The Epistemological status of medicine in the ΠΕΡΙ ΑΡΧΑΙΗΣ ΙΗΤΡΙΚΗΣ

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resumo Neste artigo argumenta-se que, de acordo com o autor de *A Medicina Antiga*, a medicina não se preocupa e não deve se preocupar com o ser humano em termos gerais, mas com pessoas individuais. Assim, de acordo com *A Medicina Antiga*, a medicina é uma ciência do particular e consiste em uma pesquisa empírica. Por esta razão, *A Medicina Antiga* é talvez o primeiro reconhecimento deliberado do valor científico do conhecimento aproximado do particular.

palavras-chave Hipócrates; medicina; ciência; natureza; causa; capacidade

The Hippocratic treatise Πέρι Ἀρχαίης Ἰητρικῆς is at first glance an attack against doctors and sophists who innovatively (καινὸν τρόπον 13.1.) incline the discourse of medicine towards philosophy of nature in the fashion of Empedocles (τείνει δὲ αὐτοῖς ὁ λόγος ἐς φιλοσοφίην, καθάπερ Ἐμπεδοκλῆς 20.1.). From this perspective two forms of scientific methodology are criticized in the *VM* (*De Vetera Medicina*): (i) reducing the causes of diseases to a limited number of theoretical postulates (1.1.) and (ii) the consideration that medicine must be grounded on a theoretical and philosophical knowledge of the human being (20.1.).

These two attacks have a specific purpose that is usually overlooked:[1] an apology to 'the ancient art of [medicine]' (τέχνην … τὴν ἀρχαίην 12.2). The main motive of the text is to explain what the *Ancient Art of Medicine* is (ἐγὼ πειρήσομαι ἐπιδεῖξαι, λέγων καὶ ἐπιδεικνύων τὴν τέχνην ὅ τι ἐστίν 2.2.), in order to demonstrate that there is no other way to do medicine (ἐκ δὲ

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τούτου καταφανὲς ἔσται ἀδύνατα ἐόντα ἄλλως πως τούτων εὑρίσκεσθαι 2.2.).[2] Along this line of interpretation what is at stake is the scientific status of the *Ancient Art of Medicine*: whether it actually exists, cures and makes discoveries, whether the doctor's knowledge is certain.

Considering the relevance of these epistemological issues in the text, I intend to determine what the author of the *VM* thinks the Epistemological Status of the 'Ancient Medicine' is. The best way to start this enterprise is to follow in the text the most general elements of any notion of knowledge.

In view of the fact that Knowledge (i) has an object, (ii) that such object is apprehended by means of some cognitive capacities and (iii) under specific conditions; our inquiry shall start by (1) making clear what the object of medicine is according to the *VM*. (2) Second, I shall describe the characteristics any knowledge of that object should have in order to be scientific and how that object is grasped. (3) As a conclusion, I shall gather all the features of that knowledge, in order to give an account of what the author of the *VM* is criticizing his enemies. Summing up, the scope of this inquiry is delimited by the following questions:

1. What is the object of medical knowledge?
2. What kind of knowledge of that object a Physician is supposed to have?
   2.1. What must be known?
   2.2. How is that knowledge acquired?
   2.3. What are the characteristics that knowledge must have in order to have the status of τέχνη?
3. What is the epistemological status of the *VM*?

1. The object of medicine

On the face of it, medicine is concerned with human beings and their health, although the theoretical basis on which human health is approached can vary along with the methods of research. For the author of the *VM*, medicine is not about an abstract and general notion of the human being, unlike the one portrayed by some doctors, sophists (τινες ἰητροὶ καὶ σοφισταί 20.1.) and Philosophers of nature (οἳ περὶφύσιος γεγράφασιν 20.1.) like Empedocles.

In contrast to the sophists and the philosophers of nature, for the *VM* the questions of Medicine do not have a broad general sense as: what is the human being? What is its origin? How did it come to be? How is it conformed (ἐξ ἀρχῆς ὅ τί ἐστιν ἄνθρωπος, καὶ ὅπως ἐγένετο πρῶτον καὶ ὁπόθεν συνεπάγη 20.1.). Such questions are not only unnecessary for a serious study on medicine; they actually are as relevant to it as to the art of painting (περὶφύσιος, ἧσσον νομίζω τῇ ἰητρικῇ τέχνῃ προσήκειν ἢ τῇ γραφικῇ 20.1.).[3] Far from that, medicine is about what the human being is in relation to what it eats, drinks, its costumes, habits, way of life and what occurs to it in reaction to the environment (τὰ ἐσθιόμενά τε καὶ πινόμενα καὶ ὅ τι πρὸς τὰ ἄλλα ἐπιτηδεύματα, καὶ ὅ τι ἀφ᾽ ἑκάστου ἑκάστῳ συμβήσεται 20.3.).

By giving such relevance to the interaction between the human body and its environment, the author of the *VM* is *ipso facto* assuming that food and the environment have a capacity to affect, while the human body can be affected. All these implies that diseases can be produced by food (3.5.) and explains why medicine developed from efforts to adapt diet to human nature (ζητῆσαι τροφὴν ἁρμόζουσαν τῇ φύσει 3.4.)[4] and why it is about dietetics.

Now, how is this interaction to be explained? How does food affect the human body and how can the body be affected? 'Capacity' or 'power' is rendered in the Greek of the *VM* as δύναμις (13.3.), a word that Jouanna translates as *propriété*. 'Property' indeed seems to be its meaning in the text, although the basic meaning 'power' or 'capacity' is never to be excluded, for it appears sometimes quite explicitly (οὐ γὰρ τὸ θερμόνἐστιν τὸ τὴν μεγάλην δύναμιν ἔχον, ἀλλὰ τὸ στρυφνὸν…15.4.), and sometimes blended with the meaning 'property' (οἷον οἴνοως ἄκρετος πολλὸς ποθεὶς διατίθησί πως τὸν ἄνθροπον· καὶ ἅπαντες ἂν ἰδόντες τοῦτο γνοίησαν ὅτι αὕτη ἡ δύναμις οἴνου καὶ αὐτὸς αἴτιος 20.4.).

This blending of what we may consider two different notions,'property' and 'capacity to affect and to be affected',[5] is based on the presupposition that the capacity of a substance to affect and to be affected is a result of its composition. Wine for instance affects differently according to its concentration (20.4.) and food in general affects positively or negatively according to the concentration of the bitter, the salty, the sweet, the acerbic, the astringent and the insipid (14.5.). And if that composition and concentration is changed, the δύναμις and its effects are changed. Wheat,

for instance, when subjected to agents like 'the hot' and 'the wet' changes its composition and transforms into bread, a substance with a completely different effect on the human body (3.5.).

Δύναμις appears twice in conjunction with φύσις, where φύσις refers to the particular constitutions of things, such that it renders them the properties they have (3.5., 13.3.).[6] One may be tempted to conclude that if φύσις denotes the particular constitution of something and if it is so closely linked to a concept full of chemical implications as δύναμις, it must therefore be understood as 'internal' or 'chemical composition.'

This truly applies to δύναμις καὶ φύσις in 13.3, where bread (ἄρτον) is under discussion. However δύναμις ἰη πρὸς τὴν τοῦ ἀνθρώπου φύσιν τε καὶ δύναμιν (3.5.) does not bear the meaning it normally has by itself in the rest of the treatise, for it is mostly used in connection with the substances humans drink or eat, as well as juices[7] inside the body.[8] In this last case δύναμις has been assimilated to φύσις and φύσιν τε καὶ δύναμιν is practically a semantic unity.

This last distinction is particularly relevant considering that the notions of δύναμις and φύσις, although both are committed to the object of medicine, clearly point at different aspects of that object and motivate different methodological issues. Φύσις in the *VM* is not directly linked to the power of substances, it is rather human nature or human constitution, yet not necessarily human nature as a 'class' embracing all particular human beings, i.e. human constitution in general.[9] The view held by the *VM* is that there is a general human φύσις, which as a class contains all human beings (τὴν τοῦ ἀνθρώπου φύσιν 3.5, ἡ φύσις ἡ ἀνθρωπίνη 6.2.), but in addition to that, as attested by empirical observation, there are particular kinds of φύσεις: the φύσις of the strong and the φύσις of the weak (3.4, 13.1.), meaning by φύσις the 'constitution' of the strong or the weak. The word is in fact often used in plural referring to the particular natures or constitutions of individuals, especially in contexts explaining that each human being reacts to juices and food in a particular and individual way (8, 20.5-6).

This plurality of φύσεις and its consequent individualization of the human being obviously results from medical practice and treatment of individual patients. However, in the argumentation of the *VM* that individualization results from the complexity of the body and the agents

that produce diseases. The human body contains (ἐν ἀνθρώπῳ) substances like the salty, the bitter, the sweet, the acerbic, the astringent and the insipid, as well as thousands of different δυνάμεις, which are more or less strong (ἰσχύν) and are present in the body in different quantities (πλῆθος) (14.4.).

The effects of these substances on human health do not depend exclusively on their properties. They also depend on the interaction of all properties with one another. For this reason it is their concentration that produces disease and pain. 'Health' actually is defined as the mixture and blending (μεμιγμένα καὶκεκρημένα ἀλλήλοισιν) of all substances of the body, 'disease' as the concentration or separation of a substance (14.4.), while therapy is conceived not only in dietetic sense but also as purge or dilution (14.5.).

The agents involved in the separation and mixture of substances are—as in the quoted example of the wheat and bread—'the hot and the cold', 'the moist and the dry'. However, the author of the *VM* proves by empirical observation[10] and therapeutic experimentation[11] that these two elements are not causes of disease on their own, because they do not exists independently but only in association with other substances: οὐ γάρ ἐστιν αὐτοῖσιν, οἶμαι, ἐξευρημένον αὐτό τι ἐφ᾽ ἑωυτοῦ θερμὸν ἢ ψυχρὸν ἢ ξηρὸν ἢ ὑγρὸν μηδενὶ ἄλλῳ εἴδει κοινωνέον (15.1.).

Having the ontological status of qualities 'the hot and the cold' and 'the moist and dry' are not the most crucial factor in the production of diseases. It is δυνάμεις like the acerbic and the insipid that have the greatest capacity to affect (οὐ γὰρ τὸ θερμόνἐστιν ἐστι τὸ τὴν μεγάλην δύναμιν ἔχον, ἀλλὰ τὸ στρυφνὸν καὶ τὸ πλαδαρὸν καὶ τἄλλα…15.4).[12] In fact, some varieties of 'hot' have different properties (i.e. 'hot-acerbic' and the 'hot-insipid') (15.3.). Nevertheless 'hot and cold' and 'moist and dry' do play a relevant role in the mixing and separation of substances, because they change their properties (13.3.).[13]

To close this preliminary exposition we can conclude that the object of medicine according to the *VM* is the human body of patients, that is to say, the body of a particular human being. Such body is a compound of many juices (the salty, the bitter, the sweet, the acerbic, the astringent and the insipid, and many others) and qualities (the hot, cold, moist and dry). A juice can sometimes be cold, some times hot, sometimes cold and moist, cold and dry, etc.

In addition to this last complexity, the way these juices and qualities are combined and interact in the body varies from person to person and depends on the conditions of the environment. For these reason it is impossible to define in general terms what is the normal condition of the body. Health cannot be defined beyond saying that it is a mixed condition of substances, there is no a unique healthy mixture. Any statement about a human being and its health must consequently take on account the particularity of that human being.[14]

Therefore against 'innovative doctors and sophists'—whose intention is to reduce the human body to a few principles in order to arrive at a definition that would suit every human being—the *VM* holds the opposite view that the human body is something that cannot be reduced to a limited number of principles.

2. Medical knowledge

Now, given this ontological frame, what kind of knowledge of the body could the physician have? And if he can actually have knowledge of the body, how will that knowledge help him to practice medicine successfully?

2.1. What must be known

Right at the outset of the text, when those who explain diseases by means of a hypothetic and reductive method are condemned, the author of the VM takes for granted that what has to be explained is the ἀρχὴ τῆς αἰτίης of diseases and death (1.1.). Ἀρχὴ appears again in connection to νοῦσος at 10.4., where it refers to the conditions at the beginning of a 'great disease', 'the starting point', the set of conditions that constitute the beginning of that disease.[15]

The kind of beginning under discussion is explained by the complement in genitive τῆς αἰτίης: the beginning of the cause. Since every cause is a beginning, the syntagma ἀρχὴ αἰτίης may seem indeed redundant; nevertheless αἰτίη makes clear that the relation between 'the beginning' and 'what results from that beginning' is causal. More than that, the expression: λέγω δὲ ταύτην τὴν ἱστορίην εἰδέναι, ἄνθρωπος τί ἐστιν καὶ δι' οἵας αἰτίας γίνεται καὶ τἆλλα ἀκριβέως (20.2.) reveals that this kind

of causal beginning has an explanatory force and that the object of that explanation is the causes that originate the human being.

These two quoted appearances of αἰτία at 1.1. and 20.2.[16] have a very general sense: 1.1 talks about the general and reductive medical theories of the 'innovative doctors', 20.2. is concerned with the doctrines of the own author of the text and presents his purposes in a very general sense: τοῦτο δὲ οἷόν τε καταμαθεῖν, ὅταν αὐτήν τις τὴν ἰητρικὴν ὀρθῶς περιλάβῃ (...) λέγω δὲ ταύτην τὴν ἱστορίην εἰδέναι, ἄνθρωπος τί ἐστιν καὶ δι᾽οἵας αἰτίας γίνεται καὶ τἆλλα ἀκριβέως (20.2.).[17]

In more specific contexts, however, the terms αἴτιος, αἴτιον or αἴτια are preferred, as for example τὰ αἴτια τοῦ πόνου (6.3.) and τό αἴτιον τῆς κακώσιως (17.2.). Αἴτιος, αἴτιον or αἴτια are used within the context of affections (παθήματα) produced by δυνάμεις (the juices, their blending and concentrations) as well as in relation to the configurations (σχήματα) of the organs of the body (22.1.). Food, juices, qualities (hot, cold, etc.), δυνάμεις and organs can be αἴτιος (20.4), αἴτιον (17.2.), τὰ αἴτια (23.1.) of something.

Αἴτιον, αἴτια are in turn defined as the necessary and sufficient condition for some affliction, namely as that which being present necessarily implies a particular state, while not being present that particular state does not take place: δεῖ δὲ δήπου ταῦτα αἴτια ἑκάστου ἡγεῖσθαι εἶναι, ὧν παρεόντων μὲν τοιου τότροπον γίνεσθαι ἀνάγκη, μεταβαλλόντων δὲ ἐς ἄλλην κρῆσιν παύεσθαι (19.3.).

A careful distinction is made between necessary conditions responsible for a πάθος, as we have just described (αἴτιον), and causes in the second degree, as for instance flatulence obstructed in the organs that finds its way out violently. This flatulence (22.7.) is a cause προφάσιας of pain (22.7-8.), but not the primary and necessary cause of the whole condition: ὅσα δὲ φῦσαν τε καὶ ἀνειλήματα ἀπεργάζεται ἐν τῷ σώματι (22.7.). These last kind of causes produce pain, symptoms (colic, diarrhoea, weakness, fear, faintness, sunken eyes, urine more yellow and warmer than normal 10.4; 11.1.) but are produced by something else. Sometimes even symptoms or indications are called προφάσεις, as at 16.1, where προφάσιας refers to what shows that the cold and the hot are, among all δυνάμεις, the less powerful.[18] This explains why προφάσις can be translated as 'sichbare Ursache.'

The distinction between προφάσεις and τὰ αἴτια is relevant because they do not have the same epistemological value. Being the αἴτιον what

is ultimately responsible for the disease, it is what the doctor must necessarily know in order to cure. Nevertheless προφάσεις are not devoid of epistemological value: σκέψασθαι δὲ χρή, διὰ τίνα αἰτίην αὐτοῖσιν ταῦτα συνέβη (11.1), but they are relevant only in the measure they are signs of an αἴτιον, as can be seen through 11.1-3, where colic and bad sleep are προφάσεις, but the actual cause is to have eaten out of the regular schedule.

2.2. How medical knowledge is to be acquired

The only instrument available to apprehend, 'measure' and study the causes of the phenomena of the body is αἴσθησις: μέτρον δὲ οὔτε ἀριθμὸν οὔτε σταθμὸν ἄλλον, πρὸς ὃ ἀναφέρων εἴσῃτὸ ἀκριβές, οὐκ ἂν εὕροις ἀλλ' ἢ τοῦ σώματος τὴν αἴσθησιν (9.3.),[19] the meaning of which fluctuates in the *Corpus Hippocraticum* between 'perception'—an activity that requires mental intervention—and 'sensation' - a state bare of any intellectual process—Correspondently the subject experiencing the αἴσθησις may be the patient or the physician.[20]

Despite the use of evaluative vocabulary (μέτρον, ἀριθμόν, σταθμόν), which makes clear that the meaning of αἴσθησις in this passage is "sensation du médicine face au corps du malade", some scholars are unwilling to dismiss the meaning "sensation du malade face au régime qu'il ingère."[21] At any rate, the meaning 'sensation' should not be dismissed, not simply because in the context of the *Corpus Hippocraticum* bodies and organs frequently αἰσθάνεσθαι, in the sense of being affected, but also because the physician is not only concerned about what he sees, but also about what the patient feels. This ambivalence is actually grammatically expressed by the genitive in τοῦ σώματος τὴν αἴσθησιν, which can be objective or/and subjective.

A task particular to the Physician is to interpret what he perceives, in order to prescribe a therapy and formulate a judgement on what the cause of the affection is. Αἴσθησις is transformed into knowledge by means of γνῶμη (1.2.; 2.3.),[22] and an intellectual process (διάνοια), which consists in investigation (ζητήματα, ζητεῖν), examination and speculation (σκέκτεσθαι, σκέψις παθήματα).[23] This investigation is again περὶ τῶν παθημάτων ὧν αὐτοὶ οὗτοι νοσεουσί τε καὶ πονέουσι (2.3.), and is basically empirical observation of the juices, δυνάμεις (3.3. ff.; 8; 16; 20.3 ff.), the diet (8.1.) and the forms of the organs (22.1.).

Judgements on therapeutic methods and causes are achieved when comparison (σκέπτοιτο τὴν τῶν καμνόντων δίαιταν πρὸς τὴν τῶν ὑγιαινόντων 8.1.) and analogy (22.2-3) are applied to perception, as well as reasoning (λογισμῷ... ζητήσαντες 14.3.), which seems to mean: thinking in conformity with the human nature (πρὸς τὴν τοῦ ἀνθρώπου φύσιν), that is, according to the individuality of patients, the complexity of substances and their interactions.

2.3. Characteristics of the medical knowledge

Despite the great difficulties imposed by its object—(i) an indefinite number of substances in action and (ii) the particularity of the object—medicine must fulfil certain conditions in order to be a τέχνη. First of all, although the author does not put it explicitly, it must give a general account about the body and about how to cure people, otherwise each of its discoveries would not suit human beings in general and medical knowledge would be restricted to scattered and unconnected observations about X's health, Y's health and etc. Second, that knowledge must be proved to be effective.[24]

In spite of the insistence on the particularity and individuality of each human being, the whole theory of juices, qualities, and δυνάμεις has universal value, for it gives a general account of how all human bodies function and how diseases are generated. The critic of the *VM* is not directed to any form of generalization. There is a difference between those generalizations made by the author of the *VM* and those he criticizes, and that difference lies in the way those generalizations are formulated.

What the author of the *VM* calls 'ὑπόθεσις'[25] and attributes to his enemies is the postulation of a definite number of explanatory principles like the 'hot', 'cold', 'moist', and 'dry'. What is under critique here is, therefore, not the formulation of generalizations and postulates *per se*, but (i) a reductive approach to the subject matter of medicine (ἐς βραχὺ ἄγοντες τὴν ἀρχὴν τῆς αἰτίης τοῖσι ἀνθρώποισι νούσων τε καὶ θανάτου, καὶ πᾶσι τὴν αὐτήν, ἓν ἢ δύο ὑποθέμενοι 1.1.).[26] Just like the 'innovative doctors' the author of the *VM* presents a theory based on substances like the salty, the bitter, the sweet, the acerbic, the astringent and the insipid. He explicitly says, however, that those juices are not the only acting juices and δυνάμεις in the body. The theory of the *VM* is quite more complex, not only

because of the number of elements involved, but also because substances affect according to the qualities they may have at a certain moment and are in turn affected by other substances and external factors such as diet, the environment and habits.

In addition to that, the ὑπόθεσεις of the other doctors are not based on the actual reality of the concrete human being (τοῦ ἐόντος ἀποτεύξεται 2.3.) and are more fitted for vague matters as περὶ τῶν μετεώρων ἢ τῶν ὑπὸ γῆν (1.3.); that is: things that cannot be known with certainty (οὔτ᾽ ἂν αὐτῷ τῷ λέγοντι οὔτε τοῖς ἀκούουσι δῆλα ἂν εἴη, εἴτε ἀληθέα ἐστὶν εἴτε μή 1.3.), because there is no criteria to prove then (οὐ γὰρ ἔστι πρὸς ὅ τι χρὴ ἀνενέγκαντα εἰδέναι τὸ σαφές 1.3.). Therefore such ὑπόθεσεις cannot be proved, must be considered arbitrary and lack scientific value as well as therapeutic application (15.1).

The Ancient Medicine, on the contrary, has a criterion: empirical observation. The introduction of principles like the salty, the bitter, the sweet, the acerbic, the astringent and the insipid is supported by a reasoning based on empirical observation: observing that human beings are affected positively or negatively by what they eat (13.), it is implicitly inferred that the basic properties of food (the salty, the bitter, the sweet, the acerbic, the astringent and the insipid) are responsible for health and disease.[27]

From this last example it is clear that causal relations and empirical verification are the methodological touchstone of medicine (21.3.). In fact, the observations described at 8.1-2.[28] –which are taken to prove the possibility of the τέχνη ἰητρική and its development—are considered τεκμήρια (8.3.). Further, the observations accounted through 16. are later at 17.2. a μέγιστον τεκμήριον, that is, a 'sign'[29] of the fact that 'the hot' is not the only αἴτιον of fever. The underlying idea is that any scientific reasoning, assumption or conclusion must be proved by means of a τεκμήριον, which essentially is an empirical observation on a causal relation.

Despite being firmly grounded on a theory with universal character and having methodological instruments of proof, the treatment of particular patients nevertheless is so complex that exactitude and precision is extremely hard to achieve, if not impossible (χαλεπὸν δὲ τοιαύτης ἀκριβείης ἐούσης περὶ τὴν τέχνην τυγχάνειν αἰεὶ τοῦ ἀτρεκεστάτου 12. see also 9.4.). However, that does not deprive medicine of scientific value, considering that a high degree of perfection can be achieved (12).

A good Physician distinguishes himself not by attaining perfection, but by committing the smallest mistakes. He is also hard to identify, because—as it is the case in navigation—in good weather mistakes remain unnoticed and it is only in critical moments when excellence is proved (9.3-5.).

From this last picture (9.3-5.) it becomes clear that the ultimate proof for the scientific value of medicine is (i) first its effectiveness at curing, (ii) but also its capacity to make discoveries (εὕρημα 3.6.; 7.2.) that lead to that effectiveness. The first kind of effectiveness proves the existence of medicine; the second one, on the other hand, explains how medicine could have ever developed into a science (4.2. ff.) and proves its status as a τέχνη, as a skill that does something intentionally, based on method and previous knowledge, not randomly (τύχη)[30] or without epistemological bases.

3. Epistemological status of the *VM*

In a nutshell, Medical Knowledge in the *VM* (i) is about the necessary and sufficient causes of diseases—juices, δυνάμεις and qualities inside the body in connection to diet, the environment and habits—. (ii) Apparent causes, causes in second degree, 'non-necessary' causes and symptoms are relevant for the elucidation of necessary causes. (iii) The access to these phenomena is perception, but perception (iv) must be treated by judgment, an activity that involves examination, speculation, analogy, postulation of hypotheses and generalization. (v) All the former must be based on empirical observation, (vi) which is the demonstrative instrument (τεκμήριον) that guaranties scientific status to medicine. (vii) Given the complexity of the objects of medicine and the fact that they are particular instances, the knowledge that results from this whole process cannot be absolutely certain, though it can achieve a high degree of exactitude. (viii) A distinctive feature of this kind of knowledge is its clarity and proximity to reality as well as its capacity to expand itself by means of discoveries.

We have seen that even though the author of the *VM* advances his critique in terms that attack ὑπόθησεις, generalizations and the use of principles, he himself makes use of them. On this point there is no contradiction, since what he is actually criticizing are the methods used to formulate those δυνάμεις, i.e. generalizations and principles. The method

he condemns proceeds on mere theoretical assumptions that have no connection to the concrete object of medicine, the one he puts forth is grounded on empirical observation of that object.

The discrepancy between the author of the *VM* and his 'innovative enemies' is motivated by different conceptions of the subject matter of medicine. For our Hippocratic writer the concern of medicine is not the human being in general terms, but particular suffering persons. Accordingly, his task in the *VM* is to justify the status of medicine as science of the particular, and that enterprise is achieved by constructing what we could call the first theory of empirical research and the first deliberate acknowledgment of the scientific value of approximate knowledge and results.

[1] A common interest of scholars when reading the *VM* has been to discover who is being criticized in the text, or what is the philosophical background of the author, see Lloyd (1963), Jones (1946), Longrigg (1963). Kühn (1956) and Hankinson (1990) however do pay close attention to the epistemological issues presupposed in the critique of the *VM*.

[2] Wöhrle (1990, p. 20-21).

[3] Following Jouanna's (1990) translation of γραφικῇ.

[4] Joly (1966, p. 158-159), Hankinson (1990, p. 59).

[5] 'To affect and to be affected': this meaning of the word δύναμις can be best appreciated at *Morb. Sacr.* 16 where the brain has the greatest capacity over the body, but it is also the organ most liable to be affected by diseases.

[6] πρὸς τὴν τοῦ ἀνθρώπου φύσιν τε καὶ δύναμιν (3.5.).
ὃ γὰρ καὶ πυρὶ καὶ ὕδατι δέδοται καὶ ἄλλοις πολλοῖσι ἠργασται, ὧν ἕκαστον ἰδίην δύναμιν καὶ φύσιν ἔχει, τὰ μὲν τῶν ὑπαρχόντων ἀποβέβληκε, ἄλλοισι δὲ κέκρηταί τε καὶ μέμικται (13.3.)

[7] Juice: χυμός. According to the *VM* the salty, the bitter, the sweet, the acerbic, the astringent and insipid are juices (24.1.) and are found inside the body as well as outside in food (14.6.).

[8] Most instances of the word δύναμις are related to substances that affect the body: 3.4;13.3;14.1,4: ἔνι γὰρ ἐν ἀνθρώπῳ καὶ ἁλμυρὸν καὶ πικρὸν καὶ γλυκὺ καὶ ὀξὺ καὶ στρυφνὸνκαὶ πλαδαρὸν καὶ ἄλλα μυρία παντοίας δυνάμιας ἔχοντα πλῆθός τε καὶ ἰσχύν.14.6.; 16.1.;17.3.; 19.5.; 19.6.; 16.8.; 20.4.; 22.1. (two instances); 24.1. Except the two mentioned instances, where it appears in conjunction with φύσις: πρὸς τὴν τοῦ ἀνθρώπου φύσιν τε καὶ δύναμιν 13.3, see also 3.5.
Φύσις on the other hand refers mostly to the constitution of a human being as a whole: 3.4.; 3.5. (two instances): τοῦ ἀνθρώπου φύσιν 7.2.: ἡ φύσις ἡ ἀνθρωπίνη 8.2.; 9.2.: τῇ φύσει τοῦ ἀνθρώπου 12.1.; 13.1.; 14.3.: τὴν τοῦ ἀνθρώπου φύσιν, τῆς φύσιος τῆς ἀνθρωπίνης 20.6. (two instances); 22.4. In three occasions it renders 'the constitution of an organ:' 22.6; 22.8, 9. A

different use is found in the syntagma περὶ φύσιος 20.1,2.,3. where it refers to or echoes the kind of research done by philosophers.

[9] As it is the case in *De Victu* 6.15.

[10] It is the ingestion of food what causes the over-concentration of substances like the salty, the bitter, the sweet, the acerbic, the astringent and the insipid, etc. inside the body, as it is demonstrated by the experiment proposed in 13.1: feed a healthy human being raw food and he will become ill.

[11] If opposite principles like 'the hot – cold' and 'the wet-dry' are causes of diseases, the principle contrary to one producing the disease should be an antidote and a cure. However, experience proves that changing diet (i.e. eating bread instead uncooked grains) is the effective therapy, and after all it would be absurd to prescribe the hot or the cold as a therapy, how could that be done? (13.2.). In addition, the author proves that allopathic treatment of the hot with the cold and *vice versa* does not hold. In the experiences described at 16.3. ff. applying cold to the cold can result in a warming effect, (16.3.); applying warm to the cold can intensify the cold (16.4.); similarly applying cold to the warm intensifies the warm (16.5.). Applying warm to the cold or cold to the warm may have a painful effect (16.6.).

[12] This does not imply that the hot or the cold do not produce diseases without the interaction of any other substance. At 19.4. in fact some diseases of the eyes are produced by the hot or cold alone, and when the condition changes from hot to cold or from cold to hot the disease disappears.

[13] The hot, cold, moist and dry do not exclusively work outside the body, the juices of the body can produce then: τὸ δὲ πεφθῆναι γίνεται ἐκ τοῦ μιχθῆναι καὶ κρηθῆναι ἀλλήλοισι καὶ συνεψηθῆναι (19.1.).

[14] Kühn (1956, 26) arrives to the same conclusion.

[15] The instances of ἀρχή at 1.1. and 10 do not represent the usual meaning of the word in the treatise, which is often used in reference to the beginning or starting point of the *Art of Medicine*, how it developed from mere empirical observations and became a science: 2.1; 3.1,3; 5.1; 7.1,3. At 16.7 ἀρχή refers to the state presiding a cold in mere temporal sense, 'first' or 'firstly', translated by Jouanna as *d'abord*. At 20.1. ἐξ ἀρχῆς ὅ τί ἐστιν ἄνθρωπος is the criticized question about the universal principles of the human being.

[16] At 3.4. Marcianus gr. 269 has χρείην. The Parisinus gr. 2253 has αἰτίην. Jouanna prints M's reading.

[17] At 21.2. is stated that most doctors attribute the cause (αἰτίη) of improvement to therapies, ignoring the actual cause (αἴτιον) of the improvement. Here αἰτίη refers to the false causal attributions and αἴτιον to the true ones, however I do not find in the rest of the text any reason to suppose that the difference in use of αἰτίη-αἴτιον is supported by a semantic difference between αἰτίη-αἴτιον, because at 20.2. the Author talks about his own doctrines using αἰτίη. Therefore I cannot agree with Rawlings (1975) 52, who believes that αἰτίη-αἴτιον makes a distinction between the methods employed by other writers and the writer of the *VM*.

[18] At 11.1. and 16.1. the manuscripts offer different readings. The more authoritative Marcianus gr. 269 offers: τίνας προφάσιας (11.1.) and τὰς προφάσιας (16.1.) while the Parisinus gr. 2253

renders: τίνα αἰτίαν. Being αἰτία a word more common than προφάσις, it perhaps arrived to the text as a gloss: Rawlings 1975) 51 note 94.

[19] A relation with Protagoras need not and should not be supposed as Kühn (1956, 26) does. The author of the *VM* is giving epistemological status to αϊσθησις and is not sceptical about its objectivity and scientific value. The author of the *VM* is not searching for a knowledge that is absolutely certain; αϊσθησις, however, is the foundation of experimentation and experimentation expands and corrects scientific knowledge. For further details about the role of αϊσθησις in the *Corpus Hippocraticum* see Longrigg (1993) 168.

[20] The meaning 'sensation' and the attribution of the action to the patient can be easily understood recalling that the verb αἰσθάνομαι in the *Corpus Hippocraticum* can have as a subject inanimate objects having the meaning of being affected: *Morb. Sacr.* (Grensemann) 13.10;17.4 8.9 in particular 17.7.: ἐξ ἅπαντος γαρ τοῦ σώματος φλέβες ἐς αὐτὴν <καρδίην> τείνουσι καὶ συγκλείσασα ἔχει ὥστε αἰσθάνεσθαι ἤν τις πόνος ἢ τάσις γίνηται τῷ ἀνθρώπῳ. See Ioannidi (1990) 70.

[21] Ioannidi (1990, p. 70).

[22] According to 1.2. χείρ and γνῶμη are constitutive parts of a τέχνη. Γνῶμη is the intellectual skill to practice the art and following 2.3. it consists in the understanding of the subject matter of the τέχνη.

[23] οἱ δὲ ζητήσαντες καὶ εὑρόντες ἰητρικὴν τὴν αὐτὴν ἐκείνοισιδιάνοιαν ἔχοντες, περὶ ὧν μοι ὁ πρότερος λόγος εἴρηται, <namely, observing what effects drinks and foods produce (4.1-2.)> πρῶτον μέν, οἶμαι, ὑφεῖλον τοῦπλήθεος τῶν σιτίων αὐτῶν τούτων, καὶ ἀντὶ πλειόνων ὀλίγιστα ἐποίησαν (4.2.).

[24] The problem the author of the *VM* intends to solve is the following: he must ground medicine on the study of the particular and on empirical observation, yet there cannot be real science without general principles. Kühn (1956, p. 34).

[25] Being the 'hot', 'cold', 'moist' and 'dry' causes of diseases and explanatory principles of general character that unify phenomena with no obvious relation to one another in philosophical and medical theory, it must be concluded that ὑπόθεσις means in the *VM* 1. and 13. 'assumption', 'postulate', explanatory principle of great generality, not: 'subject under discussion', 'thesis to be proved' cf. Lloyd (1963, p. 110-111) and Hankinson (1990, p. 57).

[26] Kühn (1959, p. 31).

[27] The claims of the author of the *VM* are then empirical, those of his enemies empty analytical truths: Hankinson (1990, p. 62).

[28] Namely, if one feeds a sick man—who is suffering a disease that is not too serious (τῶν χαλεπῶν καὶ ἀφόρων) and not too benign (τῶν…εὐηθέων)—the diet of a healthy man, and feeds a healthy man the diet of an ox or horse, the result is that the sick man worsens in the same proportion the healthy man becomes sick.

[29] A 'sign' with demonstrative force, 'proof' based on empirical observation, as Perilli puts it (1991, p. 160-161) 'segno probante' that shows causal connections.

[30] Τέχνη is opposed to chance, τύχη, at 1.2. and 12.2. The particular meaning of τύχη in the text is: 'coming to be spontaneously': τύχῃ δ' ἂν πάντα τὰ τῶν καμνόντων διοικεῖτο 1.2, but that basic meaning is expanded at 1.2. to: accidentally, without deliberation, irrationally. In the first case

the term is referred to the outbreak of diseases, in the second to the discoveries. The implicit idea is that the existence of a certain reality (the fact that the body contains the conditions for the outbreak of diseases and that those events take place under the laws of causality) necessarily determinates the possibility of predicting and changing those events. Medicine is thus possible because the laws of causality hold.

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