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DOXOGRAPHICAL DEFORMATION OF MEDICAL TRADITION IN THE REPORT OF
THE ANONYMUS LONDINENSIS ON PHILOLAUS

aus: Zeitschrift für Papyrologie und Epigraphik 83 (1990) 219–233

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Doxographical Deformation of Medical Tradition in the Report of the Anonymus Londinensis on Philolaus¹

The text published by Diels in 1893 as *Anonymi Londinensis ex Aristotelis Iatricis Menoniis et aliis medicis eclogae*² had, from the beginning, a puzzling peculiarity: on the one hand its 'Aristotelian' doxography about the causes of health and disease was admirably in line with Diels' reconstruction of the history of ancient doxography, proposed only a few years earlier in his monumental work *Doxographi Graeci* (Berlin 1879); on the other hand it completely overthrew the then current image of Hippocrates.³ Thanks to many quotations of ancient authorities, both in the doxographical part and in the physiological section, the Anonymus Londinensis soon became one of the most important sources for the history of ancient philosophy and medicine. It could even be said that the high quality of the Anonymus as a source has been so far the main obstacle to a true understanding of the text as a whole; the questions about who composed the work, what its purpose was, and what sort of audience it was aimed at, have not as yet received satisfactory answers. Like ancient doxographers, modern scholars depend on one another's views about these general problems and are mostly interested in studying particular details: in the first place, the value of the doxography about Hippocrates.⁴ As often happens, some widespread commonplaces concerning the nature of the text written by the so-called Anonymus Londinensis need to be reconsidered.

First, it is widely assumed that the text was made up from lecture notes taken by a student or compiler. Less specifically, it is seen as a copy, made for private use, of an earlier work. Looking, however, at the actual papyrus the reader is inclined to see it as an autograph rather than a scribe's work. It is difficult to understand why "lecture notes," as Jones puts it,⁵ should

¹ This paper was read to a postgraduate seminar on Hippocratic medicine, directed by Prof. Heinrich von Staden, Department of Classics, Yale University, New Haven (Conn.), in September 1988. I am glad to have the opportunity to express my gratitude to Prof. von Staden and to thank him for the comments he generously offered to me. I am also grateful to Fernanda Decleva Caizzi, M. Serena Funghi, L. Koenen, and Amneris Roselli, who read the work and offered much helpful advice and criticism, and to Ellen Bauerle and Ann E. Hanson, who improved the English.

² In *Supplementum Aristotelicum* III 1, Berlin 1893; see also H. Diels, "Über die Excerpte von Menons Iatrika in dem Londoner Papyrus 137," *Hermes* 28 (1893) 417-20.

³ The doxography was apparently derived from the treatise *De flatibus*, generally considered a Sophistic work: Diels, "Excerpte" (see n. 2) 426ff.

⁴ For a large but still incomplete bibliography see M.-H. Marganne, *Inventaire analytique des papyrus grecs de médecine*, Genève 1981, 182-84.

⁵ *The Medical Writings of Anonymus Londinensis*, Cambridge 1947, 4: he suggests a very complicated solution in order to support Diels' hypothesis of a scribe's work. A list of autographs on papyri appears in M. Parca, *A Late Greek Tragedy: Odysseus Masquerading in Troy* (P. Köln VI 245), forthcoming in *American Studies of Papyrology*.

show so many changes of mind. Several notes in the margin do not fill an actual gap in the text's sentence, but add something important to the Anonymus' thought. In at least one passage the reader suspects that he is dealing with two different drafts on the same topic. A vertical line drawn in the margin obviously marks the duplication of the passage (I 15-38; I 39-II 40).

Second, it is generally assumed that in the doxographic section the Anonymus refers to Menon, a pupil of Aristotle, although he explicitly names "Aristotle." This judgment is based on Galen, who refers to the same work as actually ascribed to Aristotle but, according to general opinion, authored by Menon (τὰς τῆς ἰατρικῆς συναγωγῆς βιβλίους ἐπιγεγραμμένας μὲν Ἀριστοτέλους, ὁμολογουμένας δὲ ὑπὸ Μένωνος). The similarity between the doxography of the Anonymus Londinensis and the work entitled Ἀριστοτέλους Ἰατρικὴ συναγωγή and mentioned by Galen cannot be doubted, and the authorship of Menon was widely accepted. Hence Menon received a solid place in the history of the Peripatos,⁶ as it suited Diels' influential opinions on Aristotle's encyclopedia of sciences as well as Peripatetic scholarship in the early Roman empire.⁷ Galen's statement, however, is merely a guess. In his time no precise information about Menon was available, and the alternative title of the work, Μενώνεια, suggested a hypothesis for the authenticity of this work currently ascribed to Aristotle. We therefore do not know, nor did Galen, whether Menon ever existed. On the other hand, Aristotle's claim to the authorship of the doxography should not be ruled out. He had at least planned to write a treatise περὶ νόσου καὶ ὑγείας.⁸

There is another related question: did the Anonymus (I mean the person who authored the papyrus) know the Aristotelian doxography directly or through an intermediate source? The language does not always suit a Peripatetic text and there is evidently a Stoic source behind some passages (e.g. in the Anonymus' account of Plato's view in the *Timaeus*, as Jones noticed, *loc. cit.* [above n. 5] 3): in other words, we read a biased rendering of the source or, more probably, an interpretation that uses different sources. Nevertheless, it may be concluded that the general scheme of the doxography suits a Peripatetic source: it distinguishes between those who attribute the cause of disease to residues of digestion, περιττώματα, and those who attribute them to the basic elements of the body, στοιχεῖα, and it uses an expository method that proceeds through similarities and differences in describing the opinions of specific au-

⁶ Galen, *CMG* V 9.1, p. 15,23ff.; see H. Raeder, Menon, no. 17, *RE* 29/XV 1 (1931), 927; F. Wehrli "Der Peripatos bis zum Beginn der römischen Kaiserzeit," in *Die Philosophie der Antike*, B. 3, Basel-Stuttgart 1983, 530f. The first to accept the authorship of Menon was F. Kenyon, *CR* 6, 1892, 237-40.

⁷ This first part refers to some of the issues developed in D. Manetti, *ZPE* 63 (1986) 57ff. and in *Corpus dei Papiri Filosofici (CPF)* I 1.1, Firenze 1989, 345-51.

⁸ See now *Aristotelis opera* ex rec. I. Bekkeri, ed. Academia Regia Borussica, III *librorum deperditorum fragmenta*, ed. alt., addendis instruxit fragmentorum collectionem retractavit O. Gigon, Berlin-New York 1987, 511. Gigon accepts the doxography of the Anonymus Londinensis in his collection of fragments, pointing to the medical interests of Aristotle and denying the reliability of Galen's attribution to Menon; for similar arguments see my article in *ZPE* 1986 (above n. 7).

thors.⁹ Yet, many details within the Peripatetic framework point to a secondary elaboration of the material.

Diels maintained that the Anonymus knew the doxography through the work of Alexander Philalethes, a pupil of Asclepiades, who flourished in the last decades of the first century B.C. Alexander is the latest authority mentioned in the papyrus (but not in the doxographical section) and is known as the author of a doxographical work, Ἀρέκκοντα. But no evidence supports Diels' view, as he explicitly admits. The real reason to suggest this hypothesis lies in the fact that Diels, followed by the majority of scholars, was deeply convinced that the Anonymus' only virtue is his mindless copying of sources. Some clues point to a date for the doxography earlier than Alexander: (a) of the physicians whose theories are described none is later than the 4th century B.C.; (b) for some passages we can compare the Anonymus' text with parallel sources. It appears that the author's accounts often are surprisingly precise. The present paper will later discuss a passage from the doxographic section in which he treats Philolaus (p. 222ff.); here suffice it to refer to the account of Aristotle's theory of sleep in the physiological section, which shows a close knowledge of the text of *De somno* and perhaps even of the *Parva naturalia*.¹⁰

These remarks assume a wider significance in the context of my initial comments: the copy written on the extant papyrus seems to be the work of someone thinking about what he writes while writing. He has not finished his work. As already was pointed out, he once added a duplicate version to a passage he had just written. Moreover, an intention expressed at VII 37 is not fulfilled, and the text breaks off for no apparent reason at XXXIX 32. Thus we may infer that the actual scribe is the real 'author' (the so called Anonymus) of the present work. He may be credited with a better understanding than Diels and other scholars granted him. Even a provincial teacher or physician living in Egypt (it is unknown where the papyrus was found) can have possessed intelligence, if not originality. Besides, if copies of the doxographical work entitled Ἀριστοτέλου Ἱατρικὴ συναγωγή were still available in Galen's times, the Anonymus could well have had such a copy before his eyes. He wrote not later than in the middle of the second century A.D.¹¹ Thus I shall assume that the Anonymus knows the Aris-

⁹ For general remarks about the Aristotelian features of the doxography see, e.g., J.-H. Kühn, *System- und Methoden- Probleme im Corpus Hippocraticum*, Wiesbaden 1956, 97-102; W.D. Smith, *The Hippocratic Tradition*, Ithaca-London 1979, 50-60; A. Thivel, *Cuide et Cos? Essai sur les doctrines médicales dans la Collection hippocratique*, Paris 1981, 357-69.

¹⁰ Also see, in the account on Hippo of Croton XI 32-34, τὴν κατώνομασμένην ὑγρότητα. This is confirmed by Alexander of Aphrodisias *In Metaph.* 26,21 = Hippon A 6 DK; cp. also VII 29-30 ἐπὶ τὴν τραχεῖαν ἀρτηρίαν — λάρυγγα δὲ αὐτή. For the paraphrase of Aristotle's *De somno* see my note in *CPF* I 1.1 (above n. 7) 307-11.

¹¹ It was dated by F. Kenyon (see n. 6) and Diels (*ed.pr.*, ix, slightly different from "Excerpte" [above, n.2] 411: first century or II-III century). The Anonymus ignores Galen and every physician later than Alexander Philalethes. M. Wellmann's identification of the Anonymus' source as Soranus (*Hermes* 57 [1922] 396-429) has no serious support. For the distinction between medical schools before Galen such as reflected in the Anonymus, see H. von Staden, "Hairesis and Heresy: The Case of the *haireseis iatrikai*," in *Jewish and Christian Self-Definition*, vol. *Self-Definition in the Graeco-Roman World*, ed. B.F. Meyer - E.P. Sanders, London 1982, 81ff. Yet the problem is still open. For Alexander Philalethes' chronology see J. Benedum, *Gesnerus*, 31 (1974) 221-36 and

totelian doxography directly, and that he has not taken over material uncritically, but has selected or adapted what suits his own interests.

A thorough analysis of the doxography cannot be given here, but I should like to show that we can appreciate how the Anonymus interpreted and made use of the doxography and why he did so. In this discussion we shall not confine ourselves to using the text as a quarry for context-free fragments. In addition, this inquiry will further our perception of how the doxographical material might have functioned in its own context. I have selected the passage on Philolaus, the Pythagorean philosopher contemporary with Socrates, as an example of the Anonymus' way of handling his doxographical material. I shall also use the testimony about the physician Petron of Aegina as a support for my argument, when I consider the close relationship between the two accounts.

XVIII 8 - XIX 1

Φιλόλαος | δὲ ὁ Κροτ[ωνιά]της συνεστάναι φ(ησίν) τὰ ἡμέτερα σώματα ἐκ] θερ-
μοῦ, ἀμέτοχα γ(ὰρ) αὐτὰ (εἶναι) | ψυχροῦ, [ὑπομι]μνήσκων ἀπό τιν(ων) τοιούτ(ων). | ¹²
τὸ σπέρμ[α (εἶναι) θερ]μὸν, κατασκευαστικὸν δὲ | τοῦτο τ[οῦ ζῴου]. καὶ ὁ τόπος δέ, εἰς
ὄν | ἢ κ(ατα)βολ[ή] — μήτρ]α δὲ αὕτη· (ἐστίν) θερμότερα | καὶ εἰκ[υῖα ἐκ]εῖνφ· τὸ δὲ
εἰκόσ τινι ταῦτὸ δύναται ᾧ ἔοικεν· ἐπεὶ δὲ τὸ κατα¹⁶σκευάζ[ον ἀμέ]τοχόν (ἐστίν)
ψυχροῦ καὶ ὁ τόπος | δέ, ἐν ᾧ [ἢ κ(ατα)βολ]ή, ἀμέτοχος (ἐστίν) ψυχροῦ, | δῆλον [ὅτι καὶ
τὸ] κ(ατα)σκευαζόμενον ζῶον | τοιοῦτο[ν γίνε]ται. εἰς δὲ τούτου τὴν | ²⁰ κατασκ[ευὴν
ὑ]πομνήσει π(ρο)σ[χρη]ται τοιαύτη· με[τά] φ(ησίν) τὴν ἔκτεξιν εὐθέως | τὸ ζῶιον ἐπι-
σπᾶται τὸ ἐκτὸς πνεῦμα | ψυχρὸν ὄν· εἶτα πάλιν καθαπερὶ χρέος | ²⁴ ἐκπέμπε[ι] αὐτό·
διὰ τοῦτο δὴ καὶ ὄρεξις | τοῦ ἐκτὸς πνεύματος, ἵνα τῇ | ἐπεισάκτω τοῦ πνεύματος ὀλκῆ
θερμότερα ὑπάρχοντα τὰ ἡμέτερα σώματα π(ρὸς) αὐτ(οῦ) | ²⁸ καταψύχεται. καὶ τὴν
μ(έν) κύστασιν | τῶν ἡμετέρων σωματ(ων) ἐν τούτοις φ(ησίν). | λέγει δὲ γί(νεσθαι)
τὰς νόσους διὰ τε χολῆν | καὶ αἷμα καὶ φλέγμα, ἀρχὴν δὲ γί(νεσθαι) | ³² τῶν νόσων
ταῦτα· ἀποτελεῖσθαι | δὲ φ(ησίν) τὸ μ(έν) αἷμα παχὺ μ(έν) ἔσω παραθλιβομένης τῆς
σαρκός, λεπτὸν | δὲ γί(νεσθαι) διαιρουμέν(ων) τ(ῶν) ἐν τῇ σαρκὶ ἀγγείων· | ³⁶ τὸ δὲ
φλέγμα συνίστασθαι ἀπὸ τῶν ὄμβρων φ(ησίν). λέγει δὲ τὴν χολῆν ἰχῶρα | εἶναι τῆς
σαρκός. παράδοξόν τε αὐτὸς | ἀνὴρ ἐπὶ τούτου κινεῖ· λέγει γ(ὰρ) μηδὲ τει⁴⁰τάχθαι[ι]
ἐπὶ τ[ῷ] ἥπατι χολῆν, ἰχῶρα μ(έν)τοι τῆς σαρκός (εἶναι) τὴν χολῆν. τό τ' αὖ | φλέγμα
τ(ῶν) πλείετ(ων) ψυχρὸν (εἶναι) λεγόντων αὐτὸς θερμὸν τῇ φύσει ὑπ[ὸ]τί⁴⁴θεται·
ἀπὸ γὰρ τοῦ φλέγειν φλέγμα εἰρησθ(αι)· | ταύτη δὲ καὶ τὰ φλεγμαίνον[τα] | μετοχῆ
τοῦ φλέγματος φλεγμ[α]ίνει. καὶ ταῦτα μ(έν) δὴ ἀρχὰς τ(ῶν) νό[σ]ων | ⁴⁸ ὑπ[ὸ]τίθε-
ται, [σ]υνεργὰ δὲ ὑπερβολ[άς] | τε θερμασίας, τροφῆς, κ(ατα)ψύξεω[ς καὶ] || ἐνδείας
τ(ῶν) τούτ[ο]ις [παραπλησίων].

paragraphi in marg. sin. additae iuxta XVIII 8 (bifurca), 29, 35, 48.

XVIII 9 Κροτ[. . .] τ η ς 10 αμετα vel αμεγα παρ. : ἀμέτ(οχ)α Diels (cf. v. 16) : ἀμιγῆ
Kenyon ap. Diels 15]εινωί `το δε εοικος τινι τατο δυναται ωι εοικεν', ad τατο v.
Wackernagel, *Kl. Schr.* (Göttingen 1953) 684ss., Gignac, *Grammar I* 187s. 16 ψυχρὸν per-

now H. von Staden, *Herophilus: the Art of Medicine in Early Alexandria*, Cambridge 1989, 532 (Alexander Philaethes lived ca. 50 B.C.-A.D. 25).

peram pap. τοπο`ς' 19 τοιοῦτο[ν γίνε]ται Diels spatii gratia 21 με[τὰ γὰρ] τὴν
 Diels εὐθεως [τὸ] 22 επ[ε]ιπαται 26 επι ακ τ ω ι 33 μ'(εν)'ε[σων]σω
 38 α'υ'τος 39 κ ε ι νει 42 `ψυχον' [θερμον]; ψυχρὸν corr. Diels 49 `τε' in
 marg. sin. XIX 1 post ἐνδείας add. τούτων ἢ Diels, sed καὶ addito ἐνδείας post τε trans-
 ponere possis (sc. ὑπερβολ[ί]ας τε (καὶ ἐνδείας) θερμοσίας . . . [καὶ] {ἐνδείας} τ(ῶν) ...)

XX 1-24

ὁ δὲ Α[ἰγινήτης] | Πέτρων συνεστάναι φ(ησὶν) τὰ ἡ[μέτερα] | σώματα ἐκ δις[ω]ν
 στοιχείων, ψυ[χροῦ] |¹⁴ τε καὶ θερμοῦ, ἐφ' ἑτέρωι δὲ τούτ[ων] | ἀπολείπει τι ἀντίστοιχον,
 τῶι μ[έν] | θερμῶ τὸ ξηρόν, τῶι δὲ ψυχρῶ [τὸ ὑγρ(όν)]. | καὶ ἐγ μ(έν) δὴ τούτ(ων)
 συνεστάναι τὰ σώ[ματ(α)]. |¹⁸ φησὶν δὲ γί(νεσθαι) τὰς νόσους ἀπ[λῶς] | μὲν δ[ιὰ] τὰς
 περιπτώσεις τῆς τρ[οφῆς]. | ὅταν {α}σύμμετρα ἢ κοιλία μὴ λ[αίβ]οῦσα, πλείω δέ, μὴ
 κατεργάσ[η]ται |¹² αὐτά, συμβαίνει νόσους γί(νεσθαι). ἢ ἀπὸ τ(ῶν) | στοιχείων τ(ῶν)
 προειρημέν(ων) ὅταν ἀνώμαλα ἢι νόσους ἀπεργάζεται. περὶ | δὲ τῆς διαφορᾶς τῆς
 κατὰ τὰς νό[σ]ους οὐδὲν διακριβοῖ. περὶ δὲ τῆς | χολῆς ιδιότερον παθολογεῖ. φ(ησὶν)
 γὰρ αὐτὴν ὑπὸ τ(ῶν) νόσων κ(ατα)σκευάζεσθ(αι). | οἱ μ(έν) γ(ὰρ) ἄλλοι ἀπὸ τῆς χο-
 λῆς λέγουσι |²⁰ γί(νεσθαι) τὰς νόσους, οὗτος δὲ ἀπὸ τ(ῶν) | νόσων τὴν χολήν — καὶ
 σχεδὸν [οὔτω]ς | ὁ Φιλόλαος οἶεται μὴ (εἶναι) ἐν ἡμῖν χολή[ν] | οἰκείαν. καὶ κ(ατὰ)
 μ(έν) τοῦτο συνηγόρευ[ε]ν |²⁴ τῶ Φιλολάφ, κ(ατὰ) δὲ τὰλλα τ[αυτο]ν.

paragraphi in marg. sin. additae iuxta XX 1 (bifurca), 7, 16.

XX 1 suppl. Diels 2-11 suppl. Kenyon ap. Diels 10 ἄ σύμμετρα Diels; at de vocali
 a ante c delenda dubitavit 11 πλε[η]ιω 18 `νοσων' [σωμ]{ατ(ων)} 21 [οὔτως
 ὡ]ς Diels, sed spatio non consentit 23 οἰκείαν (ο` ex a` corr. ut vid.) Manetti : ἦ] |
 ἀ[χρ]είαν Diels τοῦτο pap., ταῦτα perperam Diels 24 α υ τονει corruptum, velis αὐ-
 τον(ο)εῖ vel αὐτο(γνομο)νεῖ (Diels in app.) vel αὐτολογεῖ (cf. v. 17) vel similia

Both passages are included in the part of the doxography that deals with those considering στοιχεῖα as causes of disease, a section starting with a very long report of Plato's view. The general scheme of the exposition presents three points: (1) the elements of the body according to various authors; (2) the ἀρχή of diseases, i.e. the way something goes wrong and diseases arise; this point includes the enumeration of different kinds of causes, which sometimes are not congruent with the main issue (as is the case, for instance, in Plato, who also deals with περιπτώματα) and tend to be expressed serially; all causes are listed at once, and afterwards each one is explained separately; (3) the διαφοραί of diseases, i.e. why the different kinds of disease can be explained in accordance with point (2). In general terms, the scheme is followed in the cases of Plato, Polybus, Menecrates, Petron, and apparently Philistion.¹² In the account of Petron, point (3) is covered by a negative statement: "But about different kinds of diseases, Petron gives no details" (XX 14-16). This provides further evidence that the doxographical structure has great influence. The same method was followed by Theophrastus.¹³

¹² The text is badly damaged at the end of the account, XXI 1ff.

¹³ An analogous procedure occurs in the section on περιπτώματα after the description of the causes of disease according to Hippo (XI 41f.): τὰς δὲ νόσους τὰς γινομένας οὐχ ὑπ[α]γορεύει. He adds this negative remark simply because, according to the doxographical scheme, the different diseases should be explained at this point.

In the account of Philolaus' theory, however, the scheme I have outlined is not so evident. Let us examine its content:

"Philolaus of Croton says that our bodies are composed of heat, because (he says) they have no part in cold. He mentions evidence like the following: the seed, constructive of the living being, is warm and the place in which it is deposited, i.e. the womb, is warmer still and similar to the seed and — what is similar to a thing has the same qualities as the thing it resembles. Since what constructs the living being has no part in cold and the place in which it is deposited has no part in cold, it is evident that the living being that is constructed has also no part in cold. With regard to its construction,¹⁴ he argues in such a way: immediately after birth the living being inhales the external air, which is cold; then it discharges it repaying it like a loan. Also, craving for the external air is aimed at cooling our bodies through drawing breath because they are too hot. Thus he describes the composition of our bodies. He further says that diseases arise through bile, blood, and phlegm, and that these are the ἀρχή of diseases. The blood, he says, is rendered thick when the flesh is compressed inwards; it becomes thin when the vessels in the flesh are broken up. Phlegm is composed of the liquids. He further says that bile is a serum of flesh. The same man has a paradoxical view in this matter: he denies that bile has its station in the liver, but he makes bile a serum of flesh. And again while most people think that phlegm is cold, he maintains that it is by nature hot, because its name derives from the verb φλέγειν (to burn); therefore too it is by participation in 'phlegm' that inflamed parts are inflamed (φλεγμαίνειν). These are the things Philolaus postulates as the ἀρχαί of disease, and as contributory he assumes excesses or defect of heat, nutriment, chill, and things like these."

As is well known, this account has proved that a copy of Philolaus' writings was available in the 4th century B.C. The account has also played a prominent role in the notorious discussion about the authenticity of Philolaus' fragments.¹⁵ The main point is the phrase ὁ τόπος

¹⁴ This rendering of κατασκευή is suggested by the occurrence of κατασκευαστικόν and κατασκευάζον in the same passage. The argument may be explicated as follows: "With regard to the construction of the living being, <the cold has no part in it, and becoming cold must have a another origin>. Hence he argues in such a way..." A crucial step of the logic is suppressed. This difficulty may be avoided by a different translation of κατασκευή: "In order to demonstrate it, he argues in a way..." (see Diels' index s.v. κατασκευή).

¹⁵ A. Döring, *Geschichte der griechischen Philosophie* I, Leipzig 1903, 186f.; U. von Wilamowitz, *Platon* II, Berlin 1919, 88; A. Olivieri, "Osservazioni sulla dottrina di Filolao," *RIGI* 5 (1921), 43-46 (= *Civiltà greca nell'Italia meridionale*, Napoli 1931, 33-58); E. Howald, "Die Schrift des Philolaos," in *Essays on the History of Medicine*, Presented to K. Sudhoff on the Occasion of his Seventieth Birthday November 26th 1923, 63-72; E. Frank, *Plato und die sogenannten Pythagoreer*, Halle 1923, 327-29; W. Nestle apud E. Zeller, *Die Philosophie der Griechen in ihrer geschichtlichen Entwicklung*, herausg. von W. Nestle mit Unterstützung von F. Lortzing, Leipzig⁶ 1919, I 441ff. (E. Zeller-R. Mondolfo, *La filosofia dei Greci nel suo sviluppo storico*, Parte I, vol. II, Firenze 1950, 367-382; 560ff.); A. Maddalena, *I Pitagorici*, Bari 1954, 184f. (A27-28); M. Timpanaro Cardini, *Pitagorici. Testimonianze e frammenti* II, Firenze 1962, 104f.; 186-190; W.K.C. Guthrie, *A History of Greek Philosophy* I, Cambridge 1962, 278f.; J.A. Philip, *Pythago-*

εἰς ὃν ἡ καταβολή, which must be a literal quotation, because it is glossed as μήτρα δὲ αὐτή. Such glosses frequently occur in the doxographical section of the Anonymus¹⁶ and point to the fact that the author for the most part retained the wording of his source. In the present case, Philolaus' use of the term καταβολή is confirmed by fragment B 13 DK (Theol. Arithm. p. 25, 17 de Falco): καὶ τέσσαρες ἀρχαὶ τοῦ ζώου λογικοῦ, ὡς περ καὶ Φιλόλαος ἐν τῷ Περὶ φύσεως λέγει, ἐγκέφαλος, καρδία, ὄμφαλός, αἰδοῖον· 'κεφαλὰ μὲν νόου, καρδία δὲ ψυχᾶς καὶ αἰσθήσιος, ὄμφαλός δὲ ῥιζώσιος καὶ ἀναφύσιος τοῦ πρώτου, αἰδοῖον δὲ σπέρματος [καὶ] καταβολᾶς τε καὶ γεννήσιος. ἐγκέφαλος δὲ (σαμαίνει) τὰν ἀνθρώπων ἀρχάν, καρδία δὲ τὰν ζώου, ὄμφαλός δὲ τὰν φυτοῦ, αἰδοῖον δὲ τὰν ζυναπάντων· πάντα γὰρ ἀπὸ σπέρματος καὶ θάλλοντι καὶ βλαστάνοντι.'

There is no reason to think that Philolaus was chiefly influenced by Heraclitus and Hippasus, as Diels says (*Hermes* 28 [1893] 418). In reality the general features of his theory are closer to Empedocles. A connection between Philolaus and Empedocles is in general acknowledged and was already pointed out by ancient tradition.¹⁷ Here too, Philolaus' notion of heat as the basic element of the body is more consistent with an Empedoclean context: his theory is only apparently monist, because he makes use of the polarity 'warm and cold' when he refers to the newly born baby and explains breathing. According to him, life depends on a dynamic balance between the two opposite qualities through respiration. Other points of contact with Empedocles are the role of heat in procreation—seed and womb are warm—and the overall idea of the mechanism of respiration and its vital function. At this point, Empedocles A 74 and B 100 DK may be compared. Moreover, it may be Empedocles who lets us understand the similarity between Philolaus' and Petron's opinions on the composition of the body, even if the latter adds the other two elementary qualities (in a way they are subordinated to the basic couple, warm-cold). Philolaus' and Petron's interest in elementary and opposed qualities is understandable within the culture of the 5th century, when such a view was popular. Important testimony appears in the polemic of the Hippocratic treatise *On ancient medicine*, chapters 1 and 20. The author argues against those who believe that the elementary qualities (the hot, the cold, the moist, and the dry) are the causes of disease and the basic components of φύσις. Apparently this was a wide spread theory, but the only opponent whom the author names as representative of this view is Empedocles: Ἐμπεδοκλέης ἢ ἄλλοι οἱ περὶ φύσιος γεγράφασιν

ras and Early Pythagoreanism, Toronto 1966 (Phoenix Suppl. VII), 119 n.6; W. Burkert, *Lore and Science in Ancient Pythagoreanism*, Cambridge (Mass.), 1972 (revised transl. of *Weisheit und Wissenschaft: Studien zu Pythagoras, Philolaos und Platon*, Nürnberg 1962), 221, 270-72; K. von Fritz, Philolaos, *RE Suppl.* XIII, 1973, 478-79; G.S. Kirk-J.E. Raven-M. Schofield, *The Presocratic Philosophers*, Cambridge² 1983, 340f.

¹⁶ See above n. 10 and XII 10-12; XIII 38-39; XX 25-26. W. Burkert (above, n. 15), 236, points out the same feature in Aristotle, in order to demonstrate that he uses a written source, i.e. Philolaus' book.

¹⁷ See for example Philolaus' attempt to unite geometrical figures and the four elements, a theory he took over from Empedocles, e.g. A 14, 15 and 18 DK. For the importance of heat in Empedocles' embryology see E. Lesky, *Die Zeugungs- und Vererbungslehren der Antike und ihr Nachwirken*, Wiesbaden 1951, 31-38. For the connection of Empedocles with Pythagoreanism according to the ancient tradition, see Neanthes, *FGrHist* 84F26 (=D.L. VIII 55); Satyros *FHG* III 162 (=D.L. VIII 53).

(VM 20, p. 18.3 Festugière).¹⁸ On the other hand, dynamic balance as condition of life suits Philolaus' theory of the soul as a harmony (cf. A 23 DK and B 6 DK). Moreover, many scholars¹⁹ have perceived the similarity between the description of breathing here and the 'cosmic respiration' found in the Pythagorean tradition (58 B 30 DK): in other words, there is no contradiction between the account of the Anonymus Londinensis and the rest of the surely genuine fragments ascribed to Philolaus.²⁰

The Anonymus does not content himself with exposing theories but also is deeply conscious of the dialectical technique and the logic that supports a theory in question. This is illustrated by the use of phrases like [ὑπομι]μνήσκων ἀπό τιν(ων) τοιοῦτ(ων), "he mentions as evidence facts like the following" and ὑπομνήκει π(ρο)χρηῆται τοιαύτη, "he argues in such a way" (cf. n. 14). Such technical phrases point to arguments that proceed from observation of what is accepted as fact to something apparently less evident.²¹ The focus on the intellectual framework of the argument runs the risk of manipulating the information in such a way that it suits the theoretical frame in which it is presented. Similarly, the use of the adjective τοιοῦτος suggests that the Anonymus is not quoting his source literally but selectively, and is even commenting upon it: he may as well add an example to make the topic clearer, as he often does elsewhere.²² Furthermore, in the interlinear space above line 15 a sentence is added: τὸ δὲ εἰκόσ τινι ταῦτὸ δύνάται ᾧ ἔοικεν. This looks like an attempt to clarify the ar-

¹⁸ von Fritz (above n. 15); G.E.R. Loyd, *Phronesis* 8, 1963, 108-126. For the elementary qualities within the Empedoclean tradition also see Hipp., *Vict.* I 4; but they are mentioned by many other philosophers and physicians: Diogenes of Apollonia, Archelaus, Hippo, and the Hippocratic treatises *Carn.*, *Hebd.* (see A.-J. Festugière, *Hippocrate. L'ancienne médecine*, Paris 1948, 58ff.). *Hebd.* is not reliable here, unless the late date proposed for it by J. Mansfeld (*The Pseudo-Hippocratic Tract περὶ ἑβδομάδων ch. 1-11 and Greek Philosophy*, Assen 1971) is refuted; see further n. 38.

¹⁹ Frank, 327f.; Kirk-Raven-Schofield, 341; Timpanaro Cardini, 187; Guthrie, 279 n.1 (for all references see n. 15). For the general idea of balance in the *Corpus Hippocraticum*, see A. Keus, *Über philosophische Begriffe und Theorien in den hippokratischen Schriften*, Inaug. Diss. Bonn, 1914, 58ff.

²⁰ Döring, 186f. (above n. 15); recently D. Gourevitch analyzed the passage on Philolaus in her paper "L'Anonyme de Londres et la médecine d'Italie du Sud," which she read to the Congress "Tra Sicilia e Magna Grecia" at Naples, March 1987.

²¹ This use of ὑπομιμνήσκω is different from the theory of the σημεῖα ὑπομνηστικά and ἐνδεικτικά, such as we read it in S.E. *PH* II 99-102 and *M* VIII 151-55. The Anonymus' language is more similar to that of Hierocles than that of Sextus; see P. Berol. Inv. no. 9780 v., col. I 40; V 61-VI 1; and VII 17.

²² There is a famous example in Hippocrates' doxography, viz. the comparison between man and the aquatic plant called στρατιώτης at VI 14ff. I am inclined to think that it is a comment by the Anonymus and not a quotation from Hippocrates or the source: see also VI 32; VIII 39; XIV 39. The Anonymus' interest in the logical problems of argumentation is expressed also by his arguing against the validity of some opinions of the 'ancients'. The point is always that their argument is not correct from a logical point of view, see for example VII 23ff. Besides, it is a typical feature of the Anonymus to add frequently, either *supra lineam* or in the margin, something that often is relevant to the argument. A useful parallel can be found in XII 9-11, where the Anonymus first writes "Dexippus of Cos thinks that diseases are produced by residues of nutriment," i.e. by bile and phlegm, "these being stirred up, not of themselves but through many unseasonable partakings of nutriment;" then he adds a second thought in the interlinear space above line 11 after "bile and phlegm": δυνάμεων γινόμενων περὶ μέρος καὶ περὶ ὅλον. He seems to believe that to define bile and phlegm as residues of nutriment *tout court* could be misleading since he considers them normal substances of the body.

gument by a general observation. One of the premises on which Philolaus' argument is based (καὶ ὁ τόπος δέ, εἰς ὃν ἡ κ(ατα)βολ[ή — μήτρ]α δὲ αὕτη· (ἐστὶν) θερμότερα καὶ εἰκ[υ]ῖα ἐκ]εῖνω, ll. 13-15) implies the general principle that the Anonymus then formulates and adds: τὸ δὲ εἰκόσ τινι ταῦτὸ δύναται ᾧ ἔοικεν.

This, of course, does not mean that the examples of the seed and of the newly born baby do not go back to Philolaus or to the Aristotelian doxography. The example of the seed is ancient and was used in doxography; and the argument is very similar to Aristotle's account of Hippo's view of the soul in *De anima* A 2, 405b1ff., where the example of the seed is intended to prove that the soul is water: τῶν δὲ φορτικωτέρων καὶ ὕδωρ τινὲς ἀπεφάναντο (scil. τὴν ψυχὴν), καθάπερ Ἴππων. πεισθῆναι δ' εἰκόσιν ἐκ τῆς γονῆς, ὅτι πάντων ὑγρά· καὶ γὰρ ἐλέγχει τοὺς αἵμα φάσκοντας τὴν ψυχὴν, ὅτι ἡ γονὴ οὐχ αἷμα· ταύτην δ' εἶναι τὴν πρώτην ψυχὴν. But, even more significantly, Philolaus' fragment B 13 DK (see above) on the four ἀρχαί in the body confirms the prominence of the embryological model. Besides, the example of the newborn baby can be also compared with Diogenes of Apollonia A 28 DK and Hippon A 10 DK.²³ Nevertheless, the fact that the Anonymus selects the example of respiration and does not confine himself to describing the heat theory points to his interest in the issue. At XXIII 11ff. he devotes a long passage to respiration and, in agreement with Philolaus, states that the function of breathing consists in balancing warm and cold.

The second part of Philolaus' doxography explains the ἀρχή of diseases. The account is striking, because none of the three listed causes seems to be connected with the 'heat' theory. This part seems to be much abridged. Hence, it is difficult at first sight to perceive the connection among the very short sentences. Besides, the expository opening sentence promising to demonstrate that bile, blood, and phlegm are the cause of diseases is only partially fulfilled. The Anonymus discusses blood; but as to bile and phlegm, he only states that the former is oddly considered a serum of flesh and the latter is composed of 'liquids', or rather ἀπὸ τῶν ὄμβρων, a puzzling statement to which we will return. Moreover, the three causes listed by the Anonymus are not of the same kind. Blood causes diseases only if it is altered by something external; on the other hand, bile and phlegm are pathological products. As to bile, this is stated in the parallel account of Petron (XX 16ff.), where it is explicitly compared to Philolaus' opinion. In the following, we shall discuss each of the three causes of diseases separately.

Blood's alterations are observed carefully in the *Corpus Hippocraticum* (e.g. *Morb.* I 20 = VI 176, 11 f. Littré), but usually blood is not a primary cause of disease. Only if it is altered by bile and phlegm does it produce disease. Within the humoral theory, for example, in *On the Nature of Man*, it is a cause of disease only when it is in excess.²⁴ Nevertheless, some

²³ Burkert (above, n. 15), 271-72; for Aristotle's treatment of Hippo see my note in *CPF* vol. I 1.2 (forthcoming).

²⁴ M.-P. Duminil, *Le sang, les vaisseaux, le coeur dans la collection hippocratique*, Paris 1983, 248ff. See also V. Di Benedetto, *Il medico e la malattia. La scienza di Ippocrate*, Torino 1986, 26ff. For a similar, but not pathological, modification of blood, see Empedocles A 78 DK ἰδρωτα (δὲ) καὶ δάκρυον γίνεσθαι τοῦ αἵματος τηκομένου καὶ παρὰ τὸ λεπτύνεσθαι διαχε-

passages in *CH* hint at a pathological role of blood, parallel to bile and phlegm. In *Loc. hom.* 30.1 Joly (=VI 322,21 Littré) blood coagulates abnormally, *κύναγχος ἀπὸ αἵματος γίνεται, ὅταν τὸ αἷμα παγῆ τὸ ἐν τοῖσι φλεβῶσι τῆσιν ἐν τῷ τραχήλῳ· τούτῳ ἀπὸ τῶν ἐν τοῖσι γυίοισι φλεβῶν αἷμα ἀφαιρεῖν*; and in 33.3 (=VI 326, 7-9): *τὸ μὲν αἷμα ὁπόταν νοῦσον ποιῆ, ὀδύνην παρέχει, τὸ δὲ φλέγμα βάρος, ὡς τὰ πολλά*. In *Int.* 32 (VII 248,14) blood causes a spleen disease: *ἄλλη νόσος σπληνός· γίνεται μὲν τοῦ ἔτεος ἕαρος ὥρη μάλιστα, ἀπὸ δὲ αἵματος· ὁκόταν γὰρ ἐμπλησθῆ ὁ σπλὴν αἵματος, ἐκρήγνυται ἐς τὴν κοιλίην, καὶ ὀδύνη ὀξεῖα ἐς τὸν σπλῆνα ἐπίπτουσι κτλ.*; and 51 (VII 294, 4-5) *γίνεται δὲ τὸ νόσημα ἀπὸ χολῆς· γίνεται δὲ καὶ ἀπὸ φλέγματος καὶ ἀπὸ αἵματος, καὶ ὀδύνη παραπλήσιοι ἀπὸ πάντων τούτων τῶν νοσημάτων*. Here blood, bile, and phlegm are listed together as causes of disease. Aristotle too is aware of the importance of the state of fluidity of blood in relation to health and disease (HA 521a13). According to Philolaus, then, blood seems to be a cause of disease when it is altered by external mechanical causes influencing the pressure of vessels and flesh.

While it is possible to find parallels for the pathological role that Philolaus ascribes to blood, his meaning of phlegm is less obvious. "Phlegm is composed of the liquids," *τὸ δὲ φλέγμα συνίστασθαι ἀπὸ τῶν ὀμβρῶν φησίν*. Phlegm is not a primary substance; it is produced by something and is the result of a supposed pathological process. Even more obscure is the meaning of ὄμβρος in this context. In the texts of *CH* the word is used in the ordinary meaning of "rain storm, thunderstorm," for instance in *Nat. hom.* 7 (VI 46, 22 f.) *τὸ δὲ αἷμα ἀύξεται ὑπὸ τε τῶν ὀμβρῶν καὶ ὑπὸ τῶν θερμημεριῶν*. On the grounds of this passage alone some scholars were induced to see in Philolaus a hint at the so-called meteorological doctrine,²⁵ but there is no reason to introduce a climate reference in this passage. On the contrary, the technical meaning of *συνίστασθαι* ("to be composed of, to consist of") is against it. The term ὄμβρος is translated as 'urine' in the Index of *Die Vorsokratiker* in the edition of 1952 by Diels-Kranz, and it is so understood by some scholars²⁶ without any discussion. This meaning of ὄμβρος is very rarely attested,²⁷ and a theory that makes phlegm derive from urine would have no parallel.²⁸

A solution is indicated by the metaphorical use of ὄμβρος by Empedocles in physiological context, when it denotes every liquid wherever it is observable: in the sea, in plants, in the human body. Thus it is used in fragment B 100,12 DK, the famous passage on respiration, as a generic word for 'liquid'; in B 21,5 DK it means water as one of the four elements (thus also

χεομένου... (Plu. *Quaest. nat.* 20,2, 917a) ἔνιοι δὲ φασι ὡς περ γάλακτος ὄρρον τοῦ αἵματος παραχθέντος ἐκκρούεσθαι τὸ δάκρυον ὡς Ἔ.

²⁵ Olivieri (above, n. 15) 43; Jones (above, n. 5), 73 n. *ad loc.*, "from the rainy season," but he adds "Or is ὄμβροι merely 'water'?"

²⁶ Timpanaro Cardini (above, n. 15), 189; Thivel, *Cnide et Cos?* (above, n. 9), 325 n.115.

²⁷ Opp. *Cynegetica* 4,43 Δόρκοι ... δρόμοις ἐνὶ μεσσηττίοισι κυετίδα κυμαίνουσιν ἀναγκαιοῖσιν ὑπ' ὀμβροῖς βριθόμενοι λαγόνας.

²⁸ Though such a metaphorical use of the word is easily understandable, the theory should be supported by further evidence. Even the interpretation of Timpanaro Cardini (above, n.15), 189 (urine is the starting point of phlegm's flows), is incompatible with the expression *συνίστασθαι ἀπὸ*.

in Soph. *OT* 1428); in B 98, 2 DK, it occurs together with earth, Hephaistos, and aether, and signifies the liquid element in the formation of blood and flesh in anthropogony: (Simplicius *in Phys.* 32,3) ... καλεῖ δὲ τὸ μὲν πῦρ καὶ Ἥφαιστον καὶ ἥλιον καὶ φλόγα, τὸ δὲ ὕδωρ ὄμβρον, τὸν δὲ ἀέρα αἰθέρα. λέγει οὖν πολλαχοῦ μὲν ταῦτα καὶ ἐν τούτοις δὲ τοῖς ἔπεσιν· ἡ δὲ χθὼν τούτοις ἴση συνέκυρσε μάλιτα, | Ἥφαιστῷ τ' ὄμβρῳ τε καὶ αἰθέρι παμφανόωντι, | Κύπριδος ὀρμιθεῖσα τελείῳ ἐν λιμένεσσι, | εἴτ' ὀλίγον μείζων εἴτε πλεόνεσσι (?) ἐλάσσων· ἐκ τῶν αἰμά τε γέντο καὶ ἄλλης εἶδα σαρκός. In the Empedoclean tradition, this usage can easily have been transferred from the anthropogonic theory to a physiological plane. Furthermore, the close connection between Philolaus and Empedocles has already been pointed out. Hence it is no surprise if a Pythagorean like Philolaus makes use of this kind of imagery.²⁹

Finally we turn to 'phlegm'. The Anonymus informs us that Philolaus thinks that phlegm is warm, while most people are convinced that it is the coldest humor in the body. Apparently this is also the Anonymus' view. The statement places Philolaus within a conservative trend. During the 5th century the meaning of the word φλέγμα shifted from 'inflammation' and 'inflammatory swelling' to 'humor' and 'cold humor', and any etymological connection with 'inflammation' was lost.³⁰ As Jouanna has pointed out in his book about the so-called Cnidian treatises (above, n. 30), traces of this change can still be seen in some of the most ancient works of the *Corpus Hippocraticum*. For example, in *Morb.* II 26 (VII 42,15 Littré) and 27 (VII 42,22) the meaning 'inflammation' is still evident.

Taking into account the fact that for Philolaus phlegm is warm and composed of liquids, we may infer that for him φλέγμα is not the humor but retains its meaning as 'inflammation' or 'inflammatory swelling', i.e. what is produced by inflammation. The fact that it is connected with liquids and their eventual excess or condensation becomes easily understandable. In those medical texts of the *Corpus Hippocraticum* where phlegm still has a relation to an inflammatory process, 'liquids', particularly water, often play a significant role. A clear example occurs in *Morb.* II 71 Jouanna (VII 108, 4 Littré), where the disease called φλέγμα λευκόν is not related to the humor 'phlegm'. On the contrary, the physician cures it by drugs that expel water.³¹ In *Int.* 21 (VII 220,8f. L) and 22 (220, 18ff.), the same disease, now in a context of a humoral pathology based on bile and phlegm, is nevertheless connected to heat, water, and

²⁹ See for example ὁ τᾶς σφαίρας ὀλκάς, "the cargo-boat of the sphere" in B 12 DK (but Wilamowitz, *Platon* (above, n. 15), II 91, corrects ὀλκόος, and Burkert (above, n. 15), 276, considers it a spurious fragment); see also ἐστία in the center of the sphere (B 7 DK, cp. A 16).

³⁰ K. Friedrich, *Hippokratische Untersuchungen*, Berlin 1899, 36-43; J. Jouanna, *Hippocrate et l'Ecole de Cnide*, Paris 1974, 93ff.; Thivel (above, n. 9), 77.

³¹ φλέγμα λευκόν· οἰδεῖ ἅπαν τὸ σῶμα λευκῷ οἰδήματι καὶ ἡ γαστήρ παχέα ψαυομένη καὶ οἱ πόδες καὶ οἱ μηροὶ οἰδέουσι καὶ αἱ κνήμαι καὶ ἡ ὄσχη καὶ ἀναπνεῖ ἀθρόον καὶ τὸ πρόσωπον ἐνερευθές καὶ τὸ στόμα ξηρὸν καὶ δίψα ἴχει, καὶ ἐπὶ φάγη τὸ πνεῦμα πυκνὸν ἐπιπίπτει· οὗτος τῆς αὐτῆς ἡμέρης τότε μὲν ῥήσιον γίνεται, τότε δὲ κάκιον ἴχει. τούτῳ ἦν μὲν ἡ γαστήρ ταραχθῆ ἀυτομάτη ἀρχομένης τῆς νόσου, ἐγγυτάτω ὑγιῆς γίνεται· ἦν δὲ μὴ ταραχθῆ, φάρμακον διδόναι κάτω, ὑφ' οὗ ὕδωρ καθαρεῖται, καὶ θερμῷ μὴ λούειν καὶ πρὸς τὴν αἰθρίην κομίζειν καὶ τὴν ὄσχη ἀποτύπτειν ἐπὶν πιμπρῆται. Water is still a humor like many others in the most ancient treatises, see Jouanna (above, n. 30), 100, 139 n. 5; Di Benedetto (above, n. 24), 27-29; for a case of inflammation caused by the 'humor' phlegm and necessitating the draining of water, see *Aff.* 4 (VI 212,4ff.).

dropsy. In a similar expression occurring in *Morb.* II 32,1 Jouanna (VII 48, 20 Littré), ἤν φλέγμα συστῆ ἐκ τῆν ὑπερόφην, ὑποιδεῖ καὶ ἐμπυίκεται, "phlegm" is still connected to inflammation.

The Anonymus suggests that Philolaus appealed to the etymology of 'phlegm' derived from the verb φλέγειν in order to justify his theory. Immediately afterwards he mentions the opinion that inflammation is caused by phlegm, suggesting it as a consequence of the former theory: each notion has a parallel in Prodicus B 4 DK and Democritus A 159 DK. It is evident that the Anonymus ascribes to Philolaus only the generic reference to the etymology of the word.³² In fact the sequence of phrases up to l. 44 has infinitive verbs, dependent on a verb 'he says' (see ll. 37, 39, 44); then ταύτη δὲ καί (l. 45) opens a sentence with an indicative verb, and there is not even an incidental φησί. In some way it is a shift of the vantage point. Moreover, both the theory that inflammations are caused by the humor phlegm ascribed to Democritus and the attempt of Prodicus to reconcile etymology and the meaning of 'phlegm', saving at the same time the idea of a cold humor (which he calls βλέννα), presuppose a hiatus between the etymology of the word and its current use: otherwise, to assert that inflammations are caused by 'phlegm' — if one understands it as "inflammatory swelling" — would be little less than tautological. In other words, the statement of ll. 45-47 presupposes a standpoint that takes for granted that "phlegm" is a humor, while on the contrary there is no evidence that Philolaus was aware of this meaning. Another clue that l. 45 contains a comment of the Anonymus rather than doxographical information is the expression ταύτη δὲ καί, which is sometimes used by the Anonymus to mark a new example or statement supporting the main issue (e.g. XIV 29; XXV 12, 23; XXXIII 22, 29). In conclusion I think that in handling the doxographical material the Anonymus has reversed the terms of the connection between 'phlegm' and 'φλεγμονή', because for him of course bile and phlegm are normal substances of the body (later he will class them as ὁμοιομερῆ, that is to say homogeneous parts of the body, XXI 45f.). If these observations are plausible, it is not necessary to consider Philolaus a pupil of Prodicus or of the Sophists, as Diels maintained.

We possess even less evidence for the definition of bile as serum of the flesh: the context and the parallel account of Petron show that ἰχώρ must mean a harmful liquid. M.P. Duminil (*op. cit.* [see n. 24] 164-180) has studied the evolution of the term's meaning and maintains that during the 5th century it changed from 'harmful liquid' into neutral 'liquid', but recent assessments have argued against her thesis successfully.³³ Thus only the context decides that ἰχώρ is something negative: the closest parallel is in Plato, *Ti.* 82e2ff. where the melting of flesh is said to produce bile, serum and phlegm: ὅταν γὰρ τηκομένη κάρξ ἀνάπαλιν εἰς τὰς φλέβας τὴν τηκεδόνα ἐξίῃ, τότε μετὰ πνεύματος αἷμα πολὺ τε καὶ παντοδαπὸν

³² Fredrich (above, n. 30), 41, observed that Philolaus' position has nothing to do with Prodicus and may well be older than his. Etymology is well attested in the Pythagorean tradition, see for example Laur. Lyd. *de mens.* I 15 (= Timpanaro Cardini A 13, 138) on the etymology of the δεκάς (ὀρθῶς οὖν αὐτὴν ὁ Φιλόλαος δεκάδα προσηγόρευεν ὡς δεκτικὴν τοῦ ἀπείρου) with a reference to the ἱερός λόγος, in which the number ten is called πανδεχέυς. For the etymology of φλέγμα see Gal., XIX 151, 16 Kühn, *s.v.*; Hesychius *s.v.*; Soranus *ap.* Orion, *Etym.* M 795,48.

³³ J. Jouanna - P. Demont, *REA* 83 (1981) 197-209.

ἐν ταῖς φλεψὶ χρώμασι καὶ πικρότησι ποικιλλόμενον, ἔτι δὲ ὀξείαις καὶ ἀλμυραῖς δυνάμεσι, χολὰς καὶ ἰχώρας καὶ φλέγματα παντοῖα ἔχει.³⁴ Also clearly negative is *Acut. (Sp.)* 1 (I 146,2ff. Kw.) δριμέας καὶ χολώδεας ἰχώρας.

In conclusion, bile and phlegm are not pathological factors of the same kind: since bile and phlegm are effects rather than causes of disease and are not parallel liquids of the body — the former being a serum of flesh, the latter being probably 'inflammation' produced by some other liquid — Philolaus is far from sharing a supposed "Cnidian" pathology, based on bile-phlegm or a theory of two humors,³⁵ as many scholars think. On the other hand, in spite of Philolaus' connection with cosmology, the value of heat and the function of breathing, and the theory of the four elements such as is found in Empedocles, he is far from the four-humor system derived from the Sicilian school of medicine.³⁶

The Anonymus finally turns to other causes of disease that he defines as *συνεργά*: excess or defect of heat, chill, or nutriment. These causes seem to be much more consistent with the main theories that human bodies are composed of heat, the excessive heat of the body is balanced through respiration, and that a normal situation corresponds to a right balance, while an abnormal one to some derangement. Analogously, in Alcmaeon's fragment B 4 DK, within a system that considers health the result of a balance between qualities (*ἰσονομία*), disease is the opposite situation, *μοναρχία*, the predominance of one quality, and the cause of disease consistently is the excess or defect of heat, chill, or nutriment.³⁷ The theory expounded in the pseudo-Hippocratic treatise *Περὶ ἑβδομάδων* may also be compared although its date is uncertain.³⁸ According to its author, heat plays a prominent role and its effect is balanced by cold. His theory about the origin of diseases, explained in ch. 19 (IX 442-43 Littré) and 24 (447-48), is consistent with the system in ascribing the origin of diseases to an abnormal heat produced by nutriment or labor; it can be cured by cold. This does not exclude, of course, the important role that bile and phlegm too can play in the origin of diseases in *Περὶ ἑβδομάδων*.

The distinction between primary and contributory causes suits the Anonymus better than Philolaus. This is the only occurrence of *συνεργός* in the papyrus, and only here is a sort of hierarchy defined between the different causes, while in the doxography the Anonymus usually lists them, simply explaining one after the other. It is possible that in this case, too, the Anonymus considers second what in reality is first, having been biased by his own interests.

³⁴ Duminil (above, n. 24), 181, thinks that the passage is influenced by Philolaus; see also A.E. Taylor, *A commentary on Plato's Timaeus*, Oxford 1928, 592f. In the account of phlegm, Plato is also likely to have borrowed something from Philolaus (Taylor, 595), because even if phlegm is a humor, a sort of *ἰχώρ* of bile, nevertheless it is not connected with cold; on the contrary the *φλέγμα ὀξύ*, the harmful kind of phlegm, is connected with heat (see 83c). Remember also the link established already by ancient tradition between Plato and the book of Philolaus (D.L. 8.85; Timon fr. 54=44 A8 DK).

³⁵ Fredrich, 40-41; Jouanna, 93ff. (for both references see n. 30).

³⁶ Frank (above, n. 15), 327-29; Thivel, (above, n. 19) 343.

³⁷ Note the different hint in *On Ancient Medicine* where the isolation itself of a *dynamis* (humor) is privileged as a cause of disease. See Festugière (above, n. 18) 72

³⁸ See above n. 18; but Burkert (above, n. 15) considers it datable in the late 5th century and sees it as a tradition parallel to Pythagoreanism (see 294, 290 n. 63).

He is apparently fascinated by those interpretations of bile and phlegm different from his own, as the account concerning Petron clearly shows. Petron's concept of bile indeed has nothing to do with the former description, and yet, the Anonymus feels bound to add, with no apparent connection, his peculiar opinion about bile (XX 16ff.). This permits him to mark a link with Philolaus.³⁹ The passage is a further clue that the Anonymus borrows material, selecting it directly from a second source. That the misunderstanding was already in the doxographical source can easily be excluded because in this case a distinction between different kinds of causes should be expected. Since, however, this hypothesis does not account for the absolute peculiarity of Philolaus' description in the doxographical section of the papyrus, the change of mind must be a result of the Anonymus' peculiar interests. In general he thinks, as we have seen, that bile and phlegm are normal components of the body (among the ἀπλᾶ and ὁμοιομερῆ, see XXI 45ff.). Accordingly it is easily understandable that he stresses the roles of bile and phlegm, wherever they appear. Thus the other causes, excess or defect of heat, chill, or nutriment, are introduced only as an afterthought. One could even suppose that the Anonymus realizes that he has neglected an important element of Philolaus' theory and tries to correct the description.

But more decisive evidence comes from the terminology of the Anonymus, because the use of the adjective *συνεργός* related to causes (*hapax* in the papyrus) comes closer to the Stoic classification of causes than to Aristotle. We may compare the Stoic fourfold classification of causes occurring in *Dox. Gr.* 611 (Ps. Gal. *Hist.phil.* 19) and *SVF* II 351 (Clem. Alex. *Strom.* VIII 9). This classification was probably common in the rhetorical schools of the early Roman empire.⁴⁰ The most useful parallel is nevertheless found in Sext. Emp. *PH* III 15, which informs us about a theory of causes widespread among the so called 'Dogmatists', based on the distinction between containing (*συνεκτικά*), associate (*συναίτια*), and co-operating (*συνεργά*) causes: τούτων δὲ τῶν αἰτίων οἱ μὲν πλείους (scil. οἱ δογματικοὶ) ἡγῶνται τὰ μὲν συνεκτικὰ εἶναι, τὰ δὲ συναίτια, τὰ δὲ συνεργά, καὶ συνεκτικὰ μὲν ὑπάρχειν ὧν παρόντων πάρεστι τὸ ἀποτέλεσμα καὶ αἰρομένων αἴρεται καὶ μειουμένων μειοῦται (οὕτω γὰρ τὴν περίθεσιν τῆς στραγγάλης αἴτιον εἶναι φασι τοῦ πνιγμοῦ), συναίτιον δὲ ὃ τὴν ἴσιν εἰσφέρεται δύναμιν ἐτέρῳ συναιτίῳ πρὸς τὸ εἶναι τὸ ἀποτέλεσμα (οὕτως ἕκαστον τῶν ἐλκόντων τὸ ἄροτρον βοῶν αἴτιον εἶναι φασι τῆς ὀλκῆς τοῦ ἀρότρου), συνεργὸν δὲ ὃ βραχεῖαν εἰσφέρεται δύναμιν καὶ πρὸς τὸ μετὰ ῥακτώνης ὑπάρχειν τὸ ἀποτέλεσμα, οἷον ὅταν δυοῖν βάρος τι βαταζόντων μόλις τρίτος τις προσελθὼν συγκουφίχη τοῦτο. This was a popularized theory — it occurs also in the pseudo-Galenic treatise *Definitiones medicae*, which was probably composed at the end of the 1st century

³⁹ An interest in bile and phlegm is also evident in the account concerning Dexippus of Cos, where he feels compelled to be more precise about Dexippus' definition of the two humors as "residues from nutriment" (see above, n. 22).

⁴⁰ M. Pohlenz, *La Stoa*, Firenze 1967, I 210f. n.11; II 40. See M. Frede, "The original notion of cause," in *Doubt and Dogmatism: Studies in Hellenistic Epistemology*, ed. by M. Schofield, M. Burnyeat, and J. Barnes, 1980, 217-49, now in: M. Frede, *Essays in Ancient Philosophy*, Oxford 1987, 125-150.

A.D.⁴¹ — because such a condition would account well for the occasional and rather superficial way in which the Anonymus refers to it.

To sum up, Philolaus is likely to have presented a thoroughly consistent theory about the origin of diseases, where the change of elementary qualities and, accordingly, of nutriment could explain the transformation of health into disease through pathological factors such as the bile produced by the melting of flesh (perhaps because of an excess of heat?) and inflammations or "phlegmata" produced by similar harmful and hot liquids. True, Philolaus took over much material from his contemporaries. Nevertheless, he reveals himself as more original than has been thought, and he is not readily alligned with any of the ancient medical schools thusfar identified by modern scholarship.

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⁴¹ Ps. Gal. *Definitiones medicae*, XIX 393, 16 K: συνεργόν ἐστιν αἴτιον ὃ ποιοῦν ἀποτέλεσμα, δυσχερῶς δέ, συλλαμβάνων πρὸς τὸ ῥᾶον αὐτὸ γενέσθαι, κατ' ἰδίαν τι ποιεῖν οὐ δυνάμενον. For the date see J. Kollesch, *Untersuchungen zu den pseudogalenischen Definitiones medicae*, Berlin 1973, 63; for the doctrine of causes see 121-124.