., where after a description of the striking intelligence and resourcefulness of the eagle Aristotle says: ‘this why people say that (the eagle), alone among birds, is divine’ (cf. Democritus’ special interest in the eagle, Porphyr. Quaest. Hom. I.274.9 Schrad.: ‘Democritus relates that the bones of the eagle are black’). In other cases Aristotle not only draws attention to the remarkable form of life of these animals, but notes exactly the same thing as Democritus in no. 559, that in these cases the human arts grew by imitation of what had developed in those animals by nature (Phys. 199a15ff.): ‘and in general art brings to completion some things which nature cannot achieve, and imitates others ... and this (i.e. that everything is for the sake of something) is clearest in the other animals, which do things not by art or from enquiry or deliberation, whence some people wonder whether it is by intelligence or something else that spiders and

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<sup>218</sup>[See translator’s note on no. 472.]



ants and other creatures do what they do, and if you go on a little way on that line it appears that in plants too advantageous things come into being with a view to the end, e.g. the leaves to protect the fruit, so that ... the swallow makes its nest and the spider its web by nature and for the sake of something'; Simpl. ad loc. 378.22ff.: 'thus everything acts for the sake of what is necessary and useful, as using intelligence and forethought, spiders spinning wide, sturdy webs to catch flies, ants storing food and using astonishing means of dragging heavy objects and often dragging their food up into the sun to dry it and [then] cooling [it], and keeping order in their march. But even more astonishing is the fact that they divide their own nests, which we call holes, into three parts, and live in one, store their food in another and bury their dead in the third. And the nightingale ... and the swallow make their nests by choosing the mud which is easiest to work, just as doctors use it instead of medicines which dry out most readily, and they bind the mud with straw to make the roomiest and strongest shape. And the bee taught people to put together hexagonal spaces; and the nest of the kingfisher would suffer the least damage from the water. There are many instances which one could give of the ingenuity of the non-rational animals in what they do'; Philop. ad loc. 311.1: 'we see, he says, in the case of some animals that they do everything for the sake of something, doing it not by art or reasoning but purely by nature impulse; for in fact 'the natures of animals are not taught', as Hippocrates thinks'.

The first of these passages was cited by Ross in his commentary on Aristotle's Physics (p. 529) to reconstruct Democritus' doctrine: 'diaporousi tines ... ['some people wonder']. The reference may to Democritus, who was impressed by the instinct of spiders and swallows'. From our point of view, we have here Democritus' characteristic assertion that human art (technē) imitates the nature of animals. S.O. Dickermann ('Some stock illustrations of animal [intelligence] in Greek psychology', Trans. Amer. Philol. Assoc. 42, 1911, pp. 123-30) speaks out against the possibility of seeing Democritus in 'some people' here. According to him the examples of the ant, the bee, the spider and the swallow are a commonplace, endlessly repeated in later literature as a model of 'untaught reason', e.g. Galen, De usu part. 1.3: 'hence it seems to me that the other animals practice some art by nature rather than by reason, bees make honeycombs, ants construct storehouses and labyrinths, spiders spin and weave; the evidence is that they are untaught'. Dickermann cites a number of similar passages from later literature. But all these passages cannot serve as an objection against the fact that Democritus was the first to refer to and interpret this material, and that subsequently his discussions served as good material for teleological doctrines of nature. Equally implausible and arbitrary is Dickermann's assertion that this behaviour of animals interested Democritus only as the object of human imitation and that the astonishing instincts of animals, which he called mind, did not interest him in themselves; against that is the evidence of no. 560 [Ael. NA VI.60 =DK 68 A 150a]: 'whether we call it shame or a nameless gift of nature, we leave it to Democritus [and others] to examine and consider themselves capable of saying what is the cause'. Apparently Democritus said that in the case of animals shame is not the result of reasoning, but some 'nameless gift', i.e. a mysterious instinct. The passage of Simplicius which

we have cited first in this connection supports Ross's suggestion; even if Aristotle himself happens not to mention singing, building and mending, which are mentioned in the excerpt preserved by Plutarch (no. 559), all of these are spoken of in Simplicius' commentary. Of course it is difficult for us to judge what is here taken from Democritus, and what is a further development of his thought. Prächter (Hermes 50, 1915, p. 144) cites an interesting passage of Xenophon (Oecon. 19.18 ff.), in which the teacher of man is not the animals, but a plant, the grape vine: 'it itself teaches how best to use it. By climbing straight up a tree, if there is one nearby, the vine teaches you to stake it. And by spreading out its leaves when the grapes are still soft it teaches you to shade it from the sun in that season. And when the time comes for the bunches to be sweetened by the sun, by shedding its leaves it teaches you to strip the leaves and ripen the fruit' (similar discussion in Cic., Cato Maior, 52ff.). Prächter sees here borrowing from Democritus; I am not convinced, because in these cases man is taught by the plant not how best to fashion his own life, but how best to look after that very plant. Prächter's suggestion that nos. 559-561 are taken from Democritus' work On agriculture seems to me just as improbable as it does to Alfieri, op. cit., p. 168, n. 435.

Very interesting in this connection is a remark of the 17<sup>th</sup> – century Italian mathematician Bonaventura Cavalieri (Exercitationes geometricae, Bononiae [Bologna], 1947, p. 185): 'The poets relate that the gods, whom they had invented, achieved the glory of their discoveries in no other way (i.e. than by being prompted by some external source). This was the case with Hercules, who had learned of purple dye when he saw a dog eating a murex which had been cast up on the sea-shore, just as Mercury invented the lyre by finding that the dried-out sinews of a long-dead tortoise gave a pleasant sound when struck by the fingers, or Pan made the shepherds' pipe from reeds which made a sound when blown by the wind'. The first of these reports, of the same rationalistic type and tendency, has come down to us in Achilles Tatius II.11 and in Pollux I.45<sup>219</sup>, and in the lexicon of Cyril Prodromus s.v. epi apodēmōi tēi philiai we read 'imperial purple is the discovery of a dog'. But we do not find this kind of rationalistic reworking of the stories of Hermes and the tortoise or Pan and the reed: in the versions which have come down to us Hermes finds a live tortoise and kills it to make a lyre; nowhere is it said that he happened to hear melodious sounds emitted by the dried-out sinews of a dead tortoise (see Homeric Hymn to Hermes 25; Soph. Ichneut. 278ff.; Apollod. III.10.2; Pausan. II.19.7 etc.); the case is the same with the myth of Pan (Pausan. VII.38.1; Ovid, Met. I.690ff.: Long. II.34.37). There can be no question of Cavalieri himself having invented these myths; obviously, he had as a source (perhaps at third or fourth hand) a Greek book which told how men owed their greatest discoveries to experience of the life and behaviour of animals and plants, as in the excerpts from Democritus which have been cited. The myth in Achilles Tatius II.11 begins with the words 'once upon a time', which is characteristic of all the narratives of primeval human society<sup>220</sup>. In this connection it is instructive that in Lucr. V.1379-83, whose source is undoubtedly

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<sup>219</sup> These passages are not cited by Kleingünther in his work Prōtos heuretēs.

<sup>220</sup> As E. Norden shows, Agnōstos Theos, pp. 370ff.

Democritus (see Reinhardt, op. cit., p. 511: 'The words coincide with Lucretius') we read that it was the sounds emitted by the hollow stems of the reed which taught man to sing:

But long before men could delight their ears by singing pleasant songs together

They imitated with their mouths the liquid voices of birds,

And the rustling of the west wind in the hollow reeds

Was what first taught the country people to blow into hollow hemlock stalks.

See Kleingünther, op. cit., p. 109: 'Nothing can characterise Democritus' materialistic theory of culture more clearly than this motif, that in the beginning powerless man had to make the animals his instructors in order to shape his life'. See also Uxkull-Gyllenband, op. cit., p. 30.

<sup>2</sup>'pupils': see comm. on no. 561.

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<sup>1</sup>The authenticity of the passages cited here was questioned by Erwin Rohde in 1873 and 1881 (Kl. Schr. I, pp. 398, 214-5). His starting-point was that these passages are undoubtedly taken from Democritus' work Causes of animals; but that work was not included in Thrasyllus' tetralogies; so Thrasyllus presumably ('vermutlich, wahrscheinlich') regarded that work as not genuine. Rohde writes: 'Nietzsche adduced that as evidence (Beitr. z. Quellenkr. u. Kritik des L. Diog., Basel, 1870, pp. 26-7 (Werke XVII = Philologica I, p. 203) ... And are we to take as authentic writings which even someone like Thrasyllus did not ascribe to Democritus?' What is the ground for the assertion that the passages cited here are, apparently, taken from the work Causes of animals? In no. 560 the expression 'the causes' is used, and Rohde draws the conclusion: 'So (sic!) they will have been created from the 3 books of the Causes of animals'. But first, the word 'causes', which is so common in the writings of Greek scientists, in no way shows, in my opinion, that the passage comes from the work Causes of animals. Alfieri correctly comments (op. cit., p. 167, n. 433) 'This seems to be a piece of excessive ingenuity'. H. Diller, 'Wanderarzt und Aitiologie', Philologus, Suppl. Vol. XXVI, part 3, 1934, p. 45, n. 78) notes that Herodotus (IV.29) uses 'the cause' in the same context and connection as in the passages cited from Democritus, and thinks it entirely possible that 'such questions ... were discussed, not in isolation but in wider scientific or even descriptive contexts (as in Herodotus)'. Secondly, I am not convinced by Nietzsche's contention that Democritus' Causes were acknowledged as inauthentic by Thrasyllus and that they are a forgery from the Alexandrian period. Let us consider DL IX.45-9, dealing with the works of Democritus. Chapters 45-8 clearly contain a list, drawn up by Thrasyllus, of works whose authenticity was generally acknowledged ('Thrasyllus listed his works in order ...' (DL IX.45, end). The beginning of chapter 49 contains writings whose authenticity had not gained general acceptance (IX.48: 'some list separately the following titles from the Notes'). And finally the second part of chapter 49 refers to the existence, besides the above, of writings some of

which are undoubtedly inauthentic, others put together from works of Democritus ('Of the other works which some people ascribe to him, some are compiled from his own works, others are acknowledged to be spurious'). The Causes are placed in the first group (ch. 47), among the scientific and mathematical writings. Obviously (this is clear from their content) they were assigned to the group of scientific writings and acknowledged as genuine by Thrasyllus. Even such a cautious author as Diller draws the following conclusion (op. cit., pp. 44-5): 'They cannot, as E. Rohde supposed, be later, specifically Alexandrian forgeries, for this reason, that Aristotle and Theophrastus cite under the name of Democritus zoological and botanical details which cannot be ascribed elsewhere than to the writings on causes ... That is how we must regard the Causes of animals which Aelian has preserved for us (nos. 560-1). Undoubtedly much of the verbal form has been corrupted, and probably some of the content too, but against Rohde's doubts I hold it as certain that the reports go back ultimately to early Ionian aetiologies, not to Alexandrian, and so I regard it as less important whether the Causes originate from Democritus himself or from his pupils'.

<sup>2</sup>The imprecision of the citation of Herodotus might also serve as an argument against the authenticity of the entire passage, which is a single unity; to the theory that savages live according to nature there is opposed that in which the model of such a life is provided by animals (see nos. 569, 572). In fact, in Herodotus I.216 the topic is that among the Massagetae a woman can change her husband (moicheia) without fear of punishment (adeōs), not that she can go with men under the eyes of all (phanerōs), as we read in this passage: 'if a man desires a woman among the Massagetae, he hangs up his quiver in front of the wagon (not 'in front of them', as in our passage) and has intercourse without fear of punishment'. Therefore Diels adds to this passage the note 'So a forgery by Aelian' [DKII, p. 124, l. 37n.]. But that is wrong: the tradition that the Massagetae are accustomed to have intercourse in public existed independently of Herodotus (see Zenob. V.25 = Paroem. Gr. I, p. 127: '(the Massagetae from the mountains) have intercourse in the streets'. The geographical detail 'from the mountains' is not in Herodotus or Aelian; hence it is impossible that Zenobius' source was Aelian. In Strabo [XI.8.6 = 513C] there is, apparently, a combination of both versions, attempting to reconcile them: 'each man marries one woman, but they take one another's wives without concealment, and someone who is having intercourse with another man's wife hangs up his quiver in front of the wagon and has intercourse openly' (apart from some particular words the whole of this is taken from Herodotus, including the expression 'in front of the wagon'). But in Strabo too there is no mention of 'Massagetae from the mountains', so that it is clear that Strabo was not Zenobius' source. But these 'Massagetae from the mountains' are not a mistake arising from the fancy of a later forger; see Strabo [ibid. = 512C: 'it is said ... that some of the Massagetae live in the mountains, and others in the plains'. To understand how a citation of Herodotus got into this passage one should note the following curious fact: in Simplicius' extensive excerpt from the pre-Euclidean History of geometry by Eudemus (F. Rudio, Der Bericht des Simplicius, Leipzig, 1907, pp. 45ff.) at every step there are citations of the handbook of geometry by Euclid, which was in more general

use at the time of Simplicius. Of course, none of these citations were in Eudemos; they were added by Simplicius to clarify Eudemos' text. We must suppose that Aelian (or, more strictly, his immediate source) did the same with Democritus; he added a citation of Herodotus without great concern whether what Herodotus says coincides completely with the corresponding passage of Democritus.

<sup>3</sup>That this glorification of the natural perfection of animals in contrast to humans who are corrupted by culture was genuinely characteristic of Democritus, is further clear from the fact that we find the same theory in Democritus' follower Epicurus; see Cic. De fin. II.10.31 (fr. 398 Us.): 'From those animals, which are not yet depraved ... Epicurus took this argument ... from the beasts, which he regards as mirrors of nature'; (II.33.109) 'animals which you are accustomed to use as witnesses about the supreme good'; Sext. M XI.96 (fr. 396 Us.): 'some of the Epicurean sect ... the animal shuns pain naturally and without instruction ... not yet being enslaved to opinions ... (i.e. the natures of animals are uninstructed)'; Galen, De usu part. I.3 (see comm. on no. 558, n. 3)<sup>221</sup> – this expression is probably taken by all these authors from Democritus. In fact, soon after the publication of Democritus' work there had been lively discussion in sophistic literature of the imitation of animals in the moral sphere. These discussions are parodied in Aristophanes (Birds 1343ff.: storks feed their aged parents; Clouds 1248-9: 'yet how do they differ from us?'). On this see my article in Aegyptus, VII, 1926, p. 250, n. 4; p. 261.

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<sup>1</sup>'contrivance': in Artemidorus, Oneirocritica I.79, p. 94 Pack, there is a discussion which is very similar to Democritus' theories. The sexual orderliness of animals is contrasted with the sexual corruption of man, who has invented different kinds of sexual perversions. In Reports of the Acad. of Sci. of the USSR, p. 441, p. 457, p. 1041ff. I show that that this passage is in all likelihood taken from the book On the interpretation of dreams by the sophist Antiphon, a follower of Democritus. There we read: 'people have invented the other forms [of intercourse] through violence and wantonness, but that body-to-body [intercourse] is the only form which they have been taught by nature is clear from the other animals ... thus it is likely that for people body-to-body [intercourse] is the appropriate form, while the rest have been contrived by violence and wantonness'. The expression 'is clear from the other animals' coincides with Democritus' expression in no. 562: 'it is clear for the other animals too'. The expression 'have been contrived' corresponds exactly to the expression 'a contrivance of sexual violence' in the passage being commented on.

<sup>2</sup>'pupils': we come across 'pupils' in practically the same context in no. 559, whose authenticity is not in dispute; this may serve as an additional argument in favour of the authenticity of no. 561.

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<sup>221</sup> [The passage from Galen is cited in comm. on 559, n. 1.]

<sup>1</sup>This saying is as it were the key to Democritus' entire doctrine of the comparative appraisal of animal and man set out in the preceding passages. He rates very highly the natural gifts of animals, which they have mastered without any instruction and which can often serve as models for man to imitate, and sometimes also for his moral improvement. But animals cannot intentionally change them, whereas man can modify and reject them on the basis of rational consideration.

<sup>2</sup>their long-established way of life': see comm. on no. 558 [n. 4].

<sup>3</sup>'this is clear for the other animals too': see comm. on no. 561.

<sup>4</sup>nomizon pepoiētai ['it has become accepted']: nomizō is here used in an intransitive sense without a direct complement; see Ecphantus (DK 51 A 1).

### III. The origin of language

<sup>1</sup>The views of scholars are sharply divided on the question of how far Proclus was right in sharply contrasting Democritus as a partisan of the coming into being of language by convention from Epicurus as a partisan of the coming into being of language by nature. Alfieri, *op. cit.*, p. 210, n. 531, p. 198, n. 80, is inclined to think that Democritus and Epicurus actually held opposed views on this question: 'For Democritus it is a question of experience; the wisest people impose on their fellow-tribesmen words of an entirely arbitrary and conventional character, while for Epicurus it is a question of necessity, and people are guided by instinct and analogy'. It is true, Alfieri remarks, that according to no. 564 Democritus called words 'audible images' of objects, from which one may conclude that for Democritus the spoken names of objects came into being in the same natural way as for Epicurus, but Alfieri regards such an interpretation of no. 564 as incorrect (see comm. on that passage). By contrast, R. Philippson ('Platons Kratylos und Demokrit', Philologische Wochenschrift 49, 1929, p. 923) thinks that in essence Democritus' view coincides with that of Epicurus: Epicurus is counted among the partisans of the coming into being of language by nature because he denied that language (at least in its first stage) was invented by a god, hero, or any kind of talented inventor.<sup>222</sup> Democritus, on the other hand, disputed the

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<sup>222</sup> Diog. of Oenoanda 10, cols. II-V, pp. 20-22 Chilton: 'regarding the sounds ... which were first uttered by the people born from the earth ... let us not believe the philosophers who say that names were imposed on things by convention and teaching, so that people could have signs to make their meaning readily clear to one another. For it is absurd, and more absurd than any absurdity in addition to its impossibility, that some one individual should succeed in assembling such multitudes ... and having assembled them should sit like a schoolmaster ... and touch each thing and proclaim that this is to be called a stone, and this wood, and this a man ...'

Cf. Lucr. V.1045 [actually 1041-3]:

Moreover thinking that someone then distributed names  
To things and that from him people learned their first words

ancient theory that each thing has its own true, natural and correct name, connected with its essence (which is why knowledge of the 'true' name of an object often confers power over it). See e.g. Herodotus, who tells (II.2) of the experiment conducted by the pharaoh Psammetichus, which showed that the 'true' name of bread was its Phrygian name bekos, since children who have never heard a human voice call bread bekos. This 'experiment' was undoubtedly taken from sophistic literature; the answer to such theories is given in the second part of passage no. 563, which shows the impossibility of such arguments and the conventional nature of linguistic naming: of course, words came into being not by nature but by convention, since by nature there exist only atoms and the void. H. Steinthal, Geschichte der Sprachwissenschaft, vol. 1, 1890, pp. 74ff., 176ff., has shown that Proclus lumped together the ancient philosophical contrast of nature and convention (phusei – nomōi) with a new, historico-cultural contrast of nature and artificial construction (phusei – thesei), according to which Democritus and Epicurus turned out to be opposed on this question.

I am, however, convinced that in Philippson's interpretation the question is oversimplified: if Epicurus had simply repeated Democritus' arguments, and not attacked him on any questions, it would hardly have entered anyone's head to cite these philosophers as representatives of diametrically opposed tendencies; moreover, I am inclined to think that in saying (Epist. I.75) that 'names do not originally come into being by convention' Epicurus is specifically attacking Democritus. Reinhardt attempts (op. cit., p. 502) to find an escape from this difficulty as follows: 'All the same, there is a slight difference (between the views of Democritus and Epicurus). When we pay attention to how carefully Epicurus excludes everything intellectual and emphasises the involuntary, and to the weight which he attaches to natural necessity, which 'squeezes sounds out' from people (Lucr. V. 1028: 'nature compelled them to emit sounds and utility shaped the names of things'), then one will have to reach the conclusion that on this question he went in any case further than Democritus'. These arguments presumably have their unconscious source in passage no. 36 cited above, which Diels understood in the sense that, according to Epicurus, Democritus put insufficient emphasis on the role of chance in nature. As we have already seen, that translation and interpretation are incorrect; for Epicurus the most alien part of Democritus' theory was precisely his doctrine of pervasive causality; he attacked him from the standpoint of the freedom of the will and introduced the swerve of the atom with just that aim. Moreover, in his fundamental discussion of the history of language cited above (Epist. I.75) he says that in the second stage of development people 'of different nationalities laid down their own particular names', i.e. he emphasises that existing languages emerged by convention; that fully corresponds to the theory of 'the social contract' (see comm. on nos. 569 ff.) which he develops in Kuriai Doxai 31-2 (= DL X.150) and to his principle of 'free will' (see also Lucr. V.1019-20). By contrast, the idea of 'the social contract' is totally alien to the determinist Democritus. The fact is exactly the opposite: Epicurus (Epist. I.75) lays such emphasis on the

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Is stupid ... (continuation as in Diogenes of Oenoanda).

chance nature of linguistic and other phenomena in the early stage of human development (see Reinhardt, op. cit., p. 503, n. 2) to emphasise still more sharply man's rational free will in the second stage of his development: 'their nature was taught and necessitated in all sorts of ways by things themselves; but later on reason makes more precise the things their nature has provided and makes further discoveries, so that names did not originally come into being by convention, but the natures of people of different nationalities underwent different experiences and received different images and emitted air differently as it was shaped by those various experiences and images, according to their national differences in different places; but later in each nation their particular conventions were set up in common, so that their meanings could be made clear more concisely and with less ambiguity'. For Democritus as a determinist these two epochs of different character did not exist; in the very earliest epoch particular people emitted different words (of course, under the influence of natural forces) -- from the very moment that they stopped emitting confused and meaningless sounds (no. 566) they began to articulate them in letters, but of these invented sounds the only ones which survived were those which answered their needs. Epicurus objected to this convention in the first stage of human development, banishing it to the much later stage of 'the social contract'. See J.H. Dahlmann, op. cit. p. p. 4ff.; Giussani, 'La questione del linguaggio secondo Platone e secondo Epicuro', Mem. R. Istituto Lombardo 20, 1899, p. 105; H. Diels, 'Die Anfänge der Philologie bei den Griechen', Neue Jahrb. f. klass. Alt. 13, 1910, pp. 1ff.: A. Momigliano, Atti Accad. Sc. di Torino 65, 1929-30, p. 98; I.M. Tronsky, Problems of language (in series Ancient theories of language and style, pp. 17-20, 30); S.Y. Luria, Essays in the history of ancient science, Moscow, 1947, pp. 269-71.

<sup>2</sup>'statues': see no. 564 with comm.

<sup>3</sup>the expressions 'homonymy' and 'polyonymy', as Steinthal suggests with justification, do not belong to Democritus, but are taken from Aristotelian terminology; Democritus' own expressions (polysēmon ['ambiguous'], isorropon ['equivalent'] etc.) appear at the end of the passage, where the technical term epicheirēma in the sense 'argument' is also post-Democritean. Cf. Ar. Cat. 1a1: 'things are called homonymous which have only the name in common, but the definition corresponding to the name is different'.

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<sup>1</sup>The expression 'speaking images' (see no. 565: 'the word [logos] is the shadow of the deed') shows without doubt that in Democritus' view logos ['speech, description, definition, statement'] was not an arbitrary invention, but to some degree reflected actual reality ('a sound-image'); the expression 'detailed descriptions, as it were images of things' ascribed in no. 563 to the people called Pythagoreans, as in a number of other cases, is, apparently, simply an idealistic transformation of an expression of Democritus'. Steinthal, op. cit., p. 182, followed by Alfieri, op. cit., p. 237, n. 596, starting from the original sense of the word agalma ['image'], i.e. 'idol, object of worship' thinks that 'vocal image', i.e. 'vocal idol, vocal



icon', relates only to the gods ('and these are of the gods'), and refers to those people for whom the name of a god is itself an object of worship and reference, a particular kind of icon. I am not, however, convinced by this interpretation, especially when one pays attention to the word 'images' in no. 563. Cf. Warburg, Neue philologische Untersuchungen, V, p. 72. How Democritus conceived of the connection between objects and words may be seen from the following later passages, which apparently also have their source in Democritus: Procl., In Crat. 17, pp. 7ff. Pasquali (335 Us.): 'Epicurus ... thought that names are by nature ... for Epicurus said that it was not in virtue of knowledge that they (sc. the original name-givers) assigned names, but because they were naturally affected, like people coughing or sneezing, or bellowing, or wailing, or groaning'; Orig. Contra Cels. 1.24, p. 76 Koetch. (334 Us.): 'as Epicurus teaches ... names exist by nature, when the first people had emitted sounds for things'; Hor. Ars poet. 108-11: 'Nature first shapes us inwardly in response to all chance events ('in response to whatever happens') ... and then expresses the motions of the mind through the medium of the tongue'; Aul. Gell. Noct. Att. X.4: 'P. Nigidius ... teaches ... that names and words are made not by chance imposition, but by a certain rational force of nature ... It has been usual for philosophers to inquire whether names are by nature or by convention. He says 'When we say 'vos' ['you'], we make use of a certain movement of the mouth which fits the application of the word itself, gradually moving the tips of our lips outwards and directing our breath and mind out towards the people we are talking to. But by contrast when we say 'nos' ['we'] we as it were shut up our breath and lips inside ourselves. ... For just as when we nod assent or dissent the motion of our head or eyes is not alien to the nature of the thing it signifies, so a certain movement of the mouth and breath is as it were natural to these words ...' Lucr. V.1028ff.:

But nature compelled them to emit various sounds via the tongue

And utility fashioned the names of things,

In much the same way as the very speechlessness of the tongue

Seems to impel children to gestures ...

1056 Finally, what is so surprising in this,

If the human race, having a functioning voice and tongue,

Marked things by different names corresponding to their different feelings?

When the dumb herds, and the races of wild beasts,

Are used to call forth various different sounds

When fear and pain are present, and again when their joys grow strong.

1087 So if different feelings compel animals,

Dumb though they are, to emit different sounds,

How much more likely is it that mortals

Were then able to mark unlike things by one sound and another.

On the difference between Democritus and Epicurus on the question of the origin of language see comm. on no. 563.

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<sup>1</sup>See Frank, *op. cit.*, pp. 169ff.: 'Atomism constructs in every area of reality a scheme of three levels: 'the letter' (element), 'the syllable' (complex of elements) and 'the word' (logos, systems of elements). For speech ('word') is for Democritus a reflection of reality ('the word is the shadow of the deed'), consequently it reflects the connections of the real world. Just as a logos is composed of letters, i.e. of indivisible 'primary elements of sound', so things are composed of atoms, the 'primary bodies' ... So atomism understood ... speech ... as a perfect representation of reality ('vocal images'). As such, it is merely a subjective representation, not the objective truth itself, it is not 'by nature', but 'by art, by convention' (thesei, see. no. 563). A representation (eikōn) is, it is true, as regards its material, something other than what it represents (Pl. Crat. 432b, 430b, 423a ff.; Tim. 52c), but in their (qualitative) form the two coincide. The form, i.e. the mode of composition from simple elements, is one and the same in reality and in language'.

<sup>2</sup>These passages, which confirm Frank's arguments, but which remained unknown to him, are here cited by me for the first time.

566

<sup>1</sup>'their speech was meaningless and confused': this genitive absolute [the construction in the Greek] expresses contemporaneousness, not sequence; the word 'later', which is characteristic of Epicurus (see comm. on no. 563, n. 1, where the corresponding passage of Epicurus is cited), is absent here.<sup>223</sup> For Democritus there was no second epoch, the epoch of 'the social contract'; as soon as man comes on the scene, capable of emitting meaningless and confused sounds, he immediately begins to invent verbal signs to interpret his surroundings. Hence the identification proposed by Reinhardt (*op. cit.*, p. 501) between the histories of the development of language in Democritus and in Epicurus seems to me incorrect: 'Thus in Diodorus also two phases of the formation of language are distinguished. The first development is achieved by the most extreme diversification, leading to sounds being articulated (on the contrary, here we read asēmou ('unarticulated') – L) in the most

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<sup>223</sup> [Pace L, despite the absence of the word 'later', the passage clearly describes the gradual development over time of articulate speech from an initial state in which speech was meaningless and confused. Nothing in the text of no. 566 supports L's 'as soon as man comes on the scene' and 'immediately', which are indeed contradicted by 'gradually' (kat' oligon).]

various ways; then in different geographical areas there are formed systems (sustēmata) ...'. In so far as this refers to no. 566, it is utter fantasy; there is no mention there of any two stages. Diod. I.16.1 cited by Reinhardt, also yields nothing, not to mention the fact that the theory set out there is not shown to belong to Democritus. Of course, that can have no connection with that second stage (no. 566) when man turns from objects of necessity to objects of luxury; language was an object of original necessity, not of luxury.

<sup>2</sup>'they articulated': cf. Pl. Prot. 322a: 'then he [man] soon articulated speech and names by his skill'; Diod. I.16.1: 'and from him (Hermes) first common speech was articulated and many unnamed things got names'.

<sup>3</sup>'forefathers, originators' (archegona): cf. the words of the Epicurean cook in the comic poet Damoxenus (Athen. III.10 [cf. no. 499]): 'nature is the originator of every craft'. Cf. Dahlmann, op. cit., p. 40.

567a

<sup>1</sup>We see from nos. 567 and 567a that, like his idealistic opponents Democritus was concerned with etymologising ; but the two of his etymologies which have come down to us are usefully distinguished from, for instance, the fantastic and arbitrary etymologies contained in Plato's Cratylus. The rapprochement of the root gun to the root gen is mistaken, but it is shared by some linguisticians of our time, e.g. W. Prellwitz, Etymologisches Wörterbuch der griechischen Sprache, Göttingen, 1905, p. 101: 'gunē... woman ... from \*g<sup>w</sup>na ... like gene in gignomai'. Similarly, Democritus' assumption that the suffix mon in the word phleg-mon-ē is simply an extended variation of the suffix mn(t) in the word phlegma (cf. Latin men, Slavonic мн), not a parallel formation, is in principle entirely regular. Plato takes over the etymology of the word gunē from Democritus (Crat. 414a: 'gunē seems to me to mean gonē ['seed, generation']', but along with this he gives a series of fantastic etymologies, e.g. andreia ['courage']: 'if we remove the d we get anreia ['flowing back'] ... the flow which is opposed to the one contrary to justice', or he gets arrēn ['male'] from anrēn<sup>224</sup>, hē anō roē ['the upward flow'], or thēlē ['nipple'] 'because it makes things flourish (tethēlenai) like things that are watered'. Of course, there is no guarantee that these fantastic etymologies are not also taken over from Democritus.

IV. Music and culture in general arise not from want but from plenty

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<sup>1</sup>See Reinhardt, op. cit., p. 504; Uxkull-Gyllenband, op. cit., p. 30; Kleingünther, op. cit., p. 107; W. Theiler, Zur Geschichte der teleologischen Naturbetrachtung bis auf Aristoteles, pp.

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<sup>224</sup> [The form anrēn is not in Plato's text: at 414a1-2 arren ['male'] and anēr ['man'] are both derived from hē anō roē.]

78ff.; Alfieri, op. cit., p. 239, n. 597; Crönert, op. cit., p. 130, n. 503ff.<sup>225</sup> Kleingünther emphasises the general significance of this passage: ‘In this passage Democritus makes a cross-section through his theory; he shows that as well as necessity = need there was another principle of explanation for the origin of discoveries’. All these authors point out the numerous echoes of this theory in Plato and Aristotle: Pl. Rep. 373a-b: ‘we are no longer to provide necessities, houses, clothes and shoes, but we are to stimulate painting and obtain gold and ivory and all that kind of thing ... which are no longer present in cities out of necessity ... and many whose business is culture, poets and their retinues, reciters, actors, dancers’; Critias 110a: ‘mythology and investigation of the ancient past are introduced into cities together, at the same time as leisure, when people see that the necessities of life have been secured, and not before’; Epin. 974d: ‘first, let us see that [the kinds of knowledge] of what the human race needs first are pretty well most necessary and truly first ... let the first thing for us be the [knowledge of] animals’ eating one another, which makes us abstain totally from some animals and makes others part of a lawful diet ... growing and preparing wheat and barley ... agriculture throughout the country ... construction of houses and all kinds of building and manufacture of all kinds of objects, working in bronze and the crafts of builders, potters and weavers, and then the making of all kinds of tools ... all kinds of hunting, with their diverse techniques ... divination ... all kinds of interpretation ... and after that there would remain a sort of play, imitative for the most part ... and language and all kinds of culture, and the things arising from painting ...’; Ar. Meta. 982b22: ‘when practically all the necessities were supplied that sort of intelligence began to investigate the conduct of leisure’.

On the basis of these imitations of Democritus it is possible to give some details of his theory. Of course, music, dance and primitive drawings are as ancient as human speech; to imagine that man began to sing only when he had already learned to cultivate plants and build houses is extremely schematic. Epicurus, as we have seen, took that schematism even further, in banishing to that later stage articulate speech and primitive social institutions (‘the epoch of the social contract’).

<sup>2</sup>‘more recent’: ‘than the other arts’ is understood.

<sup>3</sup>‘not singled out by necessity’: ‘so in opposition to Epicurus’ (Alfieri).

568a

<sup>1</sup>See Kleingünther, op. cit., p. 108: ‘if Democritus ascribed the invention of the hexameter to Musaeus, he was obviously convinced that religious literature has the right to claim the greatest antiquity, and in particular that the hexameter poems of Musaeus were the most

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<sup>225</sup> Crönert has shown that in this passage the quotation from Democritus ends with the word genesthai [‘came into being’], and that what follows does not refer to Democritus.

ancient products of that religious literature. That Democritus named individual inventors in his theory is, it seems to me, also clear from Pl. Laws 677d’.

## V. The origin of law

569

<sup>1</sup>For Democritus, as we have already said, there were not, as there were for Epicurus, two separate epochs in the early history of primeval man, the epoch ‘of natural life’ (‘by nature’, ‘by necessity’) and the epoch of the free ‘social contract’. The rational activity of individual people began from the very dawn of human life, but experience and need preserved only those skills and discoveries which turned out to be advantageous. The most perfect of the discoveries which reflected the primeval coarseness of man, not yet extinct in the world, is law – an ‘artificial product’, ‘a bad contrivance’, which has the aim of benefiting man, but is powerless to do so in the absence of good will and the desire of the citizens to obey it. See E. Bignone, Nuova Rivista Storica I, 1917, p. 12, n. 1: ‘In Diogenes Laertius IX.45 (in the exposition of the doctrine of Democritus) the manuscript text says poiēta de nomima einai, phusei de atoma kai kenon [‘conventions are artificial, atoms and void by nature’], following a summary of the ethical doctrines, and it is not necessary to follow Zeller and Diels in correcting the text to poiōtētas de nomōi einai [‘qualities are by convention’]: rather one should read ta nomima [‘the conventions, the laws’]. See my article, AGPh 38, 1929, p. 211, and Antiphon, DK 87 B 44, col. 1, ll. 23ff.: ‘ta men gar tōn nomōn <xun>theta<sup>226</sup>, ta de tēs phuseōs anangkaia’ [‘what the law prescribes is conventional, what nature prescribes is necessary’]. In both passages we have the typical confusion of nomos in the sense of ‘something established or prescribed’ with nomos as an epistemological concept, contrasted with the concept of phusis. For Epicurus, on the contrary, law is a beneficial result of agreement, of a conscious contract between citizens gathering together (cf. Hobbes’ ideas, Rousseau’s ‘contrat social’) and establishing norms making the causing and suffering of evil impossible. It arose in the second stage of the development of society and exists by nature. See KD 31: ‘Natural justice is an advantageous agreement not to harm one another or to be harmed’; 33: ‘Justice was not something in its own right, but a universal agreement not to harm or be harmed, arising from their association with one another’ cf. comm. on no. 620a). Lucr. V.1019-20:

Then neighbours began eagerly to join in mutual friendship

Not to injure or to be violated.

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<sup>226</sup> [DK reads epi>theta [‘arbitrary’]].

<sup>1</sup>P. Von der Mühl, Festgabe Adolf Kägi, Frauenfeld, 1919, p. 177, n. 1: 'to be completed from Epicurus' theory' (cited from DK II, p. 194, ll. 10ff. n; unavailable to me). See preceding note with quotations from Epicurus.

## b. THE WORSHIP OF THE GODS

### I. Explanation of the divine nature

#### II. The divine force present in men and some other animals, greater in some and less in others

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<sup>1</sup>Democritus was not an atheist, i.e. he accepted the existence of gods. But, as we shall see from what follows, he denied that the gods are immortal, almighty, and merciful to humans, and he denied their care for humans, i.e. 'divine providence'. Hence these gods are mortal beings, much longer-lived and wiser than humans, but none the less beings who are totally subject to natural necessity and mortal. The Epicurean conception of blissful and serene gods, living somewhere in world-space ('interworlds' [metakosmia] as the residence of the gods is undoubtedly an Epicurean conjecture), is therefore little different from Democritus' conception. This is confirmed, we may think, by Xenophon's testimony in Mem. I.4.9, (written long before Epicurus) where Aristodemus states the views of the atomists: 'for I do not see the beings who are in control, as I see the makers of artefacts ... I do not despise the divine, Socrates', he said, 'but I think that it is too magnificent to need worship from me ... you know well', he said, 'that if I thought that the gods had any care for men I should not neglect them'.

Democritus denied that the gods have the capacity or the desire to do people good or evil intentionally<sup>227</sup>, but from their bodies there are, totally involuntarily, emitted images, which may be either beneficial or harmful for people (see nos. 472 & 472a). By the principle 'like is assimilated to like' we should therefore expect that these 'divine images' would get inside people rather than animals, and among people get inside the wisest. In fact Democritus divides living beings into four categories, each of which contains a smaller portion of the divine than the preceding one: gods, sages, [ordinary] people, 'non-rational animals'. The amount of divinity is connected with the presence of a higher or lower level of intelligence, reason and thought, of 'thinking what is fine' (see nos. 572a & 573a). But since images of the gods get inside the bodies of living beings without any effort on their part, and living beings can only 'pray' (no. 472a) that they will encounter good images, it often happens that the divine can be found in an animal, depending on chance circumstances or on the presence in the perceiving subject of predispositions which have nothing at all to do with reason. Hence 'divine instinct', 'a sixth sense', which confers the capacity to perceive immediately 'streams of divine images' can be had by 'non-rational animals' as well as by sages (no. 572;; see comm. on no. 560) and by people who are out of their minds (no. 574) or mentally ill (melancholikoi), since they are less capable of being absorbed in their own thoughts and more subject to external influence. Thus, for instance, poets, whose creations

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<sup>227</sup> Ar. De divinat. in somn. 2, 463b12: 'dreams would not be sent by god ... (21) they would occur by day and to the wise, if it were god who sent them'. See comm. on no. 472, nn. 1-3.

are clearly the product of a divine spirit, can write well only when they are in a state of possession, when they are out of their minds (no. 574). This conception of people endowed with a divine force is very ancient; it is characteristic of all primitive peoples and probably older than the doctrine of gods who rule over people. According to these views powerful and wise people are endowed with a superhuman force (mana or orenda). The expressions hieros ['holy'], theios ['divine'], theioteros ['more divine'], entheos ['possessed by a god'] mean 'endowed with a large amount of mana'. See Söderblum, Das Werden des Gottesglaubens, Leipzig, 1916; F. Pfister, 1) RE s.v. Kultus, 2) Berl. Philol. Wochenschrift, 1920, pp. 645ff., 1921, pp. 394 ff., 1923, pp. 356ff. At a certain level, such people are themselves earthly gods; cf. a quotation from Aristotle's Protrepticus (fr. 48 Rose = Cic. De fin. II.12.40): 'Man is born for two things, as Aristotle says, understanding and acting, a sort of mortal god'. Thus it was in total accord with the conceptions prevailing at the time when Empedocles declared himself an immortal god (DK 31 B 112: 'I am for you an immortal god, no longer a mortal') and men and women worship him as a god ('I am worshipped by men and women'); he declared that he not only heals the sick, but sends winds, rain, good weather and drought, and even raises the dead – in a word, he possesses all the powers and capacities which are normally ascribed to a god. Cf. Ar. EN 1101b24: 'for we call the gods blessed and happy and we call the most divine of men blessed'. Characteristic of these conceptions are the names of epilepsy, 'the divine, the sacred disease', though Heraclitus (DK 22 B 46) and the Hippocratic school (Airs, waters, places 22) contemptuously dissented from the doctrine that epileptics are specially holy people; Democritus apparently maintained such a view. Through sheer misunderstanding Cicero (ND I.12.29 ; no. 427a) transforms the images which mechanically affect people and other animals into gods ('Democritus counts the images and their journeys among the gods'). Cf. Zeller, Philos. d. Gr., I.2, p. 1120, n. 7: 'Cicero counts among the gods of a philosopher everything that the latter describes as divine even in the widest sense: but Democritus could certainly call the mind divine'. Among animals Democritus apparently ascribed a large share in the divine only to a few: the eagle, the bee, perhaps the nightingale, the swallow and the ant 'the instructors of humans' (see comm. on no. 559).

<sup>2</sup>By 'invisible' is probably understood on the one hand tiny animals which are not detected by simple vision and on the other gods and other beings, inhabiting other worlds. The word 'mortal' shows that here in Simplicius we have at best a very free reformulation of Democritus' doctrine.

<sup>3</sup>The conclusion is correct, above all because Democritus (see comm. on no. 559) ascribed to animals a certain kind of instinctive knowledge that humans do not possess; only sages and gods can attain it by rational, not instinctive, means.

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<sup>1</sup>The fact, demonstrated by Reinhardt (comm. on no. 558, n. 2), that the excerpt from Hermippus is a paraphrase of Democritus, may also serve to show that the passages of



Aristotle cited in no. 572a also have their source in Democritus, since a number of their expressions coincide word for word with the passage cited from Hermippus ('[man] is the only animal [to walk] upright ... to the most divine belong thinking and understanding ... shares in the divine'. Cf. Pl. Prot. 322a: 'Since man shared in the divine nature, because of his kinship with god he alone among animals recognised gods').

<sup>2</sup>not merely to living, but also to living well': cf. Seneca Epist. ad Lucil. 90.1: 'Who can doubt that life is a gift of the immortal gods, but living well the gift of philosophy?; Philod. (Herc. Vol. coll. alt.IX, col. II, Studia Vindobonensia 11, p. 5 Gomperz): 'so that nature has given us speech also , but skill has enabled us to speak well' (cf. fr. 13: '[doing things] in any chance way is the work of nature, but [doing them] well is the work of skill'). The word 'also' at the beginning of this pronouncement shows that the author had in mind some other more general thesis, containing a new idea. Gomperz sees here a passage in iambics from some tragedy; following him I restore:

Nature gave us [the means] to live simply (Gomperz 'gave us life')

Skill [the means] to live well,

and I suppose that it is taken from a tragedy by Antiphon, where, as in Mechanics 847a20, ascribed to Aristotle, we read: 'by skill we defeat things by which we are naturally overcome'. That mind, reason and thought (i.e. the capacity to overcome nature with the aid of skill) is a 'divine principle' in man is stated by Epicharmus DK 23 B 57:

Man has reasoning [logismos], and divine reason [logos];

And man's [reason] is born from divine reason

And it gives each one resources for life and food.

And divine reason accompanies all skills,

Itself teaching them that they must do what is advantageous.

<sup>3</sup>either ... alone ... or most of all': Ar. De divinat. in somn. 463b12 is clearly correcting Democritus when he says that the dreams of 'the other animals' (i.e. other than man) cannot be 'divine', but only 'daimonic', since the nature of animals is 'daimonic' but not 'divine'<sup>228</sup>, since, in saying 'or most of all' he clearly has in mind Democritus, who accepted that the divine is a quality of the soul of some animals.

572b

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<sup>228</sup> [See translator's note on comm. on no. 472, n.1.]

<sup>1</sup>What Aristotle says about people who are possessed or insane is totally applicable to animals as well, for they too are, in the absence of reason, endowed with kinds of instinctive knowledge which humans do not possess (comm. on no. 559).

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<sup>1</sup>We have already encountered in Epicharmus (comm.. on no. 572a, n. 2) the opposition in man between the human and the [more] divine as a rational principle which overcomes nature. A man in whom there predominate only the lower instincts is described by the words 'bestiality' and 'beastly'; such was the nature of people when the human race had just come into being ('in a bestial life', no. 558, Diod. I.8.1). A man who has completely mastered his lower instincts is a 'divine' or a 'most divine' man, 'a sort of mortal god'. Both types of man are very rare; the normal type is 'human'. See Ar. EN 1145a19ff.: 'with regard to bestiality the most appropriate thing to say is that superhuman excellence is something heroic and divine, as Homer makes Priam say of Hector that he was extremely good and that he seemed to be 'not the child of a mortal man, but of a god' ... it is clear that it is a state of this kind which is opposed to the bestial ... and since it is rare that a man is divine, as the Spartans are accustomed to call someone they admire exceedingly (they say 'a divine man' (seios anēr)), so too the bestial type is rare among men'. This opposition of two principles in man is also attested for Heraclitus (DK 22 B 78: 'human character does not have intelligence, but the divine has'.)

573a

<sup>1</sup>This expression is completely analogous to the one cited at no. 572a: 'something divine flowed into him, in virtue of which he shared in intelligence and reason and thought' and 'thinking and understanding are the work of the most divine [being]'. There is not the slightest ground to doubt the authenticity of this passage, as Lortzing does, op. cit., p. 9: 'I can(not) accept ... as Democritean [Democrates] 79 [= DK 68 B 112]; 'It is the mark of a divine mind always to be thinking of something fine', which is completely discordant with the outlook of our philosopher. .. Moreover, the sentence contains no Ionic form'. But first, Democritus did not at all deny the existence of blissful and wise gods; he simply denied that they are immortal and that they care for humans; secondly, the term 'divine' was, as we have seen, applied from time immemorial to highly gifted people, such as Homer and Heraclitus. As far as the absence of Ionic form is concerned (actually the question can only be about the form theiou instead of thēiou), as we shall see below, in collections of saying Ionic forms are very often replaced by Attic.

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<sup>1</sup>'divine things are thought by the mind': by the principle 'like is assimilated to like'. nountai is formed from 'noeontai'. Cf. Bechtel, Hermes 41, 1906, p. 309.

### III. Popular religion

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<sup>1</sup>Like Empedocles, the sorceresses themselves believed in the power of their magic; therefore changing the nominative to the accusative [i.e. changing the sense from 'the sorceresses believed that they extinguished ...' to 'people believed that the sorceresses extinguished ...'] as Wendel and DK do [II, p. 176, ll. 10-11 with n.] is unnecessary; Alfieri too translates 'the sorceresses believed' (op. cit., p.246).

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<sup>1</sup>In this case Cicero's immediate source was Posidonius, as Diels points out [DK II, p. 123, l. 18].

<sup>2</sup>In my opinion, careful examination of these testimonia on Democritus allows us to draw the conclusion that his 'divination from the entrails' has nothing to do with the usual predictions from the entrails of the outcome of a war, social disasters etc. His divination from the entrails (cf. ps.-Hippocr. Epist. 17), however naive it may have been, aimed to predict things immediately connected with a given herd: the state of health of the herd, the outbreak or approach of disease, the quality of the animals' food ('the kind of food and the richness or sparseness of the products of the land'), and sometimes, in connection with that, future abundance or lack of grazing ('the future fertility or sterility of the fields'). This is bad science, but not the absurd superstition which was widespread at the time; the only objection which Cicero could bring against it was that in the case of deterioration of food, approach of disease etc., that would affect all the animals of a given herd simultaneously, not just the particular animal which had been cut open. As a typical representative of Ionian science (compare e.g. Herodotus) Democritus did not make a sharp break with popular beliefs, but tried, where possible, to take them as a starting-point by making rationalistic and often naive corrections to them.

<sup>2</sup>Peri pronoias ['On Forethought, Foreknowledge' or possibly 'On Providence']: see comm. on no. 589. In this connection it is characteristic of Democritus to take a sceptical attitude to divine oracles, seeing stories of famous prophesies which had saved people as merely 'made-up tales'(no. 594, end).

579a

<sup>1</sup>The anecdote reported by Lucian has of course no historical value, but it shows that in the Epicurean circles in which Lucian moved, and in which people were inclined to interpret the sayings of Democritus in a hostile sense (cf. no. 586), it was nonetheless regarded as beyond doubt that Democritus flatly rejected any life of the soul after death, and, consequently any tales of Hades and of apparitions, and hence that his eidōla ['images'] had

nothing in common with the apparitions of popular belief (though they arose as a result of the reworking and purification of those popular conceptions).

#### IV. The origin of the worship of the gods

580

<sup>1</sup>tön logiön [‘the learned’]: this word (if it actually goes back to Democritus, and does not belong to Clement or an intermediate source; it is found only in the Protrepticus, and is absent from the Stomateis and Eusebius) no doubt has an ironical sense. It is true that O. Gilbert, Griechische Religionsphilosophie, Leipzig, 1911, p. 478, takes this expression seriously and erects on it Democritus’ entire philosophy, representing him as a deist and a dualist (according to Gilbert the true inventor of scientific materialism was not Democritus but Epicurus); in his opinion, in Democritus the gods stand at the centre of the entire cosmic process (‘at the centre of what happens in the world’). Reinhardt, Hermes 47, 1912, p. 511, takes a similar view; he sees in this passage a proof that Democritus regarded belief in the gods as a lofty achievement of human culture: ‘a few thinking men stood up before their fellow men, still sunk in torpor ... it is the few superior spirits who lead the mass of people in the struggle towards all higher achievements, in religion as well as in ... the regulation of morals ...’ But this is a clear mistake on Reinhardt’s part. Democritus regarded belief in the gods as the cause of celestial phenomena, not as a lofty achievement of humanity, but as the profoundest error; he always says things like ‘believing the gods to be the cause of these things’ (no. 581); ‘the ancients came to believe in the existence of gods, though apart from these [i.e. eidōla] there is no god’ (no. 472a). Further, as I showed in 1929 (Rh. Mus. N.F. 78, 1929, pp. 236ff.) Reinhardt’s citation of Epicurus (Lucretius) is an obvious oversight: ‘kindly people outstanding in intellect and stout of heart’ are mentioned by Lucretius V.1107 in a passage dealing with what he sees as the true achievement of culture. The passage beginning with the words: ‘Now what cause spread the powers of the gods abroad among great nations and filled the cities with altars’ (V.1161ff.) does not mention any ‘kindly’ beings, for Epicurus, as is well known, saw belief in gods who reward and punish men as a cause of ‘torpor’ and the greatest misfortune for mankind (Lucretius concludes with the words ‘O unhappy human race, when it has ascribed such deeds to the gods’ [V.1194-5]). The ‘learned’ who invented religion are also mentioned by the Epicureans; so in this section we also read in Philodemus: ‘all these things are called eternal and divine by unintelligent people’. So ‘unintelligent’ here corresponds to Democritus’ ‘learned’. So Diels was right in his note on this passage to understand the expression ‘learned’ as irony. He sees here a thrust against Diogenes of Apollonia (DK 64 A 8 = Philod. De pietat. 6b): ‘Diogenes praises Homer for telling the truth about the divine, not just making up a story; for he says that he thinks that the air is Zeus himself, since he says that Zeus sees everything’.<sup>229</sup> But from the expression ‘which we now call air’ it is clear that the topic is not a false doctrine of Democritus’ own time, but teachers of false doctrines in very ancient times. Perhaps

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<sup>229</sup> [The comments attributed to Diels are not in DK 5<sup>th</sup> or 6<sup>th</sup> edns.]

Diogenes was merely touched on in passing. Therefore Bailey was right to remark (op. cit., p. 175): ‘Democritus ... says with an obvious note of contempt ‘Some few among educated (logiön) men ...’. Kleingünther expresses himself in the same spirit (op. cit., p.112): ‘I see no basis whatever for Reinhardt’s attempt to bring together Lucretius V.1161ff. with Fr. B 30 Diels. In Lucretius’s view logioi certainly invented culture and the state ... but not religion. For Democritus it is not an invention in the strict sense, something which serves a purpose, but a psychologically conditioned, spontaneously occurring phenomenon’.

A sophistic form of the same idea appears in the corresponding passage of the speech of Sisyphus from Critias’ tragedy Sisyphus [DK 88 B 25]; ‘then, when the laws prevented them from doing violent deeds openly, but they were doing them in secret, then it seems to me that some stalwart and wise man ... discovered fear for mortals ... so from that he introduced the divine’. From the viewpoint of the sophist who sees the principal task of the ‘intelligent’ to be that of fooling the ‘stupid’, seizing power and bringing about order in the state, the person who invents religion with the aim of fooling the masses is of course ‘a stalwart and wise man’. See my book Forerunners of anarchism in antiquity, Moscow, 1926, p. 121, and Zeller, Die Philos. d. Gr., i. p. 1159. Norden, Agnōstos Theos, p. 164, cites a passage of [Aelius] Aristides, XLIII.29ff., which exhibits in content and in style a striking resemblance to the cited passage of Democritus: ‘Zeus [is] the father of all ... he is the discoverer of all things ... he is the lord of all things... he is the giver of all things ... all the great names, worthy of himself, which he invented’. No doubt Democritus was parodying the same hymn in honour of Zeus which is paraphrased by Aristides. Cf. further comm. on no. 581a, n. 1.

<sup>2</sup>mutheetai: this word has caused such difficulty to writers that all sorts of attempts at emendation have been made. In his time Passow interpreted mutheetai in this passage as ‘consider, think over, reflect on’.<sup>230</sup> He cited Od. 13.189ff.: ‘Pallas Athene, daughter of Zeus shed a cloud [over him], in order to ... consider everything’; Il. 17.200, 442; Od. 5.258, 376: ‘(Zeus) shook his head and considered in his mind’. Later Kranz accepted this interpretation (comm. on DK 68 B 30 and DK III, p. 288) [s.v. mutheisthai], citing the same passages of Homer<sup>231</sup>. This interpretation is, however, totally unacceptable. Passow misunderstood Od. 13.189ff.: Athena sheds a cloud over Odysseus not in order to ‘give him the opportunity to consider’ but in order to ‘tell him [things], impart[things] to him while remaining invisible to others’, which is what she does (Il. 256ff.). Seiler’s dictionary (Seiler – Capelle, Vollständiges Wörterbuch über die Gedichte des Homeros, p. 395) is undoubtedly correct in translating mutheesthai in this passage as ‘impart’. As regards the expression proti hon muthēsato thumon, that means, as these authors correctly point out, ‘speak to his heart’ i.e. ‘say to himself’, and so ‘consider’, but it does not follow from that that the simple verb

<sup>230</sup> Cf. LSJ s.v. mutheomai II: ‘say over to oneself, con over, consider’

<sup>231</sup> [In the 5<sup>th</sup> and 6<sup>th</sup> edns. of DK the note relating to B 30, (Il. p. 151, l. 13 n)., contains a ref. to ‘Il. XVII.200 and similar passages?’: in the index s.v. mutheisthai (III, p. 288) the verb is rendered ‘says to himself’ with the note ‘Homeric?’.

mutheesthai used without a complement can mean 'consider'. I am convinced that the word mutheesthai has here a magical sense; according to the ancient conception 'things happen as a result of the word'; the very uttering of a word has magical force, which is why the ancients avoided uttering words with an ill-omened meaning, preferring euphemism. The word of Zeus was in every case 'true, fateful', no less than the nod of his head. 'And God said 'Let there be light', and light came to be'; that train of thought of the Hebrew theologian is absolutely identical with the Greek: everything that Zeus says comes to pass. See Od. 2.158ff.: '(Alitherses) surpassed all those of his time in knowing [omens from] birds and in speaking fateful words (enaisima muthēsasthai)'. Seiler's dictionary translates this expression correctly. If the seer Alitherses was able to speak 'fateful words', which were transformed into deeds, the 'word' of Zeus is entirely equivalent to his creative activity.<sup>232</sup>

581

<sup>1</sup>Although this passage speaks only of frightening natural phenomena, nevertheless no. 580 gives us the right to maintain that in Democritus' view some beneficial natural phenomena may also have led primitive man to the false belief in the existence of all-powerful gods. Cf. Norden, Agnōstos Theos, p. 398: 'Sextus drew from his source (Posidonius, On the Gods) only part of Democritus' opinion. Democritus speaks not only of changes in the heavens which cause fear, but also of celestial phenomena which are beneficial to man. Cf. the passage of Philodemus cited here (see our text, Luria) ... True, its continuation has not survived, but the fact that Democritus is named in this connection becomes comprehensible thanks to Critias, Sisyphus [DK 88 B 25], 27ff.:

And he said that the gods live there

Where people would be most frightened to hear it,

The place whence he knew that fear comes upon mortals

And benefits for their wretched life ...

And moist rain falls to the earth ... '(see comm. on no. 580, n. 1).

So his wise man told people not merely about the gods as the cause of frightening celestial phenomena, but also about 'benefits from the circling heaven above', specifically the star-covered heaven as the measure of time, and also the beneficial influence of rain. Cf. Lucretius V.1183ff.:

Besides, they discerned the heavens moving in their fixed order

And the succession of the different times of the year,

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<sup>232</sup> Cf. the paraphrase of [Aelius] Aristides cited above: 'all the great names, worthy of himself, which he invented'.

But were unable to know from what causes they came about.

Therefore they took refuge in attributing everything to the gods

And making everything happen at their behest ...

O unhappy human race, to attribute such things to the gods ...

Cf. Kleingünther, op. cit., p. 112: '(Democritus) experiences religion as a psychological phenomenon and seeks to explain its origin by discovering its psychological roots. He finds its spiritual basis in astonishment, fear or wonder at natural, particularly celestial phenomena. The clear quotation from Sextus (IX.24) ... cannot be interpreted in the sense that it was only fear in our sense which gave rise to the worship of the gods ... man experienced astonishment and wonder in the face of the benevolent powers also'.

<sup>2</sup>'conjunctions of stars': i.e. comets. See nos. 390 and 416.

581a

<sup>1</sup>Democritus' brief saying 'Pigs are greedy for rubbish' has come down to us in two completely different contexts: in one Plutarch speaks of pigs wallowing in filth as a sign of approaching wind and rain, in the other Clement speaks of them as a symbol of the ignorant man. It is generally supposed that it is the first case which gives us Democritus' genuine context, since it is known that Democritus took predictive signs seriously. Thus Natorp, Die Ethika des Demokrits, p. 96, n. 13, supposes that the whole of Plutarch's comment is taken from Democritus. Diels apparently thought so too, since he does not include parallels to the text of Clement, but prints parallels to the passage of Plutarch, despite the fact that in these parallels the name of Democritus does not occur: ps-Theophr. De sign. 49: 'according to what is everywhere said by ordinary people to be a sign of bad weather, when pigs fight over rubbish and wallow in it'; Arat. 1123: 'pigs going greedily for rubbish'.<sup>233</sup> But Democritus' interest in predictive signs was greatly exaggerated and tendentiously distorted by Cicero; in fact the matter comes down essentially to the 'scientific' interpretation of dreams. As Alfieri correctly points out (op. cit., p. 213, n. 540), the attempt by Ernst Maas (Gött. Gel. Anz. 1893, pp. 624-42) to show that Democritus' work On suitable and unsuitable times served as the source for the ps-Theophrastan On signs turns out to be unsuccessful; that is shown by Kaibel, Hermes 29, 1894, pp. 82ff. Alfieri remarks (op. cit., p. 240, n. 600) that ps-Theophrastus calls the sign which he cites 'popular and general' ('everywhere said'), and there is therefore no reason at all to regard Democritus as its source. On the contrary, the passages cited here, which are parallel to the passage of Clement in the Protrepticus, make very probable the supposition that it is Clement who gives us Democritus' saying in its genuine context, namely as a polemical expression directed against the 'unwise'. In fact the passage from Clement's Stromateis which we cite coincides word for word with part of the

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<sup>233</sup> [In VS and In DK 5<sup>th</sup> and 6<sup>th</sup> edns. these passages are printed in 68 B 47 after the passages from Plutarch and Clement, and are not, therefore, presented as parallel to the former only.]

sentence in the Protrepticus and reminds us only faintly of the corresponding saying of Heraclitus: 'an elegant person must not be dirty or unkempt nor delight in filth as Heraclitus says' (DK 22 B 13); '(Heraclitus) says that pigs bathe in filth' (22 B 37). Its author is nowhere indicated, but since in the Protrepticus it is essentially just the first part of a saying the second part of which ends with the words 'according to Democritus', there is no reason to separate it off. Diels acts completely arbitrarily in ascribing it (22 B 13) to Heraclitus; if it were a saying of Heraclitus Clement would undoubtedly have written 'according to Heraclitus' after it, as he writes 'according to Democritus' after the second part of the sentence [in the Protrepticus]. So Democritus was thinking not of prediction of the weather, but of the castigation of the ignorant, whom he represents in the symbolic form of pigs wallowing in filth. This expression in Heraclitus and Democritus obviously has as its source a proverb or a fable, similar to Phaedrus' fable 'The chicken and the pearl' (III.12). For Democritus' reference to fables see comm. on no. 645a. Actually, the pig which prefers filth to clean water is totally analogous to Heraclitus' ass, which prefers rubbish to gold (DK 22 B 9: 'Heraclitus says that asses would choose rubbish rather than gold, for food is pleasanter than gold to asses'), and that fable is merely a variant of the fable of the chicken which values a grain of barley more than a pearl.

If it is Clement who provides the context for Democritus, that gives special significance not merely to the general coincidence of thought, but to the series of detailed coincidences between this passage of Clement and the passage from Celsus, an associate of the Epicureans, cited by Origen, given in no. 581a. Here ants emerging from an ant-heap, frogs emerging on the edge of a swamp and worms swarming in the filth in which they live, form a society and praise god for having created the whole world for their use, earth, water, air and stars; they think that god runs the world for their benefit and is constantly sending them every good, and that he reveals and proclaims everything to them. Does the expression 'god reveals and announces all to us ... and ...for us alone he governs ... and never ceases sending' really not recall the words of the primitive 'learned' in Democritus: 'Zeus thinks of all things and he knows and gives all things... and he is king of all things'? I therefore suppose that this passage represents a characteristic of primitive people, who have arrived at the arrogant thought that they are not one of the innumerable groups of different constituents of the universe which have come into being through need, but 'the salt of the earth', beings for whom an all-powerful god has created the heaven and the earth and is concerned only to reward or punish them. That Celsus did not invent this picture himself, but took it over from a doctrine of the 5<sup>th</sup> century is clear from the saying of Plato cited here; here there are the same words, 'ants', 'frogs', 'round a swamp', but Plato is not Celsus' source, since for the sake of the geographical parallel Plato has distorted their common source, while Celsus has transmitted it correctly. In Celsus the ants are found in front of an ant-heap and the frogs round a swamp, as they should be, but in Plato the ants are found round a swamp and the frogs around the sea.



<sup>2</sup>The idealistic philosophers and later the Christians answered the ‘atheists’ in the same coin. Origen calls ‘worms rolling about in filth’ not those who believe in a god who concerns himself about men, but those who ‘deny providence’, i.e. Celsus himself and his predecessor Antiphon, the most immediate follower of Democritus, and Augustine says the same of Epicurus, who denies life beyond the grave.

Of course, I am unable to insist on this reconstruction, but it seems to me very probable. See further Plot., Enn. I.6.6: ‘the unclean is a friend of filth because of his wickedness; as pigs which are unclean in body delight in that kind of thing’. Very important for the interpretation of this passage is a short fable preserved on an ostrakon (a school exercise-book) belonging to an Egyptian schoolboy of the 3<sup>rd</sup> century CE (ostrakon 12 319), published by Wilamowitz, Sitzungsb. d. Berl. Akad. 1918, p. 743. We should notice that all the quotations on this ostrakon are taken from classical literature of the 6<sup>th</sup> and 5<sup>th</sup> centuries (Homer, Hesiod, Euripides); here we read: ‘If pigs were standing round looking at a man bathing in filth they would say “What good things the man is enjoying”’. Now, the initiates of the mysteries ‘bathed in filth’ (cf. Her. DK 22 B 5: ‘those who are defiled <with blood> are purified with more blood, as if someone who had stepped into mud were to wash it off with mud’), and on the other hand in the view of the Orphico-pythagoreans and later the Christians the sinners in hell swam in filth. This gave the opponents of the Orphico-pythagoreans a reason to compare those believers with pigs wallowing in filth (as in the fable just cited), and, on the other hand, gave the Orphico-pythagoreans and Christians reason to compare religious freethinkers with pigs wallowing in filth.

#### V. Whether the stories about the Underworld are true

##### Excursus to no. 582

##### On existence after death

In 1875 Rohde pointed out (Verhandlungen der Philologensammlung zu Rostock, 1875, pp. 68ff.) that the work On the things in Hades could have been incorrectly ascribed to Democritus; Wellmann, Die Georgika des Demokrits, pp. 12ff. maintained that with complete confidence. But that supposition lacks even the shadow of a basis; as Rohde himself correctly remarked (Psyche, p. 483), On the things in Hades was one of the most popular works of Democritus; that can be seen from the material collected under no. 582. Rohde connects with this the anecdote cited by the Emperor Julian (Epist. 201b-c; see no. XXIII) of Darius’ asking Democritus to bring his deceased wife back to life. In Rohde’s sound opinion the content of the work under discussion cannot have been restricted to purely scientific and medical questions about the signs of the approach of death, and cases of apparent death and premature burial (nos. 585-8); if it had been, Thrasyllus (see no. 582)

could not have assigned it to the list of Ethical Works.<sup>234</sup> Mullach (Democriti Abderitae operum fragmenta, Berlin, 1843, pp. 117-18) is obviously right to think that the aim of Democritus' work was to refute the philosophico-religious doctrine of the resurrection of the dead from the grave, life beyond the grave, the torments of Hell, and the terrifying judgement. That view is correctly maintained by A. Dieterich, Nekyia, Leipzig, 1893, p. 129, n. 3: 'If one can surmise anything about the nature and aim of the works with similar titles by Protagoras, Democritus ... it is that they opposed or mocked the orphico-pythagorean mythology of Hades'. In fact, as is well known, Epicurus and the Epicureans largely repeated and developed the ideas of Democritus. And it is precisely in passages of Epicurus that there survives a similar refutation of stories about a world beyond the grave. See fr. 340 Us: 'there are no judgements or courts in Hades, so that any crimes that one has concealed in this life are totally free from scrutiny'; fr. 341 Us. (from Seneca [Epist. I.24.18]): 'the Epicurean refrain ... that fear of the Underworld is vain, nor is Ixion whirled round on the wheel ... no-one is [so childish] as to fear Cerberus and darkness and the ghostly appearance of skeletons'; (from Lactantius): 'Epicurus was wrong to ... say that those punishments which are said to be inflicted in Hades actually take place in this life' (cf. no. 584); Diog. of Oenoanda fr. 14, p. 27 Chilton: 'I fear nothing from those Tityuses and Tantaluses that some people describe in Hades, nor do I shiver when I think about the decomposition of the body'. This supposition about the content of this work is favoured by the title itself, On the things in Hades, which can have in Democritus simply the sense of a polemic against and parody of a book with such a title, containing an eschatology worked out in detail.

But leaving aside the comparatively small circle of adherents of Orphico-pythagorean doctrines, in Greece before the last decades of the 5<sup>th</sup> century BCE (as Rohde, Rademacher and Preller – Robert have shown) the conception of a terrifying judgement, of the distinction after death of a Hell for sinners and a Paradise for the just, of retribution for everyone according to the deeds he had done on earth, was absent. Dieterich (op. cit., p. 123, n. 3) rightly remarks in this respect: 'the popular belief in Hades at that time offered so uniformly pale colours and so few gaudy ones that no-one would have undertaken the task either of describing or of attacking it'.

At that time in Greece the dominant conception was still the Homeric one, according to which the souls of everyone, just and unjust alike, live after death a dark, semi-conscious life, dimly experiencing over and over again what they had happened to experience on earth. In this connection a poem of Anacreon (fr. 43 Bergk) is instructive; in it the poet represents himself as an old man, weeping for fear of his approaching death:

I often sob for fear of Tartarus;

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<sup>234</sup> Wilamowitz (Der Glaube der Hellenen, vol. I, Berlin, 1931, p. 304, n. 1) expresses the conjecture that the topic of the work was the psychological condition of man, which gives rise to fables of life beyond the grave: 'He will certainly have sought the explanation for the myths in man and his frame of mind (Stimmung)'.

For the depths of Hades are terrible, and the way down to it

Hard, for he who descends is certain not to come up.

He is not at all disturbed either by the sins he has committed in his life, or by a terrifying judgement; what frightens him is simply that someone who has gone down to Hades does not come back again. The famous representation of Hades in a picture by Polygnotus (mid 5<sup>th</sup> century BCE) described by Pausanias (X.28.4-5) has a somewhat different character. Here the influence of Orphico-pythagorean doctrine undoubtedly makes itself felt, though one cannot yet speak of 'Paradise' or 'Hell'; the just are not yet separated from the sinners. 'From this series of pictures, which alters the Homeric Hades only slightly, one can look across ... to the pedantries of the Court of the Dead ... as the Egyptians widely disseminated them in picture and writing ... with their gloomy earnestness ' (Rohde, op. cit., p. 293).

The unprejudiced investigator can have no doubt that the doctrines of life beyond the grave which appeared in Orphico-pythagorean circles had their immediate source in Egyptian beliefs, as is rightly maintained by Gruppe (Myth. Lex., s.v. Orpheus III, 1, p. 1131). In fact the first doctrines of the life of the soul beyond the grave are found in Pherecydes (Cic. Tusc. I.16.38: 'Pherecydes ... was the first to say that the souls of men are everlasting'), and the same Pherecydes (Origen, Contra Cels. VI.42) touches on the central Egyptian myth dealing with life beyond the grave, the myth of Set, Horus and Osiris, and he identifies that myth with the Greek myth of Cronus, Ophion, the Titans and the Giants ('he says that the mysteries of the Titans and Giants who are reported to have warred against the gods and the Egyptian mysteries of Typhon and Horus and Osiris have the same meaning'), and identifies the Egyptian Set with the Greek Typhon. (Jacoby, Fragmente der Griechischen Historiker {FGH}, no. 3, fr. 54, vol. I, p. 76; cf. Wilamowitz, Sitzungsb. d. Berl. Akad., 1926, p. 129). True, Schröder (Hermes 74, 1939, p. 108) interprets this passage in the sense that it was not Pherecydes, but only Celsus in the 2<sup>nd</sup> century CE who drew on the Egyptian myth for comparison. But as Kranz shows (Hermes 75, 1940, p. 335), that interpretation is not possible, neither in view of the general connection of thought in Origen nor in view of a parallel passage of Proclus (In Tim. I.77, p. 15 D): 'which the ancient writers about the gods attributed to Osiris and Typhon or to Dionysus and the Titans'. Moreover, it is well known (see G. Seippel, Der Typhonmythus, Greifswald. Beitr. z. Lit. u. Stil. 24, 1939, p. 5; W. Kranz, Stasimon, Vienna, 1933, pp. 98ff.) that the identification of Set with Typhon had already taken place by approximately 490 BCE (Aesch. Suppl. 559); Herodotus assumes it (II.144; III.5). From this Kranz draws the sound conclusion: 'The close connections of the Greeks with Egypt in the 6<sup>th</sup> century BC led directly to such comparisons'. Wilamowitz (Der Glaube der Hellenen, pp. 175ff.) cites an interesting fragment of Pindar (fr. 91, Porph. De abst. III.16): 'Pindar ... describes all the gods who were being pursued by Typhon as disguising themselves not as humans, but as non-rational animals'. So by the very beginning of the 5<sup>th</sup> Century the Greek gods had been firmly identified with the Egyptian, and the purely Egyptian myth of Set pursuing all the other gods had already been incorporated into Greek

theology . All that remained was to find an explanation for the animal form of those gods of Egyptian religion which was acceptable to the Greeks: 'In the 6<sup>th</sup> century, when relations with Egypt were very active, astonishment at the animal form of the Egyptian gods and the worship of animals led to (this) strange myth, since the Greek gods, which they nonetheless wished to find in the Egyptian ones, refused to admit the bestial ... the identification of Typhon and Set, and hence some knowledge of the Egyptian myth, which Pherecydes had already taken into account, contributed to this'.<sup>235</sup>

This is why there is a priori ground for confidence in Herodotus' twofold report that characteristic features of the Egyptian mysteries and the doctrine of life beyond the grave were taken over in Orphico-pythagorean rites and doctrines. Even though doubts have been expressed on whether the Pythagorean conception of the transmigration of souls was actually taken over from the Egyptians, that does not in any way undermine the overall reliability of Herodotus' reports, which are based on convincing material.<sup>236</sup>

However, the doctrine that man dies and comes to life again many times is itself found not merely among the Pythagoreans but also in Egyptian eschatology, and one cannot blame Herodotus for not having emphasised sharply enough the distinction between the Egyptian and Pythagorean doctrines. First of all, he knew of the Egyptian doctrine only by hearsay, at third hand, and secondly he was not interested in the details of that question. In fact, according to the Egyptian book On what there is in the Underworld only some of the just ended up in Paradise in the world beyond the grave: 'Most pure souls, equipped with all the necessary talismans ... devoted followers of Ammon-Ra did not abandon him during his journey in the world beyond the grave, but sailed without stopping round the world beyond the grave and in the morning reappeared on earth ' (G. Jéquier, Le livre de ce qu'il y a dans l'Hadès, Bibliothèque de l'École des Hautes Études, sc. phil. et hist., fasc. 97, Paris, 1894, pp.. 14-15). 'Besides the god and his attendants, in the boat of Ra there was a further large number of passengers; these were not gods, but the dead, dedicatees of Ammon, who, after taking part in his nocturnal journey, had the opportunity of reappearing with him in the morning' (p. 22). 'Magical formulae allow these souls ... to ascend in the morning into the sunlit world and wander the earth for a whole day, wherever they like' (p. 41). In the Egyptian text of the book something is said about this in virtually every one of the twelve sections, devoted to the different hours, e.g. at the end of the third hour (p. 64): 'He who knows this is in the state of enlightenment of the soul, he is in control of his feet, he never enters the place of annihilation; he goes out (of the world beyond the grave) preserving his own shape and breathing, at the appointed time'; at the end of the tenth hour (p. 123): 'He who knows things by their names traverses the whole of the world beyond the grave, and none can prevent him from illuminating the universe together with Ra'; at the end of the

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<sup>235</sup> [No reference given.]

<sup>236</sup> See How & Wells, A commentary on Herodotus, vol. I, Oxford, 1928, p. 226 (on Hdt. II.123.1): '[Wiedemann supposes that] Herodotus confused the idea of immortality, which ... the Egyptians undoubtedly held, with that of metempsychosis'. Cf. A. Wiedemann, Herodots zweites Buch, Leipzig, 1899, pp. 339, 457ff.

eleventh hour (p. 131): 'He who knows this shares power with the gods, in the character of a well-equipped daimon he goes out up to heaven and earth, truly'; at the end of the book (p. 140): 'He who knows these mysterious images ... enters and leaves the realm beyond the grave ...'. So Herodotus' reports are based on correct information.

The book On what there is in the Underworld mentioned here was extremely popular in Egypt throughout the 1<sup>st</sup> millenium, including the Saite and Ptolemaic epochs, not so much in its original classical form as in the numerous richly illustrated later abbreviations which have come down to us in large numbers (see Description de l'Égypte, vol. V., pl. XL, XLI; É. Chassinat, 'Études sur quelques textes funéraires de provenance Thébain', Bull. de l'Inst. Franç. de l'Archéol. Orientale III, p. 129, 132; Jéquier, op. cit., pp. 14ff.; B.A. Turaev, Egyptian Literature, v. 1, Moscow, 1920, pp. 187ff., 190). Chassinat, op. cit., p.134: 'The editors of these books sought to act on the reader through fear ... by providing a sharp, sometimes primitively coarse parallel between the delights which are the lot of the just and the miserable lot which awaits people who were incorrigible sinners in their earthly life'. Wallis Budge, The Egyptian Heaven and Hell, vol. III, London, 1905, p. XII: 'Those who have not believed in the great god and have not made offerings to him are hewn in pieces by the ministers of divine vengeance; their bodies, souls and spirit are forever annihilated by fire ... The fires of the world beyond the grave ... are daily occupied in burning the condemned ... every day new bodies and souls are thrown into that fire ... for annihilation' (on the image of the Egyptian Hell see S. Luria, 'Demokrit, Orphiker und Ägypten', Eos LI, 1961, part 1, pp. 21-38). All the editions of the books On what there is the Underworld speak of pits full of fire, of gloomy, lightless chasms, of deadly knives, of floods of boiling water with an unbearable stench, of fire-breathing dragons, of disgusting monsters with human heads, from whom a single look brings death. In the gloomy chasms the wretched sinners serve as living food for monsters of every kind and shape (Budge, op. cit., p. 88; G. Maspero, Études de Mythologie Ancienne, vol. II, p. 27). There torturers are frequently represented in the form of 'fiery people', with pillars of flame instead of heads or breathing fire from their mouths (Budge, op. cit., vol. I, p. 250). Sinners fall into these terrible places purely on the basis of the sentence of the court which sits beyond the grave under the presidency of Osiris. We should notice that in this court the body of the deceased is regarded as just and free of sin; it is his heart which is the bearer of sin; above all the deceased fears that in the terrible court the crimes of his heart will be revealed. 'In the usual depictions of the court we see that on one pan of the scales is placed the heart of the deceased, and on the other a feather, the symbol of the goddess Maat, i.e. justice ... But sometimes the heart of the deceased is placed on one pan and his whole body on the other, as in the papyrus from Nebseni' (see Budge, op. cit., p. 159). So in contrast to the heart a person's body is the equivalent of justice. A report of the verdict of the court is drawn up: 'In accordance with faithful truth the heart of Osiris (which the deceased became) has been weighed; his heart acted as witness; his deed is righteous in the Great Scales. In him there was found no sin; he did not appropriate offerings to the temple; he did no evil on earth. Therefore he should

not be given over to the mercy of the monster of Hell; he will receive offerings, he will receive a dwelling near Osiris in Paradise' (p. 50). The book On what there is in the Underworld also served as a guide for the deceased; it told him what to beware of and how to behave in that world, so as to end up in Paradise.

An important guarantee of success in that world was a good knowledge of the geography of the world beyond the grave (the book was even supplemented by a series of maps!) and also knowledge of the magical formulae, particularly the secret names of the gods, by the help of which the deceased became identical with Osiris and the other gods, passed through the terrible gates and guardposts of the world beyond the grave and triumphed over the powers of evil. The deceased was well equipped by the help of a properly constituted guide, who told him not only the way he must follow, the places he must avoid and the passwords to pass through the strongly manned guardposts and to open the doors, but also a large number of magical formulae to ward off the monsters which were threatening to annihilate him. These formulae are collected in The book of the dead, chs. LI-LIII (Jéquier, op. cit., p. 12): 'The magical formulae allowed the deceased to go aboard the boat of the sun and ... having become identical with Ra ... to go up again with him to the light and go about the earth' (p. 41). See e.g. in the book On what there is in the Underworld, 3<sup>rd</sup> day (p. 64): 'He who knows these things will pass by their growls, will not fall into their furnaces ... and will come to the light in his own shape'; 7<sup>th</sup> day (p. 104): 'He who knows this ... Nechachi cannot drink his water ... the crocodile Abu-Shau will not eat his soul'; 8<sup>th</sup> day (p. 111): 'He who knows these things by their names... cannot but be admitted through the mysterious gates'; 10<sup>th</sup> day: 'He who knows them by their names passes throughout the entire world beyond the grave, and nothing can prevent him from shining from heaven together with Ra', etc.

The influence of these conceptions is already noticeable in the Pythagoreanism of the 6<sup>th</sup> century and the first half of the fifth. Thus there had already been ascribed to the mythical Orpheus the work Descent to Hades, written, according to tradition, by one of the earliest Pythagoreans, Cercops or Herodicus of Perinthus (Clem. Strom. I.131; Suda, s.v. Orpheus) and, we may suppose, similar in content to the Egyptian book On what there is in the Underworld. Probably something was said in it about the terrible judgement; according to the Pythagorean precepts one should not 'break bread', since that can harm one in the judgement beyond the grave (D.L. VIII.35: 'not to break bread ... with a view to the judgement of Hades ...'; Iamblich. Vita Pyth. 85: 'not to break bread, which is not advantageous for the judgement in Hades'. Obviously Orpheus or in other versions Pythagoras, like the pure souls accompanying Ammon-Ra in his boat, descended several times to the world beyond the grave and came back up again (DL VIII.14): 'he himself says in his writings that after two hundred and seven years he came back from Hades to the world of men'. Obviously these two hundred and seven years equalled one earthly night. As Dieterich points out (op. cit., p. 128) the popularity of these stories is confirmed by the numerous representations on South Italian vases of the descent of Orpheus to the underworld, where

there is no representation of Eurydice, for whom, according to the myth, Orpheus descended to Hades. Dieterich is apparently right to conclude from DL VIII.21 that the terrors of Hades were described in the book The descent of Pythagoras to the world beyond the grave; in that passage it is said that Pythagoras saw in the underworld the soul of Hesiod tied to a pillar and groaning pitifully, and of Homer hanging from a tree and surrounded by snakes, etc.

We come across these doctrines also in the literature of the beginning of the 5<sup>th</sup> century BCE. See e.g. Pind. Ol. II.58ff.: ‘on sins committed in this realm of Zeus a judge beneath the earth pronounces sentence with hateful necessity ...’ (57) ‘the helpless spirits of those who have died here immediately pay the penalty’ (67) ‘they endure suffering too terrible to behold’. Dieterich, op. cit., p. 111 comments on this: ‘the second Olympian ode points straight at the mysteries of Dionysus, such as the abduction of Semele ...: ‘The crimes which are committed in the realm of Zeus are judged beneath the earth by one who pronounces sentence with hostility and compulsion’: ‘Here the helpless mind of mortals immediately undergoes punishment’’. Cf. also Aesch. Eum. 269: ‘Great Hades judges mortals beneath the earth, and he observes everything with recording mind’; Suppl. 218: ‘In Hades ... , so it is said, another Zeus makes the last judgement on the dead for their sins’ . Yet these views remained the property of a small circle of devotees and did not receive general acceptance: ‘The punishments and rewards of the underworld, which could not have been discussed in earlier times, belong to the Orphic expansion of the old tales of the dead’ (Preller—Robert, Griechische Mythologie, vol. I, p. 821).

How widely Egyptian doctrines were known in Greece in the 6<sup>th</sup> century, outside narrowly Pythagorean circles, is seen, on the other hand, from the fact that Xenophanes ridiculed the rites of Osiris (Plut. Mor. 171e, 379b, 763d [DK 21 A 13]; such attacks on the doctrine of the resurrection of Osiris are also ascribed to Heraclitus (Aristocritus, Theosophia 69 {DK 22 B 127}).

The following is also curious. In 1927 M.I Maximova published in Prague in Seminarium Kondakovianum, pp. 115ff., a scarab of Ionian work of the 6<sup>th</sup> century, on which was represented a huge earded snake, carrying in its mouth, as Maximova showed, a terrified Egyptian. For a commentary on this piece Maximova cited the Egyptian fable The shipwrecked man, in which there is such an episode, and she interpreted the representation on the scarab as an illustration of that fable. But though this interpretation appears convincing, the chance nature of the comparison tells against it: 1) only an insignificant part of the productions of Egyptian literature is known to us, and there may be a similar episode in other stories; 2) in the 6<sup>th</sup> century BCE scarabs (like rings, bracelets etc.) were still not so much ornaments as amulets with apotropaic significance (see Rieß, s.v. Amulett, RE I, col. 1986); the snake was one of the most common apotropaic representations. The representation of a youth in the mouth of a bearded dragon is also known to us from another piece of Greek art, an Attic vase found in Tser (see Roscher, Myth. Lex., s.v. Jason,

vol.. II, p. 85). This representation is one version of the myth of Jason. As Rademacher supposes, in that version there can be felt the influence of conceptions of life beyond the grave (L. Rademacher, Das Jenseits im Mythos der Hellenen, Bonn, 1903, p. 69: 'Hence one has to decide the departure of ... Jason ... It is a departure for the next world').

On the other hand, in the Egyptian representation of life beyond the grave the entrance to each of the regions of the realm of the Underworld, especially the sixth region where the judgement of Osiris took place, was guarded by terrible snakes, capable of stopping, and even of devouring any deceased insufficiently equipped with the magical formulae. In one of the representations of the terrible judgement in a copy of the book On what there is in the Underworld belonging to the singer Ta-baket-en-chopsu (Chassinat, op. cit., plate 1; cf. ch. CXXI of the book of the dead, the copy belonging to the empress Hotmet), a deceased woman is represented 'kneeling ... before a huge winged snake with a crown on its head ... Here is described how the deceased woman enters one of the places called aaitou (a part of the Egyptian world beyond the grave, Luria) ... these places were guarded by terrible snakes ... There can be no doubt that the winged snake represented in this picture is one of these terrible demons ... The demon of this place stretches out threateningly towards the deceased woman, who, to explain her arrival, holds out to it her heart, the proof of her purity ... This scene is strikingly analogous to the story of the hero in The fable of the shipwrecked man ... The snake in our manuscript, like the one which took up the seafarer in the fable, has a beard and is itself of huge size' (Chassinat, op. cit., pp. 137-47). The story of The shipwrecked man is apparently itself a secularised reworking of this episode of life beyond the grave. At any event, what is represented on the scarab is most probably a dead man in the mouth of a snake, an Egyptian demon of the world beyond the grave, which once again shows us the popularity in Greece of Egyptian conceptions of life beyond the grave. It is also possible that the subject of the representation of Jason cited above has an Egyptian prototype, though the representation itself has no traces whatever of the influence of Egyptian art.

It is clear from the passages of Democritus discussed here that the Egyptian conceptions of life beyond the grave, the punishment of sins, the terrible judgement and the terrors of Hell which we have examined, though foreign to the earlier conceptions of the wide circles of Greek society, had by the time of Democritus become widespread and popular, irrespective of whether that was through the medium of Orphico-pythagorean doctrines or independently of them. If, as Jéquier comments (op. cit., p. 15), 'death was for the Egyptians an object of terror and the concern of their life', the passages of Democritus tell us of similar feelings: 'from consciousness of the sins committed in their life'<sup>237</sup>; 'some people spend their life in anxiety and fear'; 'making up fictitious tales about the time after death' (no. 583); 'from fear of Hell to come they turn their life on earth into a hell' (no. 584).

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<sup>237</sup> Jéquier cites E. Reveillout, 'Les affaires de la mort', Revue égyptologique I, p. 139; II, pp. 18-64.



In fact, as a result of the social disasters of the end of the 5<sup>th</sup> and the beginning of the 4<sup>th</sup> centuries, these doctrines of life beyond the grave achieved wide acceptance at that time. The conceptions of the terrible judgement and of the torments of Hell became very popular. In Plato we encounter these opinions at literally every step. Four times (Rep. 614c, Phaedo 113d-e, Phaedr. 248a, Gorg. 524a) he tells of the judgement which separates the righteous from sinners, sending the former to eternal blessedness and the latter to eternal torments in Hell ('from which they never come out'). The torments of Hell, later described by Plutarch on the basis of Platonic literature as 'eternal punishments and fearful chastisements beneath the earth' (Mor. 450a)<sup>238</sup>, are depicted by Plato exactly as in the book On what there is in the Underworld: 'and there, he said, fierce men, fiery to look at ... having bound their hand and feet and heads, threw them down and flayed them, and then dragged them off' (Rep. 615e). In the pages of the book On what there is in the Underworld we frequently encounter descriptions of 'fiery' people (with flame instead of a head or breathing fire from their mouths, forerunners of the demons of Christianity). Cf. further ps-Pl. Axioch. 371e: 'they are gnawed by wild beasts and continually burned with torches, and tormented by eternal punishments of every kind'.

Just as the Egyptians put into the graves of the dead texts of The book of the dead and of the book On what there is in the Underworld, containing magical formulae to protect the dead from the monsters of the Underworld and to give them hope of immortality and resurrection through identification with the god, so in Greek graves near Croton and Thurii (IV-III cents.), and also in Rome and Eleuthernai in Crete there have been discovered gold plates with hexameter inscriptions, to serve the deceased as a guide, so that he knew what answers to give to the powers of the underworld, in order to attain justification and eternal life. These remarkable objects were first published and interpreted by Comparetti (Notizie delle Schavi di Antichità, 1879, pp. 157ff., 1880, pp. 155ff.), and later republished by Kaibel (Inscriptiones Graecae XIV, nos. 638-43) and finally by Kranz, DK 1B 17-21.<sup>239</sup> They were carefully studied by Dieterich (op. cit., p. 84), who rightly supposes that in them (as in the texts from Egyptian tombs) we have separate excerpts from the same large 'guidebook' to the world beyond the grave (see no. 642 = DK 1 B 20: 'but when the soul leaves the light of the sun'). The texts from Crete and Italy coincide with one another virtually word for word. They contain a detailed description of the journey of the deceased (no. 638 = DK 1 B 17):

You will find a spring on the left of the abodes of Hades

And standing by it a white cypress;

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<sup>238</sup> With even greater detail in a passage of Plutarch cited by Maximus (Loc. comm. 45, p. 649 = Paroem. Gr., p. 392) and Antonius Melissa (I.20, p. 41 = Paroem. Gr., p. 841): 'the deep gates of a Hades are opened, and rivers of fire ... are mixed together, and the darkness is filled with all imaginable images of horrible aspect speaking with piteous voices, and there are judges and executioners and chasms and recesses full of ten thousand evils' – a description which exactly coincides with the Egyptian one cited above.

<sup>239</sup> The rest of the literature on the topic is listed there.

Do not approach that spring.

Here too, as in the Egyptian texts, the deceased must call the gods by their mysterious names (Queen of those on earth, Famous, Good Counsellor, Firstborn, Phanes ['bright']); here too, as in Egypt, there are mentioned terrible guards standing before the entrances to the different regions of the realm beyond the grave (no. 638 = DK 1 B 17): 'there are guards in front'; here too the deceased is told the password which enables him to pass through these barriers (here 'say 'I am a child of earth and heaven'' or 'as a kid I have fallen into milk'' (nos. 638-642 = DK 1 B 17-20);<sup>240</sup> here too it is said that the deceased is 'protected' (no. 642 = DK 1 B 20 'go to the right for as long as befits someone well guarded in every way') by magical formulae; here too he becomes identical with a god (no. 641 = DK 1 B 20: 'from a man you have become a god', no. 641.2 = DK 1 B 19: 'for I proudly boast that I am of your race', no. 641.1 = DK 1 B 18 'you will be a god instead of a mortal'; here too there is emphasis on ritual purity and atonement by the deceased for his sins (no. 641.1 = DK 1 B 18: 'pure from the pure', no. 641.2 = DK 1 B 19: 'I have paid the penalty for my unjust deeds'). Finally, the deceased's address to the gods is especially interesting (no. 638 = DK 1 B 17.8-9: 'give me cold water quickly'); cf. an inscription from Rome (IG XII, 1842): 'may Aidoneus king of those beneath give you cold water'. This form of address is precisely characteristic of Osiris, the chief Egyptian god of the Underworld (see IG XII, 1488): 'may Osiris give you the cold water'; (IG XII, 1705): 'May Osiris give you the cold water'. In answer the god pronounces the verdict (DK 1 B 19a): 'Caecilia ... go lawfully, having become a god'. (See A. Schiff, Alexandrinische Dipinti, I, Leipzig, 1905, p. 19: Wilamowitz, Hellenistische Dichtung in der Zeit des Kallimachos, vol. I, Berlin, 1925, p. 80).

There is every reason to think that the Orphico-pythagorean<sup>241</sup> poem from which the text of these plates are taken was already known in Athens at the end of the 5<sup>th</sup> century BCE. Unusually, Aristophanes' comedy The Frogs concludes with hexameters spoken by a chorus of initiates living in the world beyond the grave; the entire comedy is a benevolent parody of the Orphico-pythagorean doctrine of the world beyond the grave, with its hellish monsters, its sinners wallowing in faeces, a sun shining in the Underworld on the just, the terrible cliff of Acheron etc.<sup>242</sup> I think, therefore, that the hexameters pronounced here by the chorus of the just from the Underworld, which are so striking reminiscent of the hexameters on the gold plates from southern Italy, are a benevolent parody of the lines from the same hexameter poem from which the lines on the plates are taken; that is what explains the unusual hexameter form of the exit song of the chorus. The first two lines (1528-9) are obviously taken straight from that poem, only the word 'poet', which is required by the context, has replaced some other word, possibly 'soul'. As on the plates (and in the Egyptian book) we have here an address to the gods of the Underworld; in both

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<sup>240</sup> 'Orphic password', in Kranz's words, with the citation: Delatte, Orphika, Musée Belge 40, 1913, p.129; Vollgraff, Mededeel. d. Akad. v. Wetensch., 57A, no. 2, Amsterdam, 1924 [DK I, p. 17, l. 13 n.].

<sup>241</sup> 'Orphic only in the general sense', in Kranz's words [DK I, p. 15, l. 16 n.].

<sup>242</sup> This is shown by Dieterich, op. cit., pp. 71, 92.

cases we read 'give' and 'daimones', with a request to give the deceased safe passage through Hades and a return to the light of the sun (cf. 'when [the soul] leaves the light of the sun' [DK 1 B 20.1] and here 'coming into the light'). These verses looked something like

First give a good journey to the soul which is descending

And returning to the light, you powers beneath the earth.

This spread of Egyptian religious conceptions, either directly or via Pythagoreanism, is confirmed by other facts. A temple of Ammon was built in Sparta (Paus. III.18.3), and the Spartans sent several embassies to the oracle of Ammon in Libya; in Thebes there was a temple of Ammon by the beginning of the 5<sup>th</sup> century (Pind. Pyth. IV.16; Paus. IX.16.1), and Pindar regards Ammon as the king of all the gods (fr. 36 'Ammon the lord of Olympus'). Lysander was a fervent devotee of Ammon (Paus. III.18.3; Plut. Lys. 20; Diod. XIV.13). At that time Ammon enjoyed especial honour in Pallene, in the city of Aphytis (in connection with a campaign of Lysander's Pausanias says: 'the people of Aphytis honour Ammon no less than the worshippers of Ammon among the Libyans'). It goes without saying that the same was true of the Greek city of Cyrene, neighbouring Egypt, which sent several embassies to Ammon (Paus. VI.8.3); in Pl. Pol. 257b the famous mathematician Theodorus of Cyrene swears by 'our god Ammon'.

Similarly by the last quarter of the 5<sup>th</sup> century Ammon had become one of the most popular gods in Athens. From inscriptions of the mid-4<sup>th</sup> century BCE (Sylloge Inscriptionum Graecarum [SIG] I, 3<sup>rd</sup> edn., nos, 281, 289, 1029) we see that by 367<sup>243</sup> a temple of Ammon had been in existence for a long time; from Aristophanes' Birds we may conclude that it was already known in 415 (in any event this was one of the most popular cults). Here Ammon is mentioned earlier than Apollo and Zeus, and there is mention of embassies to his oracle (619: 'and we shall not go to Delphi or to Ammon or sacrifice there ...; 716: 'for you we are Ammon, Delphi, Dodona, Phoebus Apollo'). We also read in Pl. Alc. II, 148c ff. of an Athenian embassy to Ammon at the time of the Peloponnesian War.

A very important role in the organisation of the cult of Ammon and Isis at Athens was apparently played by the prominent Athenian Lycurgus<sup>244</sup>, probably the grandfather of Lycurgus the contemporary of Demosthenes (Hiller von Gaertringen, s.v. Lycurgus; J. Kirchner, Prosopographia Attica, no. 9249). The comic poets make fun of him for this; Aristophanes calls him an Egyptian ibis (Birds 1296: schol. ad loc. 'they seem to think that Lycurgus is an Egyptian ... in his habits'). In The Savages Pherecrates says (fr. 11) that

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<sup>243</sup> IG II, ed. minor, 1428, add. 73 with note. See Klaffenbach's comment in Wilamowitz, Der Glaube der Hellenen, vol. II, p. 255, n. 1. There Wilamowitz connects the institution of the cult of Ammon in Athens with the construction of the state trireme Ammonis

<sup>244</sup> F. Zucker, 'Athen und Ägypten bis auf den Beginn der hellenistischen Zeit', in Antike und Orient, Festschrift W. Schubart, Leipzig, 1950, pp. 150ff.: see there literature on the topic.

someone does not want to go to Egypt 'so as not to meet the compatriots<sup>245</sup> of Lycurgus there'. In The Delian Women Cratinus describes (fr. 30) how Lycurgus will go in procession in the Egyptian ceremonial costume, the kalasiris, carrying the ritual stool which is well-attested in Egyptian documents ('and behind them let Lycurgus come in his kalasiris, carrying a stool'). In fact, as we know from Hesychius, a special festival in honour of Ammon had been established in Athens (s.v. Ammonia; 'a festival held in Athens').

For Plato Ammon was already a native Athenian divinity, and an attack on any religious institution in honour of Ammon was as much of a blasphemy as insult to Zeus or Apollo (Laws 738c: 'no sane person will try to attack the institutions of Delphi or Dodona or at the oracle of Ammon ... whether the sacrifices and rites are native ones which have been established here or ... [introduced] from anywhere else').

Finally, we should notice the name Philammon ['loving Ammon'], which was common at the beginning of the 4<sup>th</sup> century (in Athens children were named in accordance with achievements or inclinations of their father; Dem. 18.319, p. 331; Aeschin. 3.189, p. 81; Plut. De mus. 3, 1132a; Ar. Rhet. III.11, etc.).

At this time another Egyptian deity connected with the world beyond the grave enjoyed profound reverence in Athens, namely the goddess Isis. By the mid 4<sup>th</sup> century a temple of Isis had existed in Athens for a long time (SIG I, no. 280); it served the Egyptian community in Athens, but of course Athenians too frequently attended it (Koehler, Hermes V, 1871, p. 352). Hesychius reports from the words of the Athenian comic poet Ophelion at the beginning of the 4<sup>th</sup> century (one must read 'Ophelion' for the mss' 'Ophelimon') that in Athens some people swore by Isis, but an oath by such a high goddess was a blasphemy, so they fell ill (Hesch., s.v. Isin: 'some people who swore by Isis immediately fell ill'). Cf. the name 'Diodorus son of Isigenes ['born of Isis'] of Rhamnous' (IG II, ed. minor, 1987, I. 149), whose father probably lived at the beginning of the 4<sup>th</sup> century BCE.

Finally, Delatte points out that he has discovered in Greek magical texts a magical representation copied from the Egyptian book On what there is in the Underworld (A. Delatte, 'Études sur la magie grècque', Bulletin de la Correspondance Hellénique 38, 1924, p. 208, fig. 7; cf. an Egyptian representation in Jéquier, op. cit., pp. 74, 78; Budge, op. cit, vol. I, p. 103).

If we now attend to the fact that that the polemical and parodistic title of the books by Protagoras (DL IX.55) and Democritus, On the things in Hades, is not found elsewhere in the Greek literature of that time<sup>246</sup> (the corresponding Orphico-pythagorean book was entitled Descent into Hades), the supposition that it is a translation of the title of the

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<sup>245</sup> Phot., Lexicon, s.v. patriōtēs ['fellow-countryman']: 'a barbarian is so called [as being] a barbarian, and not a fellow-citizen (politēs)'. Cf. Poll. III.54, Hesych., s.v. patriōtēs, Pl. Laws 777c.

<sup>246</sup> In the 4<sup>th</sup> and 3<sup>rd</sup> centuries, following Protagoras and Democritus similar parodistic works On the things in Hades were written by Antisthenes and Heraclides Ponticus (Dieterich, op. cit., p. 129, n. 3). Cf. Epicur., fr. 341 Us.

Egyptian book cited above becomes entirely well-founded, independently of whether it was translated into Greek by some Pythagorean or whether Democritus saw it in the original (later versions of that book consist almost entirely of pictures, and were therefore comprehensible to everyone). We may add that no. 776, dealing with a lawsuit between the body and the soul, in which the soul is found guilty, and also no. 776a, where the soul is called 'a varied store and treasury of all sorts of evil passions' also perhaps go back to the Egyptian beliefs investigated above.

583

<sup>1</sup>Capelle (see DK II, p. 106, l. 19 n.) supposes that by 'some people' are understood Orphics; as we have seen, Democritus' attack was directed against Orphico-pythagoreans who continued to maintain Egyptian eschatological doctrines. But from the general character of the passage it seems to me probable that here the reference is to the broad mass of superstitious people who were subject to Egyptian and Pythagorean influence.

<sup>2</sup>suneidēsei... kakopragmosunēs ['conscious ... of evils']: Diels translates 'sich dagegen des menschlichen Elends wohl bewußt sind' [are on the other hand very conscious of human wretchedness']<sup>247</sup>, Nestle (Philologus 67, 1908, p. 548) correctly comments on this: 'The word suneidēsis ['consciousness, conscience'] appears here for the first time in Greek literature' (Diels, Preuß. Jahrbücher 125, 1906, p. 404). How is one to understand the expression 'of evils in their life'? Obviously, these 'evils' are the cause of 'trouble and fear', which are themselves the cause of 'inventing tales'. If 'evils' meant the disasters of life, then one would necessarily expect people who led such a miserable life to hope for a better life in the world beyond the grave. These disasters would not strengthen the feeling of fear in the face of death, but would eliminate it. This fear is comprehensible if kakopragmosunē is used not in the sense of 'misfortunes', but of 'bad actions',<sup>248</sup> and the reference is to people who are conscious of their evil deeds, i.e. those whose conscious is unclean because of the crimes they have committed'. Such an understanding is wholly consistent with the passages of Democritus in which he regards fear of death as stupid (nos. 584, 797), with his theory that religion arose from fear (no. 580), and also with the entire tendency of his world-view, with his goal of cheerfulness (euthumiē) and 'unastonishment' (athambiē), with his struggle for liberation from superstitious madness; that tendency is, thanks to the mediation of Epicurus, clearly outlined in the poem of Lucretius (III.991 ff.), especially lines 1009-21, where the real source of tales of life beyond the grave is taken to be 'fear of punishment for one's wicked deeds during life' (1012) and 'the mind, fearful from consciousness of one's deeds, adds tortures and terrifies one with whips' (1016ff.). kakopragmosunē (in the sense of wickedness, unrighteousness (Stephanus)), appears first in

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<sup>247</sup> [VS 4<sup>th</sup> edn. translates 'sich dagegen ihres schlechten Lebenswandeln wohl bewußt sind' [are on the other hand very conscious of their bad conduct]. See n.249 below.]

<sup>248</sup> Cf. Virg. Aen. VI.739: 'and they pay the penalty for ancient crimes (veterum malorum)', where malum also means, not 'misfortune' but 'bad action'.

Demosthenes XXV.101, and then in Polybius (IV.23.8); in both cases the word means 'evil intention', just as kakopragmōn means 'ill-intentioned' in Xen., Hell. V.2.36.<sup>249</sup>

In his book Agnōstos Theos (p. 136, n. 1; p. 391) Norden devoted a brief excursus to the word suneidēsis, but his discussion contains an error, since he accepts Diels' incorrect translation of this passage (comm. on no. 675). It is true that in the 5<sup>th</sup> century this word did not mean the concept which we might identify with our concept of 'conscience'. At all events Norden is right to think that the term suneidēsis which first appears in Democritus (corresponding to the Attic to suneidos and hē sunesis) is already close to the concept 'conscience'. See Eur. Orest. 395-6:

'What is the matter with you; what disease are you suffering from?'

'Conscience (hē sunesis), in that I am conscious of having done terrible things.'<sup>250</sup>

In Latin the corresponding word is 'consciūs'; see. Lucr. III.1016: *Mens sibi conscia factis* ['a mind conscious of its deeds']; Plaut. Most. 541: There is nothing more wretched than a [bad] conscience (*quam animus homini conscius*); Hor. Epist. I.1.60-1:

Let this be a wall of brass,

To have nothing on one's conscience, not to go pale for any fault.

Norden comes to the conclusion that the concept of conscience 'came into Christian morality, in which it holds such a commanding position ... from Hellenistic, and indeed with a word originally from the Ionic vocabulary. The coining of this word is very ancient, since the conception contained in it of a split between consciousness and the individual agent goes very far back ('he said to his noble heart' [Homer] etc., and the same in archaic Latin: 'to think over with one's mind' etc.)'.

<sup>3</sup>'about the time after death' etc.: cf. comm. on no. 627, where I indicate the main difference between the two passages. I do not, however, understand Alfieri's sharp comment (op. cit., p. 277, n. 701) directed against me ('Other than 'shortened'!). He obviously wishes to understand Antiphon DK 87 B 53a in the sense of an endlessly prolonged life on earth (cf. no. 627). But while no. 627 reads 'as if they were going to live for ever', here [i.e. in Antiphon] what is said is 'as if they were going to live another life', and indeed for the sake of clarity there is added 'not the present one', i.e. obviously the topic is 'another' life beyond the grave, for which people carefully prepare by abstaining from violations of the Orphico-pythagorean precepts (such as 'do not break bread'), by 'good deeds', memorising magical formulae, fasting, prayer etc. 'and the rest of their time

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<sup>249</sup> This translation is accepted by Kranz, DK II, p. 207 (68 B 297) [5<sup>th</sup> and 6<sup>th</sup> edns.]: 'im Bewußtsein ihrer schlechten Handlungsweise im Leben' [in consciousness of their wicked actions during their life].

<sup>250</sup> Wilamowitz (in Norden, Agnōstos Theos, p. 391) cites a further interesting passage, Pap. Oxyr. III.532.20: 'though I wished to benefit you you did not allow me to, because you had a bad conscience'.

is spent on this' [Ant. DK 87 B 53a]: the subject is absolutely not a person's saving money and increasing his prosperity, as it is in Democritus. In favour of this is also the fact that, as I have already indicated (AGPh. 38, 1929, p. 240) that dictum of Antiphon's is a precise, though abbreviated, reworking of the dictum [of Democritus'] cited here [i.e. no. 583]

Some ... people	there are people who
make their lifetime	do not live their present life,
miserable with	but prepare with great trouble
worries and fears,	as if they were going to live
making up false tales	another life, not the present one. <sup>251</sup>
about the time after death. [Dem.]	[Ant.]

The following is also very curious. The Pythagorean Hipparchus wrote a work On cheerfulness, which Diels long ago accepted as a direct imitation of Democritus; an excerpt from it is cited by Stobaeus (IV.44.81 = DK 68 C 7, vol. II, pp. 228-30). On the question of life beyond the grave and resurrection on earth he too does not adhere to the Pythagorean viewpoint, but simply repeats Democritus (DK II, p. 230, ll. 2-4): 'for people who make many preparations forget that one cannot live after one's lifetime and that it is not possible to be born more than once (also Epicur. fr. 204 Us.); both the doctrine of a life beyond the grave and the doctrine of resurrection on earth were equally characteristic of the Pythagoreans.

On the reflection of these views in the Epicureans see comm. on no. 627 (and also P. von der Mühl, Festgabe Adolf Kägi, p. 177, n. 1).

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<sup>1</sup>My reading <aidēn> ['<Hades>'] (the elimination of the haplography caused by aideō which follows) at the same time explains the incomprehensible hōs ['as.like']. My supplementation is supported by the words of Epicurus in Lactantius (Inst. VII.7.13 = fr. 341 Us), which may have their source in Democritus: 'that the punishments which are supposed to occur in the Underworld take place in this life'. One cannot agree with Philippson that no. 584 is merely an abbreviated reworking of no. 583 ('self-citation') in the form of a dictum (Hermes 59, p. 411). As Nestle had already shown (see comm. on no. 583, n. 2), kakopragmosunē in no. 583 means not 'misery of life' but 'wickedness'. The first passage speaks of fear of the terrible judgement for the sins one has committed, the second of unhappy people who, for fear of the life beyond the grave, cannot decide to lay hands on themselves. Philippson also cites Plut. De tranq. animi 18, p. 476a: 'it is the fear of death,

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<sup>251</sup> In Maximus (Loc. comm. 12, p. 572 = Paroem. Gr. 91, p. 801 B) this excerpt has the lemma 'Dēmonakt.'. If it is correct to suppose that here, as in other analogous cases 'Dēmonakt.' is simply a corruption of 'Dēmokr.', that might serve as an argument in favour of the view that the ancients saw Antiphon's dictum as simply a translation of a dictum of Democritus'.

not the love of life which makes the unwise stretch out their lives'. No doubt Plutarch is transforming into his own words this very dictum of Democritus'; probably it is taken from Democritus' work with the same title, On cheerfulness (Philippson, loc. cit.).

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<sup>1</sup>Cf. Procl. In Rem publ. II.117, p. 7 Kroll.

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<sup>1</sup>Obviously, two distinct theses are maintained in Democritus' works: 1) some very small portion of 'soul' (i.e. of fire-atoms) is present even in inanimate bodies, including corpses (see no. 448), since corpses have a certain capacity for movement and change (their nails and hair grow even after death); 2) there are no certain signs of death, and so not infrequently people in a state of profound unconsciousness are buried. From this Epicurus drew the incorrect conclusion that Democritus ascribed the capacity for sensation to corpses. Cf. E. Rohde, Psyche, vol. II, 1921, p. 191: '(Thus) there was constructed and ascribed to Democritus the assertion that in general corpses perceive... However, Democritus recognised no perception at all in really 'dead' bodies, i.e. in those from which all the soul-atoms had gone; the Democriteans certainly wished to protest against Epicurus' vulgarisation of his view, which ascribed that to him'. The testimony of Pliny (no. 588a) is based on a similar later distortion of Democritus' ideas; the story of Democritus' refusal to bring the wife of Darius back to life (no. XXIII with comm.) was perhaps devised as a criticism of these theses. Wellmann (in DK II, p. 167, l. 23 n.) compares Alex. Probl. IV.54 (Usener, Alexandri Aphrodisiensis quae feruntur Problemata, Libri III et IV, Jahresbericht über das Joachimstalsche Gymnasium, Berlin, 1859, p. 13), where the growth of hair and nails is explained (perhaps following Democritus) by the fact that that these parts of the body have no capacity for sensation: 'Why do the nails and hair grow for some time in the case of the dead and the elderly? Is it because these are the least sensitive parts of the body (so sensation is subsequent to the occurrence [?]) that they grow for some time?'

<sup>2</sup>Plato ... in the Republic': the story of the Armenian<sup>252</sup> Er, who fell deeply unconscious for a long time, serves as the frame for a detailed description of the world beyond the grave in the spirit of orphico-pythagorean doctrines (Rep. X, 614b).

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<sup>1</sup>they are forced to stuff in double portions': cf. Hdt. II.133: 'when Mycerinus heard that this fate had been determined for him he had many lamps made, and when night fell he lit them and drank and revelled ceaselessly day and night ... and he did that ... so that instead of six years he would have twelve, as the nights were turned into days'.

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<sup>252</sup> [Plato says that Er was a Pamphylian; L mistranslates his patronymic tou Armeniou ['the son of Armenius'] as 'Armenian'.]



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<sup>1</sup>According to Athenaeus (II, p. 46e, see no. LVI) Democritus regarded honey as the best means of preserving one's life. The bodies of the dead were preserved in honey in Babylon (Hdt. I.198) and in Sparta, as Xenophon reports about the Spartan kings (Hell. V.3.19). See also Lucr. III.889-91:

... how it is not painful

To be placed on the pyre and scorched in the hot flames

Or to be suffocated by being laid in honey ...

This passage is cited by Diels [DK 68 A 161].

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<sup>1</sup>See comm. on no. XXIII.

#### VI. On divine providence and omnipotence

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<sup>1</sup>On images, or On forethought (or providence): the meaning of this title and the content of the book corresponding to it is easily determined from no. 472a [Sext. M. IX.19]: 'Democritus says that some images approach people ... apart from these there is no god possessing an immortal nature'. As is seen from nos. 590 ff. Democritus denies divine providence; hence we must suppose that the meaning of this title was 'On images, or On (so-called, but in fact non-existent) providence'. It is true that Diels, Langerbeck and a number of other scholars point out that the word pronoia began to be used in the sense 'divine providence' significantly later than the 5<sup>th</sup> century BCE. In the 5<sup>th</sup> century it meant simply 'foreknowledge of the future', 'intention' or 'concern', and, since Democritus' images predict the future (no. 472a, Themist. [In De divin. In somn. 43.4]: 'predict what is going to happen'), the word is here used in exactly that sense. Diels and Kranz think it more probable that pranoiēs here is a corruption in the ms. tradition for aporroiēs ['effluence'] [DK II, p. 140, l. 1 n.]. But the presupposition is itself incorrect: in Hdt. III.108 ('divine forethought, being wise') the term pronoia is used precisely in the sense of the wise, fatherly concern of a divinity for the world, i.e. in the sense 'providence' which the word later acquired. Nestle (Philologus 67, p. 553), who does not, discuss the meaning of this word, convincingly shows that the source of this passage of Herodotus was Protagoras (cf. Pl. Prot. 321b); at any rate this use of the word was obviously current in Greek religious philosophy by the time of Democritus. It may be that the source for the Epicurean demonstration of the impossibility of divine pronoia was Democritus (fr. 374 Us. = Lact. De ira Dei 13.19). Usener overlooks the fact that this passage is found in the original Greek in Sext. PH. III.9; cf. II.5 of the same work, where the non-existence of pronoia is mentioned

among a number of basic propositions of Epicurean philosophy. Here is this significant passage in the Latin translation [by Lactantius]: 'God either wants to abolish evils but cannot, or can but does not want to, or neither wants to nor can, or both wants to and can. If he wants to but cannot, he is weak, which is not appropriate for God ; if he can but does not want to he is malevolent, which is also foreign to God; if he neither wants to nor can he is both malevolent and weak, and so not God; if he both wants to and can, which alone is appropriate for God, where do evils come from? Or why does he not abolish them?' Lactantius adds the curious comment: 'I know that many philosophers who defend providence are troubled by this argument and pretty well forced against their will to acknowledge that God does not care about anything'.

I cite a further similar passage from the recently published Arabic translation of Galen's On medical experience (XIX, 2-3, pp. 161a-b, 162a = pp. 46-7 of the Arabic text and pp. 122-3 of Walzer's translation, cited in no. 558): 'In the case where bodies are mixed together, either one must penetrate another, or they must be united to one another by one's being situated next to the other. The theory which rules out the possibility that a substance (an atom, Luria) can be decomposed into its component parts and that these parts can be separated from one another (the atomism of Democritus and Leucippus, Luria) must treat complex bodies as the result of a union of parts situated next to one another. But those who maintain the former view (that some bodies penetrate others, Luria) assert that those who say that parts do not penetrate one another, but are situated next to each other, must necessarily come to the position of denying the existence of god and of his providence, i.e. his concern for his creation, and also the existence of a particular substance of the soul and a particular substance of nature, characteristic of one and of the other (of god and of his providence, Luria). ... With regard to the view that complex bodies are formed by the penetration of some (parts) by others, although it is the only remaining possibility, it is something which one cannot easily imagine, and I cannot conceive of it, much less understand and grasp it. In fact it is hard to imagine such a disposition of things, that two bodies or three, or sometimes four or five should occupy one and the same place ...

But let us leave that, and think about the universe, and consider what we must say about it; did it come into existence or not, since our imagination cannot conceive any third answer ... If anyone maintains that it did not come into existence then ... it follows from that that god did not make the world ... and consequently that his providence cannot extend endlessly. And as well as the first two there is a third conclusion which follows logically from that view, that the world will continue to exist without any need of divine providence. For if the world never came into existence there is no danger of its perishing. In that case there is no need for any being (which might be concerned with it) to maintain its existence, guard it from danger or direct it. But someone who maintains the opposite view, that the world had a beginning, is logically obliged to come to the following conclusion: if there was a time when the universe did not yet exist, then one of two possibilities must obtain: either

god intentionally rejected the possibility of creating the best or the most perfect one, or he was not capable of doing so. But to maintain that god refrained from doing the best is to accuse god of extreme carelessness and laziness. If he wanted to do that, but was not in a position to do it, then that would be a sign of his helplessness and powerlessness ...'

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<sup>1</sup>'people': without the article, because Democritus is talking only about some unwise people who address the gods with prayers to which the gods cannot and do not pay attention: cf. Epicur. fr. 388 Us: 'if god grants people's prayers everyone would soon perish, since they are always praying for many evils to befall one another'. The reading hoi anthrōpoi ('all people') in Maximus and Antonius is undoubtedly a Christian correction with the aim of representing prayer to the gods as a natural feeling on the part of everyone. The same correction is made involuntarily by Alfieri, op. cit., p. 263) when he translates anthrōpoi as 'gli uomini' ['(all) men']; this makes it possible for him to speak in his note on the passage of some sort of demonology in Democritus. [L then quotes the Old Russian translation of the passage in the edition by V. Semenov, p. 249. (cf. comm. on nos. XXXVIII, n. 2, XXXIX and LII). ]

#### VII. The worship of the gods. Mythology. Oracles

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<sup>1</sup>Since Democritus requires from the ordinary citizen exact and detailed obedience to all the laws of the state to which he belongs, it is natural that he has also to require observance of the rules governing religious worship, which was in the view of the ancients the most important obligation of the citizen ... Cf. the view of Epicurus set out by Philodemus (fr. 387 Us.: 'let us ... sacrifice piously and well, as is fitting, and do all the other things required by the laws, causing by our beliefs no disturbance at all to their excellence and great solemnity'. But for a sage in the Democritean or Epicurean sense religious myths and rites always seemed absurd and deserving of ridicule; hence Origen takes it as self-evident that a Democritean or Epicurean could not have believed in the descent of the Holy Spirit in the form of a dove etc.

VIII. How the Stoics, Christians and other enemies of the atomistic doctrine interpreted Democritus' views on religion

See Excursus below

Excursus

The distortion of Democritus' doctrine in the literary tradition

1. In view of the difficulty and novelty of Democritus' theories many of his doctrines were distorted and perverted by authors of all outlooks, Independently of whatever their actual meaning may have been, e.g.: Tertull. Ad nat. II.2 (DK 68 A 74): 'Democritus has the idea that the gods came into existence with the rest of the celestial fire, which Zeno takes as the model of nature' (fr. 121 von Arnim [SVE]).
2. Vitruv. IX.5.4 (DK 68 B 14.1); '[I have set out] the figures of the constellations as they are shaped and formed in the heavens by nature and the divine mind, according to the teachings of the natural philosopher Democritus'.
3. Pliny NH II.14 (DK 68 A 76): 'Belief in innumerable gods, modelled on human defects, such as Modesty, Concord, Mind, Hope, Honour, Clemency, Loyalty, or, as Democritus holds, just two, Punishment and Reward, is to reach a greater height of folly' [sc. than to attribute human form to the gods].

Bailey (The Greek atomists and Epicurus, p. 176, n. 2) gives what seems to be the correct explanation of the incorrect attribution of this absurd theory to Democritus: 'Pliny ... by personifying this notion [that of Sextus M IX.19 'some images are beneficial and some harmful'] produces the ridiculous parody that Democritus said that 'there were only two gods, Punishment and Reward''. Here we have a case of distortion through misunderstanding.

But in other cases we can observe conscious distortions and 'corrections' of Democritus' doctrines with the aim of making it possible to use the authority of the generally acknowledged greatest scientist of antiquity on behalf of the doctrines of idealistic philosophy and later of Christian (largely heretical) doctrines. Thus the atom was gradually transformed and identified with the Christian Logos, with Christ. The starting point for the development of these theories may have been, besides the one already mentioned ('Democritus says that some images (are gods) and some of them are beneficial and others harmful'), the following passages: Cic. ND I.43.120 [DK 68 A 74]: 'Democritus ... says that the gods ... are living images which are beneficial or harmful to us ...'; Simpl. In De an. 64.12: 'and every unit and every one of Democritus' spheres will be a soul'; Plut. Mor. 369a: 'One should not locate the principles of the universe in inanimate bodies'; Theophr. ap. Simpl. In

Phys. 28.15: 'Democritus ... says that the principles are the full and the void, and he calls the one being and the other not-being ... (and these) generate the other things'.

Aristotle had already maintained that the atom is in a certain sense immaterial: De an. 405a5: 'Some hold the soul to be fire, for that is the finest and most immaterial of the elements'.

In this regard people overlooked the fact, intentionally of course, that the term 'immaterial' is used here in a transferred sense as a figurative expression, to which Philoponus calls attention in his comment on this passage (83.27): 'he calls fire immaterial not in the strict sense (none of them said that), but as immaterial among material things because of its fineness'. It is possible that in this instance Philoponus was attacking Christian distortions of Democritus' doctrine.

The following features of Democritus' doctrine are important: just as the Christian God sends people his immaterial messengers (angels), so Democritus' god sends people images (see no. 472a); in this regard Democritus' atom possessed the fundamental attributes of the Christian God; its usual epithets 'partless' (nos. 113, 106), 'indestructible' (no. 207), 'eternal' (no. 172), or 'everlasting' ('through all time', no. 298), 'suffering no effects' (apathēs, nos. 113, 499, DK 68 A 49, 57) are at the same time epithets of the Christian God; see Eus. PE I, end: 'God is ... first, indestructible, eternal, ungenerated, partless, most unlike [anything else], natural and perfect, the sole deviser (heuretēs) of sacred nature'.

All this gave later Christian thinkers a certain basis for the assertion that Democritus regarded the atom as some kind of divine being.

4. Clem. Strom. I.52, p. 347: 'the elements are revered by ... those who posited the atoms as principles; they assume the name of philosophers, but they are godless fellows and lovers of pleasure'. Democritus' spherical soul-atom, which was supposed to be accorded 'reverence as to some sort of divinity' and which Democritus at the same time regarded as an atom of fire, began to be seen as God, the ruler of the universe, living in 'spherical fire'.

5. Aet. I.7.16 (DK 68 A 74, Dox. p. 302): 'Democritus says that god is mind in spherical fire'; Eus. PE XIV.16.6: 'Democritus says that god is the soul of the world in spherical fire'.

6. Cyrill. Alex. I.28 (PG 76, p. 545 A): 'Thales of Miletus says that god is the mind of the world ... Democritus of Abdera agrees to some extent, but adds something else; he too maintains that god is a mind, adding that he is in spherical fire and that he is the soul of the world'.

From the principle, beginning or element of the universe (archē tou pantos) which generates (gennai) everything, the atom becomes the ruler of the universe (archōn tōn

holōn) which creates everything (poiei ta panta), which is almighty, which gives people every benefit and which punishes them.

7. Herm. Irris. 13: 'According to Democritus the principles are what is and what is not, and what is is the full, and what is not is the void, and the full makes everything'.

8. Sext. M.X.254: 'and indeed one cannot say that the atoms have the property of being eternal and for that reason can rule the universe, though they are material'.

9. Suda, s.v. Heimarmenē ['Fate']: '... those smallest bodies ... propelled about by necessity, from which he said that it [i.e. necessity] not only distributes wealth and poverty, disease and health, slavery and freedom, war and peace, but also allots virtue and vice'.

So all the preconditions were there for the transformation of the atom into the Christian God, thus making Democritus a forerunner of Christianity. It was in precisely that sense that Democritus was interpreted and made use of by the Gnostics, above all by the sect of the Valentinians (followers of Valentine, who appeared circa 150 CE). As reported by Irenaeus in Contra haereses, their entire doctrine was constructed on atomistic and Epicurean foundations via their particular reinterpretation.

10. Iren., Contr. haer. II.14.2 : 'Taking their cue from Democritus and Epicurus ... they say that the things within the Totality 'are', (as Democritus and Epicurus say the atoms 'are') and that the things outside the Totality 'are not' (like their [the atomists']void) ... when they say that there are images of the things that are they very obviously ... express Democritus' view. For Democritus was the first to say that many different shapes have come into this world from the whole universe ... They follow him, calling his shapes and models Images of things above' (also II.4.1: 'shadow and emptiness'). Like those of the Epicureans, the gods of the Valentinians live in the spaces between worlds (I.5.4): 'their mother lives in the region above the heavens, i.e. in the middle' (intermundia); I.7.1: 'and that Democritus himself has gone to the place of the mother of Wisdom, i.e. the middle'.

The views of another great Ionian thinker, Heraclitus, were reworked in a precisely similar way. His doctrine of the unity of opposites proved very suitable for the philosophical formulation of the 'dialectic' of the central Christian myth, which contains just such a 'unity of opposites'; the Son is distinct from and at the same time not distinct from the Father, he was born of Mary and is at the same time eternal and never born, he died and is at the same time immortal, he is the Son and at the same time the Father. See Hippol. Refut. IX.9 (DK 22 B 50): 'Heraclitus says that the All is divisible and indivisible, generated and ungenerated, mortal and immortal, eternity (logon) and a lifetime (aiōn, cf. DK22 B 52), father and son, god and just (according to Wendland [cited in DK II, p. 161, l. 16n.] this is a Gnostic antithesis: the concept 'just' conflicts in the Gnostic view with that of an almighty god), one and all'.

Even such a hyper-materialistic discussion of Democritus' as his interpretation of the sexual act as the whole body's being shaken by a blow, so that man can be 'shaken out of man' (see nos. 527, 720), was seen by those Gnostics as a rephrased exposition of the Bible. See Hippol. Refut. VIII.14, p. 428 Dunker—Schneidewin; here the heretic Monoimus 'following the sayings of the ancient poets and mathematicians' ('i.e. expounding them in his sense', Lortzing) is seen to say "man is shaken out of man", says Democritus, 'and is separated and drawn out by a blow', so that he is born and speaks the law which Moses received from God'.

In this way everything possible was done to expound the basic mystery of the Christian faith in the spirit of a deepening of atomistic doctrine by way of the transformation of the atom into Christ or the Christian Logos. The only obstacle to that was that Jesus died on the cross after grievous sufferings, whereas the atom is, like almighty God, incapable of being affected and eternal. In order to eliminate this contradiction, the Valentinians distinguished Jesus from Christ; in their view Christ is God, whereas Jesus was mortal, the son of Joseph and Mary, to whom was accorded the high honour of being the earthly shell of the immortal God, Christ (Logos).<sup>253</sup>

The chronographer Theophilus (mid 2<sup>nd</sup> century CE) was undoubtedly associated with these Valentinians; later (in the 6<sup>th</sup> century) Joannes Malalas made the following absurd extract from his work.<sup>254</sup>

11. Joann. Malalas IV, p. 85 D = Georgius Cedrenus Hist. comp. p. 121 (PG 121, pp. 246ff.): 'At this time there lived Democritus, who taught philosophy. In his philosophical treatise he set out that someone who wants to become a philosopher must practice self-control, keep away from all evil things and think and do all things rightly, and when he practises philosophy in that way he will learn the nine-lettered name and will see the son of God, the impassible Word, apparently preparing to suffer [?]. This is reported in the treatise of the most learned chronographer Theophilus ... after Pelops Atreus reigned.'

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<sup>253</sup> Irenaeus, Contra haer. III.11.1: 'They say ... that one was the son of a carpenter, but the other was Christ from on high, who remained incapable of suffering, descended into Jesus the son of the carpenter and returned again into his Fullness'; III.11.3: 'Indeed they do not accept that the Word and Christ came into this world, but the Saviour was not incarnate and did not suffer, but descended like a dove into that Jesus who had been made available ... and ascended again into the Fullness ... But others say that it was the son of the Creator into whom descended that Jesus, who was available, and that Jesus was born again of Joseph and Mary, and into him there descended Christ who comes from on high and exists without flesh and incapable of suffering'; III.12.7: 'now those who distinguish Jesus from Christ say that Christ remained incapable of suffering, but Jesus suffered'; III.17.4: 'Now they think that Christ was one person and Jesus another ... and again say that he [i.e. Jesus] underwent suffering, while the other [i.e. Christ] remained incapable of suffering' (also III.16.8 and III.18.3: 'Christ is incapable of suffering').

<sup>254</sup> K. Krumbacher, Geschichte der byzantinischen Literatur, Munich, 1891, pp. 113-4: 'A genuine popular romance, in which the crudest speculation extends to the superstition of a good-natured reading public ... For him the poetess of Lesbos [Sappho] is a contemporary of Cecrops and Cranaus, while the philosopher Democritus is put back into the grey prehistory of Pelops, Cicero and Sallust are Roman poets according to Malalas, the country of Caria is so called because it was conquered by the emperor Carus ... '.

[Textual variants]: Mal. 'at this time', Cedr. 'then also'; Mal. 'lived', Cedr. 'was known'; in Cedr. there follows: 'a philosopher, who taught in addition to other things that someone who wants to practise philosophy ... must practice self-control'; Mal. 'and when etc.', Cedr. 'and so he can learn the nine-lettered [name]; Mal. 'will see', Cedr. 'so, he says, you will see'; Mal. 'apparently preparing' (mellophanē), Cedr. 'newly apparent' (neophanē) ('You will see the Son of God, the Word who is exempt from all suffering, in such a way that he himself has newly appeared as liable to suffering.')

Though orthodox Christianity waged a merciless struggle against the Gnostics, a significant part of Gnostic interpretations of atomism penetrates the writings of the orthodox Fathers of the Church, eastern and western, e.g. the doctrine of mathematical indivisibles (from Augustine to Bede and Bradwardine); here there begins to be repeated the view that Democritus' atoms were immaterial ideal entities; Democritus' materialistic phraseology is seen as mere allegory.

12. Aug. Ad Diosc. CXVIII.29 (PL 33, p. 446): 'Democritus thinks that the mind is incorporeal'.

13. Syrian. In Meta. 143.16: 'and when they say that a magnitude is composed of indivisibles they do not mean that atoms make dimensions by coming together and being as it were packed together (that is the view of Democritus, which contradicts geometry and virtually all the sciences), but that those pure, intelligible, creative and life-giving indivisibles are not separate from one another, and that they constitute everything including material bodies at the basic level'.

14. Simpl. In De an. 26.11: 'whether that is how Democritus generated life from bodies [i.e. by identifying the material cause of life as fire] or whether he intended to indicate intelligible nature via the sphere by way of proof we cannot say'.

15. Bradwardine Treatise on the continuum 98: 'for it is not likely that such a philosopher posited any indivisible bodies ... but perhaps by indivisible bodies he (Democritus) understood indivisible parts of a substance and meant that a substance is composed of indivisible substances'.

Similarly the arguments of Raban Maur, a 9<sup>th</sup>-century catholic priest, testify to the great influence on him of the Gnostic interpretation of the atom as Christ.

16. Raban Maur De universo IX.1, de atomis (PL 111, p. 262): 'Therefore the atom is what cannot be divided, like the point in geometry. For division is called 'cutting' (tomus [actually tomē]) in Greek, and absence of division (indivisio) 'non-cutting' (atomus). For how far indivisible unity in things displays a mystical significance is clearly shown by Scripture: because it shows that that [i.e. indivisible unity] was the beginning of all things ...'



Since Democritus was thus rehabilitated in certain Christian circles it is not surprising that his moral sayings were included in collections, popular among Christians, along with sayings of the Church Fathers. That introduced wide scope for interpolation and emendation in these sayings (which had, however, begun already in pre-Christian times). Democritus' ethics became a trivial Stoico-Christian morality.

17. Stob. III.9.30 (DK 68 B 217 = 41 Natorp): 'Democritus. Only those to whom wrongdoing is hateful are loved by the gods'.

18. Stob. II.9.4 (DK 68 B 175 = 24 N.): 'The gods have given men all good things both in the past and now, but bad and harmful and disadvantageous things they have not given men either in the past or now, but they encounter such things through their blindness of mind and folly'.

It is worth stopping to consider this curious saying in more detail. It has long been observed that the view expressed here cannot be reconciled with the views of Democritus, since in his view the gods cannot give anything to people (see no. 580 with comm.), but are an involuntary cause of both good and bad for man (no. 472a). Lortzing, *op. cit.*, p. 2, has already pointed out the impossibility of attributing this and similar passages to Democritus: 'Though Democritus may not have applied the full consequences of his physical world-view to the moral sphere, we must nevertheless expect that in such a sober and profound thinker his ethical principle does not contradict his metaphysical doctrines'. Bailey expresses himself even more emphatically, *op. cit.* p. 175: 'we may safely assume that ... (Democritus) held that (the gods) took no part in the affairs of the world'.<sup>255</sup> On the other hand, Lortzing had already pointed out that in fact it is nowhere attested that this saying belongs to Democritus: in Stobaeus this saying is cited anonymously, without a lemma; it has been ascribed to Democritus only because the passage preceding it has the lemma Dēmocritou. In this regard Lortzing remarks, *op. cit.*, p. 15: 'We are not entitled to apply the lemma of a saying to all subsequent anonymous sayings'; p. 8: 'Doubt about the author can ... arise in places where, of a number of connected sayings only the first has Democritus' name at the beginning, while the rest are by contrast anonymous'.

As an example he gives the saying which we are discussing. It is true that this passage is written in Ionic; but is Democritus really the only author writing in Ionic from whom excerpts appear in Stobaeus? For example, in Stobaeus there are a number of ethical passages in Ionic dialect from a Hellenistic philosopher Eusebius, who is unknown to us from other sources, to whom this saying more probably belongs than to Democritus (see the sayings of Eusebius, Stob. II.1.25; III.6.33 ('the gods gave'); III.30.15; III.56.41; IV.12.16; IV.56.14). And in fact in its content this saying is typical of Stoic and Christian theodicies, as I

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<sup>255</sup> Bailey nowhere cites the passage under discussion; obviously he regards this saying as spurious.

have already pointed out (RhM. LXXVIII, 1929, pp. 235, 240); see, for instance, an Orphic passage on god, quoted in Eus. PE XIII.12:

Being himself born of good [beings], he does not command evils  
For mortal men; they themselves encounter strife and hatred  
And war and famine and tearful sufferings.

A number of scholars have tried to 'save' this saying for Democritus, but their efforts have proved feeble. Thus, Natorp, *op. cit.*, p. 63, compares Theognis 171ff.: 'No good or evil comes to men without the gods', and remarks: 'Democritus replies to this precisely ... While he may have intended to object to the inclusion of the gods [among the sources of evils] and thought that he had to excuse them by appeal to popular views, the real justification is found in the clear reference to the [people's] favourite poet'.

Friedländer says more or less the same, citing Od. I.33-5 (see DK II, p. 180, l. 5n):

Alas, how mortals blame the gods!  
For they say that it is from us that evils come, but they themselves  
Endure sufferings beyond their fate because of their sins.

While Diels and Kranz leave all these difficulties aside and include this saying among the genuine passages of Democritus without any qualification, Alfieri chooses another, altogether acceptable, path; he thinks that we have here a genuine passage of Democritus, but one which is either distorted or incorrectly understood. See *op. cit.*, p. 263, n. 662: 'Of course, Democritus does not admit the real existence of the gods'; p. 251, n. 632 (on the passage under discussion): 'Understood 'and it is said (by those who believe in the gods)'. If I understand Alfieri correctly, he wishes to restore some such context as '(some say that men are not able to achieve good things for themselves), but the gods have given men all good things both in the past and now, but bad and harmful and disadvantageous things (i.e. bad things as well as good)[they have not] given either in the past or now etc.'. Another possibility is that the genuine passage of Democritus begins with the words 'bad and harmful things'. I should certainly settle for one of these alternatives if the passage were anywhere attested as belonging to Democritus; but since it is anonymous there is no need for such proposals.

19. Cod. Paris. 1169, no. 210: 'Democritus. When we were children our parents handed us over to tutors to make sure that we did not come to any harm. But when we have grown up God hands us over to our natural conscience to take care of us; we must not make light of this care, since we are disagreeable [?] and subject to our individual conscience' .

[L quotes the Old Russian translation by V. Semenov, *op. cit.* p. 350.]

20. Corpus Parisinum Profanum [CPP] 185 (DK 68 B 302, vol. II, p. 223, ll. 26-7; Maxim. Loc. comm. 2, p. 252 (P.G. 91, p. 729 A); Apostolius 8.89e; Arsenius 29.97); AED, sent. 9): ‘Doing nothing unworthy will make you worthy of God’. Old Russian translation, Semenov, op. cit., 12. Mullach, p. 179, fr. sp. 7: ‘This saying cannot be reconciled with the doctrine of Democritus’.

21. CPP 186 (DK 68 B 302, vol. II, p. 223, ll. 26-7; Maxim. Loc. comm. 8, p. 566 (PG 91, p. 773 B); Anecdota Epicharmi, Democriti etc. ed. B. Ten-Brink (Philologus VI, 1851, p. 577ff.) [AED] sent. 6 (‘in the same way as God ... set a price’): ‘A man is benevolent in the same way as God when he does not set a price on his benevolence, on doing good and telling the truth’. Cf. Sternbach Wien. Stud. 9, 1887, p. 200, O. Immisch, ‘Agatharcidea’, Heidelberg. Sitzb., 1919, p. 57. Immisch thinks that the last passage is genuine. I admit the possibility of that, in that Democritus does not reject the existence of gods, much more perfect than humans; but those gods cannot do good to people. Or is this passage about gods doing good to one another?

22. (Mull. 242). Ant. Mel. 22, p. 42 (PG 136, p. 884 B); AED sent. 34: ‘One must show one’s piety openly, and stand up boldly for the truth’. Lortzing, op. cit., p. 15: ‘Here doubts are raised, apart from the unDemocritean content, by the connection of the word ‘stand up for’ with an abstract noun such as ‘truth’, which, it seems, is first found in Polybius’. Mullach, op. cit., p. 321, tries to defend the authenticity of this saying by translating eusebeia [‘piety’] as ‘one person’s being dutiful to another’; Ten-Brink calls that attempt ‘inept’. Taking into account the passages collected under no. 594 one may perhaps suppose that the subject here is the necessity, with a view to the preservation of order in the state, of observing the religious rites established by the state, even if we do not believe in gods.

But in that case it is impossible to understand the emphasis on ‘openly’ as applied to such a high moral duty.

23. Fr. sp. 9 Mull; Maxim. Loc. comm. LXVIII (PG 91, p. 658 D) = no. 127 Orelli (Opuscula Graecorum veterum sententiosa et moralia, vol. I, Leipzig, 1819): ‘Democritus. Two things prompt man to observe god, punishment for impiety and rewards for a pious mind’. [L quotes the Old Russian translation, Semenov, op. cit., p. 391.]

There can be no doubt of the spuriousness of this passage, which directly contradicts Democritus’ doctrine that there are no rewards or punishments in the world beyond the grave. Similarly, even some genuine sayings of Democritus were at a later period subject to corrections and insertions inspired by neo-Pythagorean, Stoic and Christian doctrines (these insertions and corrections are printed in bold type; the correct original version is given in the text of the collection under the corresponding number).

No. 62. Suda, s.v. Heimarmenē [‘Fate’]: **‘And Democritus said ‘We all have some things from god, and other things from fate and chance and those smallest bodies ... which are propelled ... of necessity. From which he said that there are distributed not only**

**wealth and poverty, disease and health, slavery and freedom, war and peace, but also virtue and vice are allotted’.**

No 103. Suda, s.v. anangkaion [‘necessary’]: ‘Democritus of Abdera says ... what applies always to everything, that is necessary, **and similarly it is necessary that god is indestructible**, and some things are possible ...’.

No. 583. Stob. IV.34.62: ‘**All** men, not knowing of the dissolution of mortal nature (‘of the nature **of mortals**’ Apostol.), but conscious of their wicked deeds during their life, trouble their lifetime with worries and fears, **making up stories of fearful things** after death’.

No. 607. Democrates 80; Porphyry Ad Marcellum 20; Demophilus Collection of the sayings of Pythagoras [Syll. Sent. Pyth.] 13, p. 38 Orelli; AED 5; DEI 9 (corrupted from Stob. II.31.59): ‘**If one believes that the gods observe everything**, one will do no wrong either in secret or openly’.

No. 593. Maxim. Loc. comm. c. 27, p. 612 (PG 91, p. 875 A); Ant. Mel. I.39, p. 79 (PG 136, p. 913 D): ‘Democritus. **All** men pray for health from the gods ...’.

## THE CITY AND THE PHILOSOPHER

### a. THE DEMOCRATIC CITY

#### I. The duties and rights of the citizen

595

<sup>1</sup>'against the interest of the community': cf. inscription from Teos (M.N. Tod, A selection of Greek historical inscriptions, 2<sup>nd</sup> edn., vol. 1, Oxford, 1946, no. 23 A 1 ff.): 'whoever among the Teians makes noxious drugs, with respect to the community ... ( B 25 ff.) or wishes ill to the community of the Teians'. Cf. comm. on no. 623; Natorp, op. cit., p. 63, n. 13 (who also cites Democritus' expressions from nos. 88<sup>256</sup>: 'neither in private nor in public life' and 647 'a communal difficulty'. Bruhn, Sophokles, Antigone, Berlin 1913, followed by Diels [DK II, p. 195, 15ff. n.] suggests that the source for this passage of Democritus is Soph. Ant. 187-91 (produced in 440 BCE). In fact to the expression 'if that is preserved everything is preserved' may be compared I. 189: 'it is this (the city) which preserves', and to 'a well-run city' (= 'will be well run') II. 189-90: 'sailing straight on in this (the city)'. But these comparisons are in my opinion insufficient to establish that Democritus' philosophical dicta are a reworking of the verses of the Athenian poet; it is more probable that Sophocles and Democritus have the same source (a dictum of one of the Seven Sages, or of an ancient didactic poet, etc.). No. 647 expresses essentially the same idea: 'a communal difficulty is harder to deal with than a difficulty for each individual' etc. We have placed it, however, not here but in the section 'rich and poor', for it is obviously addressed to the poor man, advising him to accept his position in the interests of the state; if the state is ruined he too will be ruined, lacking 'hope of assistance'.

596

<sup>1</sup>This saying is possibly a response to the saying of Heraclitus (DK 22 B 33): 'law is also obedience to the will of one man'. A reflection of this dispute may perhaps be seen in the argument between Alcibiades and Pericles in Xen. Mem. I.2.43: 'a tyrant too ... writes

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<sup>256</sup> [The quoted words are not found in no. 88. The correct ref. is no. 737.]

[edicts] for the citizens .. and they are law'. Alfieri, op. cit., p. 271, n. 679, supposes that there is a close connection between this passage and no. 610 (also in praise of democracy).

598

<sup>1</sup>As Philippson shows, op. cit., p. 384, n. 1, we have here a typical case of abbreviation of some expression of Democritus' and its transformation into a brief dictum. 'One must' (chrē or chreōn) is a typical insertion. Stobaeus' reading hopou lōion ['where better'] is decidedly to be preferred to that of Sayings of Democrates 44 'not garrulous', bearing in mind the preceding passage (no.597), which coincides in sense. See critical apparatus.

599

<sup>1</sup>Alfieri, op. cit., p. 177, n. 452, p. 221, n. 562, draws attention to the flat contradiction between this passage and no. 725. Here it is said that it is 'the act of a disciplined person to yield to the law'; there we read that 'the wise man should not blindly<sup>257</sup> obey the law'. Alfieri sees here misunderstanding on the part of Epiphanius, the author of the latter passage ('Epiphanius does not understand the objective character of this individualism and interprets it as subjective individualism'). Such an explanation could have some sense if Epiphanius had said that according to Democritus obedience to the law was what is most advantageous to the citizen and that it provides him with the maximum amount of pleasure ('the common advantage is the advantage of the individual'). But Epiphanius clearly says that 'the wise man should not obey the law', so one has either to see in this passage a slander on Democritus or to try to find another explanation. In my opinion the fact is that our passage, like the second dictum in no. 655, which is close to it in content, deals with how the ordinary citizen should behave, while no. 725 deals with the behaviour of the philosopher, who has no need of the law, since for him the only law is his own intelligence (see my Essays in the history of ancient science, p. 286).

<sup>2</sup>'proper' (kosmion): cf. Antiphon, DK 87 B 59. See comm. on no. 602.

600

<sup>1</sup>Mullach, op. cit., p. 380, regards this passage as spurious, for purely stylistic reasons: 'In view of the emptiness of the precepts in this fragment, which are very different from those precepts of Democritus preserved by Stobaeus and other reliable authors, I think that they are not by Democritus, but by some later ethical theorist. Burchard was very much of the same opinion.' Since we do not know the context from which this saying is taken, I see no reason to think it more dubious than the other passages in Antonius' collection. If this passage really belongs to Democritus then aitiatai must be understood not as 'accuses', but as 'finds guilty', for in an ancient court it was not the judge (dikastēs) who brought the accusation, but the prosecutor (katēgoros [lit. 'accuser']).

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<sup>257</sup> [The word 'blindly' is not in the Greek.]

601

<sup>1</sup>P. Friedländer, 'Hypothēkai', Hermes 48, 1913, p. 612, supposes that in Democritus' writings fr. 256-60 DK (our nos. 601, 620-23) followed one another in the same order as in Stobaeus, IV.2.14-18, and that were closely connected with one another. I am not convinced with regard to no. 601, though 'but turning aside' tells in its favour. I understand this verb here in the sense 'look through one's fingers at the resulting injustice', as in Pl. Laws 885d: 'be turned away by bribes from what is just'.

## II. What is appropriate for the citizen

602

<sup>1</sup>Following Von der Mühl, Festgabe f. Kägi, p. 177 Diels (DK II, p. 189, 1f. n.) sees a paraphrase of this idea in Epicur. KD 17 (= 'Epicurus' Exhortation' 12, see Gnom. Vat.; Diod. XXV, fr. 1): 'the just life is the most free from disturbance, but the unjust is burdened with the most trouble' and KD 34: 'Injustice is not bad in itself, but because of fear arising from the suspicion that one will not escape those appointed to punish such things'. On athambiē ['unastonishment'] see no. 744, also 735, 742, 745.

603

<sup>1</sup> Cf. no. 606: 'from what he wants'. This dictum of Democritus' is directly answered by the remark of Antiphon, DK 87 B 59: 'Someone who neither desires nor touches what is shameful or bad is not self-controlled; for there is nothing which he has overcome to make himself a decent person'. Cf. no. 599.

604

<sup>1</sup>Philippson, Hermes 59, p. 383, points out that all three passages collected under no. 604 are different versions of the same saying of Democritus': 'the passages contained in Democritus' collection are often specially prepared to give them the form of a saying. Often they are not a complete proposition, or they have the look of a proposition (as we see from Stobaeus) only via the addition of 'must' (see critical apparatus to no. 598: Luria). Obviously, their source was a text which was not in the form of a laconic saying. The most instructive passage is DK 68 B 84. A fuller form is preserved by Stobaeus, DK 68 B 244 ... the so-called Democrates has omitted the first part and altered the second ... It is obvious that the common prototype had the form in which it is read by Stobaeus, and so Democrates has abbreviated it. Hence it is clear that that anthologist deliberately chooses only brief sayings or alters Democritus' words to give them that form. (See DL IX.49: 'of the other works ascribed to him, some have been compiled from his own works...') But DK 68 B 244, cited by Stobaeus, does not have there its original form; the complete form is given in another passage, also in Stobaeus (DK 68 B 264)'.

<sup>2</sup>if no-one will know': there is a response to this dictum in Antiphon DK 87 B 44, col. 1, 12ff.: 'a man makes use of justice in the way most advantageous to himself if he observes the laws in the presence of witnesses, but in the absence of witnesses observes the requirements of nature'. Cf. comm. on no. 609. These two instances of fierce criticism of Democritus by Antiphon show, despite all his dependence on Democritus, how far Antiphon's view is from that of Democritus on a number of questions, and how wrong G.K Bammel is (Democritus, Moscow, 1936, p. 156) to include this and other passages of Antiphon in his collection of passages of Democritus without any discussion (fr. 306). He is followed without any critical discussion by A.O. Makovelski, The ancient Greek atomists, Baku, 1946, p. 305, who also includes this passage of Antiphon among the passages of Democritus (fr. 322).

<sup>3</sup>to set up this law in your soul': as Langerbeck rightly remarks (op. cit., p. 56), this is an intentional paradox, based on two senses of the word 'law' (nomos).

605

<sup>1</sup>Cf. no. 607: 'led towards what is right'. On this question the Epicureans agreed wholeheartedly with Democritus' view and simply repeated his words. Thus Hermarchus declares in Porph. De abst. I.77ff. (cf. R. Philippson, 'Die Rechtsphilosophie der Epikureer', AGPh. XXIV, 1910, pp. 316ff.) that 'it is appropriate for the unwise to be forced to do their duty by the fear of punishment by the law, but those who understand the benefits of the laws do not need to be frightened' (Philippson, Hermes 59, p. 401). See comm. on no. 726. This saying was translated into Russian in the collection 'The Bees' in the 12-13<sup>th</sup> century (see V. Semenov, op. cit., p. 277; M.N. Speranski, Collections of sayings in translation in russo-slavonic literature, Moscow, 1904, pp. 304-29. [L quotes the Old Russian translation.]

606

<sup>1</sup>Henze doubts the authenticity of this passage in view of the absence of any trace of Ionic dialect; this is totally unpersuasive, since a whole number of passages of Democritus have lost all peculiar features of Ionic dialect as a result of endless rewriting (see Philippson, Hermes 59).

<sup>2</sup>See no. 603.

607

<sup>1</sup> Aristotle criticises these views of Democritus at NE 1179b20; see no. 693, and also n. 2 to no. 692.

<sup>2</sup>See Langerbeck, op. cit., pp. 55-6: 'So law and persuasion are not mutually exclusive opposites, as initially appeared from Diels fr. 181 (no. 607 L); rather understanding and knowledge will lead directly to the justification of law. Without them there is simply senseless external compulsion. But if one takes them into one's soul the problem of



wrongdoing in secret is thereby solved. For a formulation such as Diels fr. 244 (no. 604) serves as a self-evident moral rule’.

<sup>3</sup>‘towards what is right’: see no. 605, and also comm. on no. 725.

<sup>4</sup>Diels [VS 4<sup>th</sup> edn.] translates sunesei, epistēmēi as ‘insight, consciousness’ (‘Einsicht, Bewußtsein’); Kranz [DK 6<sup>th</sup> edn.] adheres to Nestle’s translation ‘understanding, knowledge’ (‘Verständnis, Erkenntnis’).

608

<sup>1</sup>tēn idiēn aretēn: Diels translates ‘ihre eigene Trefflichkeit’ [their own goodness]. See Stenzel, Göttinger gelehrte Anzeigen, 1926, p. 189.<sup>258</sup>

609

<sup>1</sup>Cf. comm. on no. 604, n. 2. In this instance too Antiphon is obviously criticising Democritus; see Ant. DK 87 B 44, col. 4.32 –col. 5. 3; 13-15: ‘those who defend themselves when they have been harmed but do not themselves initiate the act ... in these cases you would find much that is hostile to nature’. Cf. R.P. Combefis (PG 91, 1860, p. 734, n.1): ‘there is a fault consisting in a deficiency, a sort of indolence and stupor, when someone is affected by a feeling of pain or unhappiness for no reason’. Alfieri, op. cit., p. 257, n. 646 (‘insensibility (analgēsis) = stupidity (stolidezza)’) compares Democritus’ morality with that of the Stoics: ‘To recover mental serenity one must not retain bile in the body, but get rid of it; that is how equilibrium is restored’.

[L quotes the Old Russian translation by V. Semenov, op. cit. and by P. Bezkonov, The book ‘The Bee’, a monument of ancient Russian literature, translated from the Greek, Moscow, 1857, p. 15, and the Bulgarian translation by M.N. Speranski, op. cit., supplements, p. 123, no. 26.]

610

<sup>1</sup>See comm. on no. 596.

### III. Duties and rights of magistrates

611

<sup>1</sup>As Philippson points out, op. cit., p. 392, this passage serves as an excellent demonstration of the incorrectness of the view of Laue (De Democriti fragmentis ethicis, p. 71, unavailable to me) that Democritus’ ethics had a purely utilitarian character. Perhaps Natorp is right to think that in this instance Democritus had Solon and Theognis as literary forerunners. But

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<sup>258</sup> [VS 4<sup>th</sup> edn. translates ‘seine eigene Trefflichkeit’ [its own goodness]. DK (5<sup>th</sup> and 6<sup>th</sup> edns.) records ‘ihre eigene Trefflichkeit’ as Stenzel’s suggestion (II, p. 195, l. 2 n.), but translates ‘seine eigene Trefflichkeit’].

one cannot help noticing that in Solon and Theognis the point is that at a time of civil war it is impossible to conduct oneself so as to please both the warring parties (Solon, fr. 7: 'in great matters it is hard to please everyone'; Theogn. 24ff.: 'I cannot please all these citizens ... for not even Zeus pleases everyone either by sending rain or withholding it'. See also Theogn. 801ff.), and these pleas are very closely connected to Solon's law (Plut. Solon 20) that citizens who did not join one or other of the warring parties forfeited their political rights. Democritus is saying that one should be guided by the principles of justice and should not seek to win the sympathies of one's neighbours; his remark is rather a criticism of the popular saying in Theognis 34 'please those who have great power'.

<sup>2</sup>Nicasicrates, a 2<sup>nd</sup>-century Peripetatic, known only from Philodemus' (Alfieri).

612

<sup>1</sup>eschēn: gnomic aorist '[are] usually in a bad state'.

<sup>2</sup>The expression sunignōskesthai is not wholly understood: H. Gomperz translates 'take responsibility for it' ('sich es eingestehen', DK II, p. 196, l. 9 n.), Alfieri, op. cit., p. 267 'pardon the errors of others' ('indulgono agli errori altrui').

613

<sup>1</sup>Natorp, op. cit., p. 116, n. 40, conveys the content of this difficult passage as follows: 'In the present (i.e. purely democratic) constitution it is impossible that no wrong is done to the magistrate (in the change of magistracies and the examination of their conduct in their magistracy), no matter how honest they are. For 'it does not look like anything else' (i.e. it can lead to no other outcome) than that he (the outgoing magistrate) becomes once again subject to the power of others (i.e. the new rulers). So some arrangement must be found to ensure that whoever has acted unjustly in his office is brought to account, but whoever has acted justly does not become subject to their power (i.e. the power of the new rulers), but some law or special rule protects him'. Jacobs (see ref. to Natorp above) gives the following interpretation: 'Among the faults of democratic cities Democritus picks out the fact that, since new magistrates are elected every year, those who have applied the law strictly fall, when their year of office has elapsed, under the jurisdiction of the very people whose wrongdoing they had previously punished'. This interpretation is undoubtedly correct, but it does not explain how to translate the incomprehensible phrase ē heautōi ton auton eph' heteroisi gignesthai. The explanation of DK is based on the insertion of more than a line, and gives an inappropriate sense to eoiken (see critical apparatus). Therefore I have taken the liberty of accepting the elegant, if somewhat bold, conjecture of Th. Gomperz and translating accordingly. Gomperz, Sitzungsb. d. Akad. d. Wiss. zu Wien 152, 1905-6, pp. 22ff., correctly points out that the squalid context reconstructed by Diels is unworthy of such a brilliant stylist as Democritus, and is simply impossible; for the ancients understood perfectly well that inferior magistrates could be subject to higher authorities,

and so one could not say 'it is not proper for a magistrate to be subject to others'. As the same scholar had previously shown (Sitzungsb. d. Akad. d. Wiss. zu Wien 83, 1876, p. 586) the corrupt passage of the text must have contained an artistically expressive comparison, well known to the reader. A common theme in folklore (fairy tales, fables etc.) is a struggle between the noble king of the birds, the eagle and a foul, crawling snake, and the most tragic episode in these stories is when the eagle falls into the coils of the snake and is about to be strangled. See in Aesop's fable 'the snake and the eagle' (120 Halm): 'the snake caught hold of the eagle'. In another version of the same fable in Aelian (NA XVII.37): 'it fell into its coils and was about to be ... killed', and moreover the eagle is described as 'the messenger and servant of Zeus' and the snake as a 'wicked animal'. Aristophanes parodies this struggle in Knights 197: 'when the crooked-clawed leather-eagle grabs the snake in its jaws ...'. With a slight emendation of the text we have a similar comparison here; we note that in no. 622 reptiles are given as a symbolic parallel to enemies and evil-doers.

<sup>2</sup>'the present constitution': see comm. on no. 621

<sup>3</sup>snakes as a metaphor for wicked people: cf. no. 622.

614

<sup>1</sup>Ionic 'assuming honours' = Attic 'assuming official positions'. Cf. Busolt, Griechische Staatskunde, vol. 1, Munich, 1920, p. 357, n. 2: 'timouchoi ['holders of honours'] is the regular designation for officials, like archontes ['rulers, magistrates']' (in Teos, Magnesia, Pergamum, Sinope). In Priene (Inschr. von Priene, 1906, no. 3.3) the word timairesiai ['elections to honours'] corresponds exactly to the Attic archairesiai ['elections to magistracies']. A translation of this passage is given in a western Russian collection of 1599 (M.N. Speranski, op. cit., supplements, p. 177, no. 76).

<sup>2</sup>One must observe the contradiction between this passage and no. 740; here anakēdēs ('careless'; 'nachlässig' in DK) is an epithet applied to a bad, unworthy person, there the same epithet restored by Diels (there translated 'untroubled' ('unbekümmert')) is a characteristic of a just and righteous person. Perhaps it would be more correct to read in the second case akēdēs ['free from care'] instead of anakēdēs and in the first case to translate as 'dejected, despondent' along with the 16<sup>th</sup>-century western Russian scribe[see previous note].

<sup>3</sup>[Gives the Old Russian translation (V. Semenov, op. cit, p. 112).]

615

<sup>1</sup>See comm. on no. 625.

616

<sup>1</sup>'people remember misdeeds': DK compares no. 612: 'it is not easy to gain people's forgiveness'.

<sup>2</sup>'should not be praised': perhaps an attack on Hdt. (VII.164) or his sources: 'in addition to his other just actions, this was not the least of those he left to posterity, that though he was in control of the great wealth which Gelon had entrusted to him, he was not willing to seize it for himself when he had the opportunity'.

617

<sup>1</sup>This saying was frequently cited in Old Russian literature. It was translated in the 12<sup>th</sup>-13<sup>th</sup>-century composition 'The Bee' (V. Semenov, op. cit., p. 103). In 1480 it was cited in the letter addressed by Vassian, archbishop of Rostov, to Ivan III: 'and listen to the words of Democritus, the first among philosophers<sup>259</sup>: a prince must show intelligence on all occasions, and strength, courage and bravery towards his enemies and love and joyful welcome to his friends'. It is easy to see that this translation was stylised and adapted to the situation of 16<sup>th</sup>-century Russia: 'prince' = 'ruler' (archōn) and 'friends' = 'subjects' (hupotetagmenoi). In 1563 Pimen, archbishop of Novgorod, wrote from Polotsk to Ivan IV; his source was undoubtedly the Epistle of Vassian, but he imperceptibly falsifies Democritus by introducing into his dictum interpolations favouring the boyars: 'Democritus, first among philosophers, says: 'A prince must show intelligence on all occasions, and strength, courage and bravery to his enemies, and to his boyars and voivodes and all his Christ-loving army gentleness and a loving welcome''. So Democritus talks of boyars and voivodes even of a Christ-loving army! Of course, there is no question of Pimen's having had any other genuine edition; this is deliberate interpolation. See I.M. Kudravtsev, The Epistle of Vassian Rilo as a monument of 15<sup>th</sup>-century political writing, Works of the ODRL [?], vol. VIII, Moscow & Leningrad, 1951, pp. 183-4. The western Russian 'The Bee' of 1599 (M.N. Speranski, op. cit., supplements, p. 177, no. 5) gives a more exact translation [quoted by L].

618

<sup>1</sup> [Gives the Old Russian translation (V. Semenov, op. cit., p. 103).]

619

<sup>1</sup>'has the greatest share': Nestle (cited in (DK II, p. 199, l. 3n.) compares Pl. Prot. 322d 'shares in conscience and justice'. He compares this expression with the same one in no. 621: 'has a greater share (of justice and boldness and pride (ektaseōs)) [see comm. on no. 621, n. 2] (Philologus 67, pp. 547-8), and comes to the conclusion that in both cases one should translate 'plays a great (greater) role in establishing justice and virtue in the state'. He regards Diels' translation 'has, makes a claim' ('Anspruch haben, beanspruchen') (to praise for his justice etc.) as impossible<sup>260</sup>. Kranz correctly interprets tamnōn ['cutting'] as a metaphor from common meals [DK II, p. 199, l. 4n.], at which those who had especially distinguished themselves were cut choice or large portions [of meat]. It has not, unfortunately, been observed that this dictum, along with a number of other sayings of Democritus, appears in a paraphrased form among sayings attributed to Aristotle in DL V.21:

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<sup>259</sup> [L's footnote concerns details of the textual transmission of the Old Russian translation.]

<sup>260</sup> [VS 4<sup>th</sup> edn. and DK (5<sup>th</sup> and 6<sup>th</sup> edns.) translate 'has the greatest share' ('hat ... den größten Anteil').]

'he says that justice is a virtue of the soul, distributive (dianemētikēn ( || tamnōn)) according to merit'.

#### IV. Penal law

620

<sup>1</sup>Friedländer, Hermes 48, 1913, p. 612, correctly points out the close connection of nos. 620-22, which, it seems, followed one another in the same order in Democritus; the repetition of 'in every form of community' in nos. 621 and 622 is characteristic; 'as has been written concerning harmful beasts and reptiles' in no. 622 is a direct quotation of nos. 620 and 621: 'concerning living things ...' 'kill those which do harm ...'. But Friedländer's attempt to associate nos. 605 and 618 with this is unconvincing. As he himself rightly points out (*ibid.*, p. 613, n. 3), the content here is provisional drafts of laws, formulated in accordance with the stereotypical phraseology of the laws then in force. On the question of non-rational animals Democritus occupies a sober middle position between two extreme tendencies. One of these followed Alcmaeon (DK 25 A 5: 'man alone understands, while the others perceive, but do not understand') in denying any reason whatever to animals: see Plut. Fr. II.2 Bernardakis: 'they would appear to say that the non-rational animals are not alive, nor do they have a soul'. It was these theorists who introduced the term for animals which was subsequently most widely accepted: 'the non-rational animals'. From the point of view of those people, the very terms 'just' and 'unjust' were unacceptable when it came to talking about the relations between man and animal. See Porph. De abst. III.18, p. 206.21 Nauck: 'if justice applies to rational beings, as our opponents say, why would justice not apply between us and those beings [i.e. non-rational] also?'; Plut. De usu carniū, II.3, p. 998a: 'that between us and the non-rational animals there is no such thing as justice'. Their opponents (above all the Pythagoreans) did not confine themselves to accepting the presence of reason and soul in animals, regarding the difference between them and man as purely quantitative, but maintained that the concept of justice applied also to relations with animals: Porph. *ibid.* 18: '... it is shown that animals are rational ... they are not entirely lacking ... reason ... if justice applies to rational beings, as our opponents say, why would justice not apply between us and those beings also?'; III.6, p. 194.23: 'he [god] is benevolent and therefore gives animals a share in understanding'; III.7, p. 195.10: 'since this difference is not one of essence, but depends on the precision (or lack of it) of the argument'. They went further and, starting from their belief in the transmigration of souls, forbade the killing of even harmful animals, since there might have been lodged in them the soul of someone related or close to the killer. See Plut. *ibid.*, II.5, p. 998d: 'which is better, to assent to a false supposition and let one's enemy go as a friend, or, taking no notice of what is uncertain, to kill one's relative as an enemy? You will all say that that is terrible'. Democritus, to whom the doctrine of the transmigration of souls was alien, could not of course adhere to the extreme Pythagorean view that it was not permissible to kill even harmful animals. But on the other hand, along with the Pythagoreans he did not maintain any distinction of principle between man and the other animals, and he always uses the expression ta zōia ['the animals'], as was usual in ancient materialist science, as the term for all animals, including

man (as in no. 257: 'in the case of animals')<sup>261</sup>. See no. 448, Aet. IV.5.12: 'Parmenides and Empedocles and Democritus ... say that no animal is non-rational in the strict sense'; IV.4.7: 'Democritus says that all (animals) have a soul of some sort'; Porph. De abst. III.7: 'Democritus and all who have been concerned to get at the truth about them (animals) have seen that they possess reason'. Moreover, Democritus thought that in some respects animals are wiser than people (Aet. IV.10.4, no. 438), and that man has learned some things from animals (no. 559). Therefore Democritus is perfectly consistent in regarding animals as subject to law, but in distinction from the Pythagoreans he prescribes killing animals in those cases in which the law prescribes the killing of people. In this case, as in a number of others, Democritus revives earlier ideas, which are reflected in a trial of animals in the Prytaneum at Athens (Demosth. Against Aristocl. 76, with scholium published in Bulletin de Correspondance Hellénique I, 1877) and in the parody trial of the dog in Ar. Wasps 894ff. Cf. Bernays, Theophrasts Buch über die Frömmigkeit, 1876, p. 149. In this case Epicurus departs from Democritus. He regards animals as incapable of having rights because of their inability to participate in the 'social contract'. See KD 32: 'As regards animals (i.e. all animals except man) which cannot make agreements not to harm one another or be harmed, nothing is just or unjust with respect to them. And similarly with peoples who cannot or are unwilling to make agreements not to harm or be harmed'. See comm. on no. 569.

<sup>2</sup>'wish to do wrong': Langerbeck, op. cit., p. 69 comments as follows: 'the mere fact that 'wish' is applied to animals also should be sufficient to refute an interpretation in the sense of the modern 'Ethic of the Will'. It would of course be absurd to see Democritus as a forerunner of the newest idealistic and voluntaristic ethics!

<sup>3</sup>'the killer is free of punishment': see comm. on no. 623, n. 2.

<sup>4</sup>'to well-being': see nos. 734ff.

621

<sup>1</sup>'cheerfulness': see nos. 734ff.

<sup>2</sup>ektaseōs ('pride'): a conjecture of Th. Gomperz instead of the meaningless ktaseōs of the mss. Alfieri suggests 'solievo' ['relief, comfort']. Cf. no. 645a: 'who measures himself against someone better' (of a frog inflating itself in order to be compared to an ox).

<sup>3</sup>en panti kosmōi: Diels (DK 68 B 258) correctly understands this expression as 'in every form of constitution' (democracy, oligarchy, monarchy); precisely the same as no. 622. 'In the present form of constitution' (i.e. in a democracy) has the same sense in no. 613.

It is probable that the same enactments were proposed by another Abderite, Protagoras: see Pl. Prot. 322d: 'lay down a law from me that whoever cannot share in conscience and right is to be killed as a plague on the city'. The expression 'share in' is also characteristic of Democritus (see further no. 619), as Nestle has pointed out (Philologus, 67, pp. 552-3).

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<sup>261</sup> [The quoted words do not appear in no.257.]

<sup>1</sup>W. Nestle, Die Vorsokratiker, Jena, 1929, p. 180, refers to Socrates' discussion in Pl. Gorg. 525c of 'irremediable' criminals ('those who have committed the most extreme crimes and through these crimes have become irremediable') who must be put to death.

<sup>2</sup>gegraphatai {'written above'}: see comm. on no. 620, n. 1. The correct interpretation is given by Deichgräber, Philologus 88, 1933, p. 349, n. 6: 'as laws have been written'; Diels' 'Wie Gesetze erlassen sind' ['As laws have been promulgated'] [VS 3<sup>rd</sup> edn.] is wrong.<sup>262</sup> The meaning of this passage had already been given by Natorp, op. cit., p. 21, on fr. 159, who proposes reading gegraptai instead of gegraphatai; so Alfieri, op. cit., p. 268: 'as has already been written'. Langerbeck, op. cit., p. 55, thinks that the perfect passive gegraphatai is impossible without a personal dative, comparing the expression moi lelektai ['I have said'], Anaxagoras, DK 59 A 4. But the perfect passive is possible even without such a complement.

<sup>3</sup>From this passage Langerbeck, op. cit., p. 55, draws the incorrect conclusion that for Democritus the ancestral laws are 'an obligatory norm of conduct'. He says merely that in the given case the ancestral laws coincide with the requirements of abstract justice.

623

<sup>1</sup>This proposal repeats the stereotyped formulae of the laws in force in Democritus' time. Previously Natorp, op. cit., p. 63, followed by Friedländer, op. cit., pp. 612ff., had cited a very similar passage from an inscription from Teos. See Tod, op. cit., no. 23, B 10-22: 'whoever ... is a robber or shelters robbers, or is a pirate or shelters pirates ...'.

<sup>2</sup>'the killer would be free from punishment': this too is a stereotyped legal formula of that time; see no. 620. Friedländer points out two parallel examples: an inscription from Corcyra (Dittenberger, op. cit., p. 141): 'the one who kills him is free from punishment', cf. Leges Graecorum sacrae, edd. I. de Brott et L. Ziehen, part II, Leipzig, 1906, no. 110, l. 7: 'someone who flogs a slave is free from punishment'. One can collect an indefinite number of similar examples.

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<sup>1</sup>In my opinion Friedländer's assertion that passages [IV.5] 43-8 in Stobaeus (our nos. 624, 625, 619, 604, 616, 613) followed the same order in Democritus himself is quite unacceptable. I agree with him only to this extent, that nos. 624 and 625, which are symmetrically set off against one another, probably followed one another in Democritus; cf. no. 624 'must avenge... and not overlook': no. 625: 'must condemn and not let off'.

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<sup>1</sup>'if anyone lets them off illegally': as Philippson correctly points out, op. cit., p. 614, n. 1, this is a typical concluding formula of the laws of that time, containing a threat to magistrates who do not carry out the laws. See e.g. Busolt & Swoboda, Griechische Staatskunde, Munich, 1920, part 1, p. 463, n. 3; W. Larfeld, Griechische Epigraphik, 3rd edn., Munich, 1914, pp. 408ff.: 'Threats of punishment'. Usually this formula begins with the words 'but if not' etc., but not infrequently the beginning is 'but whoever', e.g. in an inscription from

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<sup>262</sup> [DK (5<sup>th</sup> and 6<sup>th</sup> edns). translates 'wie ... Gesetze (bei mir) geschrieben stehen' ['as ... I have written down laws' [i.e. in my proposals for penal legislation, referring to 68 B 257ff.]]]

Thasos (Michel, Receuil d'inscr. Grecques, no. 354): 'but whoever says anything contrary to this ... ', or in the inscription from Teos mentioned above (Tod, op. cit., no. 23 B 1.30, 36): 'any magistrates who do not do proclaim the curse ... whoever breaks ... the stelai ...'.

<sup>2</sup>'for pleasure': see Philippson, Hermes 59, p. 363: 'from the pleasure of the senses'. Diels' 'as he likes' [VS 3<sup>rd</sup> edn.] is imprecise.<sup>263</sup>

<sup>3</sup>'something which grieves his heart': by analogy with the concluding formulae of laws and with oaths I am inclined to think that here the topic is not future pangs of conscience, but consequences of crimes committed by a judge, which will cause him much mental anguish. The meaning here is probably the same as in no. 595; biased acts on the part of a judge disturb civic order, and from the disturbance of civic order results suffering for the judge himself ('if this is destroyed everything is destroyed').

#### V. Rich and poor

1. The rich should not be avaricious or greedy or extravagant, but upright, just and generous.

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<sup>1</sup>This passage is very close to no. 583, but the difference is that here the topic is people who behave as if they thought that they were going to live for ever in this world, (i.e. they save and accumulate), whereas there it was people who are frightened by tales of the world beyond the grave and therefore spend their life in continual fear. There is exactly the same idea in the dictum attributed to Plato in Aelian VH XII.29, which no doubt has the same source: 'Plato the son of Ariston saw the people of Acragas building expensive houses and eating expensive meals and said that the people of Acragas build as if they were going to live for ever, and dine as if they were going to die tomorrow'. A similar saying is attributed to Aristotle in DL V.11.20: 'he said that some people save as if they were going to live for ever, and others spend as if they were going to die straight away'. The Epicurean Metrodorus (Stob. Flor. XVI.20 = fr. 53 Körte = Maxim. Loc. comm. c. 12, p. 569; P.G. 91, p. 795 C without a lemma; after the lemma Ploutarchou) and another Epicurean author (Gnom. Vatic. no. 30) run together nos. 583 and 627 of Democritus; the first part is about saving (as in no. 627), the second about life beyond the grave or a new resurrection, as in no. 583, with the retention of the expression 'as if they were going to live': 'during their life some people make preparations for life, as if they were going to live after what is called life' (in Metrodorus 'after their life')<sup>264</sup>. This saying cannot have its source in Antiphon, as Körte

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<sup>263</sup> [DK (5<sup>th</sup> and 6<sup>th</sup> edns). follows Philippson, translating 'nach Lust' ['from pleasure']].



supposes (Metrodorus Epicureus, Fragmenta, Jahrbücher für klassische Philologie, suppl.vol. XVII, 1890, pp. 562 ff.), since Antiphon DK 87 B 53a merely paraphrases no. 583 (see comm.). See Norden, Sitzungsb. d. Berl. Akad., 1934, p. 24, n. 4.

629

<sup>1</sup>Democritus compares the uneducated children of the thrifty to acrobats dancing among knives (stuck point upwards in the ground)' (Nestle, Philologus 67, p. 54), to whom one false step can bring destruction. Instead of tuchōsi ['get it right'] all editors read either mē tuchōsi ['do not get it right'] or atuchōsi ['get it wrong'], taking the genitive henos ['one'] as the object of that verb, and seeing in katapheromenoi ('ending their jump at the right time') a feature of the depiction of the action. This conjecture gives a good sense, but tunchanō with a participle usually means 'I happen to do something'. So should we not keep the reading of all the mss. and understand the verb katapheromai in the previously unattested sense 'pass by something, miss something' (with henos mounou ['only one'] as a genitive of separation)?

<sup>2</sup>'one (sc. place)', i.e. that narrow space in which one can put one's foot, without cutting oneself (Nestle).

<sup>3</sup>phileousi: 'are apt'; phileousi diaphtheiresthai, 'are apt to be ruined'.

<sup>4</sup>Diels [DK II, p. 191, l. 3 n.] compares this saying with Plut. Agesil. 33: 'just like a strong body whose regimen has always been controlled with excessive precision, a single decisive mistake upset the entire prosperity of the city etc.'. As Nestle points out, the same sword dance is described by Xenophon, Symp. 2.11.

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<sup>1</sup>It is of course impossible to guarantee that this passage belongs to Democritus, especially since Maximus writes Dēmokrit al. Theokr ['Democritus or (or, 'otherwise') Theocritus']. But in character this saying is entirely consistent with dicta of the 5<sup>th</sup> century; cf. Eur. Antiope, fr. 198 Nauck:

If someone fortunate and prosperous

Attempts nothing fine in his house

I shall never call him blessed

But rather a successful guardian of his wealth.

Cf. Antiph.. DK 87 B 54; Lortzing, op. cit., p. 15: 'Agrees well with Democritus' other views'.

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<sup>264</sup> So Epicur. fr. 204 Us.: 'we have been born once, and we cannot be born twice', cf. the Pythagorean Hipparchus in DK 68 C 7, vol. II, p. 230, ll. 2-3. Comm. on no. 583.

<sup>1</sup>This passage, which has given rise to many disputes and interpretations, is considered as definitively analysed after Philippson's discussion (Philologische Wochenschrift 43, 1923, p. 623), and in his last edition of Diels' collection [DK 6<sup>th</sup> edn, vol. II, p. 204, l. 7 n.] Kranz confines himself to a simple citation of Philippson. In Philippson's opinion the last words of this passage mē prosormosan kai to suneches ['they did not attach even what comes next'] is a reader's marginal note, pointing out that the continuation of the passage contained in his manuscript does not fit the sense of what has preceded. A stupid scribe took this remark, as Philippson regards it, as a correction of the text and added it to the text, replacing the previous ending with it. Not to speak of the artificiality of this suggestion, it contradicts the context of the passage: 'not fitting' would be mē prosarmozon, not prosarmosan, and kai ['even'] is also impossible in this context. I discussed this passage in 1928 (RhM 78, 1929, pp. 243-5) and rejected Philippson's interpretation, setting out as the basis for supplementation and interpretation the following parallel passages from ancient writers: Stob. IV.31.84 (from the Comparison of Wealth and Virtue), p. 762.14 Hense: 'and as the disease of those suffering from dropsy is increased by growing desire for what feeds it'; a passage from a lost work of Plutarch in Maximus Loc. comm. 12.569 = P.G. 91, p. 795 C: 'he said that the rich and insatiable are like sufferers from dropsy' (see comm. on no. 627, n. 1); see also the lines of Horace, which no doubt have a Greek prototype, Odes II.2.13: 'Dreadful dropsy grows by indulging itself' and II.8.23 'what about your always tearing up the boundary –stones of your neighbour's land? ...'. In these passages it is not the sick person who suffers from continual thirst, but the illness itself; that is also how we must look at the passage of Democritus. Diels' proposal to correct mē ['not'] to aiei ['always'] is entirely justified palaeographically, as is my supplementation prosarmosan <an> ['they would fit on'] as a correction of an erroneous haplography. The addition of the particle an immediately eliminates the difficulty of the presence of the incomprehensible aorist, in the same way as Usener gets rid of an incomprehensible aorist in Eusebius (Stob. II.9.6, p. 179.6 Wachsm.): 'it [the way to virtue] has guides who would send people on without danger'. The aorist participle with an means 'which would do so and so'<sup>265</sup>, in the present case 'an illness ... which would always be keen on annexing adjoining parts'. Here, as in Stobaeus and Horace, it is not the sick person but the illness which is possessed by the desire continually to affect new parts [of the body]. In fact, the special characteristic of cancer is that it continually spreads to parts of the body which have hitherto been healthy. Diels [no ref. given] understood that the context has to be restored in some such way as: 'to want always to fit on what is adjoining'. The objection of Th. Gomperz (Sitzungsb. d. Akad. d. Wiss. zu Wien 152, 1905-6, p. 25) seems to me unconvincing; he points out that chrēmata ['wealth'] means not merely property in land, but also cash; but on our interpretation the topic is not merely seizing land from the poor, but also seizing their money by usury. Gomperz proposes the translation: 'the worst form of wealth is that which is not in tune with its surroundings, i.e. the possession of which is not accompanied by moral refinement, excellence of mind and noble education'. In such a translation absolutely no attention is

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<sup>265</sup> Cf. Xen. Anab. I.1.10: 'he asks him for ... payment, so that in that way he would get the better of his rivals'; Soph. OC 762: 'who would extract a scheme from any just plea'.

paid to the specific characteristics of cancer (or of dropsy) mentioned in the parallel passages cited.<sup>266</sup>

If our interpretation is correct, the passage deals with usury as a disaster for the masses in the cities of the Athenian maritime union in the 5<sup>th</sup> century. I came to this conclusion independently of this passage in my article 'The exploitation of the members of the Athenian union' (Bulletin of Ancient History, 1947, no. 2, pp. 13-27) on the basis of the ancient biographies of Thucydides (Vita Thucyd. 7 = Marcell. Vita Thucyd. 24) and a number of other passages.

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<sup>1</sup>I have to admit that the separation of nos. 633-6 from nos. 680-1 is somewhat artificial. I wanted to put in the first group passages dedicated to the benevolence of the rich towards the poor, in the form of gifts and loans, and in the second gifts and loans seen as mutual help between friends and people of the same social position. But in view of the fact that the passages which have come down to us have been taken from their context, such a separation cannot be entirely convincing.

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<sup>1</sup>In Lortzing's opinion (op. cit., p. 15) this passage cannot be included in the collection of passages of Democritus, simply on the ground that 'in those collections it appears without a special lemma'. This is not entirely true; it is true that in the collection of Antonius it stands merely in the fourth place after an undisputed passage of Democritus with the lemma Dēmokritou and then three passages, separating it from the first, which are nowhere attested as passages of Democritus. But in the Codex Parisinus, in the Old Russian collection of sayings and in Apostolius it has the lemma Dēmokritou. Of course it is impossible to be certain that it belongs to Democritus. [L quotes the Old Russian translation, V. Semenov, op. cit., p. 91 and the Bulgarian translation, M.N. Speranski, op. cit., supplement, p. 150, no. 25.]

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<sup>1</sup>In Lortzing's opinion (op. cit., p. 15) the lemma in Maximus Dēmokritou kai Isokrat. kai Epiktētou shows that this saying is taken from one of those collections in which the authorship of individual saying is not indicated; Antonius and others chose the lemma Dēmokritou at random. This assumption is improbable, because all the other sources unanimously name the author as Democritus. For Mullach the fundamental proof of the authenticity of the passage is the Ionic form eontōn, also preserved by Antonius. Lortzing thinks that the original reading is that preserved in the Munich Collection, ek tōn enontōn ('in accordance with your powers' [i.e. 'as far as you can']). The word is found in that sense in Demosth. XVIII.256 and Lucian Phalaris 1.6; eontōn is supposed to have been substituted for enontōn by a manuscript corruption. That is unlikely, since no-one would have changed enontōn into eontōn if the latter had already become meaningless, all the more so because the Munich Collection reads not ek tōn enontōn but tōn enontōn soi, which is meaningless.

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<sup>266</sup> I do not understand the interpretation and translation of H. Gomperz: 'lack of fit between expenditure and income and its continuation' or of Alfieri, op. cit., p. 274, n. 69, 1, following him: 'continual disproportion of income and expenditure'.

Obviously, this passage has like others been subject to Atticism; some corrected the Ionic eontōn to ontōn (Maximus), others to the closely similar enontōn. At the beginning of the passage I prefer the reading of the Munich Collection ‘if you want to receive, give, give a share to strangers’, a typical ‘correction’ in a Christian spirit, in the style of those described in my article in RhM. 78, pp. 243-5. Cf. no. 680 with the same characteristic principle ‘I give, so that you may give’.

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<sup>1</sup>Many of the corrections proposed for this supposedly incomprehensible passage seem to me unnecessary. The passage with which I compare it under no. 636 shows that chorēgie xunē [lit. ‘common provision, common expense’] = prostitution. Cf. Plut. Mor. 1079d: ‘Nature requires expensive provision for the pleasures of the body, and the desires of pleasure-lovers ... beautiful young women’; Plut. Galba 1: ‘seeking provision for his desires’ (see Archil. fr. 15 Diehl); Maxim. Loc. comm. 10, p. 632 (P.G. 92, p. 912 B): ‘If you marry an ugly woman you will have trouble; if you marry a pretty one, you will have a prostitute’.

It is not appropriate to discuss the authenticity of this passage, since all dicta of this kind were composed in late antiquity, but from comparison of the two passages given under this number I am entitled to draw the conclusion that the author of this dictum had in mind not Socrates but Democritus; the dictum was probably regarded as a paraphrase of the passage preserved by Stobaeus. [L quotes the Old Russian translation (Semenov, op. cit., pp. 90-91) and the Bulgarian (Speranski, op. cit., supplements, p. 150, no. 4).]

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<sup>1</sup>From this example we can be once again convinced of the close connection between Democritus and 6<sup>th</sup>-century didactic literature. Natorp compares Sappho, fr. 92 Diehl = 80 Bergk = Athen. XV.687a: ‘wealth without virtue (aretē) is not a harmless neighbour’; Pindar, Ol. 2.96: ‘wealth fashioned by virtues’; Pindar, Pyth. 5.1: ‘wealth is of great strength when it is mixed with pure virtue ...’. But in this case, as in no. 611 (see comm.) Democritus is not joining the ranks of his predecessors, but criticising them; Sappho and Pindar are saying that wealth is out of place if it is not accompanied by aretē, i.e. by aristocratic ‘valour’ and ‘courtesy’. In other words they are actually saying that wealth is not appropriate for someone from the people. Democritus demands that wealth should be accompanied by ‘reason’, i.e. education. In the place of the aristocrat by birth he sets the ‘aristocrat of the spirit’, i.e. the philosopher.<sup>267</sup> Diels and Kranz, DK II, p. 160, l. 1 note, compare Ar. Prorepticus fr. 57 Rose (Stob. IV.32.31) (obviously this is a misprint, repeated by Alfieri, for ‘fr. 47’): ‘Themison possesses goods for the sake of philosophising; for he has great wealth to spend on it, and he also has [a good] reputation’. Alfieri, op. cit., p. 225, n. 570 asks: ‘Did Aristotle’s Prorepticus contain references to Democritus?’

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<sup>267</sup> Of course Democritus very often praises aretē, but he generally characterises it as a product of education and self-education (nos. 608, 619, 669).

<sup>1</sup>[L quotes the Old Russian translation (V. Semenov, op. cit, 212).] Obviously the Greek text from which this was translated read grammata [‘written words’] (or rhēmata [‘spoken words’], edds.) instead of chrēmata [‘wealth’].

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<sup>1</sup>As Friedländer points out (see DK II, p. 189, l. 15n. (incomprehensible to me)) Democritus here associates himself with Hesiod, Works and Days 352: ‘not to make wicked gains’. zēmia [‘loss’]: see comm. on no. 641.

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<sup>1</sup>zēmia, opposed to kerdos [‘gain’] in these two passages, means not ‘punishment’ but ‘loss, damage’.

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<sup>1</sup>[L quotes the Old Russian translation (V. Semenov, op. cit., p. 212).]

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<sup>1</sup>About the time when Meineke introduced this dictum to the text of Stobaeus (IV., p. 143), Mullach, op. cit., p. 380, regarded it as not belonging to Democritus: ‘It is a jejune dictum, unworthy of Democritus, not only because of the words ‘for all people’, which cannot be reconciled with Democritus’ judgement on these matters, but also for the mode of speech, which is foreign to that of Democritus. First of all the verb apoktasthai [‘lose’] (‘a late word’, Passow) is offensive, as are the participles applied to desire, which ought to be applied to wealth’. Setting aside the evaluative criteria, which are subjective in nature, it must be observed that the words ‘for all people’ refer to ‘the many’, not to philosophers, and so do not conflict with Democritus’ other pronouncements. Interchange of epithets, the transfer of a qualification from the qualified word to the word which qualifies it, is quite a common phenomenon in classical literature (see comm. on no. 632). The verb apoktasthai is certainly suspicious, but as I have previously remarked, the Ionic dialect is insufficiently well known to us to enable us definitively to reject the authenticity of the passage on the basis of the presence of words which we first encounter in the koinē.

[L then quotes the Old Russian translation (V. Semenov, op. cit., p.131).]

643a

<sup>1</sup>[L quotes the Old Russian translations of 643a-d (V. Semenov, op. cit., pp. 131-2).] Ten-Brink supposes that Democritus was the author of the following two sayings, published by him in AED (no. 87): ‘Many people are distressed not only by their own ill fortune, but also by their neighbour’s good fortune’. ‘Everyone who lives in distress punishes himself.’

2. The poor should not envy the rich, but be content with little.

645a

<sup>1</sup>Like the preceding one, this passage is undoubtedly the concluding moral of a fable, in this particular case a fable which happens to be preserved in the work On good birth attributed to Plutarch (p. 984)<sup>268</sup>, ‘Aesop’s fable of what the little frog said to its mother’. There is a versified version in Babrius, no. 28, which has also come down to the manuscript collections of Aesop’s fables, no. 84. This version has its moral in prose, which is obviously older than Babrius’ version (cf. the moral to fable 412, which is contained in a somewhat altered form in Antiphon DK 87 B 54). This moral: ‘It is dangerous for inferiors to measure themselves against their superiors’, coincides almost word for word with Democritus’ dictum. The expression parekteinesthai in the sense ‘compete with someone’ appears in the dictionaries only in this passage of Democritus<sup>269</sup>; apparently this usage is based on this fable, popular at the time, and in the strict sense it means ‘puff oneself up’, as we read in the fable; cf. ektasis (‘pride’ [lit. ‘stretching out’]) in no. 621. Since Democritus mentions only the bad reputation of the frog or toad, and not its bursting itself, the latter version obviously appeared for the first time in Phaedrus I.24, and was not mentioned in the version known to Democritus. Phaedrus’ story may have arisen from the toad’s children saying [to their mother] ‘not even if you burst’ etc. Aesop’s fables enjoyed much success among 5<sup>th</sup>-century philosophers: there is apparently a hint of the fable of the snake and the eagle (120 Halm) in no. 613 (see comm., n. 1) and of the fable of the hares and the frogs (237 Halm) in no. 657; moreover, Democritus translated further fables from the Sayings of Achicares, similar to those of Aesop: ‘Democritus wrote the Babylonian ethical writings, for he is said to have included in his own writings a translation of the stele of Achicares (Clem. Strom. I.15.69 = no. XIV; cf. Euseb. PE X.4, p. 472). The authenticity of these passages was proved by Ed. Meier, Der Papyrusfund von Elephantine, p. 124. This influence was said to be not merely in subject-matter, but also in style; Alcmaeon of Croton published a number of Aesop’s fables (Isidor. Hisp. Etym. I.40.1: ‘Alcmaeon of Croton is said to have invented the fables which are called Aesop’s Fables ...’). One fable was paraphrased by the sophist Antiphon, DK 87 B 54. Epicurus fr. 215 undoubtedly refers to Aesop’s fable ‘The man bitten by the dog’ (221 Halm).<sup>270</sup>

646

<sup>1</sup>Ant. DK 87 B 51 is essentially just a translation of this saying of Democritus’ into Attic dialect: ‘the whole of life ... contains nothing ... great ... but everything is small and weak, lasts for a short time, and is associated with great sufferings’.

<sup>2</sup>As Langerbeck correctly points out, hokōs an [‘so that’] has the same sense here as in no. 657 (see comm., n. 6): ‘If the explanation ... is clear, then (an indicating a conditional conclusion) a limitation of trouble will occur as the envisaged (conjunctive) consequence: ‘so that one then aims (sc. only) at moderate acquisition and one’s trouble is limited to what

<sup>268</sup> [Moralia, ed. G.N. Bernardakis, Leipzig, 1896, vol. VII, p. 278, ll. 16-19. I do not know which edition L’s page ref. refers to.]

<sup>269</sup> [LSJ also cites the Septuagint, Proverbs 23.4.]

<sup>270</sup> Traces of the old moral (‘the superior’, as in Democritus) are perhaps found in the Latin versions of the fable: Phaedr. I.24: ‘the poor man perishes when he tries to imitate the powerful’; Gualter. Angl. App. no. 39 (L.Hervieux, Les fabulistes latins, vol. II, Paris, 1894, p. 360): ‘the strong cannot be compared to the weak’; Romul. Angl. App., no. 4 (ibid., p. 651): ‘the fable warns a poor man ... that he should not seek to be compared to a powerful one’.

is necessary". One cannot agree with Langerbeck that this saying does not have a pessimistic meaning.

647

<sup>1</sup>See comm. on no. 595.

648

<sup>1</sup>See no. 738 and comm. on it.

<sup>2</sup>'busyng oneself': see comm. on no. 737.

<sup>3</sup>'advantageous': see comm. on no. 734.

<sup>4</sup>eschen, gnomic aorist: 'it always happens (in such cases)'

3. If the common people are incapable of great deeds they should at least imitate the deeds of good men, for they generally have regard not to the truth, but to common opinion.

649

<sup>1</sup>Of course, Democritus, who, in attacking Protagoras solemnly declared that it is impossible to decide what is true and what false by a majority of votes, and who declared (no. 89): 'for everyone the good and the true are the same, but the pleasant differs from one to another' cannot have recommended that people 'pretend to be good' and 'seek the reputation of being good'; he adhered whole-heartedly to the view expressed in the popular saying in Aeschylus' Septem 592: 'he wants not to seem, but to be good'. Epicur. fr. 220 Us.: 'one should not pretend to philosophise, but really philosophise; for we do not want to seem healthy, but really to be healthy' most probably goes back to Democritus himself. But in this case Democritus is referring, not to philosophers or sages, but to the mass of the people who are coarsened by their burdensome life, and who 'do not know the truth, but consider what seems to be the case'. In his view, even if they tried only to acquire a reputation for nobility, that would be better for them than sinking into despair and wallowing in vice. Later the famous Stoic philosopher Zeno took the same view, thinking (Plut. Pericl. 5) that 'the pretence of striving for the good can lead insensibly to our beginning genuinely to strive for the good and become accustomed to it'. Natorp, op. cit., p. 119, n. 44<sup>271</sup>, correctly assigns this passage to a group of sayings that the good learn by practice (no. 684: 'more people become good by practice than from nature'; no. 698: 'continuous association with bad people promotes the state of wickedness'); he also cites remarks of Protagoras in Plato, to the effect that the sense of justice is innate in everyone; people who lack that sense are degenerates whom no-one pardons, and so they must pretend to be just (Pl. Prot. 322b: 'everyone must say they are just, whether they are or not'). A. Faggi, 'Per l'etica di Democrito', Atti dell'Ac. di Scienze di Torino 64, 1928-9, pp. 206ff., understands this and similar sayings (cf. no. 493a 'the word is the shadow of the deed') in the sense of the principle 'like is assimilated to like'. See Langerbeck, op. cit., p. 63, n.1, and comm. on no. 772.

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<sup>271</sup> However, he hesitated, because he doubted whether it was permissible to regard 'good' in no. 649 as simultaneously the nominative part of the predicate with 'be' and the object of 'imitate'.

4. The doctrine of cheerfulness is of the greatest benefit to the poor.

654

<sup>1</sup>Metrodorus cited by Antonius Melissa (II.89, p. 250; PG 136, p. 219 B): ‘Do not seek that things should turn out as you wish, but wish that things may turn out as they do in fact turn out’.

655

<sup>1</sup>Zeller had previously drawn attention to the similarity between these sayings and those of Plato (Gorg. 479e: ‘the wrongdoer is always more wretched than the wronged’; Alc. I, 135b: ‘it is better for a man to be ruled by his superior than to rule’) and a number of other sayings, and drawn the conclusion that this saying cannot belong to Democritus. ‘But Zeller has not proved his assertion that Plato presents this idea as something completely new. I am not going to discuss the question whether this particular saying of Plato’s was formulated under the influence of Democritus; I think that I can show that the entire theory of pleasure which Plato discusses in the Protagoras is taken by him from Democritus’ (Philippson, Hermes 59, p. 403). Alfieri, *op. cit.*, p. 221, n. 561, also has no doubt of the authenticity of the passage, comparing it with no. 604 (‘being ashamed of oneself is the greatest unhappiness’).

657

<sup>1</sup>Diels [DK II, p. 184, l. 4 n.] sees an imitation of this saying in a passage of the Pythagorean Hipparchus (Stob. IV.44.81 Hense = DK 68 C 7; it seems to me that the similarity to our passage is not so great, but the entire passage of Hipparchus is actually based on Democritus (beginning, no. 646, end no. 593; cf. the Epicurean Gnom. Vatic. 30), and shows once again how indebted the ‘so-called Pythagoreans’ were to Democritus.

We place this passage in the present section, not in section I (cheerfulness), since, as Langerbeck correctly points out, *op. cit.*, p. 57, the aim of this passage is not to give a definition of cheerfulness, but merely to say how to achieve gladness of mind. An unknown commentator who was looking for a definition of cheerfulness in Democritus, arbitrarily rejected the beginning, to make the passage look like a definition of cheerfulness; that is shown by ‘for’. Diels, not taking account of the given situation, needlessly emended gar [‘for’] to g’ar [‘so’].<sup>272</sup> Langerbeck, *op. cit.*, p. 58) analyses the rhetorical structure of this sentence in detail, but did not grasp its special features, and his analysis has a purely schematic character. The fact is that, as has been several times pointed out in the literature, ancient rhetoric frequently prefers a tripartite antithesis to the bipartite one accepted today (not A:B, but A:B:A). See e.g. Aristoph. Ach. 1-2: ‘By how many sorrows am I bitten to the heart! My joys are few, very few, four, but my griefs are as countless as grains of sand ...’. Democritus further elaborates this scheme, giving a five-part antithesis A:B:A:B:A

A<sub>1</sub> ‘people ... proportion’: advocacy of moderation. B<sub>1</sub> ‘excess ... nor cheerful’: consequences of immoderation. A<sub>2</sub> ‘on what is possible ... no longer ... suffer in one’s soul’:

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<sup>272</sup> [VS 4th edn. and DK(5<sup>th</sup> and 6<sup>th</sup> edns.) read ‘gar’.]



advocacy of moderation. B<sub>2</sub> ‘for he who admires ... laws forbid’: consequences of immoderation. A<sub>3</sub> ‘therefore ... (to the end)’ (conclusion): advocacy of moderation.

<sup>2</sup>Cf. no. 739 comm., n. 1.

<sup>3</sup>‘should’: as Langerbeck points out, *op. cit.*, p. 59, what is spoken of is not moral obligation, but the logical conclusion of the assumptions at the beginning of the sentence.

<sup>4</sup>‘be content’: as Langerbeck points out, this word signifies not the passive ‘content oneself’ but the active ‘be content, be fully satisfied’: ‘one must learn to be happy by being content with little’. He bases this translation on parallel passages: ps-Pl. Axiochus 369e: ‘my sufferings will not put up with sophistic arguments, they are content only with things which can reach my soul’; Theophr. De caus. plant. III.17.4: ‘these are content’; Hdt. IX.33.5: ‘be content only with these’. Cf. Alfieri, *op. cit.*, p. 265, n. 643.

<sup>5</sup>‘thinking of their grievous sufferings’ [lit. ‘of what they grievously suffer’]: Jacobs emends karta [‘grievously’] to kaka [‘evils’, i.e. thinking of what evils they suffer], and Diels [DK II, p. 184, l. 13], doubtful of the possibility of the reading karta, connects this word with ‘thinking’ and translates ‘really imagines’. We have insufficient knowledge of Ionic dialect to assert that Democritus could not have said ‘suffer something violently’, which is why I give that simpler translation.

<sup>6</sup>‘so that’: the sense is consequential, not purposive. See comm. on no. 646; Alfieri, *op. cit.*, p. 564.

<sup>7</sup>‘no longer’: i.e. will already be independent of fate.

<sup>8</sup>‘those things’: ‘excess and deficiency’ are understood. ‘the others’: i.e. ‘what is possible’.

<sup>9</sup>Cf. Polyb. I.2: ‘memory of the changes in other people’s fortunes teaches us to bear the vicissitudes of fortune nobly’; Aesop 237; Babr. 25: ‘we do not have to die yet; for I see others weaker than us’.

<sup>10</sup>tēs gnōmēs: Nestle, Philologus 67, p. 545, correctly points out that gnōmē means, not ‘saying’ as Diels thinks, but ‘frame of mind’ (cf. gnēsiē and skotiē gnōmē); Kranz agrees with him.<sup>273</sup> He further points out that in this passage we read ‘one should set one’s mind [gnōmē] on what is possible’.

<sup>11</sup>‘not a few evils’: cf. no. 646: ‘heaped up with many evils’; Semonid. I.20: ‘ten thousand evils’; Theogn. 837: ‘double evils’.

657a

<sup>1</sup>Not unworthy of Democritus and in agreement with his outlook ... (cf. no. 657): ‘you will avert not a few evils in life, jealousy and envy and malice’ (Lortzing, *op. cit.*, p. 15). Natorp, *op. cit.*, p. 107, n. 33: ‘not well attested, but possibly authentic all the same ... Lortzing is right to recall the conclusion of no. 657’. [L then quotes the Old Russian translation, V. Semenov, *op. cit.*, p. 132.]

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<sup>273</sup> [VS 4th edn. translates ‘Einsicht’ [insight]; DK (5<sup>th</sup> and 6<sup>th</sup> edns.), II, p. 185, l. 7 translates ‘Erkenntnis’ [knowledge].]

## VI. True and false friends; pretence [?]

658

<sup>1</sup>Mullach, op. cit., p. 380, regards this passage as absolutely inauthentic: 'Orelli ... thinks that this fragment is an offspring of Democritus' mind. But any doubt is removed by the word peristasis, for writers of the classical period do not call adverse circumstances peristaseis ... Hence Democritus cannot be the author of this fragment'. I should not decide to assert this so categorically: the word peristasis first appears as a common expression in Stoic philosophy (Passow, s.v.), but our knowledge of Ionic dialect is insufficient to allow us to maintain that this expression cannot have come into the koinē precisely from Ionic literature; cf. no. 680 (DK 68 B 94), where all the later anthologies have the reading en kairōi peristaseōs ['on the occasion of a crisis'] or en peristasei ['in a crisis']. It is also possible that here, as in a number of other cases, a marginal note (in this case peristasis) has replaced an old, less well understood word (perhaps kairos, used in an unfavourable sense, as in no. 680). Of course, the passage remains suspect. [L goes on to cite translations into Bulgarian, M.N. Speranski, op. cit., supplement, p. 140, no.53, Serbian, ibid., supplement, p. 110, no. 15 and Old Russian, V Semenov, op. cit., p. XXXIV, 66.]

659

<sup>1</sup>Mullach, op. cit., p. 380, sees a proof of the spuriousness of this passage first in its triviality and secondly in the expression hōn men ... hōn de ['which, on the one hand ... on the other hand ...'], which appears only in later Greek. But linguistic corruption is characteristic of these passages, which are translated from the Ionic dialect into the koinē (and we observe that in that translation the change of tōn into hōn was frequently necessary). [L goes on to quote the Bulgarian translation, M.N. Speranski, op. cit., p. 140, no. 55, and to cite the Old Russian translation, V. Semenov, op. cit., p. 66.]

660

<sup>1</sup>See no. 727.

661

<sup>1</sup>'it is up to the good person to recognise each': cf. no. 760: 'it is up to the good person to know' (in the sense of 'recognise, discriminate').

663

<sup>1</sup>dustropos ['difficult, disagreeable']: see Langerbeck, op. cit., p. 72: 'Not only unbearable, but generally of bad character'. Cf. no. 783, where the fundamental characteristic of a virtuous person is acknowledged to be (the opposite of dustropia), hē tou ētheos eutropiē ['goodness of character, being someone who gets on well with others'].

665

<sup>1</sup> Cf. Ovid, Tristia I.9.5:

As long as you enjoy good fortune, you will count many as your friends:

If dark days come along, you will be alone.

666

<sup>1</sup>Mullach, op. cit., p. 380, regards this passage as inauthentic, but in this he is guided only by evaluative considerations: 'It is somewhat inept ... the triviality of the precepts ... I think it is not by Democritus, but by some later moral anthologist'. It is hard to say whether an expression which has been taken from an unknown, or possibly chance concept is appropriate or inappropriate. The opposition between 'being able' and 'wishing' in symmetrical parts of the proposition is itself characteristic of Democritus. Cf. no. 608: 'the law wishes ... and it can ...'. [L quotes the Bulgarian translation, M.N. Speranski, op. cit., supplement, p. 140, no. 54.] Cf. V. Semenov, op. cit., p. XXXIV.

666a

<sup>1</sup>In Antonius Melissa this passage appears without a lemma, alongside a passage from Theognis and a number of other sayings which are not attested for Democritus. In the other collections it is ascribed to Democritus. Therefore Mullach, op. cit., p. 38, prefers not to include it among the passages of Democritus: 'Given this ambiguity it is safer not to include this saying among those of Democritus, until some more certain evidence is provided by the manuscripts'. I have nevertheless decided to include it, since, as Ten-Brink points out, in the old edition of Antonius by Gesner (unavailable to me) this passage has the marginal lemma 'Dem.' The expression 'the image of the face' is found in 5<sup>th</sup>-century Ionic dialect (see Hdt. I.116). With the expression 'the image of the soul' and similar expressions cf. Eur. Medea 519: 'there is no natural image by which one can know the wicked man'. [L quotes the Old Russian translation, V. Semenov, op. cit., p. 153.]

666b

<sup>1</sup>Lortzing, op. cit., p. 15, rejects the authenticity of the passage. Though I agree with Lortzing's evaluation, all the same I do not think that one has the right to exclude a passage on purely subjective grounds. [L quotes the Old Russian translation, V. Semenov, op. cit., p. 116 and the Serbian, M.N. Speranski, op. cit., supplement, p. 114, no. 6.]

668

<sup>1</sup>'the calumny of speech': i.e. those malicious and unscrupulous comments which our actions meet from those who wish us ill (Alfieri, op. cit., p. 252, n. 634).

669

<sup>1</sup> In Alfieri's opinion, op. cit. p. 222, n. 564, erga and prēxias are not simply synonymous here: erga are the results of our actions, prēxias the ways and means of accomplishing them.

## VII. The right way of living with friends and neighbours

674

<sup>1</sup>Recalls Epictetus in content and vocabulary, but suffers from flatness of thought and expression, so that we cannot ascribe them to our philosopher' (Lortzing, op. cit., p. 15). Such subjective arguments are of course insufficient to exclude this passage from the collection, all the more so because it is attested for Epicurus (no. 537 Us.) in an only slightly altered form: 'he who appears frightful cannot be without fear'. [L quotes Old Russian translations by V Semenov, op. cit., p. 103 and M.N. Speranski, op. cit., supplement, p. 177, no 74.]

675

<sup>1</sup>Norden, Agnostos Theos, p. 136, n. 1, doubts the authenticity of this passage: 'There are', he remarks, 'two possibilities: either this saying (which is not in Stobaeus) does not belong to Democritus, or, if one allows that it is genuine, it anticipates by centuries several clearly formulated ideas. I have no right to judge that impossible for an Ionian, especially one so gifted and much travelled, but in order to think such an astonishing assumption probable, it would have to be better attested'. Further, Norden points out the close connection between the concepts of 'repentance' and 'conscience', citing Plutarch On cheerfulness 19, p. 476f: 'conscience leaves repentance like an ever bleeding and stabbing wound in the flesh of the soul, for reason gets rid of the other pangs, but itself produces repentance'. But as Norden points out on the basis of his carefully assembled material, neither metameleia and metanoia in the sense of 'repentance' nor suneidēsis in the sense of 'conscience' (cf. comm. on no. 583) is attested for an earlier epoch. Hence he comes to the conclusion that "Repent" made its way from clusters of oriental, especially Jewish ideas (into Christianity, Luria)'.

However, in my opinion Norden is wrong as regards Democritus. We find the principle of the inevitability of sin and repentance (admittedly without the employment of the term metameleia) in Antiphon, who was closely associated in his views with Democritus: (DK 87 B 59 'someone who has never wanted nor touched shameful and bad things is not self-controlled; for there is nothing which he has overcome to establish good order in himself'. Similar ideas can be found in Euripides; see my History of ancient social thought, pp. 232-4<sup>274</sup>. Similarly, Norden's assertion that the word suneidēsis in Democritus does not yet have the sense 'conscience' is based on Diels' incorrect translation and understanding of that passage (see comm. on no. 583). Norden's conclusion that the concepts mentioned were taken over by Christianity from oriental conceptions is not inconsistent with their having already been present in Democritus, since the influence of oriental ideas on Democritus is undoubted (see e.g. comm. on no. 582, excursus). Cf. Jaeger, Gött. Gel. Anz., 1913, p. 590. Alfieri, op. cit., p. 221, n. 559, understands 'the salvation of one's life' as 'what preserves a happy life, i.e. preserves cheerfulness. [L quotes the Old Russian translation, V. Semenov, op. cit., p. 267.]

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<sup>274</sup> However, after his book was in type Norden retreated significantly from his sceptical attitude to the authenticity of the passage under discussion. In the appendix to his book, p. 391, he remarks: 'As Wendland has pointed out to me orally, the authenticity of the fragment of Democritus could be supported by its concise form of expression, which H. Diels, Sitzungsber. Berl. Akad., 1901, p. 192, has called a 'figure of substantive significance' and illustrated with examples from Heraclitus'.

### VIII. Envious detractors

678

<sup>1</sup>Starting from the fact that this passage is missing from the best mss. of Democritus, Diels thinks it likely that it does not belong to Democritus and that it got into the collection through a misunderstanding; Philippson, RhM 77, 1928, p. 319, thinks it genuine.

679

<sup>1</sup>philonikiē (Attic philoneikia) ['rivalry']: passion for disputes and competition, with the aim, not of discovering the truth, but of striving at any cost to gain supremacy over one's opponent. Hence rivalry is often treated as synonymous with envy and hostility (e.g. Pl. Lysis 215), and the philoneikos is contrasted with the philalēthēs ['lover of truth']. See Plut. De audiendo 39c: 'you will be seen to be a lover of truth, not competitive (philoneikos) and quarrelsome'.

### IX. Mutual assistance

680

<sup>1</sup>Cf. Epicur. fr. 215 Us.: 'if your enemy asks you for something, do not refuse his request; but be on your guard, for he is no different from a dog'.

<sup>2</sup>[L quotes the Old Russian translation, V. Semenov, op. cit., p. 90 and the Bulgarian translation, M.N. Speranski, op. cit., supplement, p. 149, no. 20.] Cf. Epicur fr. 214 Us.: 'do not avoid conferring small favours'.

681

<sup>1</sup>Alfieri, op. cit., p. 227, n. 571, points out that this passage does not contradict no. 680 (DK 68 B 93), 'since the former deals with the necessity of investigating people and protecting oneself against malice, the latter with the aim of benevolence'.

681a

<sup>1</sup>[L quotes the Old Russian translation, V. Semenov, op. cit., p. 90, and the Bulgarian translation, M.N. Speranski, op. cit., supplement, p. 150, no. 23.]

<sup>2</sup>[L quotes the Old Russian translation, V. Semenov, op. cit., p. 90, and the Bulgarian translation, M.N. Speranski, op. cit., supplement, p. 149, no. 22.]

<sup>31</sup>In Greek egguan means 'give for safe-keeping'<sup>275</sup>. It is only in the middle form egguaisthai that it means 'vouch for someone' and frequently 'promise'. Perhaps, if this passage is actually from Democritus, egguan had the meaning in Abderite dialect which egguaisthai has in the literary remains known to us. [L then discusses details of the Bulgarian and Old Russian translations.] Did egguan mean 'lend', which is closer to the usual meaning 'give for safe-keeping'?

## X. Noble birth and education

682

<sup>1</sup>This view of Democritus' coincides closely with the views of Protagoras (see Natorp, *op. cit.*, p.118, n. 42); in both there are three basic moving factors, nature, teaching and practice (= time). See Protagoras DK 80 B 3: 'learning requires nature and practice', and the words of Protagoras in Pl. Tht. 166d-167b: 'it has to change to the other ... and similarly in education there has to be a change from one state to the better one. The doctor brings about the change by medicines, the sophist by words'. The last sentence coincides almost word for word with no. 779: 'According to Democritus medicine cures diseases of the body, and wisdom frees the soul from passions'. Both emphasise the similarity between the skilful alteration of characteristics of the soul and the skilful alteration of characteristics of the body. Equally close to the views of Democritus are the views of the related Hippocratic medical school (Hippocr., The Law 2): 'there must be ... nature, learning ... time ... first of all one must have nature; for if nature is acting against one everything will be useless ... and then one must take pains for a long time, so that learning which has become natural ... brings forth fruit'; Hippocr. Peri technēs 9: 'those can succeed who are not alien to education and not feeble in nature'. See Th. Gomperz, Die Apologie der Heilkunst, 2<sup>nd</sup> edn., Leipzig, 1910, pp. 127-8. Philippson, Hermes 59, pp. 407, 411, correctly observes a criticism of the ideas contained in this passage and in no. 694 in Ar. NE 1179b20; there too we have the same three motive factors ('some by nature, some by habit, some by teaching'), but whereas Democritus regards teaching and argument as the basis of education, Aristotle recognises as efficacious only strict regulation and compulsion, connected with a system of punishment (see in more detail in comm. on no. 692). Cf. Diller, Wunderarzt und Aitiologie, p. 57: 'Democritus, too, could not ignore the opposition between phusis and nomos. Did that opposition not threaten the unity of cosmic explanation from the basic causes, if everything had to have phusis and nothing could come to be without phusis? Democritus arranged an agreement.'

<sup>2</sup>'teaching reshapes': in criticism of this expression, Aristotle declares (NE 1179b16): 'what argument would reshape such people?'. Philippson comments: 'From the nature of his criticism as a whole it is likely that Aristotle had the original before him'. Cf. W. Aly,

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<sup>275</sup> [LSJ gives 'pledge, give as security' for egguan, but not 'give for safe-keeping'. The Italian translation of L has 'lasciare in deposito', following LSJ, but L's давать на хранение plainly means 'give for safekeeping'. In his translation L renders egguan as обещать 'promise'.]

Philologus, suppl. vol. 21, n. 3, pp. 53ff. E. Bignone, Antifonte sophista, 13, n. 2, understands by phusiopoei ['makes his nature'] not the creation of a new nature (cf. DK 68 B 33 trans. 'schafft die Natur'<sup>276</sup> ['creates its nature'] but merely the reshaping of the former nature ('so education and nature become unified in a certain way', 'by transforming him constitutes his nature'). Alfieri agrees with Bignone, op. cit., p. 218, n. 533. This is essentially a verbal dispute. Cf. Euenus fr. 9 (DK II, p. 152, ll. 8ff. n.): 'I say, my friend, that study is long, but in the end it is that which is a person's nature'.

<sup>3</sup>Despite the doubts of Maximus, this passage is from Democritus, not Demades. That can be seen not merely from the material assembled in n. 1 on this passage, but also from the continuation of the passage of Clement, which obviously contains a brief paraphrase of Democritus' doctrine. Here too the passage deals with nature, time and teaching, the three elements which influence the formation of the soul (see critical apparatus). See also no. 701: 'it is not time which teaches wisdom, but good upbringing and nature'.

682a

<sup>1</sup>No. 687 is a logically opposed addition to this passage.

683

<sup>1</sup>See comm. on no. 682.

685

<sup>1</sup>This passage can be taken in two senses. 1) as a contrast of erudition and external education with the ability to think: in that case logos = learning, and this passage has the same meaning as no. 669: 'one should be keen on virtuous actions, not on learning'; DK 68 B 64: 'many learned people lack intelligence'; DK 68 B 65: 'one should exercise intelligence, not learning'. 2) as a contrast of natural intelligence with intelligence acquired by education; in that case the passage coincides in sense with 686 and is a logically opposed addition to no. 684. Alfieri maintains the former interpretation, op. cit., p. 222, n. 563; the latter interpretation seems more probable to me.

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<sup>1</sup>See comm. on no. 685.

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<sup>276</sup> [DK's translation is not 'schafft die Natur', but 'schafft sie Natur' ['it creates nature'], where the reference of 'sie' is 'die Erziehung' ['teaching'], the subject of the preceding clause 'teaching reshapes the man', and 'Natur' is the direct object of 'schafft'. Contrary to the implication of L's note, there is no difference between the views of Diels and Bignone, both of whom understand phusiopoei as 'transforms, makes anew'.]

<sup>1</sup>[L quotes the Old Russian translation, V. Semenov, op. cit., p. 24, P. Bezsonova, op. cit., p. 24, and the Bulgarian translation, M.N. Speranski, op. cit., supplement, p. 128, no. 31.]

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<sup>1</sup>Diels [no ref. given] compares the words of Callicles in Pl. Gorg. 483d: 'I think that nature herself shows us that it is just ... for the superior to rule the inferior and have more'. But the sense of these two sayings is completely different; Democritus means only that people gifted by birth (chiefly aristocrats) should always be nominated for the leading positions in a democratic state; Callicles employs this assertion to show that the democratic system is as such unnatural. See my History of ancient social thought, pp. 380-1.

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<sup>1</sup>The passages collected under nos. 689 and 690 are closely connected, as Langerbeck points out, op. cit., p. 69. Since Democritus held in opposition to Aristotle that a system of fear, compulsion and punishment (see comm. on no. 692) is inappropriate for education, honorary offices, incentives, rewards and other honours had to play a special role in his educational system. But in order that rewards and honours should achieve their goal, the person rewarded must feel a sense of gratitude to the person bestowing the reward and try to justify the attention and respect which has been shown him. If the person rewarded is ill-educated and in elections to honorary office or in being rewarded shows haughtiness and treats the honour as his due, the whole system of incentives turns out pointless. That is the meaning of the sayings cited here.

<sup>2</sup>xuniasj ['understand']: In Langerbeck's view, op. cit., p. 69 'honours correctly' has dropped out and should be understood [i.e. the construction is 'who, when being honoured, understand the honours correctly']. In my opinion this supplementation is unnecessary; here the construction is the nominative case of the participle with sunienai: 'who feel (recognise) that an honour has been given to them', and do not accept it as something everyday, which is their due.

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<sup>1</sup>The authenticity of this passage has been doubted for no sufficient reasons, and in order to preserve Democritus' good name arbitrary changes have been made to it. Thus, Mullach writes, op. cit., p. 379, fr. sp 5: 'Since in some manuscripts Democritus' name is missing, and in others the whole saying is absent, and besides the sense of this fragment can hardly be reconciled with Democritus' view of the education of children, Burchard seems right to judge that this fragment is not from Democritus ... For he was not so much concerned with the goods of the body as those of the soul, and has to be regarded as someone who despised wealth, since he was consumed by the single desire for learning and spent all his inheritance on costly journeys'.



Lortzing, op. cit., p. 8, does not agree with Mullach's transfer of this passage to the spurious fragments, but he was embarrassed by the word chrēmasi, mentioning monetary gain: 'As soon as one accepts Meineke's suggested emendation noēmasi ['thoughts'] instead of chrēmasi ['wealth'] there is no longer any reason to deny it to Democritus'. Natorp, op. cit., p. V, starts from the much more moderate position that there is nothing wrong in being concerned about wealth, so long as those concerns were subordinated to concerns about the soul. That is how he wishes to understand the conjunction te ... kai ['and'] in our passage, assimilating it to Pl. Apol. 30a: 'do not care for your bodies or your wealth more than or as much as your soul', etc. In fact, according to Democritus the wise man ought not to have family or children at all. But all these discussions do not take account of the fact that all the time Democritus is constructing two ethical systems, one for the philosopher-sage, the other for the extended circle of citizens, and that he is a passionate supporter of the democratic state and is concerned for its well-being. And it is a fundamental task of the democratic state to ensure that its citizens, present and future, are in a position to assist it 'with their property and their bodies'. That is the conventional formulation of the right of the democratic state; see, e.g. Ar. Ath. Pol. 29.5: 'the most able should contribute with their bodies and their wealth'; Thuc. VIII.65.3: 'those most able to help with their wealth and their bodies'.

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<sup>1</sup>exō ti kōs ē in this context means 'to something not connected with toil'. Democritus attributes to toil a highly ennobling influence. Cf. no. 35: 'learning brings about fine things by taking pains, but shameful things come about of themselves without pains'. See Philippson's article, Hermes 59, pp. 388-9, where he points out how Democritus was influenced towards these views by archaic Greek poetry (Hesiod, Epicharmus) and also compares Prodicus' Heracles.

<sup>2</sup>aidōs: as Nestle and Philippson rightly point out, here this means not 'respect for elders', as Diels understands this passage, but 'shame, which restrains one from unrighteous conduct, moral feeling'. This moral feeling is developed by correct education, which consists in this, that the child is trained from early on in continual toil by persuasion, not force: 'One will seem to promote virtue better by using encouragement and verbal persuasion than the force of law'. In expressing these views Democritus was criticising Aristotle (NE 1179b20ff.), who thinks that usually persuasion does not achieve its goal: '(b23ff.) 'argument and teaching are perhaps not effective in all cases ... in general feeling does not appear to yield to argument, but to force ... therefore [upbringing and ways of life] must be made subject to laws' etc., and hence that education must be based not on persuasion, but on the feeling of fear. In his opinion, young people are usually restrained from bad acts not by shame, but by fear of punishment (1179b10ff): 'not ... by shame ... but by fear, nor do they hold back because it is shameful, but because of punishments'. Since young people naturally strive to get the maximum of physical satisfactions and are indifferent to the morally higher

pleasures, what persuasions can 'give a new shape to their souls?', he caustically comments with respect to Democritus, even using (translated into Attic dialect) the latter's characteristic expression metarusmoi ['reshape'] (no. 682). 'From the nature of Aristotle's criticism as a whole it is likely that he had the original before him', Philippson, Hermes 59, pp. 388, n. 1, 406, 407, 411. See Shorey, 'Democritus on the new education', Classical Philology, 1918, pp. 313-4.

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<sup>1</sup>Before proceeding to this interesting passage, which Stobaeus (II.31.58) and later anthologists unanimously attribute to Democritus (with the reading kataphugion ['refuge'] at the end), but which is attributed by Stobaeus a little earlier (II.31.35) and by Diogenes Laertius (V.19) to Aristotle (with the reading kataphugēn at the end), we must pay attention to the fact that what we have here is not a chance phenomenon; a whole series of sayings which are well attested for Democritus are attributed to Aristotle in other collections or sources. Thus, of all the dicta of Aristotle's cited in DL V.17-21 five prove to belong with slight alterations to Democritus:

- 1) 'He said that education needs three things, nature, learning and practice' = no. 682 (Maximus Loc. comm. 17): 'The same person (Democritus) said that someone who is being educated needs these three things, nature, care and time'.
- 2) 'Asked how the educated differ from the uneducated, he said 'As the living differ from the dead'' = no. 682b: 'He said that it is not good for an educated person to argue with the uneducated, just as a sober person should not argue with drunks'.
- 3) The saying now under discussion.
- 4) 'He said that some people save as if they were going to live for ever' = no. 627: 'Thrifty people suffer the fate of the bee, working as if they were going to live for ever'.
- 5) 'He said that justice is a virtue of the soul which distributes according to merit' = no. 619: 'The person who apportions honours according to merit has the greatest share of justice and virtue'.

Similarly in Maximus Loc. comm., pp. 569-70 = PG 91, pp. 796-7 we find a whole small collection of sayings of Aristotle's, of which the overwhelming majority (9 out of 11) are attested in other places as sayings of Democritus': no. 626 (in Stobaeus): no. 643a (in Antonius and a number of later anthologists): no. 643b (in later anthologists); nos. 643c and 643d (in the Old Russian translations of the 16<sup>th</sup> and 17<sup>th</sup> centuries): no. 657a (in Antonius and in the collection of sayings by Apostolius): no. 653 (in Stobaeus and Antonius), and also the saying 'such things as are in nature ...' which Antonius (I.30.62 = PG 136, p. 884 D) ascribes to Democritus. Similarly the saying 'for cities their walls ...' is ascribed by Maximus (Loc. comm. 16, p. 586 = PG 91, p. 825) to Aristotle, and by Antonius (I, 50, p. 91 = PG 136, p.

936 C) to Democritus. One or two of these cases of identity may perhaps be explained simply by the lemmas having been confused in the original source of the collection, but as a general explanation that is unacceptable. More convincing is Diels' supposition (DK 68 B 180), that in the case which concerns us here Aristotle was citing a saying of Democritus. Langerbeck, op. cit., p. 68, also sees no reason to doubt that this saying belongs to Democritus; he finds here Democritus' characteristic 'examination of safety, of escape from chance'. And further: 'When one sees how the fragment fits into the series the agreement with Aristotle in Stob. II.31.15 is no longer an objection'. Actually, it seems that in his citation Aristotle changed the Ionic kataphugion (a form which first appears in the literary koinē in ecclesiastical writers) to kataphugē, adding the epithet eleutherion ['appropriate for a free person'] for the sake of clarity, thus breaking up the Gorgianic construction of the saying. In fact this saying, like a number of other sayings of Democritus', is written on the so-called Gorgianic scheme: 'the proposition is divided into parts of perfectly identical length, differentiated from one another by opposition of sense and repetition of sound, especially at the end of each part, where they make their own kind of rhyme' (I.M. Tronski, History of ancient literature, Moscow & Leningrad, 1957, p. 178). An exact translation of this saying is given in the passage cited from Cicero, which is only part of a long eulogy of education, written on that Gorgianic scheme. A number of considerations favour the view that not merely the excerpt which survives with Democritus' name, but the whole of this eulogy is a translation from the Greek.

1) The original of the expression 'haec studia senectutem oblectant' ['these studies delight old age'] survives in Aristotle: 'he said that education is the finest provision for age'.

2) In some places in Cicero the Gorgianic structure is clearly disrupted: in contrast to all the other clauses of the sentence the clause 'pernoctant nobiscum' ['stay with us overnight'] lacks any antithesis; 'peregrinantur' ['travel, go abroad'] has a bad antithesis in 'rusticantur' ['live in the country']. An explanation of this fact suggests itself: In Greek nuktereūō ['spend the night'] has the opposite hēmereūō ['spend the day'], and apodēmeō ['be away from home'] has the opposite epidēmeō ['be at home']. In Latin 'dies' ['day'] is the opposite of 'nox' ['night'], 'perdius' ['through the day'] is the opposite of 'pernox' ['through the night'], and 'domi' ['at home'] is the opposite of 'peregre' or 'peregri' ['away from home'], but the corresponding verbs 'pernocto' ['spend the night'] and 'peregrinor' ['travel, go abroad'] have no opposites. Cicero had no alternative to leaving the clause 'stay overnight' without an antithesis, and to providing the clause 'travel, go abroad' with an antithesis which is not a direct opposition; in Greek these antitheses are provided by the language itself.

3) The word 'agunt' ['do, drive'] is virtually not used in Latin in the sense required here (the only parallel is Hor. Ars Poet. 100 cited in the critical apparatus, but the parallel is not quite exact), and it is easiest to explain it as a loan-translation of the Greek agō or hēgeomai ['lead']. Not unreasonably, editors of Cicero, followed by M.V. Lomonosov, have

emended 'agunt' to 'alunt' ['nourish']. Particularly close to the original which I have restored is the eulogy of love in Pl. Symp. 197d. It is written according to the same Gorgianic scheme. Perhaps it is a direct extended parody of the 'Praise of Education' which I have restored (Democritus', of course, not Aristotle's), only with 'education' changed to 'love' (here there is also a missing noun, 'ornament'<sup>277</sup>): 'it (love) ... empties us of alienation and fills us with unity ... it takes the lead in dances and sacrifices, gives gentleness and drives ferocity away. It is generous in goodwill, ungenerous in ill-will ... observed by the wise, loved by the gods; sought by the needy, possessed by the well-provided ... having care for good things, but no care for evils ... the ornament of gods and men, the finest and best leader'.

From here we get a prototype of 'agunt' in 'leader', and the whole of Democritus' dictum can be provisionally restored as is done in the text. For the expressions 'a leader for youth, provision for age' I point to the following parallels: Plut. De puer. ed., 11, p. 8c: 'when one is young ... save up self-control as provision for one's old age'; Demosth. Contra Timoth. 49.67: 'there should not be sufficient provision for his old age'.

[L cites the Old Russian translation, V. Semenov, op. cit., p. 168, and quotes a Russian verse translation of the Cicero passage by M.V. Lomosonov, written in 1747.]

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<sup>1</sup>See comm. on nos. 682, 692.

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<sup>1</sup>'frivolity': 'of youth' is understood. So Alfieri, op.cit., p. 252, n. 635 (Diels also translates so). Shorey, op. cit., pp. 313-4 translates differently, connecting 'frivolity' with 'educate' ('frivolity regarding the education of the young').

<sup>2</sup>'to educate': final infinitive 'for educating the young', i.e. 'in the education of youth'.

<sup>3</sup>'these': here not a superfluous word, since Democritus distinguishes two kinds of pleasures, positive and negative, i.e. useful and harmful. See nos, 89, 756, 786 (Natorp, op. cit., p. 119, n. 45).

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<sup>1</sup>'ignorance of the better': here we have the same rationalist-eudaimonist morality as that of Socrates: just actions are ultimately the most useful and advantageous for ourselves. It cannot be concluded from this that this saying comes from Socratic circles and was attributed to Democritus simply by mistake; such views were widespread in Greek society in the 5<sup>th</sup> century. See Philippson Hermes 59, p. 403. He points out that, according to

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<sup>277</sup> [Since the word 'ornament' (kosmos) appears both in the quoted passage of Plato and in Democritus' saying as reconstructed by Luria, I cannot understand this parenthetical remark.]

Democritus' dictum, the wise man will not begin to act unjustly even in the absence of witnesses, and also points to no. 655: 'the wrongdoer is more wretched than the wronged'.

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<sup>1</sup>The meaning of this saying is clarified by an anecdote about Democritus in Pliny NH XVIII.273, no doubt composed on the basis of this saying ('popularised from it', Langerbeck, op. cit., 67-8): having settled in a strictly scientific way that there was going to be a bad olive harvest, Democritus bought all the olives in Abdera, and when as a result of the bad harvest the price of olives suddenly rose, he sold them and suddenly became rich. But he did not wish to get rich at the expense of others and returned the money he had received to the people from whom he had bought the olives, showing them that a wise man can easily become rich, but does not strive to do so. That is obviously the meaning of our passage: since a wise person's hopes are based on precise calculation, they are always fulfilled, whereas irrational people are unable to keep hold of their wealth for any length of time. Cf. nos. 33a, 799.

#### XI. Young and old

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<sup>1</sup>See comm. on no. 683.

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<sup>1</sup>In favour of the conjecture 'prudence [the flower] of old age' (instead of the mss. reading 'old age [the flower] of prudence') we can cite a parallel passage from Bias, contained in the 'Sayings of the Seven Sages' (Stob. III.1.72 = III.p. 123 Hense [= DK I, p. 65, l. 10]: 'achieve success in youth and wisdom in old age'. Nevertheless I am not prepared to accept such a bold correction of the text, when the mss. reading gives perfect sense: a powerful and handsome body makes youth splendid, but in addition to those goods one must have prudence in order to have a happy old age, ('the flower (i.e. the result) of prudence'). On that interpretation this saying will be very closely connected with the next one.

<sup>2</sup>[L quotes the Old Russian translation, V. Semenov, op. cit., p. 436.]

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<sup>1</sup>I have discussed the authenticity of this passage in detail in my article 'Demokrit, Demokedes und die Perser', Acts of the Acad. of Sci. of the USSR, 1929, p. 139. A major ground for my assertion that this is a genuine passage of Democritus is provided by its being translated virtually word for word in Lucr. III.445-6:

Further, we feel that the mind grows together and along with the body

And that it grows old together with it.

Lucretius may have taken this from Democritus, but not from Herodotus. It seems that Democritus or his source put this passage into the mouth of Democedes, the physician from Croton, and Herodotus quoted him.

<sup>2</sup>Mullach, Fragmenta philosophorum Graecorum, I, Paris, 1849, p. 381, thinks that this passage does not belong to Democritus: 'This is contrary to what Democritus says previously about poverty and wealth'. But as Ten-Brink rightly points out, Philologus VI, 1851, pp. 577ff., comm. on no. 63, here there is no contradiction of the other passages. Democritus often says that one has to accept poverty, and advises on the easiest way to put up with it, but never asserts that it is easy to escape from poverty.

## XII. Women, marriage, neighbours

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<sup>1</sup>See C. Wachsmuth, Studien zu den griechischen Florilegien, p. 207, n. 268; Lortzing, op. cit., p. 12: 'Instead of andri ['for a man'] Democrates 78 has kai anandriē ['and unmanliness'], which Mullach perversely accepts, although the connection here 'insult and unmanliness', where 'insult' has the objective sense of the affront suffered, is not a particularly appropriate choice. Maximus has an eiē ['would be'] instead, and so does Antonius, who ascribes the dictum to Philo. From andri one can certainly pass via andriē to an eiē on one side or to kai anandriē on the other, but never from the latter to an eiē. [L quotes the Old Russian translation, V. Semenov, op. cit., p. 422 and the translation in the west Russian 'The Bee' of 1599, P. Bezsonov, op. cit., p. XXXI.]

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<sup>1</sup>Capelle [no ref. given] points out the similarity of this saying to the fundamental idea of Plato's Laches. [L quotes the Old Russian translation, V. Semenov, op. cit., p. 42, 35-6, with a citation of P. Bezsonov, op. cit., p. 29, 24-5, and the Bulgarian translation, M.N. Speranski, op. cit., supplement, p. 131, no. 9, p. 128, no. 30.]

<sup>2</sup>Cf. Lortzing, op. cit., p. 1: 'Nevertheless it may have been attributed to the Abderite by earlier anthologists; its content corresponds to his low opinion of marriage and women'. In this as in other cases the authenticity of the dicta does not deserve serious discussion. [L quotes the west Russian translation in 'The Bee' of 1599, P. Bezsonov, op. cit., p. XXXV.]

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<sup>1</sup>I accept Diels' reading (Agapō = Aphrodite, Love) based on the following passage of Plutarch (Praec. coniug. 38, p. 143 [DK II, p. 201, l. 5 n.]: 'consider that people do wrong when they sleep together for pleasure, but sleep apart when there is anger and difference

between them, and do not then especially summon Aphrodite, the best physician in such cases, as the poet teaches when he makes Hera say (II. XIV.205, 209)

... and I shall end their unresolved quarrels ...

Sending them to bed to be united in love.

But when the bed gives rise to differences and quarrels and anger, it is not easy for them to be resolved anywhere else or at any other time'. Schöne [DK *ibid.*] thinks that the mss. reading hē agapōmenē ['the beloved'] is possible, taking that word as a synonym for hē aischunomenē [lit. 'she who is ashamed'], which is apparently a herb which excites the passion of love and is mentioned by Pliny NH XXIV.167 in the words of a Democritean, Apollodorus or Apollodotas: 'Apollodotas, a follower of his (i.e. of Democritus) adds the herb aischynomene'. Such a comment would, however, be out of place in a collection of maxims, as Diels [*ibid.*] correctly points out (see Alfieri, *op. cit.*, p. 271, n. 681)

XIII. Slaves

XIV. Factions

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<sup>1</sup>The expression 'those who agree about what is advantageous' ('those who agree on the question of 'what is near to the heart')<sup>278</sup> is in itself indeterminate, since it is not clear whether it refers to 'what is near to the heart' of an entire community, state etc., or 'what is near to the heart' of some particular people only, i.e. 'people connected by community of individual aspirations'. Alfieri, *op. cit.*, p. 228, n. 575, interprets this passage in the latter way ('those who agree with us, as far as interests are concerned'), and regards the former interpretation as 'somehow illegitimate'. He cites a work unavailable to me, Bignone, Epicuro, 1920, p. 68.

I cannot agree with this, since on this question the views of Democritus and Epicurus, on whom Bignone relies, diverge sharply. It is completely improbable that Democritus is speaking of friends who unite for the sake of dishonourable gain at the expense of the state, such as robbers, pirates etc. He would hardly regard as reliable friendship based solely on the satisfaction of wicked desires. See no. 595, where he says straight out that the good of the separate individual is identical with the good of the community, and condemns all acts 'contrary to the advantage of the community'. So the passage cited deals with agreement either on political or on ethical questions (Democritus' ethics are eudaimonistic), and for Democritus the two actually coincide.

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<sup>278</sup> A more exact translation is 'akin in spirit': see comm. on no. 734, n. 3.

<sup>1</sup>Despite the fact that this passage has come down to us only in late anthologies, it was accepted as genuine by Lortzing, op. cit., p. 15, and Natorp, op. cit., p. 120, n. 47: 'In its pregnant brevity it can quite properly be placed alongside other passages'. In Lortzing's opinion its opposite is no. 679: 'the envious person distresses himself like an enemy'. Cf. no. 679a.

#### XV. Whether family property should be divided or not

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<sup>1</sup>As is seen from the testimony about Epicurus cited as a parallel, this saying is directed against the ideas, widespread in aristocratic circles, of the use of property in common by members of the aristocratic class or of closed aristocratic societies (in Sparta, in Pythagorean communities, in Plato's Republic). See my works: A history of ancient social thought, Moscow, 1929, p. 356; 'Frauenpatriotismus und Sklavenemanzipation in Argos', Klio XXVI, 1932, p. 224; Essays in the history of ancient science, Leningrad, 1947, p. 285.

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<sup>1</sup>Diels (DK II, p. 172, l. 14 n.) sees in this saying propaganda for communism: 'Communism does away with the dispute over 'Mine' and 'Yours''. Alfieri, op. cit., p. 242, n. 604, thinks that that interpretation is unacceptable, since it apparently contradicts no. 715: 'Diels fr. B 279 [= no. 715] appears to affirm the contrary of this'. But Alfieri is objecting only to seeing here a hint about social life, and he thinks that the topic here is only family life or friendship; he does not cast any doubt on Diels' translation itself. Yet Diels takes this passage out of its context; Plutarch is here discussing two ways of distributing the food at public feasts: in the first each person is given an equal portion, in the second each takes as much as he wants from the common meal. The view of the supporter of the common table is stated first; with the characteristic expression '[defining what is fitting] arithmetically, not geometrically', directed against the supporters of dividing into portions, this view is characterised as aristocratic and anti-democratic (see my article in Archive of the history of science and technology, IX, pp. 307-8). There follows the reply of the supporters of division into portions. Here it is said that Agias, the supporter of the common meal, is suffering from some strange disease, since he is not content with an equal portion. For 'there are no bones in a shared fish', as Democritus says. But this (i.e. division into equal portions) puts fair distribution (moira) above blind chance (heimarmenē), since nothing is better than equality etc. Later the speaker contrasts eating from a common dish, accompanied by hurry, grabbing and fighting, with distribution of portions, when everyone eats in peace and decorum

In this context what is the meaning of 'there are no bones in a shared fish'? it is introduced by the word 'for'; hence it must corroborate the view of the speaker, that division into portions is better than a common table, in other words, it must indicate the



disadvantages of eating in common. Consequently, the expression 'there are no bones' expresses censure; obviously this proverb has the same meaning as another one, preserved by Zenobius 'a portion does not choke' (i.e. 'you will be choked if there are no portions').

One cannot help recalling the words of Krilov, which have become a proverb: 'When the wolf has eaten it is not fussy about the bones', all the more so because in his commentary on the proverb which he is citing Zenobius says that people were choked while eating common meals.

We should note that Natorp, op. cit., p. 120, understood this passage correctly as early as 1893. He translates "... (one) should ... not grumble' (that is what the fragment means)' -- '... one should not ... be fussy'. This translation needs only a slight change: 'It is not appropriate to be fussy', 'it is not appropriate to be pick out the bones (in a common meal)'.

In order to enable the reader to check the correctness of my interpretation I give here the whole paragraph relating to it:

Plut. 643a: 'Whether the ancients did better by having portions, or people nowadays who eat from a common meal. The custom of giving out a portion to each pleased some people enormously, but others held it to be most unsociable and vulgar. These latter argued as follows: 'So, my friend, just as someone would be altogether ridiculous if he gave many sick people an equal quantity of medicines, precisely weighed and measured, so is a host who lumps together people who differ in how hungry or thirsty they are and serves all alike, defining what is fitting arithmetically, not geometrically'. Plutarch (643e) replies to this in the name of the former: 'So I said that Agias is suffering from some strange disease, if he is angry at receiving an equal portion, since the belly he carries around is so big (and indeed he says himself that he is one of those who like to eat their fill). 'For in a shared fish there are no bones', as Democritus says. But it is this very thing, I said, which has elevated the portion above fate. [See n. 1 above.] For nothing stands in so much need of equality (which binds cities to cities and allies to allies, as the old woman says in Euripides [Phoenissai 537]) as the fellowship of the table; this need is natural, not conventional, and it is something necessary, not novel or introduced by some opinion. The person who eats more of the common dishes becomes the enemy of those who are slower and who get left behind as in the wake of a fast ship. For suspicion, grabbing, snatching and elbowing do not, I think, make a friendly or convivial prelude to a feast ... and they often end in angry quarrels not merely with one another, but with the waiters and hosts as well. But as long as Portion and Lot presided in equality over dinners and drinking-parties nothing unseemly or vulgar could be seen; rather they called the meals 'distributions', the guests 'those to whom distribution is made' and the waiters 'distributors', because they see to division and distribution. The Spartans had 'distributors of meat', who were not just any ordinary people but the leading men ... the distributions fell out of use when dinners became extravagant ... they were overwhelmed by these luxuries and dainties, and abandoned equal shares. And the proof of

what I say is that even now sacrifices and public feasts are conducted on the basis of equal shares, because of the simplicity of the fare ... (644c) 'Where things are private, what is common perishes'. That is true where there is not equality; for it is not possessing one's own, but taking what belongs to someone else and greed for what is common that begins injustice and strife. The laws keep that in check by limiting and moderating private interests, and they have acquired their name [nomoi] from their office and power of distributing [nemousēs] equally with a view to what is common. For don't think it right that, because the host assigns each of us a wreath and a couch and a place, then if someone comes along with his girl-friend or a harp-girl 'friends have [all] things in common', so that 'everything is together' as Anaxagoras says. But if private possession in such matters does not break up the fellowship, since the greatest and most important things, conversation, toasts and friendliness, are common, let us stop dishonouring the goddesses of Portion [Moirai] and 'lot, the child of luck' as Euripides calls him [fr. 989 Nauck], for he distributes pre-eminence neither to wealth nor reputation, but, as he chances to fall, now this way, now that, he makes proud the poor and humble man, and does not deprive his mind of any independence, but on the rich and great he painlessly confers self-control by accustoming him not to be annoyed by equality'.

Zenob. V.23: "a portion does not strangle"; In his Writings about Greece Dicaearchus says that it was not the custom among the ancients to distribute separate portions; but when for some reason food was in short supply, the custom of portions prevailed, and this was the reason for the proverb, for when the food was set out in common and not in portions, the stronger people seized the food from the weaker, and some of them were strangled, not being able to defend themselves, and so for this reason they hit upon division into portions'. Cod. B: 'the proverb refers to equality'. Cod. C: "a portion is not strangling"; it is similar to 'Equality is friendship' (cf. Plut., Solon 14): equality does not cause fighting, in which the stronger seize the food from the weaker and strangle them in doing so'.

## b. THE PHILOSOPHER IN THE STATE

### I. The repudiation of asceticism

### II. The philosopher and the family

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<sup>1</sup>In these sayings of Democritus (nos. 721-2) it is not right to see extreme pessimism, with the aim of putting an end to human society by ceasing to procreate and of eliminating the family, an aim characteristic of the 'immoral materialist' (Laue<sup>279</sup>). Philippson, Hermes 59, p. 392 quite correctly point out 'that Plato rejects marriage and family life even more decidedly. He thinks so little of the 'innate law' of love for one's own children that he proposes killing the children of defective parents ... The wives of the guardians ... 'will hand

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<sup>279</sup> [No more precise ref. given.]

over sleeplessness and all other trouble to nurses and foster-parents '(Rep. V. 460)'. Philippson also cites the words of the Apostle Paul in the Epistle to the Corinthians, I.7.38: giving one's daughter in marriage is good, but not giving her is even better. Democritus' exhortation threatens the collapse of society through failure to procreate just as little as the saying of Paul just cited; Democritus' instruction, like a number of others which I have set out here, concerns only the wise, not ordinary people (cf. no. 562: 'people regard having children as necessary'). See Natorp, op. cit., p. 118: 'It is quite unnecessary for everyone immediately to stop caring about their descendants ... that Democritus does not want his instruction to refrain from rearing children to extend to everyone is seen from the seriousness with which he dwells on questions of education ...'.

Langerbeck also, in discussing nos. 682 and 779, comments on Democritus' different attitudes to the wise and to ordinary people: for Democritus, only the wise possess genuine internal stability. Everyone else is and will be subject to the vicissitudes of fortune, which continually changes. Antiphon DK 87 B 49, perhaps under the direct influence of Democritus, emphasises the limitations and troubles caused by marriage and the education of children. But these ideas were not new; they had already been expressed by Euripides in Medea, produced in 431, i.e. possibly even earlier than Democritus, and by Euenus of Paros, fr. 6 Bergk: 'a child is continual fear or pain to its father'

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<sup>1</sup>have [children]': cf. no. 562: 'for all (animals) have offspring'.

### III. The philosopher and the state

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<sup>1</sup>This saying apparently contradicts no. 740, no. 625 and several others, in which law and justice, the lawful and the just approximate to one another: 'tending towards just and lawful actions, but whoever does not do what he should through neglect of justice ... '(no. 740); 'whoever lets someone off contrary to law ... acts unjustly' (no. 625). Langerbeck's attempt, op. cit., p. 54, to explain this contradiction is unsuccessful. The fact is that nos. 625 and 741 refer to the ordinary citizen, and no. 725 to the sage, who has fulfilled higher criteria of justice than the law, and is therefore free from the taboo of the law. All the same even for the ordinary citizen law and the right (to deon) are not identical; obedience to law falls under the concept of the right, since it is dictated by considerations of social order, but even the ordinary citizen ought to be guided, not by fear, but by the sense of duty, which makes him, among other things, obey the laws of the state; see nos. 605, 607, 608, where law and the right are contrasted with one another in this sense (see Langerbeck, op. cit., p. 55).

<sup>2</sup>'live like a free person': Epicurus apparently refers to this expression in a letter to one of his followers (fr. 196 Us.): 'by the gods, he seemed us through his entire character worthy of a

free life, not in accordance with the laws'. This once again shows the authenticity of the passages cited here.

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<sup>1</sup>This saying is particularly close to Heracl. DK 22 B 49: 'for me one man is [worth] ten thousand, if he is the best'. Cf. Cic. Ad Att. XVI.11: 'But you will read it [the Second Philippic] to Sextus, and tell me his opinion; 'one man is ten thousand for me''. H. Gomperz (DK II, p. 223, l. 10 n.) restores the Greek context as follows: 'one man is worth as much as the people, and the people as much as one man'.

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<sup>1</sup>This excerpt from Antonius' collection in Cod. Paris. 1169, which is not in Stobaeus or Democrates, provides the best demonstration of the untenability of the theory of Lortzing, Natorp and Diels that the later collections (Maximus, Antonius et al.) have no independent value. To escape this argument Lortzing, op. cit., p. 16, resorts to the supposition that Antonius (or his source) had immediate access to the first of the passages of Plutarch cited here, cutting out part of the sentence and supplementing it to give a self-standing maxim. In my opinion this suggestion does not deserve further consideration.

<sup>2</sup>'whom': 'Parmenides, Melissus, Empedocles, Socrates, Plato and others' (Alfieri).

<sup>3</sup>Philippson, Philologische Wochenschrift 46, 1926, p. 1100, defends the mss reading polemikēn ['pf war'], supposing that the text cited by Plutarch was taken from the preface to Democritus' work On fighting in armour. But apart from the fact that the authenticity of that work is disputed, the reading polemikēn conflicts with the entire context of both passages of Plutarch, and hence Reiske's conjecture politikēn is entirely correct. Langerbeck, op. cit., p. 61, agrees with Philippson, appealing to Pl. Rep. 442, and to the fact that polemikē is the lectio difficilior. But the principle of preferring the lectio difficilior does not mean that one must unreservedly accept every absurd reading which contradicts the context.

<sup>4</sup>If with Mullach we relate the words 'from which great rewards' to the immediately preceding 'friendship of kings', we have a direct contradiction with no. 596. But Lortzing, op. cit., p. 16, correctly remarks as follows: 'Someone who knows how usual it is for Plutarch to insert the sayings of great men into his context will not be able to object if we, bearing in mind Democritus' own train of thought, attach the subordinate clause to the words 'office and political power', not to the words (added by Plutarch, Luria) 'the friendship of kings'. For it is perfectly obvious that in both passages Plutarch refers to the same saying of Democritus', in which, in agreement with his other sayings (no. 595), he regards active

participation in public life as useful and honourable'. [L quotes the Old Russian translation, V. Semenov, op. cit., p. 270.]

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<sup>1</sup>See no. 103 with comm. n. 6. I see no reason to reject the attribution to Democritus of the saying 'live in obscurity', solely on the ground that it is characteristic of Epicurus (frs. 551 ff. Us.), since Epicurus took a great deal over from Democritus.<sup>280</sup> It does not contradict the preceding dictum, since we do not know the context from which it is taken; on the other hand, Epicurus himself recommends participation in public affairs in certain circumstances (frs. 555, 557 Us.). It is possible that this saying means simply that the philosopher should not seek honour or glory, that his scientific work should in itself give him the highest satisfaction (cf. no. 648). Cf. the parallel texts cited in no. 732, and also CXIV: 'it is better to be praised by someone else than by oneself'. Philippson, RhM 77, p. 316, is wrong to see neo-Pythagorean forgery in these passages.

#### IV. The philosopher is a citizen of the world.

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<sup>1</sup>J. Freudenthal, Die Theologie des Xenophanes, Breslau, 1886, p. 38, n. 3, regards this passage as inauthentic, on the grounds that it consists of [two] damaged lines of [iambic] verse:

To the wise ... man (3 syllables missing) every land is traversed;

The homeland of the good soul is the whole (2 syllables missing).

Diels regards the authenticity of this passage as dubious ('doubts remain', DK II, p. 194, l. 16 n.). I have shown, in 'Zur Geschichte einer kosmopolitischen Sentenz', Acts of Acad. of Sci. of the USSR, 1925, pp. 78-81 (with correction in Proc. of Acad. of Sci. of the USSR, 1927, p. 405, n. 1) and in 'Entstellungen des Klassikertextes bei Stobaios', RhM N.F. 78, 1929, pp. 88-90, that this idea was endlessly repeated and varied in Athenian drama, both tragedy and comedy, and hence that we must suppose that in this as in a number of other cases the lemma Dēmokritou was attached to the particular saying by mistake. It seems that this saying was originally conceived as an oracle, given either to Teucer on his setting out from Salamis to Cyprus, or to the Pelasgian Meleus when he was driven out of Italy to Athens (the iambic metre shows that here the oracle had already been intentionally paraphrased to fit the requirements of drama):

Suda: "every land is the homeland": proverb'

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<sup>280</sup> Cf. a saying of the Democritean Nausiphanes (DK 75 B 2): 'the wise man will prefer the practice of rhetoric to politics'.

Diogenian. VII.48; Zenob. V.74: "every land is the homeland". This is part of the oracle which the god gave to Meleus the Pelasgian, who asked about his settlement. The oracle is recorded by Mnaseas and Dionysius of Chalcis'. Cf. Strabo, p. 225.

Cic. Tusc. V.37.108: 'So the saying of Teucer 'One's homeland is wherever things go well' can be adapted to every situation'.

Eur. fr. 1047 Nauck:

All air is open to the eagle,

All land is homeland to the noble man.

Eur., Phaethon, fr. 777 Nauck:

Everywhere the homeland is the nourishing earth.

Unknown tragedian, fr. 318 Nauck:

Every land is the homeland of him who acts well.

Aristoph. Plutus 1151 (parody):

One's homeland is wherever one does well.

Aristoph. ap. Stob., Cod. Brux. 898 A Edmonds:

To the poor man every land is his dear homeland

From which he gets food, so as not to go hungry.

Unknown tragedian ap. Macarius VI.45:

For wherever one does well, there is one's homeland.

Unknown tragedian, fr. 392 Nauck:

For me every tower is the homeland of the Greeks.

Menander Monostichoi 210 = Eur. fr. dubia 1113:

Nature is for each man his nation <and> his homeland.

Citations of this popular saying in prose:

Thuc. II.43 (from the speech of Pericles): "of famous men ... every land' is their tomb'.

Lys. 31.6: 'they are accustomed to say that 'every land is their homeland' in which they have interests'.

I am not convinced by Philippson's suggestion, RhM 77, pp. 298ff., that in the particular case Euripides and Thucydides (we may add Sophocles) were merely citing Democritus and that the verse form of the saying in Democritus is merely the result of the later distortion of the tradition, for in both Democritus and Thucydides the traces of the verse form are organic, indicating the same verse prototype; there can be no question of any chance distortion of the tradition. Besides, it is hard to allow that, despite his own statement 'I came to Athens and no-one knew me', Democritus was so well known to Sophocles and Thucydides (and to Pericles?) that they quoted him in a solemn funeral speech and in a tragedy. There is a very interesting remark of Natorp's, *op. cit.*, p.117, n. 41, which I overlooked at the time. He points out that we find the same saying, only slightly altered, in Epicurean literature, Diog. of Oenoanda, fr. 25, col. II.3: 'in every part of the world there is the native land of some different people, but in the whole expanse of this cosmos the whole earth is everyone's single native land and the single cosmos is their home'. This agreement really demonstrates the authenticity of the passage of Democritus; I am therefore inclined to think that I was wrong in following Freudenthal: in this case Democritus (like Pericles in Thucydides and Lysias ) was quoting a saying widely popular throughout the whole of Greece in its verse form.

## I. MORAL INSTITUTIONS, OR THE ACHIEVEMENT OF TRANQUILLITY OF MIND

### a. THE MEANINGS OF THE WORDS ΕΥΕΣΤΩ, ΕΥΘΥΜΙΗ AND ΑΘΑΜΒΙΗ, AND THE SENSES IN WHICH THEY ARE USED BY DEMOCRITUS

#### I. Democritus' own definitions

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<sup>1</sup>The charges brought by Laue and Langerbeck [no refs, given] against Democritus, that he is a eudaimonist and therefore far from an 'autonomous voluntaristic ethics' ('Willensethik'), are of course correct, but as Philippson correctly points out, RhM 77, p. 390, these charges could also be brought perfectly properly against Plato, Aristotle and the Stoics. Despite their idealistic standpoints, they are in this respect far from modern idealist-voluntarists, and what they seek is not 'goodness in itself', but a way to eudaimonia, to serene, self-sufficient happiness and benefit. Even Socrates understood the good as what is good for man, i.e. what leads him to happiness. 'For Plato the question of the highest moral value coincides with the question of happiness' (Zeller, Philos. d. Gr. II, 1, p. 735; on Aristotle, III, 2, p. 609; on the Stoics III, 1, p. 212). A doctrine of 'goodness in itself' would have been all the stranger in a materialistic philosopher. Cf. Philippson, RhM 77, pp. 337ff.; Alfieri, *op.*

cit., p. 183, n. 467. According to Langerbeck, op. cit., p. 56, the central point of Democritus' philosophy was not the striving for 'spiritual joy' or 'happiness', but the striving for 'stability' or 'definiteness' (asphaleia [better 'security']); see also Langerbeck, op. cit., p. 61: 'Security (asphaleia) (no. 738) is thus the 'principle' towards which everything tends'. But this assertion of Langerbeck's derives purely from his a priori assumptions. For Democritus asphaleia (see no. 737) is actually one of the preconditions for the achievement of euthumia ['cheerfulness']; this is seen also from no. 736, a passage of the Suda not cited by Diels or Langerbeck, where euestoi [lit. 'with well-being'] is defined as katastasei [lit. 'in a [sc. good] condition']. But euestō ['well-being'] does not at all mean 'immobility, inactivity'; we recall the doctrine of the eternal motion of the atoms; cf. comm. on the expression 'not to do many things' in no. 737. Besides, 'stability' is not the goal of human activity, but merely a means to the achievement of euthumia.

A much more serious approach to Democritus is that of K.von Fritz, who points out (Philosophie und sprachlicher Ausdruck bei Demokrit, Plato und Aristoteles, New York, 1938, p. 3) that the new term euthumiē introduced by Democritus has a polemical character and constitutes a real revolution in the field of theoretical ethics. In earlier times 'happiness' was called in Greek eutuchiē ['good fortune'], eudaimoniē ['blessedness', 'having the favour of the gods'] or olbos ['prosperity'], i.e. happiness was connected with external factors, with a happy combination of circumstances (tuchē ['fortune'], with the whim of a deity [daimōn], with riches [olbos]). If a divinity favours him, even the basest man can become happy (Theogn. 161-6):

Many have an evil heart, but a god favours them,

And for them the evil they aimed at turns to good.

And others who have good will but are not favoured by a god

Toil, but the end does not follow their acts.

No man is rich or poor

Or bad or good except through a god.

This is the typical ideology of the aristocrat, who sees that his class, together with its ideals and experience, has been defeated and that the ordinary people have the upper hand. By contrast, the new trading and artisan class of citizens, the creator of [social and economic] life, is guided by the principle 'Each one fashions his own happiness'. Natorp, op. cit., p. 64, points out that the sayings of Heraclitus and Democritus are an attack on those views: fortune and the gods are inventions of passive, inactive people, the true fortune and the true god live in our souls, they are our frame of mind (ēthos ['character']), our will and energy. Cf. Her. DK 22 B 119: 'a man's character is his daimōn'. Democritus denies the role of fortune in a person's achievement of his happiness (no. 32: 'people have constructed an



image of fortune as an excuse for their own imprudence ... most things in life are directed aright by intelligent acuity'), and, following Heraclitus, declares that there is no god apart from our reason and our own soul (no. 780: 'the soul is the dwelling-place of the guardian spirit'); corresponding to this, the word theios ['divine'] acquires a new sense in his writings (no. 782: 'the person who chooses the goods of the soul chooses more divine things'). In this connection, as von Fritz acutely observes, he rejects the definitions of happiness based on external factors independent of the individual, [such as] wealth, good fortune and blessedness, and introduces in the sense of 'happiness' the new terms euthumiē ('spiritual joy' ['cheerfulness']), euestō ('internal stability' ['well-being'])<sup>281</sup> and autarkiē ('self-sufficiency'). See nos. 33a, 739. As Kranz correctly points out in the index to DK (III, p. 214) thumos means 'will' in the Presocratics; when used with a favourable implication it acquires the sense 'rational will' or 'practical reason', with an unfavourable implication (like psuchē, no. 776) it means 'lust, passion, rage' (see no. 762), which is the usual sense in ancient poetry; hence in Democritus euthumos [the adj. from euthumiē, applying to a person] is essentially the same as 'intelligent', 'prudent', 'self-sufficient' (Langerbeck, op. cit., p. 74). Democritus' novel view had a great influence on later idealistic philosophy; <sup>282</sup> Natorp points out ideas of Democritus' repeated in Pl. Tim. 90c: 'having his guardian spirit ... resident in himself ... he will be happy'. Diels cites a parallel passage in Apuleius, De dogm. Platonis II.23: 'One kind of blessedness occurs when we are protected in what we have achieved by the presence of our mind, another when nothing is lacking for the perfection of our life. Both kinds of happiness have their origin in virtue and we are ourselves content with the very contemplation of it ... To ornament its [i.e. virtue's] dwelling-place (= 'the dwelling-place of the guardian spirit!') we do not the support of anything external to those things which we regard as goods'.

<sup>2</sup>in his work On the end: in Diels' opinion [DK II, p. 133, l. 7 n.] this is simply an Epicurean paraphrase of the title On cheerfulness; cf. P. Von der Mühl, Festgabe für Kägi, p. 175.

<sup>3</sup>Diels' proposal to insert two lines (see critical apparatus) is unacceptable because of its arbitrariness. The word periakmazontes which is read in the mss means 'achievement of the highest flourishing, of the highest perfection in some field'; see Suda, s.v. Priskos Emesēnos, where the expression ploutōi periakmazontes ['flourishing in wealth'] means 'achievement of the height of wealth'. Langerbeck, op. cit., pp. 63-6, remarks correctly and acutely that in Ionic dialect at the time of Democritus the word to sumphoron means, not 'useful', but 'suitable, similar, of the same kind', i.e. the opposite of diaphoros ['different']. See Hippocr. De victu 1.6: 'like adheres to like, but unlike things fight and conflict with one another'<sup>283</sup>; 1.10: 'the power of the sea to nourish useful [or possibly 'appropriate']

<sup>281</sup> See comm. on no. 736.

<sup>282</sup> Thus, the work On cheerfulness by the Pythagorean Hipparchus is, as Diels points out (DK II, p. 228) a direct imitation of Democritus (see p. 229, ll. 25-6: 'we shall live more cheerfully').

<sup>283</sup> [The context indicates that the passage is better translated: 'the appropriate adheres to the appropriate, but inappropriate things war and fight and separate from one another'. See translator's comment on the next note.]

creatures and destroy harmful [or ‘inappropriate’] ones’; 1.11: ‘all like things being unlike and similar things different’.<sup>284</sup> The problem of a clear ‘distinguishing mark’ between ‘good’ and ‘bad’ things was always of lively interest to the Greeks; see e.g. Eur. Heracl. 669: ‘but now the gods give us no clear boundary of the good and bad’; Hippol. 925: ‘mortals ought to have some clear sign of a friend ... who is a true friend and who is not’. In the light of that he correctly connects this passage with the principle ‘like is assimilated to like’ (following Langerbeck, I cite under no. 734 texts relating to this). Hence the expression horos sumphorōn kai asumphorōn may mean ‘the boundary between what is akin to our soul and near to our heart and what is not near (the genitives [neuter, referring to things] of sumphora and asumphora)’, or ‘the boundary between those who are akin to one another in soul or near to one another in heart, or not akin’ (the genitives [masculine, referring to people] of sumphoroi and asumphoroi, as Langerbeck thinks). But I cannot agree with Langerbeck when he keeps the mss reading terpsis kai aterpiē houros tōn periēkmakotōn (‘pleasure and lack of pleasure are the boundary between those who have reached full maturity’); from all the previous examples it is clear that the topic is not the boundary between different groups of people who have achieved perfection, but between people who have achieved the highest mental perfection and those who have not; hence my supplementation seems to me necessary. In all of these maxims Democritus is saying that from what someone strives for and what he rejects, from what gives and what does not give him pleasure, it can be seen whether he has or has not attained wisdom. Thus, for instance, someone who seeks above all for sexual intercourse, tasty food, etc., is not sumphoros to [i.e. like] the wise, has not achieved the highest wisdom (periēkmakōs), since he prefers ‘those pleasures which result in wickedness’ (no. 695).

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<sup>1</sup>The emendation poiētētas de nomōi [‘qualities exist by convention’] instead of poiēta de nomima [‘conventions are artificial’], proposed by Zeller and accepted by the majority of subsequent scholars, is ingenious but arbitrary. See no. 725, which completely coincides in content with the expression deleted by Zeller, and the passage of Epicurus (fr. 196 Us.) cited in the commentary on it. Bignone, op. cit., p. 469, n. 1, draws attention to it, and proposes reading poiēta de <ta> nomima einai, [‘<the> conventions are artificial’] instead of poiēta de nomima einai, since the former is better from the linguistic point of view.

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<sup>284</sup> Langerbeck cites earlier passages of Ionic. Theogn. 457: ‘a young wife is wholly unsuitable for an old man’; 526: ‘it seems appropriate for the good to possess wealth, and for a bad man to endure poverty’. Cf. Eur. Med. 779: ‘appropriate ... and of good repute’ (= euprepē).

[LSJ does not support the suggestion that in Ionic sumphoron means, not ‘useful’, but merely ‘similar’. Some of the passages cited here in support of that suggestion seem to confirm the sense ‘suitable, appropriate’, which is virtually indistinguishable from ‘advantageous’. Even if there are occasional occurrences of the adjective in the sense ‘similar’, there is no doubt that ‘useful, advantageous’ is the predominant sense in all periods.]

<sup>1</sup> apo tou eu hestanai ton oikon ['from one's house standing well'] : It seems that the Suda's source intends merely to explain Democritus' derivation of this expression [euestō], not the sense in which he used it. Hence one cannot agree with Nestle, Philologus 67, p. 552: 'When Protagoras describes his expertise as 'prudence in one's private affairs, how best to run one's own household' (Pl. Prot. 318e), (this), while not indeed completely satisfying the concept of Democritus' euthumiē ['cheerfulness'] or euestō ['well-being'], is nevertheless part of it; otherwise one could not have paraphrased the word by 'one's house standing well'.

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<sup>1</sup> 'not to do many things': Laue understands this expression as a recommendation of inactivity and of contempt for labour. Cf. the quotations from his unpublished dissertation cited by Philippson, Hermes 59, p. 387: 'In this words there is so much contempt for labour itself, which cannot be restricted in any way'; 'Tranquillity cannot go together with much labour'. Langerbeck, *op. cit.*, p. 61, maintains much the same thing. Phillipson, *op. cit.*, pp. 386-90, shows in detail and entirely convincingly that this translation itself and all the conclusions drawn from it are incorrect. 'Doing many things', 'doing a lot' (polupragmosunē) are idioms meaning not 'doing a great deal of work' but 'concerning oneself with many things at once', i.e. concerning and interesting oneself in things of which one knows little, which one insufficiently understands. Someone must concern himself only with what he is competent in: 'let each one do the business he knows' (Aristoph. Wasps 1431; cf. no. 648: 'It is shameful to neglect one's own affairs while busying oneself with other people's business; it is not appropriate for good people to neglect their own affairs in doing other things'. Just as Democritus' atoms are in continual motion, so man must work tirelessly; see e.g. no. 728: 'to undertake labours, from which great and splendid things accrue to people'. And finally the absurdity of the interpretation of Laue and Langerbeck is clearly seen from the remarkable sayings of the great 'labourer' (philoponos) [i.e. Democritus], (DL IX.36), no. 771: 'all labours are pleasanter than leisure, when people achieve what they were labouring for, or know that they will get it'; no. 774: 'learning achieves great things by taking pains', etc. However, Democritus' attitude to polupragmosunē (poking one's nose into other people's business) is characteristic of all Greek thinkers; see Pl. Rep. 433a: 'each one must attend to one thing, to which his nature is best suited ... doing one's own and not being a busybody is justice ... and this is what we have heard from many others' ('in which in my opinion Plato clearly refers to Democritus', Philippson, Hermes 59, p. 387).

<sup>2</sup> 'neither privately nor in public': cf. an inscription from Teos (Tod, *op. cit.*, no. 23, 4-5): 'among the Teians in a public capacity, or as a private individual'.

<sup>3</sup> It seems to me that the expressions to pleon ['further'] and tōi dokein ['in imagination'] are correctly explained by Langerbeck, *op. cit.*, p. 61, who translates 'Even when it [i.e. good fortune] falls to someone's lot and points the way towards greater things (sc. 'than are

possible') through the expectation which it excites (cf. 'hope' in no. 33a, Luria), one must maintain sufficient caution to enable one to set it aside and not reach for more than is possible'. Diels translates tōi dokein as 'in appearance' [VS 3<sup>rd</sup> edn. cited DK II, p. 133, l. 3 n.]; Kranz rejects that interpretation and accepts Langerbeck's interpretation 'through his belief' (DK *ibid.*). Friedländer (68 B 3 ad loc. [not in VS 3<sup>rd</sup> edn. or DK 5<sup>th</sup> and 6<sup>th</sup> edns.]) treats tōi dokein katatithesthai as a unitary phrase, translating 'lowers his expectation'. Langerbeck, *loc. cit.*, is undoubtedly essentially right (setting evaluative criteria aside) to suppose that the concepts of obligation are distinct in sense in Democritus on the one hand and in Epicurus and Diogenes of Oenoanda; for Democritus as a mechanistic materialist 'must' signifies a form of activity in accordance with the principle 'nature is conquered by yielding to it', whereas for Epicurus with his arbitrary atomic swerve it signifies duty; this free, sovereign choice of path is 'an ideal form of life' in Langerbeck's phrase. But, as we have seen, Democritus was not, and could not be consistent on the question of the freedom of the will, and he frequently contradicts himself.

739

<sup>1</sup>biou summetriē ['proportion in life']: Democritus' ethical doctrine of euthumia ['cheerfulness'] is most intimately connected with his biological and psychological doctrine of summetros krēsis ['proportionate mixture'] in the human body (see no. 460): the accumulation of an excessive number of fire-atoms in a single place produces overheating and clouding of the reason. In the Hippocratic treatise Airs, waters, places there is a similar explanation of the differences in character between individuals and whole peoples; hence, the effect of climate on the body is responsible for the difference in character and customs of different peoples (H. Diller, Philologus, suppl. vol. XXVI, p. 63) – 'proportion, symmetry'. All these discussions amount to a somewhat naive transfer of mathematico-aesthetic ideas to the field of the natural sciences and ethics: 'This proportion is what we, as persons, call the beautiful (to kalon) and the good (to eu). Hence we shall become happy and achieve our highest good, the final goal of every being, only if in our own lives we follow this innate tendency towards numerical harmony and make it the norm of our activity. That is why mathematical 'proportion' became for Democritus the highest ethical principle also. Naturally, by enabling us to see in the simplicity and harmony of numerical relations the profoundest essence of nature, it shows us thanks to it the way to true happiness. So, science becomes wisdom (sophia) in the true sense of the word. In the sayings (collected under no. 740 and those analogous to it) Democritus clearly expresses his mathematically-quantitative world view' (Frank, *op. cit.*, p. 96). In fact, as Aristotle remarks (De caelo 303a4): 'Leucippus and Democritus in a certain way transform everything that exists into numbers and make everything consist of number'.

Subsequently Aristotle completely took this theory over as his own; see. NE 1107a2: 'a mean between two vices, one of excess, the other of deficiency'.

<sup>2</sup>'the equal' (to ison) = 'the mean, mid-point, etc.' (to meson); also Ar. NE 1106a26: 'in every divisible continuum one can take the greater and the less ... and the midpoint between excess and deficiency'.

740

<sup>1</sup>Though all the mss have the reading anakudēs (as in no. 616<sup>285</sup>) here it seems that we may accept the emendation anakēdēs, and see in the mss. tradition the usual confusion of vowels having the sound 'ee', since the sense required is 'free from care'. The form anakēdēs is formed by mistaken analogy with words like anaudos ['speechless'], anauros ['windless, still'], anaristos ['without breakfast'], anarmodios ['unfit'], anarthros ['jointless'] etc., exactly as in Hesiod, Theog. 797: keitai anapneustos kai anaudos ['he lies breathless and speechless']. Cf. Hom. Od. V.456: 'and he lay breathless and speechless'. Cf. Fränkel, Zeitschrift für vergleichende Sprachforschung, N.F. 42, p. 235.

<sup>2</sup>chrē eonta ['should be done'] is an old form instead of chreonta, in which the sense of the noun chrē ['necessity'] is still present (chrēn ['it had to be'] = chrē ēn ['there was necessity'], chrēstai ['it will have to be'] = chrē estai ['there will be necessity'], etc. See Wilamowitz, Euripides, Herakles, (1959), III, p. 74; Wackernagel, Vermischte Beiträge zur griechischen Sprachkunde, 1897, p. 55.

741

<sup>1</sup>He located the blessed life ... in the knowledge of things': cf. Cic. Tusc. V.39.114: 'he was able to live a blessed life without variety of colours, but not without understanding of things'. No. 29: 'Democritus ... said that he would rather find a single explanation than become king of the Persians'. 'So Antiochus testifies that Democritus saw a source of cheerfulness and blessedness in science and knowledge' (Philippson, Demokrits Sittensprüche, p. 396).

<sup>2</sup>he said only a few things, not sufficiently clear, about virtue': Natorp, op. cit., p. 110, regards this expression as equivalent to Pl. Phil. 44c: 'not through skill but through a certain harshness of a not ignoble nature', but as far as I am concerned it is totally dubious that one could say of Democritus' doctrine 'they say that there are no pleasures at all ... they are all escapes from distress', despite no. 646; one might rather think of Antiphon, DK 87 B 58.

743

<sup>1</sup>The word athambiē ['freedom from astonishment'], first coined by Democritus, is described by von Fritz, op. cit., p. 32, as follows: 'For Democritus athambiē signifies one of the fundamental qualities of the wise, properly organised person. By this word Democritus designates the behaviour of the person who gets to know things in a lively interaction and

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<sup>285</sup> ['616' is apparently a slip for '614', since the word anakudēs occurs in the latter passage but not in the former.]

actively confronts them, who does not take up a passive stance, allowing external impressions to have the upper hand over him, to the extent that, when faced with something new, through amazement or fear he is not prepared to act or find out about it; instead he approaches each new thing which he encounters without excessive agitation, investigates its nature and shapes it to suit his needs, if that is required by the situation. For the concept signified by this word later writers use the terms akataplēxia [‘freedom from terror’] (Nausiphanes) and ataraxia [‘freedom from disturbance’]. But how much richer is Democritus’ term in respect of the profundity of its observation and its active force; particularly essential is the fact that thambein [‘be astonished’] and thaumazein [‘wonder’](cf. no. 744) signify much less violent shocks than kataplēttein [‘terrify’] and tarattein [‘disturb’]. Democritus’ term, which expresses the negation of simple amazement, a momentary delay in reaction, expresses at the same time the idea of an especially quick and active reaction, whereas the expressions akataplēxia and ataraxia express merely the negation of a state of imbalance and shock’.

## II. How the atomistic doctrine was interpreted by its opponents

### B. HOW WELL-BEING IS TO BE ACHIEVED

(see also nos. 33-5)

#### I. By seeking only what is necessary, and by avoiding everything superfluous

(see also nos. 651-657a)

748

<sup>1</sup>As I show in my article (see critical apparatus) for Democritus there are in nature no eternal or immortal things; one can merely imagine them, but that will be a false conception. Even divine beings (eidōla [‘images’]) are ‘durable, but not eternal’ [lit. ‘hard to destroy, but not indestructible’], and ‘apart from them there are no immortal gods’; see no. 472a, and cf. Lucr. V. 306ff. Hence the slogan ‘take pleasure only in immortal things’ is impossible for Democritus; though the term theios [‘divine’] in its ancient magical sense occurs widely in Democritus, athanatos [‘immortal’], apthartos [‘indestructible’] etc. are never found in his texts except in application to the eternal, changeless atoms. The meaning must be the opposite: following other ancient moralists Democritus recommends that one should not strive for what is unrealisable and immortal, but, being mortal, should content oneself with what is mortal (cf. no. 750: ‘what the body needs’). This is undoubtedly the sense of the passage under discussion, since in Greek ‘this’ usually refers to the last word of the preceding clause, except the negative mē: ‘this’ = ‘being distressed’ – ‘and you will be distressed if you strive for things that are not mortal (i.e. things that are beyond human

capacities'). Cf. Maxims of the Seven Sages (Stob. III.1.173): 'think mortal thoughts'; Epicharmus, DK 23 B 20: 'the mortal should think mortal, not immortal thoughts'; Sophocl. fr. 531 Nauck: 'mortal nature should think mortal thoughts'; Antiphanes (Stob. III.21.4): 'if you are mortal, my friend, think mortal thoughts'. Cf. Eur., frs. 799 and 1075 Nauck. It is only in Plato and Aristotle that for the first time we come across an attack on this view (Ar. NE 1174b31). We read the same thing in the work of the Pythagorean Hipparchus, which is, as Diels shows (DK II, pp. 228ff.) a direct imitation of Democritus (DK II, p. 229, l. 25): "we shall live more cheerfully if we regard the things that happen to us as belonging to human life (= mortal)"<sup>286</sup>. So I was wrong to suppose (RhM N.F. 78, 1929, pp. 242ff) that the text here had been tendentiously distorted by Platonic, Pythagorean or Christian tradition; it is a matter of misunderstanding of the text ('this' refers to 'being cheerful', not to 'being distressed') of which I was also guilty. Cf. Symmachus, Epigr. 88 Kaibel (= Hoffmann, Sylloge epigrammatum Graecorum, Diss. Halle, 1893, no. 99).

749

<sup>1</sup>See comm. on no. 739, n. 2.

750

<sup>1</sup>'exceeding what is appropriate (ton kairon) in food or drink': Natorp, op. cit., p. 45, remarks that this expression is an ancient commonplace of Greek morality; see Theogn. 479: 'whoever exceeds the mean in drinking' (cf. 'beyond the mean' – 498, 501; 'the belly' – 486; 'what is appropriate' – 401ff.). Cf. the similar expression in no. 753: 'if anyone exceeds what is moderate'. As Alfieri shows, op. cit., p. 263, n. 663, on the basis of nos. 755, 680, 598, 597 and 760, in which the term kairos also occurs, in Democritus kairos is virtually synonymous with metrion ['moderate'] and summetriē ['moderation'].

<sup>2</sup>Cf. no. 761. Von der Mühl compares two sayings of Epicurus in KD; 15: 'The wealth provided by nature is limited and easy to obtain, but that of empty beliefs stretches out to infinity'; 21: 'The person who is aware of the limits of life knows that what drives out the pain of lacks is easy to obtain ...'. Stob. III.12.22: 'Epicurus. Thanks to blessed nature, which has made necessary things easy to obtain, and difficult things unnecessary'.

<sup>3</sup>Langerbeck, op. cit., p. 70, is completely justified in keeping the mss reading kakothēgiē. Diels arbitrarily and groundlessly substitutes kakothigiē, which too is nowhere attested. Kakothēgiē is derived from the verb thēgō ['sharpen'], and means 'deficiency in sharpness'. The opposite of this term is euxunetos oxuderkeiē ['intelligent clear-sightedness'] (no. 32).

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<sup>286</sup> The expression 'possible' (= 'mortal') has the same meaning. Stob. IV.46.18 (DK 68 B 58 = Democrates 23a): 'The hopes of those who think rightly are achievable, but those of the unwise are impossible'; Plut. De tranqu. an. 2, p. 465c (DK 68 B 3 (= no. 737)): 'the person who is going to be cheerful must not ... reach for more than is possible'; Stob. III.1.210 (DK 68 B 191 (= no. 657)): 'People achieve cheerfulness by moderation ... so one must keep one's mind on what is possible ...'

750a

<sup>1</sup>Burchardt and Mullach, op. cit., fr. 26 sp., p. 380, regard no. 750a (2<sup>nd</sup> passage) as inauthentic. Their only ground is the bad Greek ('the language speaks for itself'): the word skepē in the sense of 'covering, clothing' is characteristic of later Greek. The reading of the ancient edition of Antonius is ho basanos (masc.: 'touchstone, test'), whereas in good Greek it must be hē basanos (fem.) (the reading of Antonius' collection printed in Patrologia Graeca and of all sources cited by me is ho basanos; the ancient edition of Antonius is unavailable to me). But, as Ten-Brink rightly points out (comm. on no. 81 AED) these arguments cannot be accepted as persuasive: the word skepē or skepai in the sense 'covering, clothing' is found in Hippocrates, p. 1021b and in Xenophon Mem. III.10.9: 'the parts of a man that need covering'. The masculine form ho basanos is Old Ionic. The authenticity of the passage is supported, in my opinion, by its coincidence of sense with the unquestionably authentic first passage cited under this number. In Ten-Brink's opinion the authenticity of the passage is proved by the fact that it is imitated by Epicurus; see D.L. X.149 (schol. ad sent. XXIX Epicuri): 'Epicurus regards as natural and necessary those [pleasures] which relieve distress, e.g. drink when one is thirsty, and natural but unnecessary those which merely vary pleasure, such as costly food', and the passages collected by Usener under no. 181 (Stob. XVII.34): 'I revel in the pleasure of the body by using bread and water, but I spit on costly pleasures ...'; D.L. X,11: 'He himself says in his letters that he is satisfied with just water and dry bread'. Cf. Seneca Epist. 21: '(Epicurus) will entertain you with polenta and copious draughts of water'. Cf. also Epicur. Epist. III.131: 'Barley-cake and water give the greatest pleasure when the person taking them is in need'. Porphyry, Ad Marcellum 29, p. 209.3 (= fr. 207 Us.): 'It is better for you to lie happily on straw than to be disturbed, though you have a golden bed and a costly table'. 'A costly table': see no. 759 and Epicur. Epist. III.132 in the same context; cf. fr. 467 Us. See Philippson, Hermes 59, p. 413. [L quotes the Old Russian translation, V. Semenov, op. cit., p. 131.]

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<sup>1</sup>Comparing this saying with no. 607, Langerbeck comments, op. cit., p. 68, that Democritus regards a person's character (tropos), on which depends the possibility of realising this or that achievement, as more important than the achievements which one actually realises.

Frank, op. cit., fr. 95 and n. on p. 366, emphasises the 'mathematical' formulations 'in good order' (eutaktos) and 'is properly ordered' (suntetaktai): 'The mathematical technical terms of the period, e.g. excess or deficiency, are employed everywhere, see also 55 B 61 [= DK 68 B 61]: 'The person whose character has a good order has also a good order in his life''. In the particular case this judgement of Frank's is exaggerated and over-schematised; see Alfieri, op. cit., p. 233, n. 566. [L quotes the Old Russian translation, V. Semenov, op. cit., p. 347.]

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<sup>1</sup>See comm. on no. 750, n. 1. In Maximus this passage is ascribed to Posidippus.

756

<sup>1</sup>'is advantageous': see comm. on no. 750.

758

<sup>1</sup>'self-sufficiency': Langerbeck, *op. cit.*, p. 57, compares no. 33a: 'fortune gives great gifts, but is unreliable, but nature is self-sufficient; so its dependable inferiority excels the greater advantage which one hopes for', pointing out that in Democritus self-sufficiency is a concept practically synonymous with well-being and contrasted with fortune, as in no. 759. Cf. nos. 733-4: 'well-being ... Hecataeus calls it self-sufficiency'.

<sup>2</sup>The expression smikrē (or mikrē, mikra) nux ['a short night'], which is read in the great majority of the manuscripts, has caused great difficulty to scholars. Diels comments [DK II, p. 188, l. 2 n.]: 'Whether the medical outlook underlying smikrē nux ('a sleepless night') is an ancient one is as doubtful as the expression itself'. In fact, in this case the word 'night' has to be understood in the sense of 'sleep', as if a part of the night passed without sleep were turned into day. So instead of smikrē Bücheler proposes the conjecture mierē ['foul. abominable'], and Hense anierē ['unholy']: Diels reads smikrē choenix ['a small portion'] [DK *ibid.*]. I think that the simplest solution is to accept the reading of Maximus makrē (makra) nux ['a long night'] – a night without sleep seems especially long.

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<sup>1</sup>See comm. on no. 758, n. 1. [L quotes the Old Russian translation, V. Semenov, *op. cit.*, pp. 35-6, and the Bulgarian translation, M.N. Speranski, *op.cit.*, supplement, p. 129, no. 32.]

759a

<sup>1</sup>[L quotes the Old Russian translation, V. Semenov, *op. cit.*, p. 249.]

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<sup>1</sup>In his article, *op. cit.*, p. 609, Friedländer shows Democritus' dependence on ancient gnostic literature. In this case he cites Hesiod Works and Days 368 as a parallel: 'Be lavish when you open and when you finish the jar, but be thrifty in between; thrift at the bottom is something terrible'.

<sup>2</sup>ginōskein here means 'identify, discriminate'; see no. 661 with comm.: 'it is the mark of the wise person to know (ginōskein) each thing'.

<sup>1</sup>As Lortzing had previously shown, to [neuter sing. def. article] relates to the [understood] word ‘animal’, ho [masculine sing. def. article] to [understood] ‘person’, in his view the surviving clause was preceded by something like ‘the animal is so much wiser than the person’, associated with it in DK II, p. 186, l. 6 n. and by Philippson, RhM 77, p. 307, Hermes 64, 1929, p. 171 and the author of this book, RhM N.F. 78, 1929, pp. 242-3. Cf. Xen. Mem. I.4.12: ‘[the gods] give the other animals sexual pleasures for a specified time of the year, but assign them to us continuously up to old age ...; ps-Hippocr. Epist. XVII.47 (IX, p. 372 Littré): ‘for the non-rational animals there is an annual period for copulation, but he [man] has a continual frenzy of wantonness’; Plut. De amore prol. 2: ‘further, the male does not copulate with the female all the time; for the purpose is not pleasure, but generation and bearing offspring’. Zeller and Langerbeck understand by to ‘the body’ (to sōma), and by ho de ‘the mind’ (ho nous).

II. By inhibiting excessive emotions (anger, despair, lust etc.)

<sup>1</sup>Diels [DK II, p. 192, l. 17 n.] cites Heraclitus DK 22 B 85: ‘It is hard to fight against spirit [or ‘anger’ or ‘desire’ (thumōi)]; for what it wants it buys at the price of soul [or ‘of life’ (psuchēs)], and justifiably sees Democritus’ saying as a criticism of Heraclitus’. But it is difficult to understand the meaning of this criticism without a universally satisfactory explanation of the word psuchē. Contrary to the view of Diels and Alfieri, I think that psuchē here means ‘life’, i.e. wild passion (thumos = epithumia [‘desire’], cf. DK Index, s.v. thumos) can lead a person to death. Democritus is objecting that it is possible to overcome passion by the conclusions of reasoning; I regard as unnecessary and incorrect Alfieri’s evaluative judgement, op. cit., p. 264, n. 665,: ‘We are facing (in Heraclitus) a more elevated conception than Democritus’ utilitarian rationalism’. Cf. Wilamowitz, Glaube der Hellenen, vol. I, p. 370, n. 1, vol. II, p. 547, n. 1: ‘psuchē is life’. Wilamowitz cites Hesiod, Works and Days 686, Hdt. III.130, ps-Longinus 9. One should also add Archilochus (Aristoph. Peace 1298 = fr. 6 Bergk).

<sup>1</sup>adespoton [‘unmasterable’]: according to Faggi, op. cit., pp. 206ff., this word cannot be understood as ‘untamable’, for if distress is unconquerable, it cannot be got rid of by the conclusions of reasoning. Starting from the point that works whose author is unknown are called adespota, he thinks that distress too is called adespotos when its cause is unknown. But this parallel is inexact, since works whose author is unknown are actually ‘lacking an owner’, whereas in all cases the ‘owner’ of distress remains the soul. Alfieri suggests, op. cit., p. 276, n. 699, that ‘untamable’ is here used in an exaggerated sense, actually meaning ‘hard to tame’. Perhaps Democritus calls distress ‘irresistible’ because then the soul is as it

were in a state of temporary paralysis (narkōsa ['torpid']; cf. no. 527 = no. 804a: 'sexual intercourse is a brief apoplexy'); the soul must be brought out of this diseased condition, and then it will stop being 'unmasterable' and submit to reason.

765

<sup>1</sup>Nestle, Philologus 67, p. 546, regards the translation 'Forgetting one's own sufferings produces daring' as psychologically impossible. On the contrary, in his opinion, the meaning becomes clear if one translates 'the person who forgets his mistakes becomes daring'. He thinks that Kinkel, Geschichte der Philosophie I, p. 226, is right to compare this saying with no. 675: 'repentance for shameful deeds saves one's life'. In reply Langerbeck, *op. cit.*, p. 70, points out that ta kaka can hardly mean 'sins', on the contrary, in all early literature this word means 'misfortunes, disasters': in Democritus' view forgetting one's own misfortunes leads to daring. He compares no. 800, where ta kaka are depicted as instructors of the foolish. I think that there is no contradiction between these two views: if someone is self-sufficient and achieves well-being, external circumstances will very rarely appear to him as disasters; see no. 32: 'In a few cases fortune conflicts with prudence, but intelligent clear-sightedness directs most things in life aright'. Hence ta kaka almost always means both 'disaster' and 'mistake': 'it is a great thing to think what one should in misfortunes' (no. 766). Cf. kakopragmosunē ('doing sinful deeds') in no. 583.

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<sup>1</sup>Democritus here warns against being excessively fascinated by some single object, which deprives a person of the possibility of reacting to everything around him (See Langerbeck, *op. cit.*, p. 71: 'the worship of one single thing makes one indifferent to everything else').

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<sup>1</sup>[L quotes the Old Russian translation, V. Semenov, *op. cit.*, p. 249.]

770a

<sup>1</sup>As far as I know, this passage is not included in any of the published collections of maxims. The forms heautous ['themselves'] for the first person plural and dedamakotes ['having mastered'] do not count against its authenticity: see Kühner – Blass, *op. cit.*, p. 599, n. 2: 'the third-person reflexive pronoun is also used in the plural for the first and second persons ... it is also found in the tragedians, in Herodotus ... and other instances'; Kühner – Gerth, *op. cit.*, p. 571, sec. 7: 'The third-person reflexive pronouns frequently take the place of the reflexive of the first and second persons'; Passow, Dictionary, 5<sup>th</sup> edn., 1847, I.2, p. 756: 'The reflexive of the third person is often used instead of the reflexive of the first and second person, but only in cases where the correct personal reference is self-evident'. This usage is frequent in Thucydides, Xenophon and Plato; here I cite only two passages of Ionic prose which are of interest for the language of Democritus: Hdt. V.20: 'we bestow on you our

mothers and children' [where heōutōn , lit. 'of themselves' is used for hēmōn autōn 'of ourselves']; V.92: 'having first established a tyrant over yourselves, you are seeking to establish one over others' [where para sphisi autoisi, li. 'over themselves', is used for par' humin autois, 'over yourselves']. As regards the form dedamakotes, it is correctly formed from the verb damazō, but is not found elsewhere in classical or Hellenistic literature, being displaced by the form from damnēmi (dedmēkotes). But since in the classical period the forms edamasa and edamasthēn commonly occur alongside the forms from damnēmi, there is no reason to regard this form as a Hellenistic rather than an Ionic form. [L then quotes the Old Russian translation, V. Semenov, op. cit., 74, where this saying is united with no. 705.]

III. By habitually enduring toil, from which we are confident of a fortunate outcome

771

<sup>1</sup>It is impossible to accept Diels' emendation [en de hekastēi atuchiēi to ponein, 'in every misfortune toil' instead of hen de akos tēi apotuchiēi to pan 'the sole remedy for misfortune, all'] , not merely because it is palaeographically groundless, but also because its meaning is improbable for Democritus. Fränkel's emendation gives the same meaning, but from the palaeographical standpoint his supplementation is much more elegant: instead of hen de akos tēi apotuchiēi ['the sole remedy for misfortune'] he assumes a haplography, reading hen de akos <hē epituchiē; en de> tēi apotuchiēi etc., i.e. 'the only way for labour to give pleasure is by its successful result; but if labour does not lead to a successful result, everything becomes equally burdensome and weary'. In support of his reading hen de akos hē epituchiē he acutely cites two passages of Pindar, Nem. 3.17: 'the splendid victory brings ... a healing remedy for weary blows', and Nem. 4.1: 'joy is the best physician for toils judged successful'. Acute and brilliant though this conjecture is, it is difficult to admit that, in contradiction to all his other sayings Democritus is here preaching total resignation and the worship of blind chance. It is perfectly clear that he must have been giving a recipe for the preservation of calmness and clarity of mind even in a case of external failure. That is why Langerbeck, op. cit., p. 62, n. 3, retains the mss reading without alteration, citing in explanation no. 33a: 'fortune brings great gifts, but is unreliable, while nature is self-sufficient; so its dependable inferiority excels the greater advantage which one hopes for', and no. 657, where Democritus recommends as a cure for misfortune 'comparing one's own life with that of others who are faring worse'. Langerbeck interprets the passage as follows: 'Success makes all labours sweet, but when things go badly one must not give in to fortune. Prudent consideration will always find it bearable ... for everything is similarly painful and unhappy'. In this pan [lit. 'all'] must be translated 'altogether', and all the same we get a particularly awkward expression; on the other hand to pan (with the article!) remains unexplained on the interpretation of Diels and Fränkel. I follow Langerbeck on the whole, but think it more probable that the quotation is broken off in the middle of a sentence, and

that after talaipōron the verb enthumeesthai ['think'] was read or understood, and that the article to relates to that verb. So the translation of the second sentence will be: 'the sole remedy in misfortune is to fix one's thoughts on the fact that everything is painful and burdensome' (einai or eon [respectively infinitive and present participle of 'be', representing 'is' in the translation] is, as usual, omitted). See no. 646: 'One must recognise that human life is weak... and marred by many misfortunes'.

772

<sup>1</sup>Langerbeck, op. cit., p. 63, n. 1, explains this saying too, starting from the principle 'like is assimilated to like': long practice in labour makes one at home with that labour; cf. nos. 649-50: 'So through voluntary labours one must develop this habit of endurance by practice'. Faggi, op. cit., p. 206, gives the same interpretation of this passage; cf. the Old Russian translation, V. Semenov, op. cit., p. 273 [quoted by L].

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<sup>1</sup>ta kala chrēmata ['fine things']: as Diels points out, Sitzungsb. d. Berl. Akad., 1884, p. 350, n. 1, this is a pleonasm for ta kala; cf. Acusilaus [DK 9] 40a, where malista chrēmatōn = malista ['above all things' = 'above all'].

#### IV. By preferring the pleasures of the soul to those of the body

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<sup>1</sup>Nos. 776 and 776a are of very great interest for the history of the philosophical thought of the end of the 5<sup>th</sup> century BCE. As is well known, the Pythagoreans taught that in itself the soul is divine and without sin, but during its wanderings and transmigrations it falls into a sinful body, which is the tomb of the soul and leads it into the ways of sin and transgressions. In contradiction to these doctrines Democritus gives a clear and detailed picture of a lawsuit between the body and the soul: the body is in itself without sin and not guilty of anything, it needs food, drink etc. only to the extent that they are necessary to maintain its existence; it is the soul which is guilty of all excesses, and it corrupts and ruins the body. In Democritus the body comes before a court with that accusation against the soul. It is entirely probable that the beginning of Diogenes of Oenoanda fr. 1 Chilton is a quotation from the story of that lawsuit; the beginning is fragmentary, but I think that here there is a direct citation of Democritus. We must suppose that the passage of Democritus cited by Plutarch (no. 776a) is also connected with this dispute between soul and body.

I do not see any reason to agree with H. Gomperz, DK II, p. 172, l. 6 n., in restricting the citation of Democritus to the words 'a varied store and treasury of all sorts of evil passions'.<sup>287</sup> One should rather suppose that the fable of the fox and the panther which

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<sup>287</sup> Langerbeck too is wrong (op. cit., p. 67) in concluding from comparison of this passage with 776a that Democritus was essentially a dualist. On the contrary, this passage undoubtedly deals with spiritual evil, but

precedes this passage in Plutarch, in somewhat different wording from Aesop 42, is also taken from the same passage of Democritus; the conclusion of that fable 'showing that versatility of character undergoes many changes as required' (where the confrontation of the fox and the panther illustrates the confrontation of the soul and the body throughout the dialogue!) corresponds exactly to the saying of Democritus attested by Stobaeus and in the collection of Democrates (no.. 783): 'In animals good breeding is strength of body, but in people goodness [or possibly 'versatility'] (eutropia) of character'. This theory of the sinlessness of the body and the depravity of the soul, which contradicts Pythagorean doctrines, may have had its source in Egyptian myth, where the relation of soul and body is the same as in Democritus.

Of course, this 'dispute' was bound to attract criticism from idealistic philosophers, Pythagoreans and their followers, who regarded the soul as divine and the body as the tomb of the soul. As Alfieri supposes, *op. cit.*, p. 245, n. 613, Plato and Aristotle object to Democritus. Thus we find purely Pythagorean views of the relation of body and soul in Pl. Phaedo 66b: '... as long as we have the body ... and our soul is disfigured by such an evil ... the body causes us countless troubles through the necessity of nourishing it ... it fills us with lusts and desires and fears and all kinds of images and a great deal of nonsense ... for wars and civil strife and battles are caused by nothing other than the body and its desires. For all wars arise from the acquisition of wealth, and we are obliged to acquire wealth by the body, and enslaved to the care of it ... we should get rid of it'.

Aristotle discusses the same idea in his dialogue Eudemus (fr. 36 Rose): 'Our minds are coupled with our bodies as the living are joined to the dead', as when the Etruscans wanted to condemn people to an agonising death, they bound them tightly to corpses.

In the same passage where he quotes Democritus' saying (De libid. et aegr. 2.2, (no. 776)) Plutarch also gives Theophrastus' answer: 'Theophrastus says the opposite, that the soul inhabits the body at great cost. For a short time it pays heavy fees in feelings of distress, fear, desire and jealousy. Since it encounters these in the body it could more justly bring an action against the body for mutilation with regard to things it has forgotten, and for violence with regard to the ways in which it is held prisoner, and for outrage in the contempt and abuse it suffers when it is blamed quite unfairly for the evils of the body'. In the same spirit the Debate of the soul and body was composed by Christians of a Neoplatonic tendency, Gnostics and Manicheans. Alfieri has drawn attention to the interesting work of Gregory Palamas (Gregorii Palamae Prosopoeia animae accusantis corpus et corporis se defendentis cum iudicio, ed. A. Jahn, Halle, 1884). It was written in the 14<sup>th</sup> century, in the era of the Byzantine Renaissance, and in opposition to the Neoplatonic

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all the same he associates these phenomena with the category 'body', the only difference being that these bodily entities affect the body not 'from outside' but 'from within'. So, for him the soul is also material, and the confrontation of 'spiritual' with 'bodily' phenomena in nos. 776-776a comes down simply to the confrontation of two kinds of phenomena in one and the same bodily (material) world.

literature it reflects the viewpoint of Democritus; in the dispute between soul and body it is the body which emerges the victor, and the soul turns out to be to blame for all the ills of mankind. Palamas possessed immense learning in the literature of the classical period: he quotes Homer, Hesiod, Epicharmus, Empedocles, Aeschylus, Euripides and Aristophanes, or refers to them without naming them; he also quotes lines from lost tragedies of poets, both known and unknown to us. Hence it would not be at all surprising if one of Palamas' sources (even if only at third or fourth hand) was the 'dispute' of Democritus' in which we are interested. See e.g. Palamas. op. cit., p. 40: 'the powerful medicine of repentance is being mixed, I know that I am storing up treasures of such good things, the cracked and leaking jar in my soul'. Cf. no. 776a: 'store ... and treasury'. The word 'powerful' (polydunamon) is attested only for Democritus\_ (Philop. In de an. 35.2); the comparison of the body with a vessel, in which the soul is kept, see in no. 776: 'a tool or utensil', the same in Palamas, op. cit., p. 31: 'as a tool for use'. And here, as in Democritus, it is emphasised that in itself the body is guided by the laws of nature and requires only what is necessary: 'but the soul ... lays down laws opposed to those of nature like another tyrant ... with which I seek ... my daily food, it calls a glutton and a jar that cannot be filled (p. 28) ... but I (the body) am at home with nature and its laws' (p. 29). Cf. further p. 43: 'I am yoked to the soul ... which loves the wantonness of pleasure ... guzzling insatiably and distended by immoderate eating, drinking and sex'. Cf. no. 776: '(the soul) has ruined (the body) ... by its carelessness ... and ... its drunkenness ... and its love of pleasure'. Here there is a paraphrase of Democritus' saying: 'Joy and sorrow are the distinguishing mark of what is beneficial and harmful' [DK 68 B 4, B 188]: 'we are steered by distress and pleasure, by distress when we are empty or suffering in some other way, by pleasure when we are full and without suffering' (p. 33). We should also remember that according to the Pythagoreans and their followers the soul attains truth immediately, while the body merely hinders its thinking, whereas for Democritus 'the appearances are the sight of what is unclear' – we think only on the basis of the evidence of our feelings. Cf. now p. 38: '(the soul calls the body) a tomb, a bond and slime' (the Pythagorean view). To this the body responds: 'You (the soul) slander my sense-organs and their powers ... by means of which the most important things go well ... (p. 39) Do you not use the mathematical sciences as bridges leading to intelligible things? How would you have acquired them in the first place without my perceptions? Would you ever have had arithmetic and music if there were no such thing as hearing, or the relations of numbers and geometry and astronomy if sight did not illuminate them ... now if your bridges collapsed because my senses were removed, what could you do except ... roll about on the ground ... and then really buried in a lightless tomb and prison ... and stuck ... in slime ... you would endure the blind life ... of a vegetable ... you were blind from birth, but I have given you eyes for knowledge and led you to philosophy, and once you have experienced the light I have given it to you to use as a mirror...'

<sup>2</sup>Diels regards the clause 'just as if a tool or a utensil were in a bad state one would blame the person who used it carelessly' as part of Democritus' dictum, while H. Gomperz is right to see in it a paraphrase by Plutarch [DK II, p. 176, ll. 1ff. n.].

776a

<sup>1</sup>if you open up your inner self ... a treasury ... of evils': cf. Aristotle ap. Boethius, De consol. philos. 3.8, p. 1034b: 'But if, as Aristotle says, men had the eyes of Lynceus, so that their sight could penetrate everything it encountered, would the beautiful surface of Alcibiades' body not appear most foul when its internal organs were exposed to view?'. Plut. Symp. 644f: 'so that you would not be unfair in finding fault with Aesop, for looking for windows ... through which one person can see the thoughts of another'. Cf. Aesop 155 Halm.

<sup>2</sup>Cf. Epicur. ap. Stob. III.12.22: 'thanks to blessed nature, which has made what is necessary easy to obtain, and what is hard to obtain unnecessary'.

777

<sup>1</sup>'belong to the soul': possessive genitive, [meaning] 'depends only on the soul, not on external circumstances'. Foreseeing the objection that on this interpretation Democritus turns out to be a follower of Stoicism, Alfieri comments as follows, op. cit., p. 250, n. 626: 'The moral problem and the conception of the tranquillity of the soul are much more complex in the Stoics; the resemblance between the systematic ethics of the Stoics and the fairly unsystematic ethics of Democritus consists in a single point, ethical individualism'.

779

<sup>1</sup>In the spurious letter of Democritus to Hippocrates (IX, p. 932 Littré = DK 68 C 6) we read: 'for wisdom cleanses the soul of passions, and medicine gets rid of the diseases of the body'. From this Lortzing and Diels draw the conclusion that this passage was taken by Clement from the spurious letter and should therefore be excluded from the collection; Alfieri agrees with them. This seems to me altogether improbable; if Clement had been quoting the correspondence with Hippocrates, he would have given the precise context. But, as is well known, this 'correspondence' is a compilation of a number of genuine passages of Democritus, and the compiler alters them for the purposes of his novel. So it is in the present case. Clement quotes a genuine saying of Democritus': Democritus' immediate topic is philosophy (the thing to be compared), and medicine is introduced merely as an artificial image (the thing cited in comparison). That is why medicine is mentioned in the first position (the protasis) , and philosophy in the second (the apodosis). The compiler of the letter is talking about medicine; hence he has to turn Democritus' saying upside down, making philosophy the thing cited in comparison and placing it in the protasis, and making medicine the thing to be compared and placing it in the apodosis. Natorp, op. cit., p. 103, who regards this passage as totally genuine, cites the words of



Protagoras in Pl. Tht. 167c: 'but the doctor changes [people] with medicines, the sophist with words'.

<sup>2</sup>'frees from passions': in explanation of this expression Natorp, op. cit., p. 103, refers to no. 735: 'cheerfulness ... in which the soul is in a calm and stable state, not disturbed (cf. ataraxia ['freedom from disturbance']) by any fear or superstition or any other passion'. Cf. Langerbeck, op. cit., p. 55: 'passion is every external effect on the soul, everything which is not under its control ... 'frees' = frees from circumstances which depend on chance'. On the question of the authenticity of the passage cf. Langerbeck, op. cit., p. 57.

<sup>3</sup>The word philosophia can hardly have been used by Democritus; hence if this passage is genuine, not an imitation of Democritus, philosophia has here replaced sophia. This passage is constructed exactly as the previous one; the word alupia ['freedom from distress'] is characteristic of Democritus' follower Antiphon (DK 87 A 6: 'a skill of freeing people from distress') and may have been taken over by him from Democritus, from whom he takes a number of characteristic expressions. See my 'Antiphon the Sophist', pp. 12-13. [L quotes the Old Russian translation, V. Semenov, op. cit., p. 154.]

780

<sup>1</sup> See comm. on no. 734, n. 1.

782

<sup>1</sup>On the term theios ['divine'] in Democritus see comm. on nos. 572-6, and also on no. 472a, n. 16 and no. 734.

783

<sup>1</sup>See no. 784 with comm.

<sup>2</sup>ēthous eutropiē here means 'good organisation with respect to one's state of mind'; see Plut. Animine an corp. aff. 500; comm. on no. 776..

784

<sup>1</sup>Natorp compares Pl. Rep. 403d: 'it seems to me that a fine body does not make the soul good by its good condition, but on the contrary a good soul makes the body as good as possible by its good condition'. In view of that resemblance, in his unpublished thesis, p. 99, cited by Philippson, op. cit., p. 404, Laue takes this passage not to be an authentic saying of Democritus', but as having its source in Plato. But precisely the same idea is contained in no. 776: '(the soul) has ruined some things in the body by its carelessness ... and has destroyed others ...'. On the contrary, as Philippson rightly points out, this passage shows once again how often in his ethics Plato repeats the words of Democritus, regardless of their fundamental differences of principle.

<sup>2</sup>orthoí ['rectifies']: Langerbeck, op. cit., p. 74, correctly points out that orthoí here = katithuneí ['directs aright'] in no. 32: 'This fragment is the best commentary on (no. 32) ... 'directing aright' is precisely turning evils into goods'.

785

<sup>1</sup>The mss of Clement read 'Leucimus', but there is no such philosopher. But in the next passage of Democritus (no. 786), which is attested by several good sources, and of whose authenticity there is no doubt, we read the same words: 'pleasure in what is fine' = 'joy in fine things' in our passage. Sylburg and Diels were therefore right [DK II, p. 79, l. 32 n.] to see 'Leucimus' as a corruption of 'Leucippus'. Though a number of scholars, including Kranz, object to this emendation and are prepared to correct 'Leucimus' to the totally dissimilar word 'Lukiskus' ('Lukiskus Bywater more probably' [DK *ibid.*]), that is based on the prior conviction that Aristotle knew the philosophy of Leucippus as distinct from that of Democritus, and that in that philosophy there was no place for ethics.

786

<sup>1</sup>See no. 785 with comm. As Philippson remarks, op. cit., p. 399, the expression 'not choose ... every pleasure' is repeated almost word for word by Epicur. Epist. III.129: 'we do not choose every pleasure'. Philippson, op. cit., pp. 399, 411, compares to 'that [i.e. pleasure] in what is fine' the expression ascribed to Protagoras in Pl. Prot. 351b: 'taking pleasure in fine things ... a pleasant life is good, if one lives by taking pleasure in fine things'. [L quotes the Old Russian translation, V. Semenov, op. cit., p. 26 and the Bulgarian translation, M.N. Speranski, op. cit., supplement, p. 129, no. 42.]

787

<sup>1</sup>Cf. Zeller, Philos. d. Gr., I, p. 1148, n. 2: 'If one follows the context literally, the topic is love for a man or a woman: righteous love is that in which the lover seeks what is fine without resort to violence'. Cf. Alfieri, op. cit., p. 225: 'lawful love is the desire to possess the beauty (which one loves), without using violence to possess it'. But I have no doubt that the physical type of relation is merely a metaphor and that the topic is the pursuit of the higher good, without hurting the feelings of those around one. There are a number of similar metaphors in Plato.

V. By freely preferring justice to injustice, and seeking the highest pleasure from doing so

790

<sup>1</sup>Diels thinks that the word 'reason' (logon) belongs not to Democritus but to Plutarch's paraphrase; Kranz objects that on that assumption the pronoun auton ['itself'] has nothing to refer to [DK II, p. 179, l. 6 n.]. This is, of course, no argument, since Democritus' text may have contained 'mind' (nous), 'spirit' (thumos) or some other masculine noun similar in meaning. But we should notice that such a use of the word logos in the extended sense

‘reason’ is attested for Democritus (no. 685: ‘many who do not learn logos [‘argument, theory, learning’] live according to logos [‘reason’]’

c. BAD AND UNWISE PEOPLE, WHO HAVE EMBRACED ‘ILL-BEING’

792

<sup>1</sup>[L quotes the Old Russian translation, V. Semenov, op. cit., p. 387.]

793

<sup>1</sup>Friedländer, Hermes 48, pp. 603ff., suggests that all the passages beginning with the words anoēmones, axunetoi, nēpioi [‘unwise, foolish’] etc. originally constituted a single collection, going back to a collection of sayings of Democritus, Hupothēkai [‘Suggestions, Advice’]; that is very probable. But further more detailed conclusions would be arbitrary; see Alfieri, op. cit., p. 231, n. 581, Langerbeck, op. cit., p. 72.

<sup>2</sup>Bücheler regards no. 793 as simply an explanatory gloss on no. 796 [DK II, p. 186, l. 10 n.] and excludes this passages. Alfieri, op. cit., p. 258, n. 651, rightly points out that this assumption is arbitrary; the passage may have concerned slaves of fortune, who do not know real cheerfulness (cf. no. 798), or many other things.

794

<sup>1</sup>kai here, as in a number of other places, is synonymous with kaiper [‘although’], as correctly pointed out by Wilamowitz, cited by Diels [DK II, p. 187, l. 1 n.]. So it is unnecessary to emend kai to kaiper, as Diels and Hense do [DK *ibid.*].

795

<sup>1</sup>After the insignificant correction of ouden [‘nothing’] to ouden [‘no-one’], made by Hense and approved by Wilamowitz, this passage is entirely clear, and there is no reason to supply a question-mark, as Kranz does [DK 68 B 204], or to emend arbitrarily. The verb areskein in the sense ‘give pleasure’ is regularly used with the accusative (Thuc. I.128; Pl. Thēt. 172d, 202c; Crat. 433e; Rep. 537b-d; Laws 702c, and often in poetry). The same is undoubtedly the case with the synonymous verb handanein; cf. Theogn. 26: pantas handanei [‘pleases everyone’] (enended on metrical grounds to pantōs handanei [‘pleases totally’], which spoils the sense, or to pantess’ handanei [‘pleases everyone’], but, as Bergk correctly points out, the scansion is here on the Homeric model: pantas Fandanei); Eur. Or. 1609: ‘wicked women do not please me’ (me’ is usually deleted); Theocr. 27.22: ‘no-one has pleased my mind’. [Some textual details of Theocr omitted.] ‘The unwise are a true joy for no-one (with their friendship)’ is Langerbeck’s correct translation of this passage, op. cit., p. 72; he cites in comparison Democritus 64 and 65, which are given in the text.

797

<sup>1</sup>In the spirit of this entire group of sayings Meineke emends anthrōpoi [‘people’] to anoēmones [‘the unwise’] [DK II, p. 187, l. 3 n.]; that is entirely possible, since in the later tradition specifically Ionic terms are often changed to generally understood terms, but why could Democritus himself not have modified his expressions? See no. 798, Stob. II.8.16, and no. 799, where anthrōpoi corresponds to the usual anoēmones.

799

<sup>1</sup> A reconstruction of the context of this saying is given in the comm. to no. LXI.

800

<sup>1</sup>Langerbeck, op. cit., p. 70, comments on this passage as follows: ‘The stupid (nēpioi) are [not]<sup>288</sup> straightforwardly identical with the unwise (anoēmones); the former are the wholly immature, who are not indeed susceptible to instruction, but can be forced by misfortunes to acquire prudence, the latter are the unteachables, who are mature in a negative sense’. I doubt the correctness of such a distinction. The passage from the Paris Codex, 1169 (= AED 89) is, to judge by the terminology simply a paraphrase of Democritus’ dictum (Ten-Brink, ad loc.: ‘The collectors of maxims did not merely change the dialect, but they also changed Ionic words into those common to the different dialects’). Regarding the sayings of Democrates 41 and 20, Philippson says, op. cit., p.410: ‘One cannot suppose that Democritus used the last expression together with the first in the same work, but it is possible that these expressions were used by him in different works’. The maxim, similar in content, cited by Antonius (49, p. 86 = PG 136, p. 927 B): ‘the occasion becomes the teacher of many’ cannot belong to Democritus, since it is an iambic trimeter.

## K. ARTS

### a. MEDICINE

801b

<sup>1</sup> See comm. on no. 472, n. 18.

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<sup>288</sup> [L’s quotation omits ‘not’.]

## WORKS OF S.Y. LURIA RELATING TO DEMOCRITUS

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