Medical History (2022), 66: 1, 34–46
doi:10.1017/mdh.2021.39

CAMBRIDGE UNIVERSITY PRESS

ARTICLE

Beneath the skin: method and perception in Hippocratic medicine

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Abstract

This paper examines some neglected aspects of Hippocratic medicine, drawing special attention to certain methodological questions concerning the role of sense perception in the acquisition of medical knowledge. I argue that there is greater epistemological uniformity among the texts of the Hippocratic *Corpus* than is sometimes assumed. I provide a careful reading of seemingly inconsistent Hippocratic treatises in the light of a plausible and coherent epistemological model. The impression that we are dealing with different, indeed inconsistent, epistemological views can be explained away by the specific dialectical contexts of each work and their historical background. Most importantly, a proper justification of this model will require us to delve into the epistemological foundations of Hippocratic medicine.

Keywords: Hippocratic medicine; Greek medical epistemology; sense perception; medical hypotheses; Greek anatomy; visible and invisible diseases.

I

From its early days, Hippocratic medicine conceived itself as an eminent *technē* ('craft', 'science', 'art', 'productive knowledge', 'expertise') based on practice and observation. Although the empirical orientation of Hippocratic medicine remained mostly undisputed throughout the Classical period – despite numerous points of dissension among Hippocratic writers on other matters – this self-conscious epistemological ideal was difficult to reconcile with actual clinical practice. Before human dissection was first permitted at the medical institute of Alexandria (circa 270–260 BCE),[1] Greek doctors were not allowed to dissect human corpses due to religious and cultural taboos, while the cutting of the patient's skin was typically restricted to superficial incisions and drainages in exceptional circumstances.[2] As a

[1]Comparative anatomy on the basis of animal dissection was, however, practised at least from the times of Alcmaeon of Croton (Calcid. *in Tim.* 246.25616-25715 ed. Waszink), partly reconstituted in DK 24A10 [with Geoffrey E.R. Lloyd, 'Alcmaeon and the Early History of Dissection', *Sudhoffs Archiv für Geschichte der Medizin und Naturwisssenschaften*, 59, 2 (1975), 113–47]. According to Theophrastus' later report, Anaxagoras opened the skull of a goat to investigate the anatomical structure of the human brain [Diels. Dox. 22 (= *Plutarch Epit.* 5.3)]. By the time of Aristotle, animal dissection was not uncommon (*HA* I 494b20-4; VII 583b23-25; *De Gen. et Corr.* IV.6775a11-12). For the dissection of animals in Hippocratic medicine, see *The Sacred Disease* (*Morb. Sacr.*) 11.3-4 Grens. (= VI.382 L.); *Epidemics* (*Epid.*) 6.4.6 (V.308 L.) and *Internal Affections* (*Int.*) 23 (VII.224 L.). For animal dissection in the broader context of Greek medicine, see Diocles (fr. 27 ed. Wellmann) and Praxagoras (fr. 13 ed. Steckerl). An informative summary of the historical development of dissection in antiquity is provided by Heinrich von Staden, 'The Discovery of the Body: Human Dissection and Its Cultural Contexts in Ancient Greece', *Yale Journal of Biology and Medicine*, 65, 3 (1992), 223–41. See also his *Herophilus, The Art of Medicine in Early Alexandria* (Cambridge: Cambridge University Press, 1989), 138–81.

[2]See discussion of various ancient sources in both works of von Staden op. cit. (note 1), and James Longrigg, *Greek Rational Medicine: Philosophy and Medicine from Alcmaeon to the Alexandrians* (London: Routledge, 1993), both with valuable material on ancient Greek beliefs about corpses. Von Staden adds – quite speculatively, he admits – two other possible reasons explaining such moral constraints on human dissection: first, the 'cultural valorisation' of the skin, (a) as a symbol of unity and wholeness which applies to both communities and individuals; (b) as an (external) symbol of (internal) order and orderliness; (c) as a limit

result, the inner structure of the human body and its mechanisms were largely *terra incognita* for Greek physicians. The boundary, both symbolic and physical, that separated the internal constitution of the body from the external world easily accessible to the senses was established by the skin.

This paper investigates how exactly Greek doctors could cope with this limitation while simultaneously vindicating their aspirations to empirical knowledge. In examining this tension and its implications for Greek medicine, my purpose is twofold: first, to discuss some neglected aspects of Hippocratic epistemology concerning the role and scope of sense perception in ancient Greek medicine; second, and relatedly, to address and neutralise an apparent inconsistency among different Hippocratic texts in connection with this question. To this end, the discussion centres upon, although it is not restricted to, three medical treatises: *On the Art* [*of Medicine*] (= *de Arte*), *On Ancient Medicine* (= *VM*) and *Nature of Man* (= *Nat. Hom.*).[3] I have selected these medical writings because of their particularly instructive views on medical epistemology but also by reason of their alleged inconsistency on some cardinal epistemological questions. More precisely, while some of them state that what is accessible to sense perception represents but a small portion of the entire medical domain (eg. *de Arte* 11; see [T3] and [T4] below), others place great emphasis on the empirical character of medical knowledge on the grounds that medicine concerns itself only with what is manifest to sense perception (eg. *VM* 1 and *Nat. Hom.* 1; see [T1] and [T2] below).

Two possible ways to deal with this inconsistency, each inspired by familiar strategies in Hippocratic scholarship, come immediately to mind: we can leave the inconsistency as it stands (eg. by attributing the authorship of these treatises to different medical writers), or we can resolve the inconsistency itself by showing that, upon closer examination, it is only apparent. My contention is that, questions of authorship notwithstanding, there is compelling textual evidence available for endorsing the latter view. Most importantly, a proper justification of this position will require us to investigate the epistemological foundations of Hippocratic medicine. All these medical authors, I argue, resort to the same methodological approach – a skilful combination of analogical characterisation and inferential reasoning – in order to make room in medicine for what escapes sense perception – by remaining hidden under the skin – without having to abandon their claims to empirical knowledge.

II

It has been suggested that Greek medicine was already well established as a reputable *technē* towards the early fourth century BCE and perhaps even earlier.[4] While it is now generally agreed that the bulk of the Hippocratic *Corpus* was most likely written before the end of that period, the fact remains that, by this time, Greek medicine was still struggling to secure a respectable place among other forms of knowledge in antiquity. As parties to a stimulating debate on the epistemic status of medicine, the initial challenge that Hippocratic authors had to face was not a minor one: to prove, despite the scepticism of its critics, that medicine did deserve the title of *technē.* Ironically, the most valuable textual evidence of the rather

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of physical individuality, and hence identity and (d) as a symbol of limit, and hence respect; second, the cultural significance that 'cutting' (*temnein*) had for the Greeks [outside sacrificial practices, the term 'tends to designate acts of violence' (Heinrich von Staden, *Herophilus, ibid.*, 230)]. This may well be explained by the fact that, as Nutton has argued, leaving Greek intellectuals aside, most Greeks were inclined to see the corpse still as the human individual. See Vivian Nutton, *Ancient Medicine* (London: Routledge, 2004), 129.

[3]For these three medical treatises, I use both Littré's (= L.) and Jouanna's (= J.) editions. In the case of other Hippocratic texts, I adopt Littré's edition for the most part. When employing, in addition, more recent editions of specific Hippocratic works, I make this clear by mentioning the name of the editor at the end of each reference (eg. *Loc. Hom.* 46,84.17–24 Craik). Unless otherwise indicated, quotes and references are extracted from the following translations of the main texts: Mark Schiefsky, *Hippocrates on Ancient Medicine. Commentary and Translation* (Leiden/Boston: Brill, 2005); Joel Mann, *Hippocrates: On the Art of Medicine* (Leiden/Boston: Brill, 2012) and William H.S. Jones, *Nature of man* in *Hippocrates, vol. 4: Nat. Hom., Salubr., Hum., Aph., Vict.* Loeb Classical Library (Cambridge, MA: Harvard University Press, 1931).

[4]See eg. Anthony Kenny, *The Anatomy of the Soul. Historical Essays in the Philosophy of Mind* (Oxford: Basil Blackwell, 1975), 3. For a recent discussion of the early development of Greek medicine, see Robin Fox, *The Invention of Medicine: From Homer to Hippocrates* (London: Pinguin Classics, 2020).

https://doi.org/10.1017/mdh.2021.39 Published online by Cambridge University Press

fragile situation of Hippocratic medicine during the Classical period was produced by Hippocratic writers themselves. Although medical authors never developed an epistemology proper, let alone a philosophy of science, the Hippocratic Collection is peppered with incisive remarks on the distinctive character of medical knowledge and its relation to other sciences. The interest of Hippocratic authors in epistemological questions emerged in part as a response to different groups of detractors who denied that medicine was a genuine *technē*. Their criticism was based on three kinds of considerations: (C1) medicine's dependency on natural philosophy (eg. *VM* 1-2; *Nat. Hom.* 1), (C2) its alleged lack of success and accuracy in clinical diagnosis and therapy (eg. *de Arte* 4; *VM* 9) and (C3) its close connection with mythology and 'religious healers' (eg. *Morb. Sacr.* 1). Particularly relevant for present purposes are (C1) and (C2).[5] Let us first address (C1).

In order to become a respectable science, a preliminary obstacle that medicine was required to overcome was its supposed incompatibility with a basic constraint implicit in the Greek conception of *technē*. This was the idea that a *technē* is a cohesive system of knowledge which applies to a specific domain of objects, thus distinguishing itself from other domains.[6] In spite of its apparent simplicity, this formal constraint became especially problematic for Hippocratic writers, as critics disputed that medicine was indeed an autonomous body of knowledge with a distinctive subject matter. Remarkably, the debate was not only between Hippocratic doctors and their detractors, but also among Hippocratic authors themselves. While some of them suggested that the foundations of medical knowledge must be derived from natural philosophy, others considered medicine to be a self-standing form of knowledge, *viz.,* a *technē* in its own right. To put it roughly, the first group of physicians contended that patterns of health and disease were determined by, and at the same time exhibited close parallels with, cosmic elements and processes that doctors were required to know in order to treat patients. This is the Hippocratic tendency that permeates the medical doctrines of *Fleshes* (*Carn.*) and *Breaths* (*Flat.*), and most famously *On Regimen* (*Vict.*).[7]

On the opposite side, another prominent group of Hippocratic authors strongly resisted this philosophical trend in medicine. Questions about human physiology may have played some role in the justification of their views, the central thought being that the human body is made of humours rather than the physical elements that constitute the cosmos (*Nat. Hom.* 1-2,VI.32-36 L. = 164-170 J. and 4,VI. 38,19-40,2 L. = 172,13-174,15 J.). This was not the most critical point at stake, though. Their main line of criticism was premised on epistemological considerations relative to the scope and nature of medical knowledge. The Hippocratic treatise *On Ancient Medicine* provides important evidence on the substance of the issue. From the opening of the text, its author sets out to vindicate the epistemological autonomy of medicine by refuting those medical writers who endorse a reductive approach to medical aetiology to the effect that *all* causes of human disease and death can be explained in terms of a few hypotheses [*hupotheseis*]. The full passage reads thus:

[5]For the question of accuracy [*akribeia*] in Greek epistemology and its relevance for medicine, see Dietrich Kurz, *Akribeia: das Ideal der Exaktheit bei den Griechen bis Aristoteles* (Göppingen: Kümmerle, 1970), Schiefsky, *op. cit.* (note 3), 13–18; and Joel Mann, 'Prediction, Precision, and Practical Experience: The Hippocratics on *techne*', *Apeiron*, 41, 2 (2008), 89–122.

[6]On the development of *technē* in ancient Greece, see Felix Heinimann, 'Mass – Gewicht – Zahl', *Museum Helveticum*, 32, 3 (1975), 183–96; and David Roochnick, *Of Art and Wisdom: Plato's Understanding of Techne* (Pennsylvania: Pennsylvania State University Press, 1996), 17–88. A narrower analysis restricted to the role of medicine within this debate can be found in Festugière's French commentary to *De vetere medicina: Hippocrates, L'ancienne médecine* (Paris: Klincksieck, 1948), and more recently in Bjørn Hofmann, 'Medicine as *techne*: A Perspective from Antiquity', *The Journal of Medicine and Philosophy*, 28, 4 (2012), 403–25.

[7]For the author of *Breaths,* '*pneuma*' ('breadth') is the 'most powerful element in the universe' (*Flat.* 3.2, VI.94 L.), being also the 'origin and source' (*archē kai pēgē* 1.4, VI.92 L.) of all human diseases. In *Fleshes*, we find an anthropogonic account of human anatomy whereby the existence of different bodily parts is explained against a broader cosmological background (chs 1–3). Although *On Sevens* (perhaps a later work) sets out a more detailed explanation of structural and dynamical parallels between the body and the whole universe than *Regimen* does, it is in *Regimen* where we find the most explicit formulation of the famous ancient analogy between microcosm and macrocosm according to which the 'human body is an imitation of the whole universe' (I.10, VI.484,17–486,7 L. = 134.5–16 Joly-Byl.).

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> [T1] 'All those who have undertaken to speak or write about medicine, having laid down as a hypothesis for their account hot or cold or wet or dry or anything else they want, narrowing down the primary cause of diseases and death for human beings and laying down the same one or two things as the cause in all cases, clearly go wrong in much that they say. But they are especially worthy of blame, because their errors concern an art that really exists (…) For this reason I have deemed that medicine has no need of an empty hypothesis [*kenēs hupothesios*], as do invisible and dubious matters [*hōsper ta aphanea te kai aporeomena*]' (*VM* 1.1-3, I.570,1-572,4 L. = 118,1-119,5 J., Schiefsky's translation with some modifications).

As can be gathered, the author's main objection is levelled at some medical writers of the time that make use of a certain hypothesis in order to account for the 'primary cause' of disease and death. It is considerably less clear, however, (i) what exactly we are meant to understand by 'hypothesis' in the passage, and (ii) on which grounds the author condemns the adoption of hypotheses in medicine.[8] Let us tackle each question separately.

As for (i), the scholarly consensus has it that '*hupothesis*' in [T1] stands for 'postulate' or 'assumption' of some sort, yet what exactly this means in the overall economy of the treatise remains obscure.[9] Illustrations of it are introduced in [T1] by means of a binary opposition between the corresponding qualities of the four elements commonly discussed in pre-Socratic cosmology: 'hot or cold, or wet or dry'. This provides a first hint, however vague, of the breadth and scope of the hypothesis to be rejected: it is not a mathematical but *physical* assumption.[10] We are explicitly told that such assumptions are employed by the author's adversaries as basic explanatory principles meant to account, apparently without much success, for the primary causes of disease and death. From this standpoint, the *explanandum* of the hypothesis under consideration cannot be further argumentative moves within a broader dialectical interchange, but more specifically, as [T1] makes abundantly clear, biological phenomena, or specific descriptions thereof, such as human diseases and ultimately death.[11]

In practical terms, since what requires explanation are diseases and other physical ailments – this is our *explanandum* in [T1] – it is safe to conclude that the hypotheses under attack must correspond to assumptions intended to explain their causes. The exact scope of such hypotheses is, however, considerably less clear. On a narrow interpretation, we are dealing with specific cases each of which may demand a *different* hypothesis: $H_{1:}$ 'disease *x* is caused by what is hot (as opposed to what is cold)', $H_{2:}$ 'disease *y* is caused by what is cold (as opposed to what is hot)' and so forth. Nonetheless, the fact that the author regularly refers to the hypothetical method of his opponents in terms of a singular hypothesis [*hupothesis*], as opposed to plural hypotheses [*hupotheseis*],[12] strongly suggests that he is operating with some sort of higher-order explanatory principle with the following structure: 'every disease is caused by (either an excess or deficiency of) what is hot, cold, wet or dry'. Once granted, this principle is

[8]See Geoffrey E.R. Lloyd, 'Who Is Attacked in *On Ancient Medicine*?' *Phronesis*, 8 (1963), 108–26; Richard J. Hankinson, 'Doing without hypotheses: the nature of *ancient medicine*', in Juan Antonio López Férez (ed.), *Tratados Hipocráticos: Actas del VII Colloque Internationale Hippocratique* (Madrid: Universidad Nacional de Educación a Distancia, 1992), 55–67; Jane Barton, 'Hippocratic explanations', in Philip van der Eijk (ed.), *Hippocrates in Context* (Leiden: Brill, 2005), 29–48 and Schiefsky, *op. cit.* (note 3), 111–15.

[9]As a translation of '*hupothesis*', most scholars seem to treat 'postulate' and 'assumption' interchangeably [eg. Jones, *op. cit.* (note 3); Lloyd, *ibid.*, 110–11; Barton, *ibid.*, 333; Schiefsky, *op. cit.* (note 3), 111]. But see Hankinson, *ibid.*, 55; and note 1.

[10]See Geoffrey E.R. Lloyd, *Magic, Reason and Experience* (Cambridge: Cambridge University Press, 1979), 135; and Hankinson, *op. cit.* (note 8), 57. This a crucial point given the use of '*hupothesis*' among Greek mathematicians. Plato's *Meno* (86a) treats '*hupothesis*' as a mathematical assumption, referring to the common practice of Greek geometricians.

[11]Karasmanis, who reads *VM* as 'a dialectical debate against various kinds of opponents, both sophists and doctors', suggests that a '*hupothesis*' in the present context stands for 'a proposition assumed for the sake of argument' (Vassilis Karasmanis, 'The Hypothetical Method in Plato's Middle Dialogues' (unpublished PhD thesis: University of Oxford, 1987), 8. More recently, Elizabeth Craik has also identified certain sophistic motifs in later chapters of the treatise in her *The Hippocratic Corpus: Content and Context* (London/New York: Routledge, 2014), 285.

[12]In addition to [T1], see *VM* 2.3 (I.574,7 L. = 120,15 J.); 13.1 (I.598,3 L. = 133,8 J.) and 15.1 (I.604,13 L. = 137,12-15 J.).

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subsequently employed by his adversaries as a *foundational* assumption[13] to account for the causes of all diseases (several illustrations of how they proceed are mentioned in *VM* 13 and 15).

In connection with (ii) (ie. on which grounds the author condemns the adoption of hypotheses in medicine), the author of *VM* raises not one but several objections to the aetiological model of his rivals, yet all of them are the expression of one and the same general concern: to dismiss the idea that medical knowledge must be derived from the sort of speculative thinking that characterises natural philosophy and cosmology. All in all, we can identify two main lines of criticism: one is intended to question the very existence of the items which are hypothesised by his opponents, and the other one challenges their alleged usefulness for clinical practice. As regards the first objection, it is true that the mere existence of *phenomenal* qualities, such as hot, cold, dry or moist in the natural world, is never explicitly denied by the author, but he takes his opponents to endorse a somewhat stronger thesis, namely, that there is 'absolute' or 'pure' hotness, coldness, dryness or moistness, which is therefore not mixed with anything else. The author complains, however, that no such thing has ever been discovered (*VM* 15.1,I.604, 14-16 = 137,15-17 J.). His objection is open to two possible readings, and the two of them are consistent with, and indeed supportive of, the authors' characterisation of the hypothesis under attack as 'empty'.[14] We can take it to mean that there is no such thing as, say, a food that is absolutely hot, cold, dry or moist, because all food, while having one or more of these qualities to some degree, must *also* be astringent, sweet and bitter, which are the real qualities [*dunameis*] in food the author considers to be aetiologically relevant for human health (*VM* 15). Alternatively, we can also interpret the assertion that there is no such thing as what is purely hot, cold and so forth, as entailing that the objects that we perceive in everyday experience, especially food, do not contain any of these qualities in their pure form but rather mixtures of them where some elements predominate over the others (cf. *Nat. Him.* 2, VI.36 L. = 168,9–170,1 J.).

The second line of criticism, as just noted, centres on the putative use that his opponents' hypothesis may have for medical practice. That the main issue at stake is eminently practical becomes clear in later sections of the treatise where the author confesses to be at loss ('*Aporeō d' egōge*…', *VM* 15.1, I604,13 L. = 137,12 J.) to understand how supporters of the hypothetical method in medicine can actually treat ['*therapeuousi*'] patients on the basis of it. For suppose that the hypotheses in question are right, so that (say) hotness and coldness are indeed the real causes of health and disease. If one hot food is astringent, while the other one insipid, it would therefore make no difference whether doctors administer either of these to the patient, for the aetiologically relevant factor is the same in both cases. However, the effect of what is hot and insipid on the body is manifestly different from the effect of what is hot and astringent (*VM* 15.2–4, I.604-606 L. = 137-139 J.). Consequently, hotness and coldness cannot be causally active factors in determining patterns of health and disease, and hence references to them alone

[13]Schiefsky opportunely reminds us that the relevant sense of '*hupothesis*' in [T1] is 'its etymological one of "basis" or foundation' [*op. cit.* (note 3), 111], thereby suggesting that the medical hypotheses rejected by the author of *VM* are not any random medical assumptions or postulates but rather *foundational* ones.

[14]Let me pause over a much-disputed issue regarding the edition of the Greek text. Manuscript A reads '*kainēs*' ['new-fangled'] as qualifying '*hupothesios*' at *VM* 1.3 (119, 4-5 J. = I. 572, 3) in lieu of '*kenēs*' ['empty'], which is adopted by M. In modern scholarship, M's reading is approved by Littré (I.570 L.) and Jones [*op. cit.* (note 3)] but rejected by Jouanna in his edition of the text: *Hippocrate II.1: De l'ancienne médecine* (Paris: Les Belles Lettres, 1990), 119. Crucially, as Schiefsky himself is forced to admit [*op. cit.* (note 3), 135], who sides with Jouanna, since the question cannot be settled by palaeographical evidence, the correct reading must be established in view of the author's line of reasoning. I am personally not persuaded by these scholars' justification in support of Manuscript A. It seems to me that '*kenēs*' provides a more plausible reading given the broader epistemological commitments of the author. To begin with, '*kainēs*' is certainly not strong enough to rule out the possibility of adopting other hypotheses in medicine, suggesting instead that medicine may have made used of them in the past. But the author is not condemning the use of *certain* hypotheses in medicine ('new ones'), while at the same time leaving room for the adoption of others that may be accepted. He is rather dismissing the adoption of hypotheses *tout court* (*VM* 15.1). What renders such hypotheses obsolete for medical purposes is not the fact that they are 'new-fangled' – although this may well be the case – but that they have no referent that could make medical practice successful. In the author's own terminology, they provide '*nothing* by *referring to* (*epanenegkanta*) which one would necessarily attain clear knowledge' (*VM* 1.3, I.572,7-8 L. = 119,10 J.). The hypotheses in question are thus unverifiable. This reading also coheres nicely with the author's remark that *there exists no* such thing as an absolute hot, cold, dry, or moist thing (*VM* 15.1, I.604,15-18 = 137,15-17 J.).

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in this context are pretty much 'useless' for clinical purposes (15.2, I.606, 1 L. = 138,1 J.). In contrast, according to the author's own aetiological and physiological model, it is not such qualities that are responsible for disturbing or restoring a patient's health but rather a complex combination of the 'quality' ['*dunamis*'] or 'strength' ['*to ischuron*'] of other physical properties in food: its degree of sweetness, bitterness, acidity and saltiness, *inter alia*. Because such qualities are also present in the humours inside the body, they interact directly with the bodily constitution of human beings, thereby increasing or decreasing the volume of each humour (*VM* 14.4, I.602,12-15 L. = 136,8-16 J.).

Truth be told, this reasoning seems to expose the author to the same objection that he raises to supporters of hypotheses in medicine.[15] Yet he is emphatic to point out that, unlike the groundless hypotheses of his adversaries, the different qualities present in food, which do have the power to alter the concentration and distribution of humours inside the body, were discovered long ago by physicians thanks to direct empirical observation (*VM* 14.4, I.602,8 L. = 136,8 J.) and reasoning (14.3, I.600,19 L. = 135, 15 J.). Particularly suggestive in this respect is the author's later remark that the *only* real measure medicine has at its disposal is the '*perception* [*aisthēsis*] of the human body'.[16]

Regarding the identity of the author's adversaries, despite multiple conjectures entertained by scholars in the past, the truth is that neither the list of potential hypotheses is meant to be exhaustive, nor are criticisms directed at one specific medical writer. Rather elusively, the author acknowledges to be taking issues with *anyone* who sets out to account for the primary causes of diseases in terms of the specific qualities just discussed 'or *anything else* they want [to postulate as a hypothesis]' (= [T1]). As the argument unfolds, it becomes apparent that his adversaries are those doctors who wrongly 'tend towards philosophy' in medicine (*VM* 20.1, I.620,10-11 L. = 146,4 J.) – not incidentally, Empedocles is singled out as one of his main targets (*VM* 20.1, I. 620,10 L. = 146,4 J.). The aetiological model under attack is reminiscent of other Greek medical traditions but also of other Hippocratic writings with a more philosophical orientation. I have in mind Alcmaeon of Croton's seminal account of health as the balance of bodily constituents such as wet, hot, dry, cold and other 'indefinite number' (Aëtius 5.30.1 = DK 24B4) or perhaps Philistion's later expansion of Alcmaeon's medical ideas in the light of Empedocles' cosmology (*Anonymus Londinensis* XX.25-30). But even within the vast range of treatises that give shape to the Hippocratic Collection, we find many medical writers who championed theories and ideas that were closer to the medico-philosophical doctrines of these medical thinkers than to those of other Hippocratic authors.[17] This influence is most clearly traceable in several medical texts where patterns of health and disease are ultimately couched in terms of the excess or deficiency of the four elements, or at least some of them, inside the human body (eg. *Vict.* I. 32 and 35; *Carn.* 2; *Flat.* 3). To mention one representative illustration, the author of *On Breaths* claims to have demonstrated that his hypothesis [*hupothesis*] (ie. that pneuma, which permeates the whole universe, is the cause of every disease in men) holds true (*Flat.* 15, VI.114,13-19 L. = 124,11-125,1 J.). This is precisely the sort of hypothesis that is explicitly rejected in [T1].

[15] See Lloyd, *op. cit.* (note 10), 146–9.

[16] As the author ambiguously argues in what is probably the most celebrated passage of the treatise, the *only* measure [*metron*] of medical knowledge is none other than 'the perception of the human body' (*VM* 9, I. 590, 1 L. = 128,13 J.). The Greek syntagma *'tou sōmatos tēn aisthēsin'* ['the perception of the body'] in *VM* 9 (I. 590, 1 L. = 128, 13 J.) is ambiguous, depending on whether the genitive is taken to be subjective or objective. There has been considerable debate as to how exactly we should read it (compare Galen XVIII.2: 652–653K.): while some scholars take it as referring to the patient's own sensation of her body [most recently, Schiefsky, *op. cit.* (note 3), 196], others contend that it designates the doctor's perception of the patient's body [eg. Pedro Laín-Entralgo, *La Medicina Hipocrática* (Madrid: Revista de Occidente, 1970), 65; note 29]. I am personally persuaded by Cooper's conclusion that the doctor's perception of the body must remain as the ultimate criterion of clinical diagnosis. See John Cooper, 'Method and science in *On Ancient Medicine*', in Helmut Linneweber-Lammerskitten and Georg Mohr (eds), *Interpretation und Argument* (Würzburg: Königshausen & Neumann, 2002), 25–57.

[17] It is thus not surprising that certain Hippocratic treatises have been ascribed to physicians from Sicily. See eg. John E. Sisko, 'Cognitive Circuitry in the Pseudo-Hippocratic *Peri Diaites* and Plato's *Timaeus*', *Hermathena*, 180 (2006), 5–17. Moreover, already Galen attests to a certain controversy about the authorship of *On Regimen* (*Peri Diaites*) in antiquity, some ancient sources arguing that it was written by Philistion of Locri (see *Alim. Fac.* 1.1, Helmreich 212.18–20).

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It has long been acknowledged by scholars that, as far as their general views on the nexus between medicine and philosophy are concerned, there are some remarkable affinities between *On Ancient Medicine* and *Nature of Man*. They become apparent already in the opening section of *Nature of Man* where the author begins his argument with certain reservations about those who investigate the nature of man by going 'beyond its relationship to medicine'. While promising to deal with foundational questions of human physiology, they postulate the existence of invisible elements in the human body, such as fire, water, air or earth, as its primary constituents. The passage is worth quoting at length:

> [T2] 'He who is accustomed to hear speakers discuss the nature of man beyond its relations to medicine will not find the present account of any interest. For I do not say at all that a man is air, or fire, or water, or earth or anything else whose existence in human beings is invisible [*mē phaneron*];[18] such accounts I leave to those that care to give them. Those, however, who give them have not in my opinion correct knowledge' (*Nat. Hom.* 1, VI.32,1-7 L. = 164,3-9 J. Jones' translation with slight modifications).

Unlike [T1], the author of *Nature of Man* is taking issue with two different factions of medical writers. In agreement with [T1], the first group is represented by those medical thinkers who contend that the human body is made of elements such as air, fire, water, or earth 'or anything else whose existence in human beings is not manifest'. Members of the second group, on the other hand, are said to advocate some form of 'physiological monism' (the label is mine) to the effect that the human body is ultimately made of *one* single element and nothing else (*Nat. Hom.* 2, VI.34,11 L. = 166,15J.). While the author's criticisms to the first group is mostly driven by epistemological considerations, physiological monism is rejected on aetiological grounds. On the basis of his own aetiological account, but also with the further assistance of some basic ontological assumptions about the nature of change in general, the author offers a rebuttal of physiological monism by means of a simple and elegant *reductio*: if physiological monism is true, and the human body is indeed composed of one element, and one element *only*, then bodily ailments, which are ultimately physical alterations, would not be possible. This is due to the fact that any form of change requires a plurality of co-existing things, or at least more than one, to take place (*Nat. Hom.* 2, VI.34,17-36 L. = 168,4-11 J.). But, alas, bodily ailments *do* exist, so the objection runs, so the human body cannot be composed of one element only.

More significant for the task at hand are the implications that the author's response to the first group of opponents carries for his overall epistemological outlook. As indicated by [T2], his rejection of element theory in medicine is premised on an empirical ideal of medical knowledge that is also vindicated by [T1]. More precisely, we are told that medicine does not, or should not, concern itself with what is inaccessible to sensory experience, as suggested by doctors under the influence of pre-Socratic cosmology. In the language of *VM*, the scientific foundations of medicine cannot be laid out by an empty hypothesis about things which are unobservable and unverifiable. Formulated in positive terms, medicine's only epistemic standard is identified with 'the perception of the body' (cf. note 16). Similarly, the author of [T2] disagrees with the physiological theory of his adversaries not only because they go 'beyond its relationship to medicine', but also, and relatedly, because the physical elements which that theory claims to identify in the bodily constitution of man are 'not manifest' or simply 'invisible' (cf. note 18).

It is true that [T2], unlike [T1], makes no explicit allusion to any kind of suspicious hypothesis as its main target. But this certainly does not prevent these two medical writers from sharing substantive views about the nature and scope of medical knowledge. Both authors challenge the assumption that medicine must be grounded on general principles borrowed from natural philosophy. They do so, moreover, by emphasising what exactly must be rejected, namely, the application of four-element

[18] '*mē phaneron*' is ambiguous between 'not manifest' and 'not visible'. A way of preserving both senses is suggested by Jouanna's French translation of '*phaneron*' as 'manifeste' understood as 'faits observable' or 'faits perceptibles per le sens' [Jacques Jouanna, *Hippocrate: La Nature De L' Homme*. CMG I 1,3 (Berlin: Akademie Verlag, 1975), 42, 229]. Compare *Nat Hom.* 5 VI.42,19 L. = 178, 6 J.

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theory to the understanding of human physiology (= [T2]) and aetiology (= [T1]). As a result, they are united by a common understanding about how one should conceptualise the fragile connection, if any, between medicine and natural philosophy. In contrast to other medical writers, these two Hippocratic authors regard medicine to be an autonomous form of knowledge which is therefore equipped with these two a distinctive subject matter and method. Finally, the two of them also emphasise that the incorporation of philosophical assumptions into the medical domain is not only *unnecessary* but also *detrimental.* According to [T1], those who champion aetiological theories based on empty hypotheses, such as the hot, the cold, and so forth, 'make a mistake', whereas [T2] states that those who think of the human body as composed of fire, water, earth or air are incapable of attaining 'correct knowledge'. In sum, both authors are committed to the idea that medicine is already a self-standing science and that the intrusion of natural philosophy into medicine is disadvantageous for its consolidation as a genuine *technē.*

III

Another Hippocratic treatise with similar apologetic intentions is *On the Art.* From its opening sections, the author shows himself to be interested in vindicating the epistemological status of medicine as a genuine *technē* (*de Arte* 1-3, VI.2-6 L. = 224-227 J.). At least in this regard, his main goal aligns well with the general aspiration of both *VM* and *Nat. Hom.* Unlike *VM* and *Nat. Hom.*, however, he adopts a rather different strategy that centres on the rejection of (C2) rather than (C1). That is to say, instead of addressing the charge that medicine is not a genuine science by reason of its epistemic dependency on natural philosophy, the author deals with the rather different objection that medicine is not a proper *technē* but just a matter of sheer 'chance' ['*tuchē*']. In response, the author repeatedly emphasises that the goal of medicine is to secure a highly prised human good, health, thereby preventing all sorts of ailments that would otherwise affect human beings (*de Arte,* 4.2-3, VI.6,11-18 L. = 227,12-19 J.; cf. *VM* 3.4-6, I.576,1-20L. = 121,15 – 123,8 J.). Because doctors are said to accomplish that goal by following strictly rational procedures, their expertise can hardly be the fruit of sheer chance (de *Arte.* 3.2-3 VI.4,16 – 6,5 L. = 226,12-227,5 J.; 4.2-4, VI.7,16-27 L. = 227,12-19; 5, VI.6-10 L. = 228-230 J.).

Remarkably, despite his insistence on the scientific and purposive character of medical knowledge, the author of *de Arte* is also ready to admit that its subject matter, the human body, constitutes a major impediment for the scientific consolidation of medicine, while at the same time assuming, somewhat paradoxically, that it also accounts for its very existence. On the one hand, as noted earlier, the study of the human body endowed medicine with epistemic unity, so to speak, thus allowing it to demarcate itself from *other* departments of knowledge, in particular natural philosophy.[19] On the other hand, however, the human body was simultaneously viewed by Hippocratic doctors themselves as an obstacle for the accreditation of medicine as a genuine *technē.* In the author's own words, while it is possible for *other* crafts to work with material that is 'visible' as well as 'malleable' (*de Arte* 11.7 VI.22, 2-14 L. = 238,20-239,14 J.), the human body is neither one nor the other (12.1, VI.22,15 – 24,3 L. = 240,1-3 J.).

To make sense of the otherwise puzzling assertion that the material medicine works with is not visible, some brief historical remarks are in order. As noted in the section I, the most important parts of the body for medical inquiry, the organs and cavities under the visible skin, could not be directly perceived by doctors due to certain sociocultural constraints, in particular the Greek prohibition to practise dissection on human corpses. As a result of some religious and moral taboos, which constituted a great impediment for the progress of human anatomy in antiquity, the human corpse came to be seen by the Greeks as a source of pollution, but also, paradoxically, as a symbol of purity.

[19]The core idea is aptly summarised by the author of *Loc. Hom.* 2 when holding that 'the nature of the body is the principle (*archē*) of medical reasoning' (VI.278,14 L. = 38,4 Craik). A similar thesis, but with a different terminology, is put forward by the author of *VM* who, as pointed out earlier (note 16), regards the human body to be 'medicine's only measure [*metron*]' (*VM* 9, I.588,14 – 590,3 L. = 128,13 J.).

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The human corpse ie. was a source of pollution without being itself polluted.[20] In practice, this popular belief translated into a prohibition to cut open human corpses, the skin thus becoming not only a symbolic barrier for doctors but also a physical frontier which they were not allowed to cross. For Hippocratic authors, the cutting of the skin was limited to incisions or quick drainages of bodily fluids.[21] Of special interest for present purposes are the concrete implications that a sociocultural constraint of this kind carried for medical practice and methodology.

Such is roughly the historical background against which the apology of medicine that we find in *de Arte* must be understood. After conceding to his adversaries that the subject matter of medicine is indeed exceptionally difficult to deal with, the author of *de Arte* introduces some qualifications so as to disallow the *further* conclusion that, on such grounds, medicine is not a genuine *technē*. To substantiate his position, he outlines an original nosological taxonomy.[22] The two central passages where this short but instructive taxonomy is presented are worth quoting:

> [T3] 'According to those with sufficient knowledge of this art, some diseases are located where they are not hard to see – though these are few – while others are located where they are not easy to see, and these are many. Things that erupt on the skin are evident by their colour or swelling. They offer us the opportunity to perceive their solidity and liquidity by our senses of sight and touch…' (9.2-3, VI.16,3-9 L. = 234,13-235,3 J.).

> [T4] 'With respect to evident diseases, then, the art ought to be thus well equipped. But neither ought it be unequipped with respect to less evident diseases, namely, those affecting the bones and the bodily cavity' (10.1, VI.16,15-17 L. = 235,9-11 J.).

In line with [T3], diseases can be sorted into two chief categories: some of them are 'not hard to see [or detect]', and others are 'not easy to see'. Whereas the former are further characterised as 'evident' or 'visible' ('*en eudēlōi*'; see also '*ta phanera*' at 10.1, VI.16, 16 L. = 235, 11 J.), the latter are described as 'not visible' ('*adēla*', 11.1, VI.18,14-15 = 237,5 J.).[23] The physical limit that separates one group of diseases from the other is the skin: evident diseases 'erupt' on the surface of the skin, whereas nonevident diseases remain hidden inside the 'bodily cavity'.[24] We thus obtain a division between 'external' (= manifest) and 'internal' (= hidden) diseases. At the same time, this nosological distinction is paired with a further epistemological contrast: external diseases are accessible to sensory experience, but internal diseases are not (= T3 with *de Arte* 11.1, VI.18,14-15 L. = 237,4-7 J.). In cases where the disease escapes direct sense

[20]See note 2 above. For the 'pollution of death' in antiquity, see Francois Retief and Louis Cilliers, 'Burial Customs, the Afterlife and the Pollution of Death in Ancient Greece', *Acta Theologica*, 26, 2 (2006), 44–61, especially 48–50. See also Robert Parker, *Miasma: Pollution and Purification in Early Greek Religion* (Oxford: Clarendon Press, 1983), 33–41.

[21]For discussion on procedures relative to incisions and surgery in Hippocratic medicine, see Laín-Entralgo, *op. cit.* (note 16), 134–8; and Jacques Jouanna, *Hippocrate* (Paris: Fayard, 1992), 222–30. Von Staden adds that another relevant source of knowledge about human anatomy came from the observation of 'seriously wounded war casualties' [*op. cit.* (note 1, *Herophilus*), 163].

[22]Of course, this does not rule out the possibility of alternative nosological categorisations based on *different* taxonomical criteria. Location of the disease within the body (head or stomach, etc.), acute versus nonacute diseases, occasional or common diseases, are just some illustrations of alternative criteria often employed by Hippocratic authors to categorise diseases. See the discussion of the relevant passages in Paul Potter, 'Nosology and organization in barrenness', in Jacques Jouanna and Michel Zink (eds), *Hippocrate et les hippocratismes: Médecine, religion, société* (Paris: Editions de Boccard/Académie des inscriptions et belles-lettres, 2014), 59–68.

[23]While '*adēla*' may also mean 'nonevident', 'visible' seems to me a preferable rendering of the Greek given the author's claim that the rationale for calling internal diseases '*adēla*' is that they cannot be perceived with the eyes (*de Arte* 11.1, VI.18,14 L. = 237,4 J.).

[24]On occasions, the author also points out that the human body has many cavities (in plural) (*de Arte* 10.2, VI.16,17-18 L. = 235,12-15 J.), which are often referred to by Hippocratic authors as 'hollows', 'voids' and 'empty spaces' [eg. *de Arte* 10, VI.16–18 L. = 235,11-237,3 J. with Mann, *op. cit.* (note 3), 185; and Brooke Holmes, *The Symptom and the Subject: The Emergence of the Physical Body in Ancient Greece* (Princeton, NJ: Princeton University Press, 2010), 121–2].

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perception, doctors are forced to rely on the subjective and unreliable opinion [*doxa*] of the patient. To the extent that this doxastic component is unavoidable in the diagnosis of internal diseases, medical infallibility is not to be expected in such circumstances (*de Arte* 11, VI.20,13-15 L. = 238,5-7 J.). Yet infallibility is not an unreasonable epistemic standard in the diagnosis of external diseases, for direct sense perception of them is indeed possible (*de Arte* 9.4, VI.16,10-14 = 235,3-8 J.).

In virtue of the explicit apologetic tenor of *de Arte,* there is something disconcerting about these Hippocratic texts. Upon further reflection, they seem to undermine, rather than uphold, medicine's status as a *technē*. As shown by both [T1] and [T2], a recurrent strategy adopted by Hippocratic doctors to counteract the objections of sceptics was to emphasise the firm empirical basis of medical knowledge: unlike other putative sciences that purport to study the invisible without much success, medical knowledge rests ultimately on what is evident to sensory experience. But this is precisely the statement that [T3] appears to challenge, while also adding, moreover, that medicine actually deals with the invisible for the most part (!). The clear terminological affinities shared by these medical writings make this doctrinal discrepancy all the more puzzling: after distinguishing diseases which are 'not hard to see' from those which are 'not easy to see' in [T4], the author of *de Arte* portrays the former as being 'manifest' or 'visible' [*ta phanera*]. The author of *Nat. Hom*, on the other hand, argues in [T2] that medicine is not concerned at all with 'what is not manifest or visible' [*mē phaneron*]. The main difficulty is, of course, that [T4] employs this terminology to remind us that the visible constitutes only a small portion of the entire medical domain, while *Nat. Hom.* adopts it to arrive at exactly the opposite conclusion: the invisible lies completely outside doctors' sovereignty.

Against this background, therefore, we are left with two seemingly inconsistent positions about the nature and object of medical knowledge. This result makes one wonder how, and whether, we can reconcile the nosological outline of *de Arte* [= T3, T4] with the medical empiricism of both *On Ancient Medicine* and *On Nature of Man* [= T1, T2], but also with the views of several other Hippocratic writings: eg. *Surgery* (*Off.*) 1, (III.272 L.); *Epid.* 6.8.17 (V.530 L.); *VM* 9 (128.9 J. = I.588-90 L.); *Vict.* I.23 (VI.494-96 L.). Shall we just give up and leave things as they stand, namely, as yet another inconsistency in the Hippocratic Collection that may be explained on either chronological or geographical grounds? I do not think so. But most importantly: there is no need to think so either.

IV

In order to neutralise this apparent inconsistency at the heart of the Hippocratic *Corpus*, I suggest drawing attention to one of the most fascinating – and yet least explored – topics of Hippocratic epistemology: the 'mental crossing' of the skin.[25] On the plausible assumption that the human body is not exempted from the regularities we perceive in the natural world, doctors aimed to infer [*tekmairesthai*] how organic processes inside the body take place by looking at the physical world outside it.[26] By combining empirical observation, analogical characterisation and inferential reasoning,[27] doctors thought it possible to apprehend the unobservable on the basis of the observable. Digestion eg. was occasionally assimilated to cooking (eg. *VM* 11.1, I.594,6-11 L. = 131,11-18 J.; cf. Aristotle *Mete.* IV. 381b6-9); in direct auscultation, the internal sounds of the thorax, especially inside the lungs, were

[25]Compare Jouanna, *op. cit.* (note 21), 291.

[26]Mann goes as far as to argue that medical inferences were made possible by the assumption that there are 'natural necessities' in the physical world which are close to the modern notion of 'natural laws' [*op. cit.* (note 3), 120, 223, 245].

[27]For the key methodological role of analogical characterisation in Hippocratic medicine, see Frédéric Le Blay, 'Microcosm and macrocosm: the dual direction of analogy in Hippocratic thought and the meteorological tradition', in Philip van der Eijk (ed.), *Hippocrates in Context* (Leiden: Brill, 2005), 251–69. See also John Z. Wee (ed.), *The Comparable Body: Analogy and Metaphor in Ancient Mesopotamian, Egyptian, and Greco-Roman Medicine* (Leiden: Brill, 2017). Multiple applications of inferential reasoning ('*tekmairesthai*') to diverse medical contexts are discussed by Laín-Entralgo, *op. cit.* (note 16); Lorenzo Perilli, 'Il lessico intellettuale di Ippocrate: σημαίνειν e τεκμαίρεσθαι', *Lexicon Philosophicum*, 5 (1991), 153–80 and Mann *op. cit.* (note 3), 20–34.

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sometimes compared to seething vinegar [*Diseases* (*Morb.*) II.61, VII.94,16-17 L.], sometimes to a rubbing leather (*Morb.* II.59, VII.92,4-6 L.) and in gynaecological treatises, the smell of vaginal discharges was likened to that of fetid rotten eggs [*Female Diseases* (*Mul.*) II.115, VIII.248,3-4 L.]. Save for the last reference, where bodily fluids are immediately accessible to sensory experience, in all these illustrations, medical writers describe the inner, hidden body in terms of what is perceived outside it. Further yet, a more instructive form of analogical characterisation was facilitated by the dissection of animals at early stages of comparative anatomy [eg. *The Sacred Disease* (*Morb. Sacr.*) 11.3-4 Grens. VI.382 L. with note 1]. In any case, regardless of whether the relevant *comparanda* are human organs and artefacts (or natural objects), or else human and animal organs, the methodological procedure at play remains one and the same. This procedure is aptly summarised by the author of *VM*: 'one must learn these [things inside the body] from evident things outside the body' (*VM* 22.3, VI.626,14-15 L. = 149,15-16 J.).

Physicians' journey into the bodily hollow or cavity (cf. note 24) was everything but smooth, though. Initially, where possible, they are encouraged to patiently wait until the disease becomes manifest to sense perception through signs or symptoms ('*sēmeia*', *de Arte* 12.2, VI.24,6 = 240,9 J.). The pathological sign crosses the skin from the inside out, thereby leaving a path ('*hodos*', *de Arte* 12.5, VI.24,13 = 240,17 J.) behind itself which can then be followed backward by doctors. In this way, doctors can venture, if only with their minds, into the darkness of the human cavity, moving in the opposite direction to that of signs: from what is perceptible to what is not. Truth be told, not all modes of perception enjoyed the same epistemic status. Anticipating later theories of sense perception advocated by Greek philosophers (eg. Plato, *Timaeus* 47a; Aristotle, *Metaphysics* 980a19-27), it was not uncommon for Hippocratic writers to regard sight in particular as the most informative sense of all – to the extent that the patient must first be seen, it was also the first sense to be used in medical diagnosis [*Prognosis* (*Prog.*) 2 II.112,12-14 L.]. The fact that all the main Hippocratic passages examined thus far, [T1]–[T4], demarcate the medical domain in terms of what is visible, as opposed to what is invisible or obscure, bears witness to the priority that was given to visual experience by Hippocratic writers. But this certainly did not prevent medical authors from emphasising the pivotal role of every sense in medical diagnosis: touching, smelling, hearing and even tasting were all considered to be able to capture pathological signs.[28] Sensory experience was only a starting point, however. As noted earlier, in medical diagnosis, analogical characterisation was also subsequently involved, and the imperceptible to any of the senses was often cashed out in terms of what is accessible to at least one of them.

Now, for all its indispensability, an isolated sign rarely, if ever, carries a clear and definite meaning on its own. Hence medical diagnosis is inherently synthetic: when diagnosing, doctors bring together perceptible signs to make a synoptic judgment based on them (*Prog.* 17 II.158,1-2 L.; 25 II.188,9-10 L.). In order to decipher the true message of individual signs,[29] doctors are encouraged to cultivate a certain sensibility to grasp the true meaning of each sign against a broader background of concomitant factors: the natural constitution of the patient, the presence or absence of other signs, the temporal manifestation of each sign, geographical location and even seasonal changes were all critical data that doctors were required to ponder in order to grasp the message that a specific sign is conveying in a given situation. Understanding the symptom in its full singularity, as opposed to just perceiving it, demanded from doctors far more than merely collecting the raw material provided by sensory experience. This explains why the author of *de Arte* does not regard the task of doctors as that of passive recorders of nature's

[28]For example, *Epid.* IV.43, V.184, 7-8 L. and *Off.* I., III.272,4-5 L. *On the Art* explicitly refers to hearing, smelling and seeing as some of the senses involved in medical diagnosis (*de Arte* 12.1, VI.24 = 240,1-5 J.), but no mention of taste is ever made. In contrast, a passage in Aristophanes' *Plutus* (696), whose credentials as a faithful historical report is questionable, makes fun of physicians for tasting human excrement.

[29]The verb '*apaggelein*' ('to bring a message', 'to report') is used in connection with both the testimony delivered by the patient (eg. *de Arte* 11.4) and the message given by each particular sign (*de Arte* 12.3 and 12.6 (VI.24 L. = 240,10ff. and 241,7ff.)). From a medical perspective, these two kinds of messages differ from each other in an important way: whereas the report of the patient is not always reliable, since it is information that is not based on the doctor's direct observation or inferences, that of signs delivers the very content of the doctor's own judgment.

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manifestations but rather as expert 'interpreters' or 'translators' ['*hermēneiōn*'] of them (*de Arte* 12.6, VI.26, 4-5 L. = 241, 7-11 J.) – a task that cannot be performed without careful reasoning ('*logisamenoi*', *de Arte* 7.3, VI.10,24 L. = 231,12 J.; cf. *Prog.* II.150,13: '*xullogizomenon*'; see also '*tōi logismōi*', 11.3, VI.20, 7 L. = 237,17 J.) and intelligence ('*gnōmē*', *de Arte* 11.2, VI.20,3 L. = 237,12 J.).

It proves suggestive that the operation of human intelligence, whereby internal diseases are apprehended, is explicitly assimilated by the author of *de Arte* to visual perception. In his own words: 'what eludes the sight of the eyes is captured by the sight of intelligence [*gnōmēs opsei*]' (*de Arte* 11.2, VI.20, 2-3 L. = 237,12 J.). Remarkably, in describing the doctor's cognition of the invisible in the language of visual experience, the author obliquely ratifies his commitment to an empirical model of medical knowledge by extrapolating the certainty and reliability of sense perception, in particular sight, to the diagnosis of internal diseases. An extrapolation of this kind also reveals his confidence in the cognitive possibilities of the human mind: knowledge of the inner body, however, inferential and mediated may be, remains nonetheless as a reliable form of cognition, comparable indeed to direct visual perception of physical objects. Crucially, unlike ordinary instances of sense perception, the doctor's perception of the disease is portrayed as a cognitive *achievement* rather than as a pre-reflective encounter with the natural world. Where the layman sees just a multiplicity of signs, the doctor identifies sensory manifestations of one and the same cause: the pathology itself (*Vict.* I.11, VI.486,12 = 134,21 Joly-Byl; see also *de Arte* 12.3, VI.24,7-9 = 240,10-14 J.). Among all Hippocratic treatises, it is in *de Arte* where we encounter the clearest formulation of the epistemological parallel between sense perception and mental representation that will prove to be so decisive for later Greek epistemology.[30]

V

In view of the foregoing considerations, it is worth asking how systematic and consistent Hippocratic epistemology was. In particular, does *On the Art* [= T3–T4] really contradict the empirical ideal of medicine championed by both *On Ancient Medicine* and *On Nature of Man* [= T1–T2]? We have seen that the terminology employed by these medical treatises is strikingly similar, if not identical. Yet it is precisely in virtue of this terminological affinity that certain inconsistencies among these medical texts become all the more striking: while both [T1] and [T2] oppose the view that medicine deals with what is not evident or manifest to the senses, both [T3] and [T4] state that what is manifest/visible represents only a small fraction of the medical domain on the grounds that most diseases are not manifest to sense perception. Is it possible, in sum, to bring these Hippocratic texts together under a consistent epistemological line of thought? I think it is. At least *in this specific respect,* I suggest, these medical writings do not subscribe to mutually exclusive views.

Indeed, when the author of *Nat. Hom.* declares that the invisible lies outside medical jurisdiction, he is evidently not committing himself to some sort of naïve empiricism conforming to which medicine, and medical physiology in particular, is *exclusively* concerned with what is visible. Not only would such a verdict be manifestly at odds with actual medical practice, but it would also contradict his own views about medical methodology and the significance ascribed by them to the analogy between the visible and the invisible (*Nat. Hom.* 6, VI.44-46 L. = 178-179 J.).[31] Most importantly, even if we were to leave matters of consistency aside for a moment, nothing of what is stated in [T2] can authorise the *further* conclusion that there is no more to medical knowledge than what is accessible to sensory experience. Upon closer inspection, the author's claim that doctors do not deal with the invisible [= T2] is not made without qualification but rather under a significant proviso, namely, that such things are invisible *in human*

[30]Earlier versions of the metaphor can be found in Anaxagoras (DK 59 B21a) and Gorgias (DK 82 B11 §13). Mann admits, however, that in these authors, the metaphor is developed only 'obliquely' [*op. cit.* (note 3), 27]. This seems to confirm that it is in *On the Art* where the metaphor is first used for explicitly epistemological purposes.

[31]In this chapter, the author explains the effects of drugs [*pharmaka*] inside the body by drawing an analogy with plants' absorption of nutrients from the soil. For further discussion of this analogy, see Jacques Jouanna, 'Présence d'Empédocle dans la Collection hippocratique', *Lettres d'Humanité*, 20 (1961), 452–63.

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beings (‘*en tōi anthrōpōi*, *Nat. Hom.* 1.5, VI.32,5 L. = 164,6-7 J.). While the qualifier ‘in human beings’ may seem redundant at first, it actually discloses critical information on the semantic extension of the set of things that are said to be invisible in [T2]: they are invisible… in human beings! This stipulation enables us to account for the otherwise puzzling reference to the four elements of early pre-Socratic philosophers as particular instances of things that cannot be seen (*Nat. Hom.* 1 VI.30,3-6 L. = 164,6 J.). Were this stipulation absent, a natural objection would be that the four elements of early cosmologists are clearly visible *in the physical world.* Nonetheless, this objection is neutralised from the beginning precisely because the author’s assertion is not that such elements are unqualifiedly invisible, but rather that they are invisible as physical constituents *of the human body.* Evidently, from the fact that the four elements cannot be seen in the human body – for there is nothing to be seen in the first place – we are not allowed to infer that there is no room *whatsoever* in medicine for the invisible. More precisely, invisible or internal diseases are certainly not ruled out by [T2]. In a similar vein, when the author of *VM* rejects the adoption of philosophical hypotheses in medical aetiology, the items that are hypothesised by his adversaries correspond to the phenomenal *qualities* of the four elements (ie. hot, cold, dry and moist; *VM* I.570,3-5 L. = 118,3 J.). Once again, the fact that all such qualities may be perceptible in the natural world is clearly beside the point. And yet, such hypotheses are said to be utterly useless and based on empty speculation – indeed, the sort of hypotheses that are characteristic of ‘invisible matters’ [‘*aphanea*’].[32]

To conclude, in the light of the foregoing considerations, we can see there is no real incompatibility among these medical texts but actually a fairly coherent line of reasoning on the method and scope of medical knowledge. For the medical doctrines that the authors of *Nat. Hom.* and *VM* oppose do not match those that the author of *de Arte* endorses: while *de Arte* is describing, in a favourable light, a transit from the visible to the invisible thanks to the ‘sight of intelligence’, *Nat. Hom.* and *VM* reject the method of physicians who *start out* with dubious assumptions about what cannot be perceived in the human body. For the author of *VM*, such assumptions correspond to foundational ‘hypotheses’ or ‘postulates’ about the putative existence of pure or unmixed forms of hot or cold or wet or dry in the body which escape sense perception, thus having no place in clinical practice. Similarly, central to the main argument of *Nat. Hom.* is the idea that doctors should not concern themselves with what is not perceptible in the human body as a starting point of medical inquiry. Those who proceed in this fashion are committed to the antithesis of the analogical method vindicated by both *VM* and *Nat. Hom.* whereby the invisible is eventually grasped by *first* perceiving what is visible. The invisible, in sum, does have a respectable place in medicine: it is a point of arrival rather than departure.

[32]‘*aphanea*’ may mean ‘invisible’ but also ‘obscure’. Schiefsky, who rightly draws attention to this semantic ambiguity [*op. cit.* (note 3), 136], translates it as ‘obscure matters’ given its apposition to ‘*aporeomana*’ in [T1]. On the reading I am suggesting, ‘obscure’ [or ‘mysterious’ with Jones, *op. cit.* (note 3), 15] may be an acceptable rendering in principle, provided that we are reminded that a substantive part of what makes such hypotheses obscure is that their content escape sense perception.

Cite this article: Torres J (2022). Beneath the skin: method and perception in Hippocratic medicine. *Medical History* 66: 34–46, https://doi.org/10.1017/mdh.2021.39