

# CHAPTER 1

## METHOD AND SCIENCE IN ON ANCIENT MEDICINE

### I

THE TREATISE *On Ancient Medicine* is nowadays one of the most admired, and most studied, of those making up the Hippocratic Corpus. Surprisingly, perhaps, this favored position is a distinctly modern phenomenon, one not found among the ancients. In the mid-second century A.D., Galen knew the work,<sup>1</sup> but he did not devote a commentary to it, as he did to many others in the Hippocratic Corpus that he thought most important and worthwhile. He even wrote commentaries on some he thought entirely or largely “spurious,” that is, not by the “great” Hippocrates.<sup>2</sup> But he almost totally ignored *On Ancient Medicine*—according to him also a “spurious” work. He seems never to refer to it by name in any of his works surviving in Greek. So far as I can determine he refers to it only once in his surviving works altogether—namely, in the commentary on *Epidemics II* that survives in the Arabic of Hunain Ibn-Ishaq, which was itself translated into German in 1934 by Franz Pfaff<sup>3</sup> (I come back to this passage shortly). Galen seems nowhere to discuss any of its main claims or themes, either to reject them as “un-Hippocratic” (as he certainly must have thought many of them; I return to this below) or to congratulate the author for having gotten something right. (As usual with Galen, that would mean something in agreement with Galen’s own views but not nearly as well expressed.) Likewise, the opinions in this treatise apparently did not figure in any positive way in the work of those of Galen’s more immediate predecessors from whose views, as well of course as his own extensive independent reading, Galen formed his

<sup>1</sup> In his Hippocratic Glossary he explains some words that appear in the corpus only in *On Ancient Medicine* (hereafter AM)—though without naming the work. See J. Jouanna, ed., *De L’Ancienne médecine*, 97–99.

<sup>2</sup> For example, the commentary on *Prorrhetic I* and the part of the commentary on *Regimen in Acute Diseases* dealing with the “spurious” appendix.

<sup>3</sup> *Corpus Medicorum Graecorum* (hereafter CMG) 5.10.1, *In Hippocratis Epidemiarum Librum I Commentaria*, ed. Ernst Wenkebach, and *In Hippocratis Epidemiarum Librum II Commentaria ex Versione Arabica*, ed. Franz Pfaff.

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own conception of Hippocrates and Hippocratic medicine.<sup>4</sup> Otherwise he would have attacked them for their error, and thus been drawn into some discussion of the work itself.

Thus the evidence suggests that by about the end of the first century A.D.—the time when, according to Wesley Smith, Hippocrates and the Hippocratic Corpus were being canonized as ultimate authorities in medical research—*On Ancient Medicine* was ignored or even dismissed by leading medical theorists. Interestingly, however, it seems that the treatise had earlier figured quite prominently in the establishment of the Empiric school of medicine. Galen mentions that Heraclides of Tarentum and Zeuxis, two prominent Empirics respectively of the early and late first century B.C., wrote commentaries on “all the books of Hippocrates.”<sup>5</sup> But it is quite unclear what he thought that meant; in any event we seem to have no record of any commentary by either of them on *On Ancient Medicine*. Still, Smith draws attention to a passage of Galen—the one I referred to above, from the Arabic text of the commentary on *Epidemics II*—and one of Celsus, as supporting his own suggestion that the original Empiric writers of the third century B.C., or at any rate such later adherents of the sect as Heraclides and Zeuxis, made a special point of appealing to the treatise to authorize their own anti-rationalist methods.<sup>6</sup> (I come back below to the question of proto-Empiric method in *On Ancient*

<sup>4</sup> On these see Wesley D. Smith, *The Hippocratic Tradition*. 64–74.

<sup>5</sup> See the introductory remarks to his commentary on *In the Surgery* (κατ' ἰητρείον, *De Officina Medici*), Kühn XVIII B, 631. The remark is repeated in the introduction to the commentary on *Humors* in the Galenic corpus, which is a Renaissance forgery (Kühn XVI 1).

<sup>6</sup> See Smith, *Hippocratic Tradition*, 208–10. The Galen passage comes in his comment on *Epidemics* (hereafter *Ep.*) 2.2.12: “One must say that in hemorrhage, patients develop a greenish color (ἐκχλοιοῦνται), and one can find many other such things related to wetness and dryness, to hotness and coldness” (Smith trans. in the Loeb edition of *Hippocrates*, vol. VII). Galen, referring to *Ep.* 2.1.10, interprets the text as relying on the following explanation: the loss of blood brings about coldness in the liver, which in turn weakens it so that the blood it produces from the juices coming from the nutriment in the stomach is “unfinished”; this results in the discoloration of the skin referred to. He points out that this passage confirms his attribution to Hippocrates, in his own work *On the Elements*, from *Hippocrates*, of the view (it is his own as well) that cold, heat, wetness, and dryness are fundamental properties and constituents of the body, any significant excess or deficiency of which is deleterious to health and needs to be corrected by redressing the balance. He cites (CMG 5.10.1, p. 220) unnamed others who interpret this text (he does not tell us just how they managed that) as holding the same view as the “work entitled *On Ancient Medicine*,” namely that cold, hot, wet, and dry are not fundamental for curing diseases, and offering further evidence for it. That is ridiculous, says Galen, given that in *On the Nature of Humans*, *Aphorisms*, and “the other genuine writings” of Hippocrates—even elsewhere in *Ep. II* itself—it is so very clear that Hippocrates expresses the precisely opposite view. Anyone should be able to see that he is saying the same thing here too. Galen does not assign these interpreters to any particular sect, but given the prevalence of Empiric writers among

*Medicine*: the method recommended is really, I argue, if we are to use these later terms at all, deeply “rationalist” and not “Empiric.”) The Empirics seem to have inaugurated the practice of writing commentaries on Hippocrates (as opposed to mere glossaries explaining the meaning of odd or archaic or specifically Ionic forms in the works of the corpus; the latter seem to have begun, as the Empiric sect itself did, in and around the circle of Herophilus in mid-third century Alexandria). So it may well be that the Empirics did pay special attention to, and place special value on, our treatise—interpreted, of course, in their own ways. Even if that is so, the attention paid to *On Ancient Medicine* in antiquity was relatively short-lived: already by the end of the first century A.D., as I have noted, the treatise had effectively dropped out of sight, and Galen’s influence in later antiquity and medieval and early modern times made it remain so.<sup>7</sup>

*On Ancient Medicine* was not regarded as one of the major works of the Hippocratic Corpus until in 1839, Littré, thinking that evidence in

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the older commentators it is plausible to suppose, with Smith, that he is citing Empiric commentators.

Celsus, in his *Prooemium* 33–35, reports the Empirics as having traced the beginning of medicine to the observations of alert persons in noticing what happened when sick people in the early days of an illness did or did not take food, or took it before, or in the midst of, or just after an onset of acute fever, or ate a full or a reduced quantity. Accumulated experience of this sort led the first physicians to the position where they could accurately prescribe appropriate diets for people when ill, and specify occasions either to take or to omit food, all with beneficial results for their patients. This is very close in general outline to the much elaborated account of the origin of medical science that the author of *AM* gives in chaps. 5–7 (an account we find in no other early text). The similarity is striking and does, I think, lend support to Smith’s suggestion. (See further below, section V, on “Empiric” methodology as prefigured in *AM*.)

<sup>7</sup> Jouanna in the *Notice* to his Budé edition (p. 8), reports that *AM* was not translated either into Latin or into Arabic in late ancient or medieval times. I should add that Celsus (early first century A.D.) does not refer to, and makes no use of, *AM* (which is perhaps not surprising, at least so far as books 3–8 are concerned, given their subject matters). In the introduction to his *Glossary of Hippocratic Terms* the grammarian and literary scholar Erotian, writing later in the first century, includes *AM* among the genuine works of Hippocrates “tending toward the theory of the (medical) art,” along with *Oath*, *Law* and *On the Art*. See E. Nachmanson, ed., *Erotiani vocum Hippocraticarum collectio cum fragmentis*, 9. And in quite a few places the author of the little treatise *On Rabies* lifts clauses and phrases from *AM* chap. 20 (see M. Pohlenz, “Das zwanzigste Kapitel von Hippokrates *de Prisca Medicina*”), and also others from several other works. (*On Rabies* is preserved in one manuscript as the nineteenth so-called Letter of Hippocrates—the treatise is allegedly being sent by Democritus in a letter to Hippocrates. Hermann Diels edited it, dating it to early imperial times; see “Hippokratische Forschungen V”). It is curious that rabies is not discussed anywhere in the Hippocratic Corpus; indeed, its Greek name, λύσσα, occurs in the corpus only once, in fact in *AM* chap. 19, where it seems not to refer to the disease, but to frenzy or mad agitation in general. But in both these cases the interest in the work is purely literary, and no attention is paid to or use made of its theoretical ideas.

Plato's *Phaedrus* (270c–d) establishes it as a genuine work of the great Hippocrates himself, placed it first in his epoch-making edition of the corpus. For Littré, in *On Ancient Medicine* Hippocrates himself explains the methods proper to medical research (while vigorously rejecting new-fangled ones based on pre-Socratic philosophizing about nature), and sets out the basic principles underlying all medical knowledge. Littré's inference from the passage in Plato was not generally approved, but both the Teubner editor H. Kühlewein (1894) and W.H.S. Jones in the Loeb Classical Library (1923) nonetheless followed him in placing *On Ancient Medicine* at the head of their editions. The work has been the subject of a vast number of specialized studies in the past hundred and fifty years, and it must nowadays be among the most widely read and appreciated works in the corpus—even if current scholarship has renounced the attempt to assign the authorship of this or indeed any Hippocratic writing definitely to the physician of Cos. In what follows I explain and discuss the questions about the methods appropriate to the practice and theory of medicine, and indeed of natural science as a whole, to which this relatively short treatise is centrally devoted. My discussion will, I hope, provide new grounds for admiring its anonymous author's intellectual daring and his truly fascinating ideas about the proper bases for theory construction in the sciences of nature. At the same time, in both interpreting and assessing his views, we will need to attend closely to the questions I have raised about his position in the history of ancient medicine.

## II

I begin by giving a heavily interpretative and in parts controversial summary of the work's main line of analysis and argument. In explicating and discussing the author's views in later sections of this essay, I draw attention to the controversial aspects of my interpretation, and attempt to defend them. Here, then, is the summary.

Our author insists that well before his own time (he was probably writing about 420–410 B.C.)<sup>8</sup> there already existed a true “art” of medicine—or, as we should rather translate the word τέχνη in this context, science (1.9, 12.10–16).<sup>9</sup> He insists that this traditional science of medicine, of

<sup>8</sup> This is the date accepted by Jouanna (Budé ed., 84–85), chiefly on the basis of the reference to Empedocles in chap. 20, and something close to a consensus seems to favor it nowadays.

<sup>9</sup> For convenience I cite here the lineation marked in the margins of the Loeb text; in subsequent references I add also the page and line of the Budé. (Except where something significant may turn on it, I ignore differences between these two texts: in general, Jouanna prefers

which he presents himself as a practitioner, had been from the very beginning established firmly and directly upon the actually existing, true foundations for any real knowledge of human health and illness—that is, for any real knowledge of their constitution and causes—and the means available to human invention for sustaining the one so far as possible and avoiding, moderating, and eliminating the other. A firm commitment to these foundations was involved in the method (ὁδός) for investigating medical questions that, from the beginning, traditional Greek medicine employed. If only investigators continue to use the same method—fortified by a knowledge of, and beginning their investigations from, the accumulated discoveries of their predecessors—the *whole* science (ἡ τέχνη πᾶσα ἢ ἰητρική, AM 8.18–20 = 127, 12–14; see also 2.1–5 = 119, 12–16) can without doubt one day actually be completed: the best physicians will then know everything that actually can be *known* about health and the various diseases, and about how to treat the latter (so far as the nature of things permits their knowledgeable treatment at all).

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to follow the more challenging text of manuscript M, while Jones opts for the often smoother and easier text of A.) The two passages cited here are found respectively at p. 118, 8 and 132, 18–133, 7 of the Budé edition. To these references one might add 2.9–11 = 119, 19–120, 2—especially if, with the Budé, one reads ὅτι ἔστιν (A) (that the science exists) at 2.11 instead of the Loeb’s ὅ τι ἔστιν (M) (what it is); in that case the author announces the whole subsequent discussion, from there until the end of chapter 12, as devoted to establishing the *existence* of this science. (Jones, the Loeb editor, also opted for A’s text in his subsequent edition and retranslation, “Philosophy and Medicine in Ancient Greece.”) In his note to 120, 2, Jouanna points to 12.10–16 = 132, 18–133, 6 as making A’s text preferable, since it concludes the discussion here announced by saying explicitly that a certain consideration is not a good ground for denying the existence of the ancient science. However, that remark develops (and rebuts) a specific criticism of traditional medicine that arises somewhat coincidentally out of the author’s argument in chaps. 9–11 and should not be taken as marking a return to the language of this initial statement of what is to be accomplished in chapters 2–12. In chaps. 9–11 the author shows, by examining what happens to certain people in health, that in cases of illness, overeating is in principle just as harmful as eating too little. Hence it is necessary to adopt a not precisely quantifiable regimen, more complex than that given by the simple rule to avoid all “strong” food and have recourse directly to the “weakest”—gruel. The discussion of these points has stimulated the admission on his part that medical science cannot attain to complete and full exactness in its dietary prescriptions, but must make do with a “rough” sort of precision that permits small errors. He mentions this point first at 9.13–22 = 128, 9–17, and he resumes it at 12.10 ff. = 132, 18 ff. (the passage to which Jouanna refers), at the conclusion of an intervening analysis of the effects on some healthy people of departures from their usual (beneficial) diets. There, he insists that the absence of “full exactness” is no ground for declaring medicine no science or its alleged discoveries no discoveries at all but due to mere chance: on the contrary, it is a great achievement to have come by way of reasoning “close to that which is most exact,” and a proof that traditional medical inquiry has proceeded finely and correctly. Since the author addresses this objection in connection with his own developing account of traditional medicine, it seems inappropriate to cite this passage as evidence for the right textual

Recent theorists of medicine, however, our author complains—he does not name them, and it will not serve our purposes to speculate about whom he might have had in mind<sup>10</sup>—seemed to assume that traditional Greek medicine had not yet attained the status of a true science. According to them, it was neither a science itself nor based on any τέχνη (1.8–20 = 118, 7–119, 4). And that in turn was because, they thought, it had not yet reached the true foundations and correct first principles for the knowledge of health and illness. They held that the true first principles of medicine must be drawn from an investigation of the “nature of a human being,” and that this can only be known by knowing general principles for nature as a whole (20.1–8 = 145, 17–146, 7). And, they thought, the correct method for obtaining such general natural knowledge, and the knowledge of human nature in particular—based on that general knowledge—is to lay down first as foundations (ὑπόθεσιν ὑποτίθεσθαι, 1.2 = 118, 2) a small number of a certain range of abstractly conceived natural powers. The next step would be to use those ultimate “powers” as explanatory principles to work out all the further details—including the specification of particular human diseases, their causes, and the proper therapies for them (1.1–6 = 118, 1–6; 13.3–7 = 133, 8–13). Thus these recent theorists thought that advances in philosophy of nature and in the grasp of the proper methods of scientific inquiry urgently demanded,

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reading at 2.11 = 120, 2: the grounds on which the author’s opponents actually denied to traditional medicine, or on which he considers that they denied, the status of a science, are to be grasped from what he says in chapter 1 (together with chaps. 13 and 20), and any failure of “full exactness” seems remotely connected at best to what he says there. For what this may be worth, one should note that the author of *On the Science of Medicine* (Περὶ τέχνης) does not include any such argument against the scientific status of traditional medicine among the many that he rebuts. As for the choice of textual reading at 2.11 = 120, 2, I cannot see any basis in the context for preferring A’s text over M’s: if (as in M) the author announces he is going to explain *what* medical science is, he is certainly going therein to explain and show *that* it is. Furthermore, the author has in fact already given arguments to establish that medical science exists: see 1.8–20 = 118, 7–119, 4. His proper next task is to explain *what* it is (and thereby confirm its existence). Hence M’s text might seem preferable.

<sup>10</sup> The best discussion remains that of G.E.R. Lloyd, “Who Is Attacked in *On Ancient Medicine*?” Lloyd’s intriguing suggestion that the doctrines attacked in *AM* are most closely exemplified, so far as our evidence allows us to say, by those of Philolaus has been taken up by Carl A. Huffman, whose study of Philolaus’ theory of “ἀρχαί” and his methodology in general adds support to this suggestion (*Philolaus of Croton*, 78–92). Given, however, the paucity of our evidence about Philolaus’ specifically medical theories, and the necessarily conjectural character of any reconstruction of them (even more is this so for other philosophers/physicians who have been canvassed in this connection), it would not help us much if we knew that Philolaus was our author’s principal target. We would not be much aided thereby in attempting to work out our author’s own views about proper procedure in medicine, or the bases for his objection to his opponent(s)’ procedure; for all this, we must go to his own text.

and indeed also made possible, a reconstruction of traditional Greek medical practice in philosophically and scientifically more satisfactory terms. Or rather, what was demanded and possible now was its replacement by a new practice conducted in terms of these new abstract foundational principles (2.5–6 = 119, 16–18).

So much, then, for our author's introduction in the first two chapters of the issues he will be concerned with. He vigorously objects to this attack, as he regards it. His purpose in the treatise is to explain the traditional method (ὁδός, 2.2, 4.8, 8.20, 15.2 = 119, 13; 123, 16; 127, 14; 137, 13), its origin (ἀρχή, 2.2, 7.15 = 119, 13; 126, 16), and its principles, and to show its superiority, both in actually dealing with patients and in the theory of medicine, to that of the newfangled philosophical medicine (chaps. 3–12). In both practice and theory, the purely abstract principles of natural philosophy, he argues (mentioning the hot and the cold, the wet and the dry), are inappropriate to medicine (chaps. 2, 13–14). The powers at work in the human body, of which medical science must have a thorough knowledge and to which it must appeal both in theory and in practice, are fundamentally and irreducibly many, specific, and concrete. They must be understood in differential, concrete terms if either practice or theory is to sustain itself in the face of the observed facts: many *different* physical substances are hot or cold or wet or dry, and they have different effects depending on their *other* ingredients and the way those are combined, much more than they depend on the warmth or coldness, wetness or dryness, in them. In fact, these abstract powers made so much of by the philosophers have little lasting effect on the condition of the human body. Indeed, he argues, the hot and the cold are demonstrably the *least* powerful of all the powers, so far as human nature, health, and disease are concerned (chaps. 16–19). In denying all real efficacy in particular to the hot and the cold (and backing this up with detailed arguments drawn from medical experience) our author strikes a bold counterstroke, since from the beginning of his discussion (1.3–4 = 118, 3–4) he implies that the leading candidates for foundational principles proposed by newfangled medicine were precisely the hot and the cold.

But, on one possible interpretation, which I will defend later on (see note 47), he goes yet further in giving tit for tat. In chapter 20 he asserts that if anyone is ever to achieve a true grasp of the nature of a human being, and by implication a grasp of any of the principles constituting and governing nature itself as a whole, it will only be from the investigation, according to traditional methods of the science of medicine, of the human constitution and human health and disease (20.11–17 = 146, 9–15). In other words, whereas his opponents have asserted that one must begin from the knowledge of basic principles for the constitution of the world

as a whole (the whole cosmos) and on that basis lay down principles for human nature, health, and disease, our author reverses this order. Yes, as the philosophers say (20.1–4 = 145, 17–146, 3), you cannot really know medicine without knowing the nature of human beings, and so also without knowing nature itself as a whole, but that is because in *first* knowing medicine—and only so—will you have what you need in order *then* to understand human nature and nature overall as well. The correct procedure for coming to know nature itself as a whole—for grasping the general principles for understanding the cosmos—is to study human nature, health, and disease according to the traditional method of Greek medicine. Natural knowledge in general (and not just medical science) begins from and is grounded in the investigation of the concrete facts at the bottom, so to speak. It is not suspended, as the philosophers asserted, from abstract principles developed first at the top and applied there first.

### III

So much, then, for my summary. I have represented our author throughout as directing his explication and defense of traditional Greek medicine against a single, coherent opponent—newfangled philosophical medicine, I called it. I have drawn my account of philosophical medicine entirely from what the author says about it (see note 10). He introduces certain opponents explicitly in the first words of chapter 1 as some “people who have undertaken to speak or write about medicine while themselves laying down for their account an underlying principle.” (The Greek of the participial phrase here is ὑπόθεσις αὐτοῖς αὐτοῖς ὑποθέμενοι τῷ λόγῳ;<sup>11</sup> I discuss below in section IV my rendering of ὑπόθεσις as “underlying principle.”). Soon thereafter he characterizes them as proposing “new methods” for medical research (2.7 = 119, 17),<sup>12</sup> and he explicitly returns to them in chapter 13. I assume that these are the same people referred to and argued against in chapter 20, even though the language with which the author brings them on there is neither the same nor closely related; it could certainly be interpreted as marking some specifically different, further set of opponents. First, then, let me defend this assumption.

At the beginning of chapter 20, in a somewhat abrupt transition, our author begins to address the views of “certain physicians and wise (or clever) men” (τινες ἰητροὶ καὶ σοφισταί):<sup>13</sup> they held that you cannot

<sup>11</sup> The Budé text differs slightly but, for present purposes, not significantly.

<sup>12</sup> See also 15.1–3 = 137, 12–13.

<sup>13</sup> I have cited the Loeb text, which follows manuscript A at this point; according to Jouanna’s apparatus, the other manuscripts have *τινες καὶ ἰητροὶ καὶ σοφισταί*, which he

know medicine without knowing “what a human being is.” Notice, first, that he employs the old term σοφισταί here, not φιλόσοφοι. This perhaps indicates that about 420–410 B.C., when I am assuming our author wrote, the latter noun was not yet firmly established, at least not as a quasi-technical designation of any special group of thinkers, as it certainly was by Plato’s time not long afterward. However, he does go on to say that their views go in the direction of philosophy—and now he uses the term φιλοσοφία, in what seems to be one of the earliest, and perhaps *the* earliest, occurrence of this word in surviving Greek literature. The opponents in chapter 1, however, are initially described simply as “speakers and writers on medicine.” But though they are not specifically described as philosophers there (whether σοφισταί or adherents of φιλοσοφία), it is clear from the nature of the underlying principles they lay down that in fact they are either philosophers of nature themselves or physicians influenced by natural philosophy. The passage quoted above referring to their use of an underlying principle specifies this as “hot or cold or wet or dry, or whatever other thing they may choose.” Hot, cold, wet, dry, and so on, are pre-Socratic cosmological and physical principles par excellence. The author goes on to say that these “speakers and writers” choose “one or two” such underlying principles and reduce “the beginning of the causation of the diseases and death of human beings” all to this or these same source(s) (1.4–6 = 118, 4–6); on this basis, they “cast aside and reject as unworthy” both the traditional method of Greek medicine and all its discoveries, and follow a new method of their own (2.6–7 = 119, 16–18), namely the method of laying down underlying principles drawn from physics and cosmology. It is this laying down first of an underlying principle or principles in physics and cosmology, and then proceeding to employ it or them to explain diseases and death that he succinctly refers to at the beginning of chapter 13, when he describes his opponents as “those who do research in the science [of medicine] in the newfangled way, from an underlying principle” (13.1–2 = 133, 6–7). He claims there (he does not say this explicitly, but he clearly assumes it) that it is because in physical theory, hot and cold, or wet and dry, being opposites, are fundamentally at odds with each other, that when one of these theorists says that the hot is responsible for someone’s disease he *must* recommend

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also prints. That would yield a more distinct separation of the personages referred to into two groups: “certain physicians and certain wise or clever men,” i.e., philosophers. M’s and the other manuscripts’ reading is perhaps supported by the fact that just below, at 20.9 = 146, 7–8, when our author rejects as less appropriate to medicine than to the art of painting what “any wise man or any physician” (τινὶ ἢ σοφιστῆϊ ἢ ἰατρῶ) has said or written “about nature”: there he speaks separately about two groups, philosophers and physicians. But the effective difference between the two texts is slight.

treating it with an application of the cold, and *mutatis mutandis* for the dry and the wet (13.5–7 = 133, 10–13)—which is absurd, as our author then argues.<sup>14</sup>

Thus, even though he does not use any such descriptions, our author clearly identifies his opponents in the opening two chapters, and in the further discussion of their views in chapter 13 and following, as natural philosophers and physicians influenced by such philosophers' theories and methods. He is clearly understanding them in those terms, and attacking them for it. When we turn to chapter 20, we see him describing the λόγος of the “certain physicians and wise men” (that is, their theories or arguments) likewise as “tending toward philosophy” in their way of explaining their view that one must have complete knowledge (καταμαθεῖν) of what a human being is in order to correctly treat human beings medically (20.3–5 = 146, 2–4). He compares them with “Empedocles and others” who wrote “on nature” (περὶ φύσιος)—that is, who engaged in pre-Socratic natural philosophical and cosmological theorizing. In the course of writing about nature, he implies, Empedocles and these others wrote about “what man is from the beginning [or, perhaps: from a first principle],<sup>15</sup> and how he first came to be and from what things he was put

<sup>14</sup> It is important to notice that the author, whose own physiology is also based on a series of qualities that include opposites like sweet and bitter, does not think he has to, and indeed he does not, base his therapy on bringing to bear somehow an opposite or oppositely qualified substance to counteract whichever one is prominently involved in a disorder. His own theory holds that you must reduce or transform the offending substance by bringing it back into a state of being blended and tempered together with the *totality* of the other constituent substances of the body—it is its isolation that causes the trouble, and to introduce into the body some other, opposite substance in equally isolated form would only make things vastly worse. There is no reason at all to suppose that doing so would help with restoring the blended, tempered condition of the originally offending substance.

<sup>15</sup> It is not clear whether ἐξ ἀρχῆς at 20.7 = 146, 5 goes with γεγράφασι or ἐστίν, a question on which commentators and translators have divided: its placement would make it go grammatically most naturally with γεγράφασι, where that has as its complement ὁ τί ἐστίν ἄνθρωπος. But in either case (all the more if it is taken with both verbs), I wonder whether it means “from a beginning, i.e., a principle” of their own devising (compare 13.2 = 133, 8: ζητεῦντων ἐξ ὑποθέσιος), rather than, as some commentators say, either “from the beginning of their books” or “from (man’s) origin.” Elsewhere in the treatise it does seem that ἀρχή means beginning or starting point in a literal, temporal sense, and not in the metaphorical one of a “first principle.” That would not, of course, absolutely rule out an interpretation of this passage along these latter lines. In any event, the phrase if taken in the temporal sense does not yield an entirely satisfactory sense. It would imply something clearly incorrect if it means “from the beginning of their books”—Empedocles’ poem seems clearly not to have begun with a discussion of human physiology, anatomy, and so on, but rather with the general principles governing reality as a whole, and before that with remarks on the senses vs. reason as the authoritative source of information about reality (see M. R. Wright, *Empedocles: The Extant Fragments*), if not actually with a prelude on spiritual purification (as the new Strassburg fragments suggest, see below, note 18). But if the

together” (20.6–8 = 146, 4–7).<sup>16</sup> And indeed, if we have in mind his earlier complaints against the speakers and writers who use hot and cold or wet and dry as their underlying principle, we can readily see the force of this comparison by considering the fragments of Empedocles’ poem on nature. Starting from his four “roots” (earth, air, fire, and water) plus Love and Strife as “underlying principles,” Empedocles describes a cosmic cycle in which human beings and other animals come into being at a certain point, with their specific natural constitutions determined by the ways those “roots” mix together in the given case. Ancient tradition describes

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meaning is “wrote about what a human being is from the time when humans first originated,” that pointlessly and awkwardly anticipates what the author goes on to say immediately after: “*and* how he first came to be and from what things he was put together” (my italics). The author seems to be marking two topics—connected, to be sure, but distinct—that his opponents discussed: human nature itself, what it is; and how human beings originally came into being, what elements and the like they were put together from. Just below, in stating his own contrary views, he again separates the question about human nature from that about origins: except by following traditional methods of medical research one cannot know “what a human being is and through what causes humans come to be” (20.16–17 = 146, 13–15).

<sup>16</sup> The received text at 20.6 = 146, 5 is mildly ungrammatical: the *καθάπερ* clause lacks a main verb. It does seem clear that the phrase Ἐμπεδοκλῆς ἢ ἄλλοι οἱ περὶ φύσιος γεγράφασι was intended to mean “Empedocles or others who have written about Nature”—i.e., authors of philosophical books of the sort that went, at least later on, under the title Περὶ φύσεως (On Nature). Empedocles’ own physical poem was given this name in the doxographical tradition, and though we do not know whether it went under that name in his own lifetime it must have done so shortly afterward. This is how Festugière translates the phrase (*L’Ancienne médecine*, 58–60 nn. 69–70). Thus we can begin from the firm basis that here, at its first occurrence in the context, the phrase περὶ φύσιος means “about nature as a whole.” However, in the received text this phrase does not stand alone as complement to the verb γεγράφασι: the latter is qualified also by ὅ τί ἐστιν ἄνθρωπος κτλ., so that the clause as a whole reads: “who have written about nature, [viz.] what man is. . . .” That may make it look instead as if with this phrase our author is not taking note of philosophers of nature as such (and assigning Empedocles and others to that classification)—as on my interpretation he is doing. Instead, it may seem, he is speaking of a group of persons who, he says, wrote *specifically* on the nature of humans. In fact, as we can see from the instance of Empedocles, these may be writers of works “On Nature,” though on this alternative reading that is not how our author is referring to them. On this interpretation our author takes no notice of the fact that Empedocles et al. wrote on the nature of humans as a subordinate and applied part of an overall theory of nature as a whole; he is thinking of them solely as writers on the nature of humans. That is how Jouanna translates in the Budé, and in a note on the passage (p. 208) he insists that all the occurrences of the phrase περὶ φύσιος in this chapter, following along with this reference for the first occurrence here, have to do specifically with human nature, never (even in part) with nature in general. The result would be that here in chapter 20 our author is objecting simply to the view of these “physicians and wise men” that one cannot know medicine without first knowing “what a human being is”—without implying anything at all about a connection between the desiderated knowledge of human nature and pre-Socratic cosmology. We can avoid any temptation to accept this bizarre result and preserve the natural meaning of οἱ περὶ φύσιος γεγράφασι as re-

Empedocles as a physician<sup>17</sup> as well as a natural philosopher, perhaps partly on the basis of more extensive medical applications of his cosmological and overall physical theory than now survive in the poem itself.<sup>18</sup> At any rate, we can readily see that the initial opponents and the thinkers of chapter 20 at least belong to the same intellectual milieu: the latter, too, make claims about the source of true medical knowledge as lying in pre-Socratic cosmological theorizing like that of Empedocles, in which postulated “underlying principles” are made the basis for explaining everything. Our author admittedly does not, however, explicitly identify

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ferring to a recognized category of writers of works “On Nature,” if we simply permit the author (writing informally and with directness and vigor as he does throughout) to have intended the verb γεγράφασι to be heard twice: once in the relative clause (“who have written about Nature”) and then again as verb of the καθάπερ clause (“as for example those who have written about Nature have written what man is from a (or the) beginning [or: from a first principle] . . .”). This way of completing the syntax of the καθάπερ clause is easier and makes for a much better sense than Jouanna’s own proposal (p. 207) that we complete it by understanding (from the verb τείνει of the main clause) τείνουσι ἐς φιλοσοφίην. Jouanna’s proposal makes the author say that Empedocles et al. *tend* toward philosophy, just as do our “physicians and wise men” when they insist that in order to treat patients scientifically you have to know “what a human being is”—when in fact his point is plainly to assimilate his opponents (who write directly and specifically only about medicine) with such professed and recognized specialists in philosophy as Empedocles. Empedocles does much more than merely *tend* toward philosophy, and the author’s point is spoiled if we do not see him exploiting that fact!

The ungrammaticality discussed in this note would disappear if, with A. Dihle (“Kritisch-exegetische Bemerkungen zur Schrift Über die Alte Heilkunst,” 135–50), we regarded the words at 20.3–7 = 146, 2–5 (ἀλλὰ τοῦτο . . . ἐστιν ἀνθρώπος), which are dropped out in manuscripts written later than A and M (both dating from the 11th c.), as actually signaling an *interpolation* in A and M (see *ibid.*, 145–46): in that case, all reference to Empedocles as an author who wrote on Nature and on the origin, etc., of human beings in particular would drop out of our text, as an intrusion from a marginal note in some archetype of A and M, while the later mss. would in this place reflect an independent tradition that preserved a text uncontaminated by this interpolation. However, there seems no reason to think the later manuscripts are, or derive from, anything but sometimes faulty copies of either A or M, and it seems impossible not to see in the omission the fault of a copyist whose eye skipped down from ὁ τί ἐστιν ἀνθρώπος in line 3 to the same words in line 7. On this see Jouanna in the Budé, 93–94.

<sup>17</sup> See, e.g., Diogenes Laertius, *Lives of Eminent Philosophers*, 8. 58, Celsus, *De medicina proemium* 7 (which lists Empedocles along with Pythagoras and Democritus as early philosophers who thought medicine necessarily came within the scope of the philosophical knowledge of nature which they sought); Galen, *De methodo medendi* I 1. Diog. Laert. 8.77 actually attributes to Empedocles a work (of 600 lines) with the title *Medical Theory* (Ἰατρικὸς λόγος), but most scholars do not accept his evidence. Wright, *Empedocles*, 9–14, 19–20, surveys this and the other evidence about Empedocles’ connections to medical science.

<sup>18</sup> Later ancient authors cite Empedocles’ poetry under two different titles (and Diog. Laert. 8.77 gives these titles in such a way as to suggest there were two poems), leading most

these people as the same ones as before. Moreover, the earlier ones are said to apply cosmological notions specifically in their theories of the causes of human diseases and death, and nothing is said explicitly about the later ones' views on the causation of diseases. Contrariwise, the author does not describe the earlier opponents, as he does the later ones, as holding some general theory drawn from natural philosophy and cosmology specifically about the nature of human beings.

However, what he does say about the opinions of the opponents in each context (chapters 1 and 13 versus chapter 20) coheres closely with, and indeed naturally supplements, what he says in the other. This makes it most satisfactory to treat our author in chapter 20, as I have done, as expanding upon and telling us more about the views of the initial opponents. The theorists of chapter 1 surely had to have a theory of the nature of human beings that permitted or required, in their eyes, the postulation of the hot or the cold or whatever as causes of *diseases*. And the theorists of chapter 20 surely thought that by deriving a theory of *human nature* from natural philosophy and cosmology, they could then go further to develop on that basis a theory of disease and its causes: otherwise, how could they say, as our author reports them, that “Whoever does not know what a human being is cannot know the science of medicine—no, anyone who is going to *give correct medical treatment* to human beings must have a complete knowledge of that” (20.1–4 = 146, 1–3)? Obviously, they were claiming that knowing human nature would tell you the causes of diseases and therefore lead you to the correct therapy for them.

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scholars to think he wrote two—one a cosmological poem, *On Nature*, and the other, *Purifications*, containing admonitions against eating meat (on the ground that all living things are akin to one another) together with eschatological ideas (presented in intensely personal terms) about embodied human life as a punishment for sinful acts in prior embodiments. But there are significant dissenters who argue for a single poem unifying and connecting cosmology and “purification” (see C. Osborne, *Rethinking Early Greek Philosophy*, 24–31, 108–31). The recent discovery in Strassburg of additional papyrus fragments of Empedocles' work is reported to include some already known *Purifications* lines (DK B139) within a context of lines belonging to *On Nature*, and this might suggest that there was only one poem after all, with two distinguishable parts (but does not necessarily do so: the lines in question might be repeated from one poem to the other). See Alain Martin and Oliver Primavesi, *L'Empédocle de Strasbourg*. Certainly, we can accept M. R. Wright's argument that the theory of the *Purifications*, if it was a separate poem, was in accord with and indeed applied that of *On Nature*, while supplementing it on certain key points; *Empedocles*, 57 ff. Whether there were two Empedoclean poems or one, setting out his cosmology and its applications, we are struck by the fact that in Plato's *Timaeus* we find Timaeus's speech developing, and concluding with, a theory of human diseases and their remedies based upon the cosmology and general theory of physics presented in the earlier parts of his speech. In this, Plato can be seen to be carrying on the pre-Socratic, or specifically Empedoclean, tradition to which our author so strenuously objects.

Presumably he supposes that what you would “learn” from general philosophy of nature about human nature in particular that would permit you then to deal with human illnesses is simply that the dominant agencies in any human body are the same principles, whichever those might be, that you have already laid down as the basis of your cosmological theories.<sup>19</sup> Just as when the weather is unduly hot, the cure is an onrush of the cold to drive out or mix with the hot, so too in the ill human body. This is the same therapeutic principle that, as we have already seen, our author attributes in chapter 13 to the people who used hot and cold, dry and wet, as their underlying principles.

Nonetheless, in chapter 20 and following he does not say that this is how the philosophical knowledge of human nature was supposed to be used in treating patients, and he does not repeat his criticisms of the therapy via opposite powers (given in chapter 15) or his refutation of the view that abstract powers cause diseases. However, he does clearly imply that on his opponents’ theory you would have to say that all the *same* substances are good or bad equally for all human beings (anyhow all those in good health) since, after all, on their theory treatment derives from knowing the *single* nature of all human beings (20.23–25 = 147, 1–3). And in his own riposte he insists that the effects on different people of consuming the same foods show clearly that in fact different persons have *different* natures (διαφέρουσιν οὖν τούτων αἱ φύσεις, 20.40–41 = 147, 16–17). (Cheese is his example: eating a lot of it causes stomach pains in some, but wonderfully strengthens others.) Thus *before* (in chapters 14–15), he argued that you could not understand and treat diseases if you failed to observe the differential effects on a human body of a large number of concrete powers when they become isolated within the body and are no longer mixed and compounded with the other constituents into the unified mass of a given organ or other component of the body (see ὅτι . . . ὅλον ἔν τε γέγονε καὶ ἀπλοῦν, 14.55–57 = 137, 9–11). The abstract powers of heat and cold and wetness and dryness really don’t have anything to do with diseases (14.20–23 = 135, 17–136, 2), and cer-

<sup>19</sup> A good example of just how this might go is provided by *On Breaths*, whose author thinks air/wind dominates the world as a whole, and therefore also both dominates the constitution of a human being and is responsible for any disorders that may affect that constitution. See *Breaths*, chaps. 2–5. It does seem clear, however (see Lloyd, “Who Is Attacked?” 114–15), that the specific theories of *Breaths* are not our author’s main target: there is no special mention in *Breaths* of the cosmic opposites or of treatment by appeal to the offending agency’s opposite, and for all we know *Breaths* may have been written after *AM*. *Breaths*’s theories do nonetheless provide a brilliantly clear example, indeed the best available to us, of what our author had in mind when he wrote both of philosophical medicine and of its scientific defects.

tainly the evidence shows that no single one or pair of such substances can be *the* cause. *Now* (in chapter 20), he makes the related point that abstract knowledge of human nature will not suffice for treatment of diseases. The physician has to know (and he can learn this only if he keeps to the methods and results of traditional Greek medicine) “both what a human being is in relation to what he eats and what he drinks, and what in relation to his other practices [e.g., baths, exercise, rubdowns], and what will result from each of these for each [type of] person” (20.20–23 = 146, 17–147, 1). In other words, you have to know the particular constitutions of the different types of patient, as those constitutions relate to the particular ingredients of particular foods and drinks and to the particular effects of baths, exercise and so on. The two accounts cohere closely together and indeed supplement one another in desirable ways.

Thus it does appear that we have a single doctrine under attack throughout, from appropriately different sides in the earlier and the later passages. The opponents hold there is a single power, or pair of opposite powers (active also in the cosmos at large), that causes human diseases; they hold that knowing this is part of knowing what human nature is; and accordingly they hold (or must hold, according to our author) that you treat every patient in the same way, by administering the same opposite antidote to whatever power you judge is causing the disturbance. The author replies first that the causes of diseases are not one or two simple, abstract powers, but many complex, concrete ones, and then that physical constitutions (φύσεις) differ too and these differences must be known if one is to treat patients correctly. Thus his criticisms in the first fifteen chapters or so of the “speakers and writers on medicine” who proceed “on the basis of an underlying principle” fit together with those in chapters 20 and following of the “physicians and wise men” who insist that no one can know medicine who does not *first* know nature as a whole—and human nature as part of that. They are two connected parts of a single attack by our author on a single doctrine.

I began this section by speaking of the somewhat abrupt transition by which our author turns in chapter 20 to discuss these questions about human nature and how one can properly come to know it. This abruptness has encouraged the idea, which I have argued is mistaken, that the author has completed his discussion of his original opponents by the end of chapter 19 and is now going on to discuss some additional ones. It is true that the sentence immediately preceding the beginning of chapter 20 reads (in the best text) as follows: “About these matters, then, I think I have given a sufficient explication.”<sup>20</sup> Thus we are given a formal announcement

<sup>20</sup> I translate the Budé, which along with most editors (including Jones in his 1946 text) follows manuscript M. In the Loeb, Jones follows A in omitting the words translated “then”

that a certain stage of the discussion has now been completed, so that a new one is about to be embarked upon (or a prior one returned to). However, it seems quite clear on examination that the sufficiently explained matters intended are not the errors, taken altogether, of those who do medicine on the basis of ὑποθέσεις. The reference is, more specifically, to the account given in chapters 18 and 19 (or perhaps the author envisages this account as beginning already as far back chapter as 14) to the effect that imbalances of heat and cold within the body are never what causes diseases; rather, the cause is some failure in the coction, or mixture, or compounding of the constituents of the body, resulting in the display within the body of some specific one of its many ingredients in an isolated, most powerful form. (See the immediately preceding sentence, 19.54–56 = 145, 14–16, which draws the discussion on this point to a decisive close.) Thus Jouanna in his introduction in the Budé edition (p. 20) is quite wrong to suppose that the author means to say that he has completed his discussion of his initially announced opponents and that he is now launching an independent criticism of philosophical medicine in general—as if the discussion that follows, on “certain physicians’ and wise men’s” views about how to know the nature of a human being, has no essential connection to the initial opponents’ method of drawing on underlying principles developed in natural philosophy. If that were the case, the earlier opponents would be included within the scope of the new discussion, if at all, only by way of a quite different and independent aspect of their theory from the one previously focused upon. But this is not so. In fact, having concluded at the end of chapter 19 his discussion of the true (and the false) physiologies and nosologies proposed respectively by himself and the opponents, the author now turns in chapter 20, as I have argued, to discuss a different, but closely connected, aspect of these same opponents’ overall theoretical stance.<sup>21</sup>

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and “sufficient”—which permits him to take the sentence as a concluding clause to the preceding one, thus eliminating any formal announcement here of a major shift in topic.

<sup>21</sup> It is sometimes wrongly suggested that the very words λέγουσι δέ τινες ἰητροὶ καὶ σοφισταὶ (“but certain physicians and wise men say”) with which chapter 20 begins already show that the author has now turned to discuss a new and different group of opponents; see, e.g., Pohlenz, “Zwanzigste Kapitel,” 405. It is certainly true that, unlike the form of words in chap. 13 with which the author takes up fresh objections against the opponents first introduced in chap. 1, this one does not indicate explicitly that this is what he is doing here too. Perhaps the choice of this vaguer characterization indicates the author’s intention to include within the range of his reference now all medical writers who have made medicine dependent on philosophy of nature, even those who may not specifically have made the cosmological opposites the basis of their theories. The author of *On Breaths* is an example of such a writer. But in the context of this discussion, that is a relatively minor distinction, and nothing specific is made of it in what follows. In any event, this form of words certainly

#### IV

I would like to explain now, and defend, my use of the ideas of “foundations” and “underlying principles” in my account of the opponents’ views. I rely here on the language of the opening sentences of the treatise, which speak of the opponents as laying down a *ὑπόθεσις* for themselves for their argument. (In what follows, I use this Greek noun without translating it.) The question is, what does our author understand by this word (and its associated verb, which he also uses here)? What is included, for him, in the idea of arguing “from a *ὑπόθεσις*” that one “lays down”? People have long noticed that the use of these words here has some affinity to the uses Plato makes of them—especially in *Meno*, *Phaedo*, *Republic*, and *Parmenides*—in connection, most prominently, with geometry and the mathematical sciences generally. In some contexts Plato describes special cases where a problem in geometry is approached *ἐξ ὑποθέσεως*, that is, by supposing some condition fulfilled rather than by deduction from anything already established. Elsewhere he downgrades mathematicians in general because they are necessarily condemned to arguing from *ὑποθέσεις* (axioms and definitions) that they simply take for granted as obvious without inquiring into or attempting somehow to establish them as correct. Plato also, sometimes as an extension of one sort or another from the mathematical case, uses the same language in application to philosophical logic and methodology—the “hypothetical method” of analysis and argument that he employs in the second half of *Meno*, in *Republic*, and (differently) in *Parmenides*.<sup>22</sup> So striking has the connection between

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does not announce the “certain physicians and wise men” as an altogether new group. An author can always write, “but some people say,” where the context shows that he is referring to views of people he has earlier identified more precisely.

<sup>22</sup> It is important to see clearly how different some of Plato’s uses of the term *ὑπόθεσις* are from others. When Socrates introduces the notion of an investigation *ἐξ ὑποθέσεως* into the teachability of virtue in *Meno* 86e–87c, and explains what he has in mind by reference to a practice of geometers, he means—this much is clear, despite the difficulty of working out exactly what mathematical problem he has in mind—the statement of a *condition*, which if it can be established will allow us to bring our investigation to a determinate conclusion. Here *ἐξ ὑποθέσεως* means *on a condition*. It does not mean *on an assumption* (if that entails something not explicitly conditional, but a basic commitment of the one making it), much less *from an axiom* or some sort of basic and unquestioned principle in a science. In the *Phaedo* (at 92d6 and 101d2 ff.) Socrates refers to two ideas as *ὑποθέσεις*: first, the idea that the soul exists before it comes into a person’s body, just as the Forms that it can come to know do; and second, the idea that Forms exist (or perhaps that by being participated in they are causes). In both cases he clearly envisages argument for and indeed the establishment of these *ὑποθέσεις*. He actually argued at length earlier in the dialogue that the soul exists before it comes into the body: that is the conclusion of the “argument from recollection” (see 76c11–13); and while he has not formally argued that Forms exist, he

our author's language and Plato's texts seemed that in 1952 the respected scholar Hans Diller argued in significant part on the basis of this usage that our treatise must postdate at least some and maybe even all of the works of Plato, thus pushing the date of composition down to perhaps as late as 350 B.C.<sup>23</sup>

In fact, however, in part on the basis of evidence from Plato himself, to which I will turn shortly, in interpreting *On Ancient Medicine* we should leave aside all comparison between its conception of arguing “from a ὑπόθεσις” and Plato's uses of the term for geometrical and related styles of argumentation. Instead, we should keep closely to the basic meaning of the verb from which this noun is derived: ὑποτίθεσθαι, lit. ‘to place underneath,’ to lay something down as a basis of further development of some sort. For our author, this carries a strong negative connotation of arbitrary, out-of-the-blue invention (at least in relation to medical facts), or at best mere and pure plausibility, where accurate knowledge based on detailed information would be far preferable; on this, see below, section VI. But the basic meaning is clear enough: in his usage a ὑπόθεσις is an underlying idea or fundamental conception to which one pays intellectual allegiance, and which one puts forward as a basis for developing an explanatory theory in some realm. We should not inflate his meaning by importing overtones of the axiomatic method in mathematics, or of the testing of hypotheses by examining their consequences.

We should bear in mind that our author was very probably writing about 420–410 B.C., as the reference to Empedocles in chapter 20 that we have just been considering strongly suggests: it seems to imply a date dur-

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clearly *envisages* that being done (see 101d5–e1). So these ὑποθέσεις are not assumptions so much as basic conceptions that are supposed to clarify, and make possible some satisfactory understanding of, many otherwise puzzling phenomena. In *Parmenides* the items called ὑποθέσεις seem to acquire this designation because they are the contents of “if” clauses, to which then are appended by deductive argument various consequences, presented for scrutiny and reflection as one decides what, finally, to maintain as one's own view on some important matter (see 127d6–e2, 128d5–6, 135e8–136a2, and esp. 136a4–c5)—whether to maintain the original ὑπόθεσις or not, and if so on what understanding. Only in the *Republic* (VI 510b4–d3, 511a3–8) does Plato use the term in reference to the way that, in geometry and the rest of mathematics, scientists lay down definitions and axioms. He says they do this as if the things they lay down are clear to everyone, and clearly acceptable, and do not need any account or explication; instead, holding to these axioms and definitions as unquestioned assumptions, they simply deduce theorems from them—as if such a deduction establishes the theorems as true. Thus there are references in the *Meno* and *Republic* contexts, but not in either *Phaedo* or *Parmenides*, to ὑποθέσεις in mathematics—and even then the specific mathematical usages are quite distinct. Especially in the *Phaedo* this leaves open the question whether Plato's usage involves any sort of conscious application of mathematical terminology for philosophical purposes. (On this see in my text, below.)

<sup>23</sup> Hans Diller, “Hippokratische Medizin und attische Philosophie.”

ing the period of maximum currency for Empedocles' theories, thus not more than a decade or two after Empedocles' death. If so, the author's use of the noun ὑπόθεσις (with its related verb ὑποτίθεσθαι) here and elsewhere in the treatise is very probably the first recorded use of those words to indicate a ὑπόθεσις of some sort in any context of logical argument, theoretical analysis, or explanation.<sup>24</sup> Apart from one isolated instance in the Hippocratic treatise whose title is usually but misleadingly translated as *On Breaths* (see note 24), we have no evidence at all of anyone in the fifth century B.C. (or even in the fourth) "undertaking to speak or write on medicine" (1.1–2 = 118, 1–2) using this terminology of ὑποθέσεις, and it is important to see that our author's words do not imply that anyone before him did speak or write in these terms in a medical context.<sup>25</sup> It is *he* who says that his opponents have "laid down a ὑπόθεσις for their argument"; he clearly implies that each of them spoke of some among hot and cold, wet and dry, or other abstract properties as the causes of all diseases, but, to judge simply from what he himself writes, it is perfectly possible that the characterization of their methods in terms of ὑποθέσεις is our author's own original contribution—original at

<sup>24</sup> There is one occurrence of the noun ὑπόθεσις elsewhere in the Hippocratic Corpus, in the last chapter of *On Breaths* (Περὶ φουσῶν—i.e., on air inside the body, in particular that which the author assumes comes in with our food and drink when they are consumed, and not merely that which is breathed in). Coming at the very end of the work (15.9 Loeb), it provides a retrospective reference to the author's governing theory, introduced at the outset (chap. 3), without this or any other quasi-technical terminology—the theory that the element air or wind (ἀήρ, πνεῦμα) controls everything and so is the cause in particular of diseases (as it is of life itself and health too). On this basis the author (evidently a "sophist" rather than a serious physician) has in the interim offered explanations one by one of the symptoms and constitutions of various recognized diseases. This treatise is presumably roughly contemporary with *AM*; nothing permits us to say more than that about the relative dates of the two works. So it could be that not *AM* but *On Breaths* has the earliest occurrence of ὑπόθεσις in this use. (Ms. A gives ὑπόσχεσις instead of ὑπόθεσις at 15.9. But though that follows nicely on the verb ὑποσχόμεν at 15.5, it gives the wrong sense: it is not the author's "promise" to declare the cause of diseases that he should now say has been shown "true" but his theory about air *as* that cause. See J. Jouanna, *Des vents* and *De L'art* 150–51.)

The verb ὑποθέσθαι occurs in the first sentence of *On Fleashes*, where the author remarks that if he is to write a treatise on medicine he needs to "lay down" opinions held in common by himself and his predecessors as a common starting point. He goes on to give an account of the origin and formation of the various fleshy parts of the human body, citing heat and cold as the basic "meteorological" principles for this account. This treatise, too, so far as we can tell, seems to be roughly contemporary with *AM* (see K. Deichgräber, *Hippocrates: Über Entstehung und Aufbau des menschlichen Körpers* [περὶ σαρκῶν]; and the introduction to R. Joly's Budé text and translation, *Hippocrate*, 13: 182–83.

<sup>25</sup> Contrast Lloyd, "Who Is Attacked?" 109: "the writer clearly assumes that his readers are familiar with these terms and with their use in the context of medical theories in particular."

least within the medical realm.<sup>26</sup> In addition, our knowledge of fifth-century mathematics (for example, the work of Hippocrates of Chios) gives no evidence that any use of these terms was an established part of geometrical theory at the time our author wrote—either for the sort of “conditional” analysis of a problem that Plato signals in *Meno* or for the axioms and definitions of an *Elements* of geometry to which Plato might seem to allude in *Republic VI* (see above, note 22). So though it is *possible* that our author was importing into the discussion of medical theory terminology already in place in theorizing about geometry, as commentators have assumed—we have no actual evidence that that might be so.

And in fact, among the uses of the term ὑπόθεσις in Plato the one to which our author’s use is closest is that in the *Phaedo*, where there is no clear indication at all of indebtedness to mathematical theory. There, a ὑπόθεσις is simply a basic conception that is supposed to clarify, and make possible some satisfactory understanding of, many otherwise puzzling phenomena—for example, the ὑπόθεσις of the soul as preexisting its embodiment while in an intellectually active state, or the ὑπόθεσις of Forms of Beauty and so on, in which sensible beautiful things participate.<sup>27</sup> There is no suggestion that this understanding is to be derived by a process of “deduction” from the given ὑπόθεσις similar to argument in geometry from axioms and definitions; and argument for and indeed establishment of these ὑποθέσεις on some basis or other is explicitly envisaged (see above, note 22). Similarly, in *On Ancient Medicine* the philosophical medical theorists propose the hot and the cold or the wet and the dry as forces at work in a human body and then offer such an ὑπόθεσις as a basis on which to work out an account of the constitution of diseases and the explanation of their symptoms—not by anything like *deduction*, but by offering an illuminating and unifying set of ideas for working through and organizing the phenomena in a satisfying way. And, of course, they might well have had a lot to say about just why some one such ὑπόθεσις recommended itself—they could point to various indications in the world at large of the primacy of whatever forces they set-

<sup>26</sup> If we could know that *On Fleshes* or *On Breaths* was written before *AM* (see above, note 24) we might conclude that the author of one of those works was the innovator. Given the casual way in which the author of *On Breaths* introduces the term ὑπόθεσις at the end of his exposition, we might perhaps rather conclude that he was adopting a usage already established in medical writings familiar to him but now lost.

<sup>27</sup> See also *Sophist* 244c4–5, where, referring to Parmenides, the Visitor from Elea speaks of “the one who lays down this [viz., that being is one] as his foundational principle” (τῷ ταύτην τὴν ὑπόθεσιν ὑποθεμένῳ). This passage of the *Sophist* provides in fact a beautiful and perfect parallel to our author’s usage when at the beginning of the work he writes about people ὑποθεσιν αὐτοὶ αὐτοῖς ὑποθέμενοι τῷ λόγῳ.

tled upon.<sup>28</sup> Here, as I have said, in accordance with the fundamental meaning of the verb ὑποτίθεσθαι, a ὑπόθεσις is an underlying idea or basic conception or foundational notion that one puts forward, and on which one can then construct a body of explanatory theory in some area. For all we know, then, our author may be the first to exploit this verb and its noun to characterize the procedures of philosophers in approaching questions of human health and disease, as well as in approaching questions on their home ground of “things in the heavens and beneath the earth” (1.23–24 = 119, 6–7).<sup>29</sup> Perhaps the related, but much more restricted, uses drawn from mathematics that we find elsewhere in Plato are a separate development. In any event, we can understand perfectly well our author’s use of these terms, as we can Plato’s in the *Phaedo*, without reliance on any presumed use of them in mathematics, simply by looking to the basic meaning of the verb: to lay something down as a basis for further development of some sort. (I postpone to section VI below discussion of why our author does not similarly count his own theoretical ideas about human health and the causes of diseases as ὑποθέσεις laid down by himself.)

## V

I turn now to the first of three large issues in the interpretation of our author’s own views. He begins his defense of traditional Greek medicine by mentioning two sorts of “discoveries” that medicine has long had to its

<sup>28</sup> Hence I disagree with Lloyd when he says (“Who Is Attacked?” 110 n. 2) that the use of the word ὑπόθεσις in *On Breaths* is distinct from that in *AM*. An author can perfectly well put forward a foundational idea, such as that in *On Breaths*—that air/breath controls the universe and so is the cause of diseases—as a basis for understanding the symptoms of the recognized diseases (and so as a competitor with *AM*’s opponents’ hot and cold or wet and dry), and yet still wish to give it confirmation, both through confrontation with the facts about the various symptoms of diseases and through some more general justifying rationale. This is what the author of *On Breaths* does, and the fact that he devotes his efforts to illustrating the power and acceptability of his ὑπόθεσις, whereas the theorists of *AM* are described simply as laying down their ὑποθέσεις and proceeding to work out their explanations on that basis, does not at all show that he means by the term something different from what the author of *AM* does, or that he conceives the function of such a ὑπόθεσις differently. If he were a practicing physician or a seriously committed medical writer, rather than the sophist he seems to be, he might, having now presented and argued for *his* ὑπόθεσις in this work, go on to write other strictly didactic medical works on the character and treatment (on that basis) of specific diseases.

<sup>29</sup> Or, if *On Breaths* or *On Fleshes* was written first, then the suggestion would be this: its author, or, more probably, other medical writers whose works he knew, introduced this usage on the basis I have indicated, calling their own controlling basic principles for diseases or other medical phenomena ὑποθέσεις.

credit (2.1–3 = 119, 12–14). First, the initial step (ἀρχή) was discovered (εὐρημένη) long ago<sup>30</sup> that allowed the establishment of a science of medicine, and along with it medicine’s proper path or method (ὁδός). Then, as a result, and over a long period of time, many excellent discoveries (ἔξευρημένα, 12.15 = 133, 5) were accumulated by the continued application of this method, taking always into account earlier such discoveries. It is obvious what this second set of discoveries encompasses. These are all the specific rules of diet and specific foods both for ordinary daily use and for the treatment of specific maladies, all the accepted accounts of specific diseases and their appropriate treatment, and the like, that make up the body of practically applicable theory used by traditional medicine of the time. The author indicates this when he mentions the “further discoveries” about healthy diet that were still being made by gymnastics-masters at his own time, using, he writes, the time-honored medical method (προσεξευρίσκουσιν κατὰ τὴν αὐτὴν ὁδὸν ζητέοντες, 4.7–8 = 123, 15–16).

His views on the discovery of the initial step or “starting point” and the “method” are more challenging, however. Assuming that in the original dispensation of nature, human beings ate uncooked, unprepared, raw fruit, bushes, leaves, and grass, he traces the discovery of the “starting point” (ἀρχή) to that time in the distant past when, due to the many terrible sufferings people must have experienced while eating such a diet, certain people<sup>31</sup> undertook investigations in order to find nourishment

<sup>30</sup> I understand ἀρχή in ἀρχὴ καὶ ὁδός (2.1–2 = 119, 12–13) by reference to the same word at 7.15 = 126, 16, where it refers to the early attention certain smart people gave to human beings’ needs as regards a “civilized” daily diet to replace the rough, uncooked, and otherwise unprepared food humans began by eating in the fields and off the trees, in the way that wild animals do. At 3.1 = 120, 16, again with the use of this word, the author locates the “initial step” later on in history, with the observation by further smart people that sick people do not profit from the same dietary regimen as ones in good health. This mild inconsistency reflects the distinction between medicine in a strict sense (the science of treating sick people) and medicine in a broader sense that includes the knowledge and skill, by the author’s time widely spread in Greek culture, involved in selecting and preparing the ordinary foods people eat: this too, he says, rests on the same basic knowledge of our nature and physiology and of the powers of the various nutriments that medicine in the strict sense also rests upon. See chaps. 4 and 7.

<sup>31</sup> οὗτοι, 3.34 = 122, 6: here the author seems to assign this achievement to “the people of that time” as a whole, but that is just laxity of expression. Later, at 7.1–7 = 126, 3–8, in comparing the skill needed by “the physician,” as discoverer of the mode of life and nourishment suitable for the sick, with the skill needed to take this first step—the skill of “the one” who discovered our current ordinary foods—he indicates clearly that he thinks this latter skill was the possession of a specially intelligent group of people, who specially applied themselves on behalf of the community to solving these problems. At 14.18 = 135, 16 he groups together (see 14.13–14 = 135, 11–13) the first physicians with these first preparers of food as οἱ πρῶτοι εὐρόντες (the first discoverers) of “the science.”

that would suit the human natural constitution, as this old one manifestly did not. As a result, they discovered the different types of food that we still use in our ordinary diet—bread, barley cake, wine, boiled meat, and so on (3.10–54 = 121, 5–123, 8).<sup>32</sup> (He does not mention the domestication of wild plants over time through the development of new and more palatable strains, but focuses on methods of preparing foods from plants like wheat and barley such as by straining, grinding, or pounding the grains and then mixing, kneading, and then cooking the results.) Scientific medicine, strictly speaking, got its start only later, when it became clear that even with this improved food, not all was well with human beings: when people fell ill it was observed that they are not benefited by the same improved regimen as those who are well, so some new one needed to be devised. Following the same methods as the earlier discoverers of the healthy daily diet and building on what they had already learned about the properties of foods and about human digestion and physiology, the first physicians (that is, the first persons actually called by the name ἰητροί—as the earlier “dieticians” were not) devoted themselves to figuring out what dietary and other practices would help people when ill to recover their health (chapters 5–6).

The “starting point,” then, was the observation by certain smart people that our initial natural diet was unsuitable for us, and the associated observation developed over time that we can do better by coordinating our diet in relation to the constitution of our bodies. What, however, was this ancient method of investigation in medicine, used by these smart people to devise an appropriate diet, that our author praises so highly? Commentators customarily characterize this as the or an “empirical” method, and if one bears in mind the contrast our author himself draws between this method and the rejected one of the philosophers (the method from underlying principles), then that is an apt description. The author emphasizes the need for careful and detailed observation of the various foods and drinks (and baths and so on) and their effects when taken by different people (well or ill) under different circumstances; and he contrasts this aspect of the method sharply with the “philosophical” writers’ attempt to impose from above some abstract principles that are not arrived at from consideration of such details. But when one speaks in the context of Greek medicine of an “empirical” method the term runs a great risk of

<sup>32</sup> He leaves it implicit here and for the most part elsewhere that from “our diet” today (ταύτην ἢ νῦν χρῶμεθα, 3.35–6 = 122, 7–8), which these first scientists discovered, are to be excluded the highly spiced, gourmet dishes that some people eat (see 14.45–51 = 136, 21–137, 6): these foods, unlike the ordinary ones such as bread and cake and wine and well-boiled meat, are not in fact free from the sort of uncompounded ingredient that causes trouble if consumed by a healthy person.

being understood specifically in reference to the methods of the ancient Empiric school of medicine, or at least to the general approach to medical research and practice espoused by the members of that school.

I cited evidence above (section I) that Empirics of the first century B.C., and perhaps even the school's originators in the third century, appealed to *On Ancient Medicine* in defending their own modest methodology and in attacking the elaborate theorizing of Herophilus and other physicians whom they dubbed "rationalists" (λογικοί). It is easy to guess what they must have found particularly congenial in the treatise. First, there is the author's claim, in explaining the origin and progress of medical knowledge (chapters 3–8), that "necessity itself" (the fact that sick people were not benefited by the same regimen as healthy ones, 3.6–10 = 121, 2–5) caused the "initial step" toward the establishment of medicine. (This might be linked to the later Empirics' idea that medical remedies are often discovered "by luck" or happenstance; see below.) Second, we could point to his emphasis (see above, note 6) on the subsequent gradual accumulation of observations over time, leading to the establishment of a generally beneficial regimen and of specific remedies for specific diseases. (This could be accommodated with a little forcing under the Empirics' view that experience all by itself, without the aid of any sort of theorizing, could constitute medical knowledge.) Third, as we have seen, he emphasizes the importance of always beginning one's own further research by taking carefully into account the "discoveries" of one's scientific predecessors. This must have sounded like a prefiguring of the "ἱστορία" (the study of previous physicians' reports of their observations) that Empirics made a crucial element in their account of how medical knowledge was really just a matter of "experience."<sup>33</sup> It is clear, however, that the medical method, as our author conceives it, is deeply and fundamentally committed to precisely the use of reason for the discovery of hidden, theoretical causes that the *main* plank of the ancient Empiric sect's platform dismissed as impossible and pointless to attempt. When this is taken properly into account, the similarities that must have attracted the early Empirics to our treatise look very much less significant. The evidence on this point is worth careful scrutiny.

<sup>33</sup> On the Empiric school see M. Frede, "The Ancient Empiricists." Frede gives a good and useful account, so far as it goes, of the similarities and dissimilarities between Empiric medicine and the program outlined in *AM*, 246–48, as well as a good account of the Empiric school itself and its doctrinal development. Given the fairly precise doctrinal commitments of the Empirics—going very far beyond anything that we might normally understand by the simple term "empiricist" or "empirical," and quite different from the doctrines of the modern philosophical "empiricists"—I favor translating the Greek ἐμπειρικοί in this context, not with the rather misleading "empiricist," now the usual term employed by scholars, but with the older term "empiric," which was formerly used. I follow that practice in this essay.

Twice our author asserts, with sharp emphasis, that medical discoveries have come about through *reasoning* (λογισμός), and in the first of these passages (as also elsewhere)<sup>34</sup> he contrasts medical knowledge and practice through “reasoning” with anything achieved “by chance.” Chance (τύχη), he assumes, is the very antithesis of science (τέχνη). In chapter 12 (10–16 = 132, 18–133, 6) he says:

I maintain that one ought not on this ground to reject the ancient science as nonexistent or as not being finely researched, namely if it has not attained precision about all matters, but much rather, because it has been able through reasoning to get away from deep ignorance and come close, I should think, to that which is most exact, one ought to marvel at its discoveries, as products of a fine and correct method and not of chance.

And in chapter 14 (16–20 = 135, 14–17):

And as it was by researching in a fine way, with a kind of reasoning appropriate to [the study of] the nature of human beings, that the first discoverers made these discoveries, they actually thought the science worthy to be ascribed to a god, as in fact it popularly is.<sup>35</sup>

Now the Hellenistic Empiric physicians made a point of insisting that many medical discoveries were really just due to luck: by chance a sick person ate something or did something that turned out to help, and doctors, noticing this, tried it in subsequent cases, with good results. In that way it came to be adopted into medical practice. According to the first Empirics, the only thing one might call reasoning that was needed or that could achieve any sound results was careful observation—including such chance ones—together with memory (of one’s own observations and the reports of others).<sup>36</sup> Our author, however, gives no role at all in the science, not even in its earliest history, to chance observations. It is true that in

<sup>34</sup> See 1.15 = 118, 14; 21.5 = 148, 7.

<sup>35</sup> I follow the punctuation in the Budé here. When the author speaks of reasoning appropriate for the nature of human beings I take him to mean reasoning that is appropriate to use in investigating human nature, not reasoning that suits human beings in particular to employ—in other words, *not* the sort of reasoning the philosophers of chapter 20 are said to engage in on the same subject. The author would attribute to the earliest physicians an incoherent thought if he held that, according to them, a god possessed the science first and handed it on to them because the reasonings in traditional Greek medicine are just the right sort for human beings to *use*: that would immediately suggest that perhaps other rational beings (gods) would have used other methods (and so could not have handed *those* down). The author’s idea rather is that, according to the first physicians, the gods were the first to know the right way to investigate human nature, and the physicians learned it from them.

<sup>36</sup> For later Empirics (especially those of the early second century A.D., Menodotus and Theodas), as we can see from Galen’s account in *An Outline of Empiricism*, in M. Frede,

disparaging luck in another passage (1.11–16 = 118, 10–119, 1) his main point seems to be merely that good physicians' diagnoses and prescriptions are based on solid knowledge, so that their successes are not due to chance: such solid knowledge might have been built up in part from chance observations, for all our author says there. But in the passage just quoted from chapter 12 he seems to go further and to insist that *all* the discoveries of the science were based on solid reasoning, not on lucky guesses or random observations that proved out on further testing. Moreover, even to his original investigators, the ones who established a scheme of daily nourishment suited to our natures, he assigns the kind of reasoning about causes (what was later called αἰτιολογία) that the Empirics later on abhorred. In fact, close attention to his historical account of the origins of medical science shows that central to the very method (ὁδός) that he touts so highly is a commitment to a specific proto-theory of human physiology and of the characteristics of nutriments in relation to that physiology. This theory is much more prominent in his account of the traditional method than is any reference to observation and memory. In fact, he takes observation and memory very much for granted (as one might expect, given that only later debates brought them specifically to the fore). In explaining the “method,” beginning with its origins in the work of the “first discoverers,” he devotes his principal energy and philosophical ingenuity to explaining this proto-theory as it was adopted on the basis of reasoning—inferential, causal reasoning—by the earliest researchers and developed by their successors. As he explains it, the “method” seems actually to *consist* of adherence to this combined physiological theory and theory of nutriments as the basis for evaluating and building on observations—and not any reliance on observation, or observation and memory, itself.

According to our author, the earliest researchers held the view (ἡγεύμενοι) that from foods that are “too strong” (ισχυρόν) for the human constitution (φύσις) to “master” (κρατεῖν) come “pains, diseases, and deaths,” while “nourishment, growth and health” come from those it can “conquer” (ἐπικρατεῖν)—namely, ones in which the harmful “strong and

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trans. *Galen: Three Treatises on the Nature of Science* chap. 3, the correct method included not only a physician's own observations and the reports of other physicians' observations but also “transition to the similar”—a method of dealing with previously unobserved sorts of diseases by using observational knowledge of allegedly similar diseases or syndromes to figure out how to deal with these new ones. But (as, e.g., Galen himself indicates in chap. 4) the original Empirics in the third century B.C., or at any rate the principal theoretician among them, Serapion, seem not to have recognized this third procedure. See Frede, “Ancient Empiricists,” 249–51. For basic information about the Empirics mentioned in this note, see the collection of testimonia and fragments in K. Deichgräber, *Die Griechische Empirikerschule*.

uncompounded” ingredients have been tempered with the aid of “weaker” ones, and molded and shaped with reference to the nature and strength of a human being (3.41–48 = 122, 13–123, 3). Hence they devoted much effort (πρηγματευσάμενοι, 3.40 = 122, 12) to grinding grains, blending them, watering them, kneading the dough, boiling or baking the products, and so on, all with a view to preparing foods that would be compounded and tempered in character, and not strong and raw, as was the case previously with the human diet.<sup>37</sup> This effort and the discoveries to which it led (this ζήτημα and this εὔρημα, 3.49 = 123, 3–4), he says, deserve the name “medicine” even if we do not normally think of such routine dietetics in those terms. The method that shaped the efforts and made the beneficial discoveries possible is nothing else than the application to the problems of nutrition (and, more generally, of ways of life) of the general idea—the brainchild of these first discoverers—that before eating the things that grow naturally in fields and on trees, we need to make them suitable as foods for us by transforming them in such a way as to remove from them their excessive “strength.” We need to temper them by blending, mixing, cooking, and so on, so that the moderated strength that they thereby come to possess is amenable to our own physiological nature’s powers of mastering and dominating and so assimilating what we consume. Immediately after the passages in chapter 3 that I have just been commenting on, the author speaks, in a passage I have alluded to in passing (4.6–10 = 123, 14–17), of further such discoveries made in his own day by gymnastics masters who applied “the same method.” There is nothing in the preceding account except this general background idea about the excessive “strengths” of some foods in relation to our physiology, and its application by the first discoverers in their research, that he could be calling a “method” here. Thus the “same method” used by the gymnasts is simply the original theoretical insight into the excessive “strength” of uncompounded food and the importance of “tempering” these excesses by blending, mixing, and so on. It was these ideas that they applied so as to discover new and better nutriments.

The “method,” then, established at the very beginning, was not merely of observing the effects of one or another diet on a human being’s life and health. It was a method of such observation *guided* by a specific proto-theory about foods in relation to the physiology of the human body.

<sup>37</sup> Jones, in both the Loeb and his 1946 translation, incorrectly introduces the notion of experimentation into the author’s history at this point. But πρηγματευσάμενοι does not at all mean “experimenting,” but only expending much effort. No doubt the author is assuming that this effort involved noticing the results of one or another procedure in preparing the needed food, and being guided by those results in adjusting subsequent practice, but there is no explicit idea here or anywhere in his account of trying any *experiments*.

According to this theory, what was harmful to humans was *strong* foods, or foodstuffs in their strong form, namely, when their constituents were separated from one another and not blended together so as to reduce their different powers to affect the human body to levels the body was naturally constituted to control and profit from. It was through their initial insight that it is the excessive *strength* of wild and untreated food that has to be avoided, where strength is understood according to this idea of the separation as against the blending of ingredients, that the originators of medical science were able to devise our now normal daily diet. The same insight guided all their observations and led to all the further knowledge, both about human physiology and about the dietary needs of sick people, that subsequent generations of experts were able to achieve by further observations of their own. Here “strength,” “separation,” and “blending” are all theoretical ideas, certainly not things that could be directly observed.

Once actual physicians were on the cultural scene, this method underwent significant development, with greatly increased appeal to hidden theoretical entities as causes. (Perhaps some of these developments would better be included instead among the discoveries that were made *using* the method, but for our purposes we can leave any such refinement aside.) The first physicians, strictly speaking, our author tells us, held the view (ἡγησάμενοι) that it is not the bare hot, or cold, or wet, or dry that might injure a person, so that to restore him or her a dose of its opposite would be needed. No: they held (ἡγήσαντο) that it is the “strong” (ἰσχυρόν) instance of any of the large number of powerful qualities or stuffs that make up the human body which, when it is present in the food, is too great for the human natural constitution to master: this is what does harm (14.20–26 = 135, 17–136, 5). The powerful qualities or stuffs in question include the sweet, the bitter, the acid, the salty, the astringent, the flaccid, and “thousands of others” (ἄλλα μύρια)—but the natural philosophers’ hot, cold, wet, and dry are not among them. The strong versions of these qualities or stuffs in food are the cases where the quality or stuff is found in the food in an uncompounded state, that is to say, when it is not worked into a single substance and blended together with others of these same stuffs or qualities (14.41–42 = 136, 19–20): such strong bitterness or saltiness or sweetness will wreak havoc on us. In the same way, we are also harmed when any of the previously blended, compounded, and tempered versions of these qualities or stuffs already worked into our bodily constitution separates out and collects somewhere within the body, all apart and on its own.<sup>38</sup>

<sup>38</sup> I speak vaguely here of “qualities or stuffs” because our author generally uses just the Greek article and neuter adjective to refer to what he also calls these “powers” (δυνάμεις)—

Indeed, it appears, the theory holds that at least one way that strong food harms us when whatever ingredient is uncompounded in it causes the body to secrete from its own bodily mass, in a separated and strong condition, more of the same stuff. When that interior separation has already happened, and we then eat a strong food having the same ingredient in isolated form, disaster can strike—a serious illness. Furthermore, different ones among us have stronger or weaker natures, and the stronger can put up greater resistance to strong foods, through their greater innate power to master the food; they can blend even a strong bitterness into the compounded and unified substance of their flesh or bone or specific organs. Or again, some people’s constitution is such that they can easily assimilate, and indeed be strengthened by, for example, cheese, while others have something in their bodily constitutions that is aroused by something in the cheese and brought out from its previous mixed and tempered condition into a separated state—whence trouble befalls them (flatulence, indigestion, heartburn, constipation, and so on) (20.41–46 = 147, 16–148, 1). And when someone is ill, their normal capacity to assimilate even well-compounded, relatively “weak” food is much reduced. The first physicians, having observed that sick people are not profited by the same diet as when in health—how they observed this we are not told—decided at first that patients should simply reduce their intake of food. Apparently they decided this by an intuitive application of their dietitian-predecessors’ theory of strong and weak foods. Sick people, who must of course have a weakened physiology, should take none at all of certain solid foods—

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the sweet, the bitter, etc.—both in the human body and in the food we eat. However, a number of times, beginning at 14.47 = 137, 2, he speaks instead of “juices” or humors (χυμοί), mostly or always, it seems, to indicate the isolated and separated condition of one of the qualities or stuffs: a bitter humor would thus be a bitter juice, whether in the body or in a foodstuff, which stands uncompounded within it, and so in its strongest state—and its most potentially harmful one (for us: wild, and even domesticated farm animals’ constitutions are perfectly adapted to the assimilation of such uncompounded and untempered food, 3.16–18 = 121, 10–12). See also 18.22 = 143, 4; 19.43 = 145, 5; 20.44 = 147, 19; 22.4 = 149, 4; 24.1, 5, 9 = 153, 7, 10, 14. This account, especially in its recognition of a potentially unlimited range of such humors, is noteworthy for its failure to assign significance to the four humors made so much of by the author of the Hippocratic *On the Nature of Humors* (pt. 1: see esp. chaps. 4–5), one of Galen’s favorite and most admired treatises. Once in passing (but only this once) does our author speak of any of the “official” four humors: “when there is an outpouring of some bitterness, of what we call yellow bile, terrible nausea, burning and weakness take hold” (19.29 = 144, 12). This neglect of the four humors must have been among the features of our treatise that caused Galen’s dismissal and lack of interest in it—in addition, of course, to our author’s contemptuous rejection of the role in the human constitution and in human health and sickness of hot, cold, wet, and dry (Galen’s comments in *CMG* 5.10.1, 200, cited above, note 6, make it plain that this latter failure was a main ground for his rejection of the treatise as “ungenuine”).

the ones that are the “strongest” among the foods we normally eat—and must in general consume less overall (5.12–16 = 124, 9–13). But they soon learned by experience that sometimes this will not suffice, and specially weak diets of gruel or even simply of liquids are needed. The already disordered state of the bodily constitution must not be exacerbated by the addition of qualities or stuffs in the nutriment that will increase or aggravate the quantities of harmful qualities or stuffs already isolated within the body.

We can leave aside further details of our author’s physiological theories and his account of how the constituents of foodstuffs are physically related to and interact with people’s physical constitutions. The foregoing discussion is sufficient to show how deeply involved he and the method he says was discovered at the very dawn of medicine’s prehistory are in making inferences to theoretical explanations—in inferring, from observations of what happens to people (either in health or when ill), to physiological theories and theories about the components of our food that offer explanations of what we observe. These explanations deal with underlying and for the most part unobservable entities<sup>39</sup> and not with surface—manifest—objects and characteristics. In this respect, he (and his method) belong squarely in what was later described as the rationalist wing of Greek medicine, not in that of the Empirics. In saying this, I wish to emphasize that, unlike the Empirics, who were a self-designated group with well-established commitments on how medical knowledge was constituted, the rationalists constituted no “school” of medicine (except as a projection of the Empirics’ own assimilating accounts of their opponents). From the third century B.C., when Empiric medicine established itself, down to the end of the Hellenistic period in the first century B.C., there were just the Empirics, on the one hand, and everyone else, on the other. Despite large disagreements and differences about other theoretical and practical matters, these others (like our author in the late fifth century and other Hippocratic authors, as well as their successors who were not bitten by the Empiric bug) all naturally and readily engaged in inquiry into causes. In the course of such inquiry they proposed theories of the constitution of the human body and its organs, and of various diseases, involving hidden theoretical entities and unobservable physiological processes—such as the separated “strong” ingredients of our foodstuffs and our bodily parts appealed to by our author. When I say that the au-

<sup>39</sup> At 14.35–39 = 136, 12–16 we are told that sometimes the sweet, the bitter, etc., become “manifest” (φανερὰ) but that mostly they are not. Even when allegedly manifest, however, they remain within the body where no one could actually *see* them: hence, by the later standards of the Empirics these qualities or powers would remain “hidden” and objectionably theoretical postulates.

thor of *On Ancient Medicine* belongs squarely to the rationalist wing of Greek medicine I mean merely that in this respect, as I have shown at length, his views belong to the main wing of the Greek medical tradition as it became bifurcated in the third century. And, as I have pointed out, it was the Empirics themselves who made the anathematizing of his sort of causal inquiry the main plank of their sect's platform. I have mentioned some of the principal aspects of our author's methodological commitments that the Empirics could have pointed to in claiming his authority in their dispute with Herophilus and other later theoreticians, but it requires very selective attention to those commitments to think that, overall, he is recommending anything like their conception of experience and its self-sufficient role in constituting medical knowledge.<sup>40</sup>

## VI

A further aspect of our treatise that must have attracted the early Empirics' favorable attention is its vigorous rejection of the philosophers' ὑποθέσεις as completely useless in explaining any medical facts. We need, then, to return to the philosophical medical writers against whose theories our author is objecting, in order to sharpen our understanding of what he thought made his own theories acceptable and those of his opponents—equally rationalist, in the precise sense I have specified, because they were equally wedded to explanations via underlying and unobservable entities—unacceptable. In my summary in section II, I emphasized the abstractness of the supposedly explanatory principles of the philosophical writers, and our author's insistence, because of their abstractness, on their inefficacy in understanding and treating human illnesses. In speaking of abstractness here I employ a term of my own—nothing corresponds directly to it in our author's critique—intending to capture thereby the core of his objections to these alleged principles. Let me turn, then, to these objections.

Our author argues that observation of patients shows that cosmological powers or properties such as heat and cold belong to many distinct components of the human body, and that these components as a matter of observed fact have different causal powers. In virtually all cases, it is

<sup>40</sup> I am grateful to Katerina Ierodiakonou, one of my commentators at the Athens-Pittsburgh Symposium on the History and Philosophy of Greek Medical Traditions from Hippocrates to Harvey in Athens (May 1998), for causing me to discuss more fully both the aspects of *AM* that might have invited favorable attention by the early Empirics and my claim that really, nonetheless, our author defends a method that can fairly be classed, in later terms, as rationalist, not Empiric or even proto-Empiric.

the other characteristics of these components (their sweetness or bitterness, acidity or saline character, and so on), not their heat or coldness, that have effects for better or worse on a human being's bodily condition. As he puts it (at 15.16–18 = 138, 6–8), in addition to ones that are astringent, or flaccid, or flatulence-producing, which he has mentioned in the preceding context, “there are many other things that are hot and that have different and contrary powers to one another.” These differences are explained by the specific powers of each of these other qualities, which are seen in all the “strong” instances, whether the materials in question are hot *or* cold (and, we could add, whether relatively wet or dry) (15.25–30 = 138, 14–139, 3).<sup>41</sup> In chapter 13 he poses a related challenge. The logic of the opponent's position requires him to hold that either excess heat or excess cold, or an excess of one of the other cosmological properties, is the cause of any given disease. Yet (as our author points out at 15.1–7 = 137, 12–17) the opponent cannot prescribe “some hot” or “some cold” (since there is no such thing actually in existence). There is no actual material that is just cold, all by itself, or hot: heat and cold are found bound up with other qualities in the constitution of materials. In fact, he has to prescribe the same ordinary foods or medicaments we are all familiar with—and in the constitution and preparation of these it is obvious that lots of heat *and* lots of cold are present. So how could he say, if his prescription proves effective, that it was because of the hot in it rather than the cold?

Our author seems to think these faults are due to the opponent's not using detailed information about the human body in particular, and about the relevant experiences of people when sick or when well, as his springboard for proposing unseen theoretical agencies that he can then use to understand diseases and devise treatments. Instead, he imports his theoretical idea from the study of a different subject. He imports it from

<sup>41</sup> One might wonder whether he, or anyone he knows of, has actually done systematic tests to confirm this statement. Presumably not; it's enough for him that it seems so very plausible. Compare the clever argument of chapter 8: if you gave a man sick with a moderately serious disease a diet identical with his ordinary one (except considerably reduced in quantity) he would experience just as much pain as a moderately strong person when healthy would who ate a diet of vetches and barley off the field the way a cow or horse does (except in small quantities). This is an argument to show that, since we have long ago devised the nearly perfect diet for a healthy human, it must be possible by continued application of the same methods to devise a nearly complete system of dietary prescriptions for people when ill: the distance to be traversed in both cases is pretty nearly the same. Who supposes that the author speaks with such confidence on the basis of actually trying this experiment? It seems rather that he is so impressed with the cleverness of the idea, and the very great plausibility of its main premise, that he just *knows* the argument must be sound. It does not occur to him to put it to the test. Here we see again the “rationalist” character of our author's conception of medical history and his own methods in medical science.

the study of the formation, structure, and basic constituents of the cosmos as a whole, and the bases of its orderly progression through the seasons. I detect no irony or disrespect when our author says that with any direct inquiry into the nature of the cosmos<sup>42</sup> one has no choice but to proceed on the basis of an ὑπόθεσις—and I see here no contemptuous dismissal of research into such questions. Plainly, we simply do not have sufficient up-close access to the detailed facts about “the things in the heavens and those below the earth” to enable us to mimic directly the methods of traditional Greek medicine in that case (1.20–27 = 119, 4–11).<sup>43</sup> Any Greek who wanted to make some sense of these “invisible and intractable” matters (ἀφανέα τε καὶ ἀποροέμενα) must necessarily propose some sufficiently comprehensive, plausible-seeming principles devised by him- or herself that might allow some plausible explanations of at least the gross regularities and other prominent facts. These might include Empedocles’ four roots and the powers of Love and Strife, for example. The fact that others (Anaxagoras, or Diogenes of Apollonia, or Philolaus, or even Heraclitus) might offer quite different theories, and that one cannot by inspection obtain data about the celestial or subterranean world that might more or less directly offer confirmation for one rather than the others of these theories—as our author puts it, the fact that “there is not anything by referring to which one must know with clarity” (1.27 = 119, 10–11)—does not render the enterprise valueless. Some theoretical frameworks may allow us to do a better job in various respects than others, and taken all together they help us to see the possibilities for an adequate ultimate understanding, if further data should ever make that available to us. Certainly, this kind of inquiry puts us in a better position than we are in if we allow traditional religion and its interpreters to handle them unchallenged.

The point, however, is that with the nature of human beings, their health, and their illnesses, we are not in the same situation. We *do* have something to refer to in order to know “with clarity” just what the real causes are. This, the author says by implication, is found in “the perception of

<sup>42</sup> As opposed to the indirect and derivative one that he may be proposing himself at 20.11–15 (see below, sec. VII).

<sup>43</sup> I think it is better to read (with A and the Budé) κενῆς (newfangled) at 1.20 = 119, 4, rather than M’s κενῆς (empty), printed in the Loeb. In addition to the quasi-parallel at 13.1 = 133, 7 to which Jouanna points in his note on the passage, there seems no reason in what follows to think that the writer regards it as a fond and empty thing to go around proposing ὑποθέσεις in order to form some theories, based on purely natural principles, about how the world itself might work. To condemn out of hand as “empty” all the work of pre-Socratic natural philosophy would seem to leave that whole realm in the hands of diviners and other superstitious people; and our author does not seem like someone who would willingly do that.

the body” (τοῦ σώματος τὴν αἴσθησιν, 9.17–18 = 128, 13).<sup>44</sup> He means, perhaps, the patient’s body’s perceptions or, alternatively, the perception by the physician of the patient’s body. In either case, of course, the physician will be the one to ask questions about what the patient is experiencing and to probe the patient’s body to help him or her to perceive additional things, in order to generate observations on the basis of which he can then construct his etiological theory—or its application to the given case. So it is ultimately the perceptions or observations of the *physician* that will provide the basis for the clear knowledge of causes in the medical case. Starting with those “perceptions of the patient’s body”—those observations of the intelligent physician, who knows how to reason in a way that is suitable for the study of human nature (14.16 = 135, 15–16)—the physician is able to see that “all the causes of pain lead back to the same thing, namely, that the strongest things hurt a person most and most obviously, both one who is well and one who is sick” (6.15–18 = 125, 17–126, 2). And he can proceed beyond that conclusion to reach the complete theory of the ingredients of the human body (and of foodstuffs suitable for humans) and of the best compounded and tempered mutual mixtures of those components. So we do not need to make do with any ὑπόθεσις in this case. We have a secure observational basis for determining with full clarity what the real causes are. So long, then, as inferences to hidden causes are controlled by and arise out of detailed study of the observable, concrete facts about human illnesses and the experiences of people when suffering from them, our author has no objection to theoretical, causal reasoning, or to the appeal to hidden theoretical entities, in his explanations. He balks only when, as with philosophical medicine, such detailed information is set to one side where it *is* available, and theorizing takes its start instead simply from plausible-looking ideas about the organization and life of the universe as a whole—that is, from mere ὑποθέσεις.

<sup>44</sup> The author mentions the perception of the body as what we may call the “criterion” in connection specifically with the question of the specific quantities of food—neither too much nor too little—that a person should consume, whether for a diseased condition or a healthy one. The “measure” (μέτρον) in such cases, he says, is the “perception of the body.” However, on his own account it is the general theory of human physiology, in relation to the different qualities of the various foodstuffs, that determines the right amount of specific foods for people of the different types of bodily constitutions to take under the different conditions. So the “perception of the body” (as interpreted by the physician) is the ultimate basis, according to our author here, for the whole theory of physiology and of the qualities of foodstuffs that he relies on throughout. Physicians know that “strong” foods are bad because of the pains that certain foods cause people, which thereby reveal to the alert and intelligent physician the fact that they are too strong for the patient’s constitution, or for his or her special conditions when subject to some illness.

## VII

On this interpretation, our author respects and values (up to a point) the study and the explanation of facts about the cosmos at large by the method of *ὑπόθεσις*, unnecessary and useless though it is for studying human health and disease. But, however respectable (*faute de mieux*) that method may be in its proper context, he insists that it does not provide any clear knowledge (*εἰδέναι τὸ σαφές*, 1.27 = 119, 10–11)—that is, any *knowledge* at all—even of the causes of what goes on in the heavens or below the earth. We are still in the area of more or less plausible conjecture when we propose that it is the natures of hot, cold, wet, and dry in their mutual interactions that explain the phenomena there. Remarkably, in chapter 20 (20.11–15 = 146, 9–13), on what seems to me the best interpretation of his words,<sup>45</sup> our author takes the bold step of claiming that if anyone ever *did* achieve clear knowledge of these matters (*γυῶναί τι σαφές*, 20.12 = 146, 10; the recurrence of this closely related language may be significant), it would be by employing the methods of traditional Greek medicine—that is, by going from knowledge of human nature, health, and diseases, developed along the lines we have already examined, to knowledge of the nature of the cosmos and of the causes at work in its constitution and maintenance.<sup>46</sup> He does not explain how he thinks

<sup>45</sup> On an alternative interpretation, he speaks only about how one could achieve clear knowledge of *human* nature, not knowledge of nature in general—i.e., the nature of the cosmos overall, to which pre-Socratic natural philosophy was devoted. I argue however, in notes 16 and 47, that throughout this passage, and therefore at 20.11 = 146, 9 in particular, the author refers by the words *περὶ φύσιος* always to the nature of the whole (including, of course, human nature), not human nature in particular. If so, then my interpretation, which is that also of Festugière and Jones, among other translators and commentators, follows.

<sup>46</sup> He also says, in an obscure further criticism, that he considers that “whatever has been said or written about nature by any wise man (*σοφιστής*) or any physician pertains less to medical science than to that of painting”—*ἥσσον . . . τῆ ἱητρικῆ τέχνῃ προσήκειν ἢ τῆ γραφικῆ*, 20.8–11 = 146, 7–9. Unfortunately it is not perhaps absolutely certain that he does mean painting here by *γραφικῆ τέχνῃ*, nor do I have any confidence in any of my own or other writers’ attempts to grasp his point, if he does intend, as seems most likely, to refer to expertise in, or about, painting. Very possibly he is making a snide comment on Empedocles’ frg. B 23 (Diels), where Empedocles appeals to the ability of painters (*γραφῆες*) to produce *images* of all kinds of objects simply from combining bits of a few well-chosen pigments as evidence in favor of his own theory that all kinds of *objects* can result from combinations of bits of his four “roots”—our author has referred by name to Empedocles only a few lines earlier; 20.6 = 146, 5. (On this fragment and a related fragment, see Wright, *Empedocles*, 38–39, 179–81, 221–22.) For an ingenious new proposal and an authoritative discussion of other interpretations that have been proposed, see Dihle, “Kritisch-exegetische Bemerkungen,” 146–50; see also Jouanna’s note *ad loc.*, pp. 208–9, for further discussion and references. Fortunately it does not seem necessary to understand this negative criticism in order to grasp adequately the sense and bearing of the positive claim our author goes on to make about how clear knowledge about cosmology might be attained.

medical knowledge, and the medical method, might perform this function. But given what we have learned so far, we can work out with some assurance the main part of what he might have in mind—even if we conclude that he is not quite entitled to say that it is *only* from a completed knowledge of medicine that one can come to know the nature of the cosmos itself, or that that by itself would suffice (see below, note 49).

Before I quote the relevant passage, we should recall that in his preceding account of the method of traditional Greek medicine, the author has said plainly that it centrally involves reasoning about human nature (see 14.16–20 = 135, 14–17, discussed in above section V). He now draws attention to the fact (implicit in all that preceded, including the passage of chapter 14 just cited) that the relevant reasoning about human nature treats that nature (20.20–23 = 146, 17–147, 1) *in relation to* “what [humans] eat and drink” and to the “other practices” of human beings, and considers “what will result from each of these for each [type of] person.” Here, then, is what he says (20.11–23 = 146, 9–147, 1):<sup>47</sup>

<sup>47</sup> I translate the Budé text, which for convenience I give here:

νομίζω δὲ περὶ φύσιος γυνῶναι τι σαφὲς οὐδαμῶθεν ἄλλοθεν εἶναι ἢ ἐξ ἰητρικῆς. τοῦτο δὲ οἷόν τε καταμαθεῖν ὅταν αὐτὴν τις τὴν ἰητρικὴν ὀρθῶς πᾶσαν περιλάβῃ—μέχρι δὲ τοῦτο πολλοῦ μοι δοκεῖ δεῖν—, λέγω δὲ ταύτην τὴν ἱστορίην, εἰδέναι ἀνθρώπος τί ἐστὶ καὶ δι’ οἷας αἰτίας γίνεται καὶ τᾶλλα ἀκριβέως. ἐπεὶ τοῦτό γέ μοι δοκεῖ ἀναγκαῖον εἶναι ἰητρῶ περὶ φύσιος εἰδέναι καὶ πάνυ σπουδάσαι ὥς εἴσεται, εἴπερ τι μέλλει τῶν δεόντων ποιήσῃ. ὅ τι τέ ἐστιν ἀνθρώπος πρὸς τὰ ἐσθιόμενά τε καὶ πινόμενα καὶ ὅ τι πρὸς τὰ ἄλλα ἐπιτηδεύματα καὶ ὅ τι ἀφ’ ἐκάστου ἐκάστῳ συμβήσεται.

Thus I accept πᾶσαν at 20.14 = 146, 12 with most manuscripts (it is omitted in A and in the Loeb); and I adopt the Budé’s punctuation (it is also Heiberg’s in H. L. Heiberg, *Hippocratis Opera*, vol. I 1, CMG; and Festugière’s), with a comma after ἱστορίην instead of (so the Loeb) after the following word, εἰδέναι.

In note 16, above, I have argued, against Jouanna, that at 20.6 = 146, 5, οἱ περὶ φύσιος γεγράφασι means those “who [like Empedocles] have written about Nature”—and not those who have written specifically about the nature of human beings; the author’s reference is to writers on nature as a whole who, he goes on to say, have devoted attention (*viz.*, by relying on their general cosmological principles) to the nature of human beings in particular. Thus περὶ φύσιος in this first occurrence in the passage means “about nature” (as a whole), not “about human nature” (specifically). The same phrase first recurs four lines later (20.10 = 146, 8), where it ought again to mean “about nature” (as a whole). Indeed, it has to mean that at 20.10 whatever may be the meaning at 20.6: the author says that “whatever has been said or written about nature by any wise man (σοφιστής) or any physician” does not pertain to medical science (see further note 46). He could not mean to say that whatever any physician has said or written merely about *human* nature has nothing to do with medical science: he is full of praise for what traditional medical science has said about that (see, e.g., 14.16–20 = 135, 14–17). He means, as before, whatever has been said or written about nature as a whole (and, as part of that, human nature), whether by a philosopher or a physician. The occurrence of the phrase περὶ φύσιος at the beginning of

I consider that any clear knowledge about nature cannot be acquired from any other source but medical science: it is possible to know this fully (καταμαθεῖν)<sup>48</sup> when one has correctly grasped medical science itself as a whole (but until then it is very far from possible)—I mean [when one has grasped] this subject of inquiry (ἱστορίη), to know (εἰδέναι) what a human being is,

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the passage translated then follows: here again, then, the reference is to (clear knowledge about) nature as a whole, not merely specifically human nature (so Jouanna).

I take λέγω δὲ ταύτην τὴν ἱστορίην (lines 15–16 in the Loeb) to specify αὐτὴν . . . τὴν ἱητρικὴν (lines 13–14)—and not, with most translators, to carry forward περὶ φύσιος γυνῶνά τι σαφές (line 12), i.e., τοῦτο (line 13), that is, to specify what the content of the “clear knowledge about nature” referred to itself will be (viz., as Jouanna would have it, medical science). Among the translations I have consulted (Jones in the Loeb and in his 1946 edition; Festugière; Diller in *Hippokrates Schriften*; and Jouanna in the Budé; the appalling translation by J. Chadwick and W. N. Mann in Lloyd, ed., *Hippocratic Writings*, makes it impossible even to conjecture how they construed the Greek at this point), only Diller’s takes the Greek this way. But the nearest noun phrase for λέγω δὲ ταύτην τὴν ἱστορίην to be explicating (and so the one it would normally pick up, even though it comes in a subordinate clause) is in fact αὐτὴν τὴν ἱητρικὴν. So Diller’s construction makes for better Greek usage. And, so construed, the clause makes excellent sense. The author has said that it is not possible to get any clear knowledge about nature (i.e., cosmology) except by first obtaining a complete grasp of medical science (20.11–13 = 146, 9–11). He then begins (lines 15–17 in the Loeb, 13–15 in Budé), entirely appropriately, to say clearly what *he* holds medical science consists of: it consists of knowing “what a human being is, through what causes he comes into being, and all the rest with precision.” (Here “all the rest with precision” is important: it would include everything about human physiology and the constituents of nutriment, as well as of harmful things to consume, and so on, that our author has included in the true medical method and the discoveries made using it; thus it would contrast sharply with the “knowledge” of human nature claimed by the philosophers, which he rejects at the beginning of the chapter.) He goes on, in the remainder of the passage quoted, to tell us more precisely what according to him is involved in this knowledge: it means knowing what a human being is *in relation to* what he eats, etc. (Apart from its less satisfactory construction of λέγω δὲ ταύτην τὴν ἱστορίην, Jouanna’s interpretation gives a less satisfactory sense: having claimed that it’s not possible to obtain clear knowledge about *human* nature except from a complete grasp of medical science, the author now specifies—surely unnecessarily, since it was plain already at the mention of “what a human being is” at line 3 and its replacement, on Jouanna’s interpretation, with περὶ φύσιος at line 6—what he and presumably everyone understands by “knowledge of human nature,” viz., the investigation and knowledge of what a human being is, etc. Only then, in the following sentence, would he get around to saying how, on his own particular views, this knowledge is to be accomplished.)

On my overall interpretation of this passage I follow Festugière (*L’Ancienne médecine*, 18, with nn.), who finds our author, as I do, claiming traditional medicine as the sole basis on which anyone can obtain clear knowledge about nature as a whole—about cosmology. On Jouanna’s interpretation our author would be reduced to saying something much less striking and provocative (though admittedly still controversial): that only medical science (and not “natural philosophy”) can give clear knowledge about human nature. Festugière’s translation is marred, however, by his failure to see the correct construction (Diller’s) of λέγω δὲ ταύτην τὴν ἱστορίην (line 15–16 in the Loeb).

<sup>48</sup> For this interpretation of καταμαθεῖν see H. W. Smyth, *Greek Grammar*, ¶ 1648.

through what causes he comes into being, and all the rest with precision.<sup>49</sup> For I think this at least about nature is necessary for a physician to know (εἰδέναι), and to bend every effort in order to know, if he is to perform any of his functions—both what a human being is in relation to what he eats and what he drinks, and what in relation to his other practices, and what will result from each of these for each [type of] person.

His argument (construing the Greek in the way I have done) is this: Physicians must know human nature not as an isolated single nature but in relation to the natures of the foodstuffs and potable liquids, and baths and exercises, and all the other parts of a normal set of practices conducive to health, as well as the natures of all those that harm it. We have seen already how the author thinks foods and drinks consist of the same ingredients as our bodies do, and how he thinks they act upon, and are acted upon by, our organs, tissues, etc. This means that once medical science is fully completed one will know in full detail both what a man is, including the causes of his coming into being (viz., those ingredients), and “all the rest with precision.” Here, this “all the rest” will have to include quite a lot, in principle presumably virtually everything (knowable) about the natures (in the sense of the physical constitutions) of a pretty vast range of other natural entities: other animals, to the extent that we eat their meat, many kinds of plants and fruits, and so on. Plus, we must know the nature of water (for baths), and the nature of all kinds of natural products that we use for rub-downs, for medical applications of all sorts, and so on. The claim then is that, because all this detailed knowledge about the natures of all sorts of things is included centrally within

<sup>49</sup> In the opening lines of the chapter, the author has rejected the claim of his opponents that “it is not possible for anyone who does not know what a human being is to know medicine, but one who intends to treat human beings correctly must have a thorough knowledge of that”; and he has explicated their conception of the knowledge of human nature in terms of knowing “how he first came to be and from what things he was put together”—i.e., cosmological and cosmogonical processes. (See, e.g., *On Fleashes* 3 ff.) One might find it puzzling, then, that the author now, on his own account, includes the rejected knowledge of “what a human being is” and “through what causes he comes into being” as components of medical science. The author’s point, however, is precisely that *true* knowledge of what a human being is and how he comes into being is achievable solely through the investigations of traditional medical science—not through philosophical cosmology. In fact, the knowledge the cosmologists were aspiring to is itself only achievable as an offshoot of medical science when that has been brought to final completion (N.B. “science itself as a whole,” line 14 in Loeb). His objection is not so much to the opponents’ claim about needing to know “what a human being is” if one is to know medicine, as it is to their idea of the means by which that knowledge is to be gained. As I put it above (pp. 9–10), he boldly reverses the order of priority between cosmological and medical knowledge. So the knowledge of “what a human being is” that he includes within medical science at lines 16–17 is not the same as the rejected knowledge of “what a human being is” at line 3.

the knowledge constituting the completed medical science (indeed, the author seems to think it actually exhausts it), it should be possible to extend this knowledge to a general knowledge of the cosmos as a whole. And since that understanding of the natures of all these varied things is hardly going to be available to us from any other source (apart from an interest in their effects for health and disease, no one, he seems to assume, studies them), he concludes that that general knowledge is only achievable through medical science.

As we have seen, he thinks of human nature as essentially the nature of a material object compounded out of thousands of ingredients that when in their isolated, strongest forms, appear as juices. Likewise the natures of foods, drinks, other animals, plants, and so on. A product of his own time, then, he is thinking of all natural objects as simply material compounds of some sort or other. In this respect, he shares the outlook of the pre-Socratic philosophers of nature such as Empedocles. In chapters 22–23, it is true—I have had little occasion to refer to these chapters, because they have little to contribute to the author’s views on method and science—he notices that the structures (σχήματα) of the bodily parts, too (for example, the “broad and tapering” structure of the bladder), need to be taken into account in understanding diseases. But it is only what we would call their physical, not their biological, properties or (as Aristotle would put it) their “forms” that he attends to. Accordingly, he may think that once medical science is truly completed we will have such an extensive detailed knowledge of the materials at work in nature, and of their causal properties, that we might at last replace the pre-Socratic philosophers’ ὑποθέσεις with a set of theoretical concepts for explaining cosmogony and cosmology that are actually based, in the same solid way that medical science is, on an adequate range of observational information *about* what the things in the heavens and below the earth can reasonably be believed to be like.<sup>50</sup> The result would remain a natural science conceived in the pre-Socratic spirit, to the extent that it would limit itself to considering the natures of the materials making up the cosmos and their natural interactions and transformations. But it would be built up from below, through patient examination of detailed types of

<sup>50</sup> It seems that he overreaches here. Presumably, in order fully to know the fundamental principles of *all* the world’s material contents, and of the heavens and their movements, one would need to know also about various materials presumably not included in the human body or our foodstuffs—say granite, silver, or even tree bark or seashells. But even if additional observational sciences besides medicine would have an indispensable contribution to make, one has to grant that, understood our author’s way, a completed theory of medicine would include a vast and quite comprehensive knowledge of the materials the world contains. His enthusiastic exaggeration is perhaps forgivable.

stuff and modest inferences from there regarding their natures and causal powers and their modes of exercising them, and not imposed from above on the basis of grand but merely plausible reasoning that is empirically un- or under-informed. In the context of his own time, such a bold and exciting program should count as brilliant and revolutionary enough to win for him much more notice—even admiring notice—than, so far as we can tell, his ideas received, either then or later in antiquity.<sup>51</sup>

<sup>51</sup> I thank Katerina Ierodiakonou and Mary Louise Gill for their comments on the first version of this paper, delivered at the Athens-Pittsburgh Symposium on the History and Philosophy of Greek Medical Traditions (May 1998). I benefited from the discussion of the paper in Athens, and also from discussion of successively revised versions at Texas A and M University and the University of Texas at Austin in November 1999, and at the Center for Hellenic Studies in Washington, D.C., in March 2000. Shortly before final revision of the manuscript (September 2000) I received comments of Mark J. Schiefsky (especially on section VII), who also sent me a copy of his Harvard dissertation, “*Technê* and Method in the Hippocratic Treatise *On Ancient Medicine*” (1999), which deals with many of the issues addressed in this essay sometimes in complementary, but sometimes in divergent, ways. I have not been able to take full account here of Schiefsky’s work.