XIV.—*Dynamis* and *Physis* in *On Ancient Medicine*

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In what is certainly the most significant passage of the "Hippocratic" work *On Ancient Medicine*, the author rejects absolutely the speculative method of natural philosophy as a true or satisfactory basis for medicine and medical method.[1] The theory which certain physicians and *sophistai* had recently sought to introduce into medicine, that the physician must first know *what* man is (i.e., his ultimate nature) before he can comprehend medicine correctly and apply medical therapy properly, is denied. Such a theory, the author insists, belongs to *philosophia*, to the reasoning of those who, like Empedocles and others, have written on natural philosophy, investigating such problems as: What man is from the beginning? How did man first come into being? Of what ultimate elements was man first composed?[2] But such investigations, in his view, have nothing whatever to do with medicine.[3] What he condemns more specifically and positively, however, is the practice of such "philosophic" thinkers of postulating as an "hypothesis" one, or two, or more first principles as the ultimate nature of man, and then attempting to construct an aetiology of all diseases on the basis of their "hypothesis."[4] It was to oppose this apparently rather new[5] rationale of medicine, originating in natural philosophy, that *On Ancient Medicine* was written. The primary ground of the author's rejection of the method of natural philosophy as applied

[1] *On Ancient Medicine* (= *VM*) 20 *init.* References to the text of *On Ancient Medicine* are according to the edition of W. H. S. Jones, *Hippocrates* I (Loeb Classical Library, 1923). Cf. the "Hippocratic" work *De Natura Hominis* 1 and 2, where the same topic is discussed and a somewhat similar attitude displayed by the writer, with, however, a different resolution of the problem.

[2] *VM* 20.7: ἐξ ἀρχῆς ὅ τί ἐστιν ἄνθρωπος, καὶ ὅπως ἐγένετο πρῶτον καὶ ὁπόθεν συνεπάγη.

[3] Contrast the author of *De Victu*, probably a later work, who insists (1.2), perhaps in answer to the author of *VM* (cf. W. Jaeger, *Paideia* 3.33 ff.), that the physician must begin with just this knowledge and must base his medicine upon it.

[4] Cf. *VM* 1.1–8. On the meaning of "hypothesis" and the method involved, see the excellent notes of A.-J. Festugière, *Hippocrate, L'Ancienne Médecine* (Paris 1948) 25–27.

[5] Cf. *VM* 13 *init.*, where the author attacks the theory of τῶν τὸν καινὸν τρόπον τὴν τέχνην ζητεύντων ἐξ ὑποθέσιος.

to medicine is very basic: it is impossible for anyone to determine whether the knowledge resulting from investigation based on such an "hypothesis" is in reality true or not, because there is no empirical criterion by means of which such knowledge, even if it should be true, can be demonstrated to be true and certain.[6] His primary objection to the speculative method of natural philosophy, therefore, involves actually the basic epistemological question of the source and validity of knowledge.

It is on the basis of the same principle that the author, after he has rejected the "hypothetical" method of natural philosophy as not pertinent to medicine, proceeds to make a statement which seems, at first glance, merely dogmatic and arrogant. This is his very positive assertion[7] that it is impossible to acquire any certain knowledge of Nature from any other source whatever than from medicine itself; that only when the investigator of Nature has correctly comprehended (and adopted) medicine and its method[8] will the investigation (*historiê*) of Nature result in knowledge that is certain and real. Two approaches to knowledge of Nature are here consciously and explicitly contrasted: the speculative, "hypothetical" method of natural philosophy as against the old and well-established ἀρχή and ὁδός of medicine, which he believes to have evolved naturally, and which he has described in detail in the earlier part of his work, in opposition to the "hypothetical" method.[9] The method of medicine is basically empirical, exact, and accurate. And medicine and its method does involve the investigation of Nature, for (as the author here crystallizes his doctrine) the physician must strive earnestly to learn "what man is in relation to what he eats and drinks, what he is in relation to his other habits, and what will be the effect of each food, drink, and habit on each

[6] Cf. *VM* 1.24–27: οὐ γὰρ ἔστι, πρὸς ὅ τι χρὴ ἀνενέγκαντα εἰδέναι τὸ σαφές. Cf. *VM* 9.15–18.

[7] *VM* 20.11–17: νομίζω δὲ περὶ φύσιος γνῶναί τι σαφὲς οὐδαμόθεν ἄλλοθεν εἶναι ἢ ἐξ ἰητρικῆς· τοῦτο δὲ οἷόν τε καταμαθεῖν, ὅταν αὐτήν τις τὴν ἰητρικὴν ὀρθῶς περιλάβῃ· μέχρι δὲ τούτου πολλοῦ μοι δοκεῖ δεῖν· λέγω δὲ ταύτην τὴν ἱστορίην εἰδέναι, ἄνθρωπος τί ἐστιν καὶ δι' οἵας αἰτίας γίνεται καὶ τἄλλα ἀκριβέως.

[8] When the author says "medicine," it is really the *method* of medicine, and the rationale of that method, which is uppermost in his mind. His whole work is an exposition and defense of the *archê* and *hodos* of existing medicine, in opposition to the new "hypothetical" method.

[9] On the opposition of the two methods, so far as medicine is concerned, cf. esp. *VM* 2.1–11; on the genesis and evolution of medicine, cf. esp. *VM* 3, and my treatment in *TAPA* 80 (1949) 187–202.

individual."[10] Medicine, that is to say, investigates Nature (even if only a restricted portion) on the phenomenal level and with a purely empirical method, so that knowledge of Nature deriving from the method of medicine is real and certain. Underlying the method of medicine urged by the author there is, to be sure, a conception of *physis*. But it is a conception which has emerged from and developed within the fabric of empirical medicine, and one which receives its most stringently empirical formulation in this work. The most vital concept in this conception of Nature is the old concept of *dynamis* — which is, indeed, the basis of the author's theory of health and disease; much more important, it is the basic concept by means of which he has attempted to understand the nature of man.

The conception of man's *physis* elaborated in *On Ancient Medicine* is clearly, in origin and formulation, empirical. It would be no exaggeration, probably, to say that the author's reasoning concerning Nature began with no speculative preconceptions at all.[11] He would have rejected the "hypothesis" that man is composed of air or earth or fire or water, or any one or combinations of these elements of natural philosophy.[12] He vigorously rejects the "hy-

[10] *VM* 20.20–23. The full meaning of this statement, which seems rather simple' becomes apparent only in the light of the author's whole conception of the nature of man.

[11] I do not suggest, of course, that his conception is totally original with himself and uninfluenced by previous thought. His thought doubtless owes much to the doctrines and concepts accumulated in the medicine of the past, empirical or otherwise, and even to natural philosophy. Such concepts as he utilizes, however, he would believe to be empirically justifiable. Despite the uncertainty as to the *floruit* of Alcmaeon of Croton, it is hardly doubtful that *VM* reflects the central doctrine of Alcmaeon of the *krasis* of the "powers," *isonomia* of the "powers" resulting in health and *monarchia* of the "powers" leading to illness. How direct this influence may have been is, I think, difficult to assess, for Alcmaeon's thought cannot be interpreted with much precision or limitation. There seem to be rather significant differences between Alcmaeon's doctrine of the "powers" and that of *VM* (cf. Festugière, *op. cit.*, 72). At any rate, however great the influences from the past upon the author, he is deeply original in the sense that he subjects all that he may have learned from others to a thoroughgoing empiricism, and modifies that which is not, in his judgment, empirically demonstrable.

[12] As does also the author of *De Natura Hominis* (1). The author of this work begins in much the same frame of mind as the author of *VM*. He objects to the natural philosophers who say that man is air or fire etc., or anything else which is not a manifest constituent of man, and that man is a unity. He also objects to physicians who claim that man is blood, or bile, or phlegm, adding that man is a unity which is compelled by the hot or the cold to change its form or power and thus become sweet, bitter, etc. This kind of reasoning is also what *VM* would oppose. But *VM* would also reject the theory of *De Natura Hominis* (4 *init.*) that the body of man contains

pothesis" that man is composed of "the hot and the cold and the moist and the dry," or any one or combination of the traditional "opposites." He would even reject what is to him "hypothetical," that the *physis* of man is composed of the four humors, even though, presumably, the theory of the four humors evolved slowly and chiefly, at least, in empirical medicine and was accepted by physicians on empirical grounds. But all such conceptions of the *physis* and the systems of medicine depending upon them would seem to the author "hypothetical." None of them could be established by direct observation and experience of the phenomena of *physis* to be really true conceptions of the composition of the human *physis*.

Unlike the natural philosopher and the speculative physician, the author does not speculate in advance about the possible ultimate elements or primal stuff of which the *physis* is composed. Rather, he has attempted to understand the hidden reality, to learn what Nature *is*, by observing the body and its phenomena empirically. Instead of starting with any "hypothetical" principle, he has fastened his attention upon that which is manifested to the senses and which can therefore, as he thinks, be known with certainty as real and really existing. One must learn the activities of the human *physis*, both in itself and in its relationship with *physis* as a whole. This is what is meant when he says that the true physician must attempt to learn about *physis* what a man is in relation to his foods and drinks, and to his habits generally, and what effect each will have on each individual. The conception underlying this statement of principle is that man's body has a *physis te kai dynamis* (3.43) which can be affected in certain observable ways by, for instance, his foods, which also have a certain natural strength or "power." All foods have an individual natural "power," so that *ὑπὸ . . . ἑνὸς ἑκάστου τούτων πάσχει τε καὶ ἑτεροιοῦται ὁ ἄνθρωπος ἢ τοῖον ἢ τοῖον. καὶ διὰ τούτων πᾶς ὁ βίος καὶ ὑγιαίνοντι καὶ ἐκ νούσου ἀνατρεφομένῳ καὶ κάμνοντι.*[13] This principle is the basis of all the author's medical thought, as it doubtless had been the general basis of empirical medicine from the earliest period. It involves

blood, phlegm, yellow and black bile, and that these are the *physis* of the body. For the author of *VM*, this conception would also be "hypothetical," because it could not be substantiated empirically that only these humors make up the *physis*.

[13] Cf. *VM* 14.11 ff. This principle is often expressed and repeatedly implied throughout the work. Even the same food, e.g., bread, will have different effects upon the body, according as it is modified by being prepared in various ways (*VM* 14 *init.*), it will have different *dynameis*.

the idea, which would arise first in common-sense naturalism, that any existing thing has a natural active strength or "power" which can be exerted upon other things, thus bringing about an observable change or effect. This general principle, however, is extended to a more precise physiological interpretation and application in the author's medical theory. The physician must learn by observation not only the "power" or effect of a food or drink, but also *τίνι τῶν ἐν τῷ ἀνθρώπῳ ἐνεόντων* a particular food is unsuitable, with resulting perceptible effects.[14] Two typical illustrations of this principle are then described. The "power" of wine is known, and it is also known clearly *οἷσί γε τῶν ἐν τῷ ἀνθρώπῳ τοῦτο δύναται μάλιστα.* Again, in the case of some men, there is some component in the body "hostile" to cheese, so that by cheese, when it is eaten, that particular component *ἐγείρεταί τε καὶ κινεῖται*, with resulting manifest effect. This inherent capacity of a food or drink to cause a physical change in and have an effect upon some particular component of the *physis* is very naturally thought of and described as the *dynamis* of the food or drink. At the same time, the idea of the *dynamis* of foods clearly necessitates a correlative capacity, i.e., a *dynamis* in each of the bodily components, which are roused to action by the *dynamis* of the foods. Therefore, the physician must learn the *dynameis* of food and drink etc., but must also investigate the various *dynameis* of the components of the human *physis*, to determine *αὐτῶν . . . ἕκαστος ὅ τι δύναται ποιέειν τὸν ἄνθρωπον.*[15] For all the sufferings which man experiences arise from the *dynameis.*[16]

It is on the basis of this naturalistic and realistic principle that the author, using the accumulated knowledge of the empirical tradition and reasoning from the observed phenomena of the *physis*, builds his conception of the constituents of *physis*. This conception is reflected in his medical discussions repeatedly and set forth in some detail in one passage in connection with his theory of health

[14] Cf. *VM* 20.26 ff. The principle developed in the rest of this chapter, which is also notable for its emphasis on the necessity of exact knowledge, is that each food has an effect upon specific constituents of the body.

[15] Cf. *VM* 24. F. Steckerl, "Plato, Hippocrates, and the *Menon* Papyrus," *CP* 40 (1945) 166 ff., who has given a very thorough analysis of the medical method of *VM*, points out (170) that the author envisages the physician as observing and studying all the manifold physiological relations which exist between not just man in general but the *individual* subject, on the one hand, and every aspect of the environment, on the other. This would include all the *poiêmata* of the *physis*, as well as the *pathêmata* of the organs (*VM* 22).

[16] Cf. *VM* 19.26 f., and *passim.*

and disease. In this place[17] he says: there exist in man both salt and bitter and sweet and acid and astringent and insipid and countless other constituents, having *dynameis* of all kinds in number and strength. When these constituents are mingled together and blended with each other, none of them is manifest or causes man pain. But whenever anyone of them is separated apart and isolated by itself, then it is manifest and does cause man pain. It is τὸ ἰσχυρὸν ἑκάστου (i.e., constituent) and τὸ κρέσσον τῆς φύσιος τῆς ἀνθρωπείης, which the *physis* is unable to master, that causes harm in the body. The extreme degree of the sweet, the bitter, the acid, etc., is the most powerful.[18] ἑκάστου δὲ πάντων τῶν ἐνεόντων ἡ ἀκμή (*sc.* ἔστι). This analysis of the *physis* of man into various constituents is based essentially upon the idea of *dynamis*, as are also the remarks, which follow immediately, concerning the nature of foods. Each one of the foods which are unsuitable to man and cause him trouble is either bitter or salt or acid or something else unblended and strong, and thus the body is disturbed by them, just as it is also disturbed by any of the constituents of the *physis* being in a state of isolation in the body. Most foods that are customarily consumed, however, because they have been well-blended and have nothing unblended or strong, but are one simple whole, do not cause disturbance in man, nor do they cause an *apokrisis* of the *dynameis* of the body. For the author, then, the *physis* is composed of an indefinite number of simple real constituents, each of which he conceives primarily as a *dynamis*. In the human *physis*, so long as it is in a natural, healthy state, the constituents exist in a state of *krêsis* and *mixis* with no one of the constituents manifesting itself, but all forming a whole, one and simple.[19] Man is in the

[17] Cf. *VM* 14.20–57. I have stated the essence of the author's conception. His own remarks, because of the manner in which he presents his argument, are somewhat more detailed and diffuse.

[18] *VM* 14.27: ἰσχυρότατον δ' ἐστὶ τοῦ μὲν γλυκέος τὸ γλυκύτατον, τοῦ δὲ πικροῦ τὸ πικρότατον, κτλ. The language in this passage is somewhat ambiguous. It must be interpreted to mean that, e.g., "the sweet," when it is most concentrated, i.e., not mingled or blended with any other constituent in the *physis* but existing altogether isolated by itself, is then most "powerful." Conceived theoretically, each constituent could exist in its most concentrated state. It would then be at its *akmê*, and thus be most "powerful," i.e., its natural *dynamis* for action is not held in check as it is when all the constituents are in a state of *krêsis*. Thus, with reference to foods, in their natural state, as long as they are unblended and uncompounded, they have "great" *dynameis* (*VM* 3).

[19] *VM* 14.56: ὅλον ἔν τε . . . καὶ ἁπλοῦν. This description is used of foods which

best possible condition, and the most natural, whenever πᾶν πέσσηται καὶ ἐν ἡσυχίῃ ᾖ, μηδεμίην δύναμιν ἰδίην ἀποδεικνύμενον.[20]

What is, however, the author's conception of these constituents? Why does he call them *dynameis*, and what does this term imply? In this connection it is especially important to keep in mind that the author restricts himself sharply to the phenomena of the *physis*, to what may be observed by the senses, and to reasoning from the observed data.[21] The *primary* facts with which the author begins, in trying to understand *physis*, are not its possible substantial elements but the various sensible and perceptible changes and effects manifested in the body, e.g., the manifestation of hotness, of acridness, of bitterness, etc. These are his primary data because they are empirically observable and knowable. Such manifestations[22] immediately imply, however, an activity in the *physis* which results in the sensible manifestations of hotness, of acridness, of bitterness, etc., while, in turn, the activity producing a particular manifestation implies the action of entities, "the hot," "the acrid," "the bitter," etc. These entities are quite logically conceived by the author as *dynameis*, for the only thing he really knows by observation about "the hot," "the acrid," "the bitter," etc., is their "power" to cause by their activity a particular manifestation or observable effect in the body. Each manifestation or observable effect in the body, therefore, reveals to the senses a *dynamis* and its specific activity.[23] And since each manifestation or observable

are well-suited to man, because they are well-blended and mingled. Logically, the description is equally appropriate to the constituents of the *physis*.

[20] *VM* 19 *fin.* I follow Kuehlewein, Jones, and Festugière in adding πᾶν here.

[21] Reasoning (*logismos*) is, of course, an integral part of the author's method (cf. *VM* 14.16 f.; 12.14 f., and, for "analogy," *VM* 22 and 23). In principle, however, his method is basically empirical, and *logismos* depends upon empirical observation. This principle is especially exemplified in the conception of the *dynameis* and illustrated throughout the work. In actuality, the author no doubt often failed to separate rigorously the two procedures or to analyze adequately his own preconceptions. One should therefore guard against exaggerating the author's empirical method: it is clearly embryonic and unsophisticated.

[22] The author thinks of all observable changes in the body, the simplest changes as well as complex states of illness, as the resulting manifestations of the activity of *dynameis*. On the simple manifestations of "the hot" and "the cold," cf., e.g., *VM* 16. But illnesses also, e.g., fever, are likewise manifestations of "the hot" (*VM* 16.40). In *VM* 19, various complex bodily conditions are explained as manifestations of various *dynameis*.

[23] The *dynamis*, of course, becomes observable because of its activity in the body only when *krêsis* of the constituents is disturbed (*VM* 14.36 ff.; 19 *fin.*). Note that the *dynamis* may exert its effect not only on man both internally and externally, but

effect is peculiar to itself and unlike any other manifestation, each *dynamis* must be peculiar and unlike any other in its essence.[24] Hence, a *dynamis* is a simple real entity which is characterized and identified by its specific[25] activity and whose specific essential nature is revealed to the senses by its activity. The *physis* is then composed of an indefinite number of *dynameis*, "the hot," "the bitter," "the acid," etc., simple entities which are known primarily and in their essence by virtue of their capacity for specific activity, which characterizes each and by which each manifests itself in the body, thus furnishing to the author empirical knowledge of the composition of *physis*. It is the activity of the *dynamis*, and it alone, which makes known, by reason of its observable manifestation, the real nature of the entity. To know the *dynamis* is therefore to know the essential nature of the entity.[26] This is the decisive importance of the concept of *dynamis* in *On Ancient Medicine*. For while the author is unable to know anything precisely and objectively about the ultimate reality of *physis* from any other source, the essential reality of *physis* does reveal itself in the activity of the *dynameis*. The concept of *dynamis* is in actuality the empirical

also on "leather and on wood and on many other things, which are less perceptive than man." (15.22).

[24] That each *dynamis* is wholly individual and dissimilar to any other in essence is stressed several times. Cf. *VM* 14.8: the *dynameis* are powerful and *οὐδὲν ἡ ἑτέρη τῇ ἑτέρῃ ἐοικυῖα*. Cf. also 13.13 ff.; 15.14 ff. The basis of this differentiation is that the results of their activity in the body are observably different. Cf. *VM* 15.20 f., where the author, speaking of the action of various *dynameis*, concludes: *πᾶν τοὐναντίον ἀφ' ἑκατέρου αὐτῶν ἀποβαίνει*.

[25] The activity of a dynamis is conceived as resulting in some *specific* observable effect and change in the *physis*. Cf. *VM* 19.18 ff., where, after explaining certain physiological conditions as resulting from *δριμύτης*, he adds: *δεῖ δὲ δήπου ταῦτα αἴτια ἑκάστου ἡγεῖσθαι εἶναι, ὧν παρεόντων μὲν τοιουτότροπον γίνεσθαι ἀνάγκη, μεταβαλλόντων δὲ ἐς ἄλλην κρῆσιν παύεσθαι*.

[26] Plato, in the famous passage of the *Phaedrus* in which he describes the method of Hippocrates, defines (270D) the *dynamis* of a thing as *τίνα πρὸς τί πέφυκεν εἰς τὸ δρᾶν ἔχον ἢ τίνα εἰς τὸ παθεῖν ὑπὸ τοῦ*. In *VM*, the *dynamis* is conceived only as *active*, though the passive aspect is implied, especially in the discussion of the *pathêmata* arising from the structures of the body (cf. *VM* 22 and 23). On the significance of the term *dynamis*, cf. J. Souilhé, *Etude sur le term Δύναμις dans les Dialogues de Platon* (Paris 1919), esp. 32–36 (a review of the usage in *On Ancient Medicine*), and F. M. Cornford, *Plato's Theory of Knowledge* (London 1935) 234–239. W. H. S. Jones, *Philosophy and Medicine in Ancient Greece, Supplements to the Bulletin of the History of Medicine*, No. 8 (Baltimore 1946) 93–95, reviews the occurrence of the word in *VM* especially to attempt to determine whether *dynamis* is there conceived as concrete or abstract.

principle of knowledge by means of which the author tries to determine what *physis* really *is*.[27]

This conception that the constituents composing *physis* are, in essence, *dynameis* raises the further question as to whether the *dynameis* are conceived as concrete and substantial, and, if so, how the relation between *dynamis* and substance is conceived. For an empirical physician of the period of *On Ancient Medicine*, the activity which is the essential characteristic of *dynamis* would suggest immediately something substantial *in* activity, i.e., some substance which, as being active and manifested in its activity, *is* a "power." And it is very probable that the author did regard all the various *dynameis* of *physis* as simple substances considered from the point of view of their natural characteristic activity. That is to say, the same simple entity (a real constituent of *physis*) could be known in two aspects: as active and thus manifesting its essential nature, it is a *dynamis;* as passive but having the potentiality of action, it is a substance.[28] The description of this relationship in later thought and terminology would be that *dynamis* is the property or quality of a substance considered as having the power for action. But such a description would be a somewhat false modernization, I believe, for it is very doubtful whether the abstract idea of "property" or "quality" had as yet been consciously grasped. More important, it would suggest that for the author's mind substance is prior to and more basic than *dynamis*. But really, in his empirical conception of *physis*, the concept of *dynamis* is far more basic than that of substance, for the simple substances are identified, characterized, and known in essence *only* through their specific *dynameis*. The author's conception of the interrelationship of *dynamis* and substance is less sophisticated than that implied by the terms "quality" or "property." The primary entities of *physis* are substances which *are dynameis*, substances in their natural "power" of activity. But the substances are revealed only in their

[27] Cf. Souilhé, *op. cit.*, 149, and Cornford, *op. cit.*, 237, who make the point of the philosophic use of the concept of *dynamis* in certain passages in Plato that it is at once a principle of knowledge and a principle of diversity. Cornford was speaking with special reference to the statement in Plato's *Sophist* 247E containing the materialistic criterion of reality, as Plato interpreted it: *τίθεμαι γὰρ ὅρον ὁρίζειν τὰ ὄντα ὡς ἔστιν οὐκ ἄλλο τι πλὴν δύναμις.*

[28] One could express the relationship by saying that *dynamis* is the qualitative aspect, substance the quantitative aspect, of the same simple entity of *physis*. But such a distinction was hardly possible in the period of *VM*.

activity, i.e., as *dynameis*, and only under certain circumstances.[29] It is the *dynamis* alone which makes possible knowledge of the essential nature of the substance.

For the author, these simple entities of *physis*, considered as substance, are "humors" (*chymoi*), with the possible exception of the four traditional "opposites." But it must be noted immediately that the term "humor" is used very broadly in *On Ancient Medicine;* the author does not restrict the term to the well-known four of the Humoral Theory. Sweet, bitter, salt, astringent, and acid "humors" are mentioned in one passage,[30] and the simple term "humor" is used elsewhere without any limiting description,[31] apparently just as a synonym for simple substance. The intimate relationship of "humors" and *dynameis*, in the author's conception, is illustrated in remarks in which he speaks of "humors" in almost the same terms as the *dynameis*. Thus, a "humor" is described as predominating in the body and therefore *μᾶλλον ἐνδυναστεύων ἐν τῷ σώματι*.[32] But this interrelationship of *dynamis* and "humor" is most apparent in the definition which he offers for *dynamis: λέγω δέ τι τοιοῦτον, δύναμιν μὲν εἶναι τῶν χυμῶν τὰς ἀκρότητάς τε καὶ ἰσχύν*.[33] This is, as he indicates, only a rough definition, and is not without ambiguity. It must be interpreted in the light of his theory of health and illness, already described,[34] and the underlying concept of *krêsis*. The definition does not imply that *dynamis* is a separate entity or property of the "humor"; *dynamis* is not a "thing-in-itself." Nor does the definition imply that the "humor," in itself (i.e., theoretically conceived as completely isolated), may vary in

[29] When, e.g., it is concentrated and isolated, unblended and unmingled with the other substantial constituents of the body.

[30] *VM* 24. "Humor" first meant the "savor" or "flavor" of a particular substance (cf., e.g., *VM* 14.47) and then came to mean the substance identified by the "savor.' On the early significance of *chymos*, cf. G. Vlastos, "The Physical Theory of Anaxagoras," *Philosophical Review* 59 (1950) 43.

[31] *VM* 20.44: *ὁ τοιοῦτος χυμός*, an unknown "humor" hostile to cheese. Cf. 19.41–43. The author has no other specific term for substance.

[32] Cf, *VM* 20.41 ff. This is a perfectly natural variation in his manner of speaking if the same constituent of *physis* is a "humor," considered as substantial and passive, but a *dynamis*, considered as active. He can refer to the constituent now as a *dynamis*, now as a "humor," according as the one or the other term is more appropriate to a particular phenomenon. This is also the reason why he sometimes speaks of the constituents of *physis* as *being dynameis* (e.g., 14.53), and again, as *having dynameis* (e.g., 14.34). There is no real distinction involved in this variation.

[33] *VM* 22.3 f. This shows how consciously the author conceives of *dynamis*.

[34] Cf. *supra* pp. 188 ff. and note 18.

intensity of force or strength. The "humor," as a simple substance, has only its constant, natural *dynamis*. But if the "humor" is isolated by itself, if, for instance, *apokrisis* has occurred among the constituents of the body, then the "humor" will be at its "highest pitch" (i.e., when most concentrated), and will then have a force (*ἰσχύς*) which will be most powerful (*ἰσχυρότατος*). The "humor," then being at its *ἀκμή*, will accordingly be manifested as a *dynamis* in the body. But as long as the "humor" is in a state of *krêsis* with all the other "humors," with all mingled and blended together so that no particular one can become concentrated, it will have no force and will therefore not be manifested as a *dynamis*. The natural *dynamis* of the "humor" is potential and latent; it becomes manifested relative to the degree of concentration of the "humor." More important than anything else, the author's attempt to clarify his conception of *dynamis* shows that it is conceived simply as the "humor" or substance in activity. A "humor" and a *dynamis* are two aspects of the same simple entity, the one as substantial, the other as active. But it is the *dynamis* which actualizes the "humor" or substance, and thereby makes known its essential nature.

This conception of the relationship of *dynamis* and "humor" must, however, be qualified with reference to four of the constituent *dynameis* of *physis* — the traditional opposites, the hot and the cold and the moist and the dry. Much of his polemic is directed especially against those thinkers who assigned a predominant importance to one or more of these opposites as first principles of *physis*. It is a prime consequence of his empiricism that for the author the opposites are of comparatively minor importance. For him, the hot and the cold are *dynameis*, as are the other real entities of *physis*, by virtue of the observed manifestations of their characteristic activity. They may be active alone and separately from other *dynameis*, thus affecting the body and causing observable sensations and the effects by means of which they are empirically experienced, identified, and their essence known.[35] But his experience of the perceptible manifestations of these *dynameis* has convinced him that they are subordinate in the body, and that, for the most part,

[35] *VM* 16 deals with the observable effects in the body of "the hot" and "the cold" manifesting themselves separately as *dynameis*, and spontaneously exerting their "power" against each other. Although such effects are rather unimportant (in medicine), "the hot" and "the cold" are still *dynameis* of the *physis*, and distinguishable from the other *dynameis*. Cf. *VM* 19.21 ff.: *ὁκόσα οὖν ἀπ' αὐτῆς τῆς θέρμης εἰλικρινέος ἢ ψύξιος γίνεται καὶ μὴ μετέχει ἄλλης δυνάμιος μηδεμιῆς* κτλ.

their activity is manifested along with and parallel to that of other *dynameis*.[36] Further, his empiricism has led the author to an even more basic truth concerning the opposites: the recognition that the hot and the cold and the moist and the dry have never been discovered by any one to be completely isolated by themselves and not participating in some other *eidos*.[37] This would mean that the hot and the cold and the moist and the dry could not be empirically established by the author as separate substantial constituents of the *physis*, even though they had been empirically established as *dynameis;* for him, the opposites would always occur with and participate in some other substance[38] (i.e., a "humor"), simply because they were not revealed to the senses as substantial in themselves. The author's empirical observation and study of the hot and the cold leads, indeed, to some difficulties in the conception of their nature, which he discusses at some length but does not succeed in completely clarifying.[39] But there is no doubt, in any case, that the hot and the cold and the moist and the dry are *dynameis*, simple entities of *physis*, and no less real as *dynameis* and as constituents of *physis* than the *dynameis* of "humors." Since the author's fundamental criterion of reality is the concept of *dynamis* (and not substance), the fact that the hot and the cold are not

[36] Cf. *VM* 16 *init.*, 17, and 18.

[37] Cf. *VM* 15.4 ff.: *οὐ γάρ ἐστιν . . . ἐξευρημένον αὐτό τι ἐφ' ἑωυτοῦ θερμὸν ἢ ψυχρὸν ἢ ξῆρον ἢ ὑγρὸν μηδενὶ ἄλλῳ εἶδει κοινωνέον*, and the author's reasoning in the rest of the paragraph. The principle is especially well illustrated, from the point of view of the organism and medicine, in *VM* 18.1–16.

[38] Cf. the discussion of *VM* 15.9 ff.: there are many kinds of hot things, the hot and astringent, the hot and insipid, etc., as well as the cold and insipid, the cold and astringent, etc., all with different *dynameis*, for it is not the hot which has the great "power," but the *dynameis* with which it participates (*VM* 15.25 ff.). Again (17.8 ff.), the same thing may be bitter and hot, or acid and hot, or salt and hot, etc., with similar combinations of cold with other powers.

[39] The nature of heat and cold are treated especially in *VM* 15–19; the discussion here suggests how he has reached his conclusions concerning the opposites, by empirical observation of the organism. It is to be observed that the author does not, of course, say that the opposites are *not* substantial (obviously they could not be *chymoi*), but only that they are not found except in participation with other *eidê* or *chymoi*, i.e., that they cannot be known as individual substances. At times, the author seems almost to think of them as unsubstantial, as when he says of heat (17.12–15): *συμπάρεστι δὲ καὶ τὸ θερμόν, ῥώμης μὲν ἔχον ὅσον τὸ ἡγεύμενον καὶ παροξυνόμενον καὶ αὐξόμενον ἅμα ἐκείνῳ, δύναμιν δὲ οὐδεμίαν πλείω τῆς προσηκούσης.* However, heat and cold may undergo *mixis*, *krêsis*, and *metriotês* with each other (16.3–7; cf. 19.47–51), but may be separated from each other and thus produce observable separate effects. Yet heat and cold do not undergo coction, alteration, thickening or thinning, as do the "humors" (19.41–46). Jones, *op. cit.*, 80–81, seems to be quite right in suggesting that the concept of "temperature" is slowly being evolved in the author's thought.

revealed empirically as individually substantial and concrete does not disqualify them as real entities of *physis*. They are nevertheless *dynameis*, and, as such, reveal to the author a significant part of the hidden reality of Nature.[40]

One final concept which plays some part in the author's analysis and conception of *physis* is *eidos*. His use of this term, the meaning of which in the *Corpus* has been much discussed,[41] must be interpreted with reference to the author's empirical method of investigating Nature. As each *dynamis* or simple substance manifests to the senses a simple entity of *physis* by virtue of its various perceptible and concrete effects in the body, the entity may properly be referred to as an *eidos*. But this term does not, in itself, imply an ultimately real, primal substance. Rather, *eidos* refers to the "form" of the simple entity as manifested, characterized, and differentiated by its sensible qualities and observable effects from another simple entity of *physis*. Thus, "the sweet" is one *eidos*, identified and distinguished by its *dynamis* and all the observable effects of that *dynamis* from "the acid," which is also an *eidos*. "The hot" is also an *eidos* (even though it is not manifested as an individual substance) because, although it is always found in *koinônia* with other *eidê*, it is still perceptible and distinguishable from those other *eidê* by its manifested effects.[42] All the simple entities of *physis* may thus, in accordance with the author's empirical procedure, be known as *eidê*, but the term refers only to the whole complex of sensible, observable aspects[43] of the entity, by

[40] Nowhere is the author's truly empirical approach to knowledge and understanding of Nature better revealed than in his unusual doctrine of the opposites, a doctrine which goes counter to the well-established view of natural philosophy. All that he says of the opposites grows out of his observation of the effects of heat and cold in the body, his reasoning (*logismos*) from those observations, and the drawing of general conclusions.

[41] Cf. A. E. Taylor, *Varia Socratica* (Oxford 1911), esp. 214–218; against Taylor's interpretation, C. M. Gillespie, *CQ* 6 (1912), esp. 194–196; Festugière, *op. cit.*, 50–53. Jones, *op. cit.*, 93, has pointed out the difficulties of the use of *eidos* in *VM*, in which it is applied to the "humors," to the opposites, which are also *dynameis*, and to the structures of the body (23).

[42] Note that "the hot" and "the cold," as *dynameis*, are conceived as entities separate from other *dynameis*, and may at times act individually and cause their unique observable effects (cf. note 35 *supra*). But as *eidê*, they must always participate in some other *eidos* (cf. note 37 *supra*). This distinction shows clearly that the term *eidos*, as the author uses it, refers to the visible, sensible qualities of the constituent considered as "substantial form."

[43] This meaning of *eidos* is well illustrated by a similar usage of *idea* in *De Natura Hominis* 5. The "forms" of yellow and black bile, blood, and phlegm are separated

means of which it is experienced, and differentiated from other entities. It therefore describes, on the phenomenal level and from the exterior aspect only, a simple entity of *physis*, but serves also the additional function of logical differentiation and classification.[44]

In the analysis of the author of *On Ancient Medicine*, then, the *physis* of man is composed of an indefinite number of simple entities, each of which is (and may be empirically known as) a *dynamis* or "humor" or *eidos*.[45] Incomparably the most significant concept in this series is, of course, *dynamis*. For, while observation of the simple entities merely as "humors" or as *eidê* would achieve some valid empirical knowledge of *physis*, *dynamis* is the very essence of the simple entity of *physis;* and, at the same time, it is the consequence of *dynamis* alone that the simple entity manifests its essential reality to the senses. The role which *dynamis* plays in the author's thought is, therefore, of profound importance. For, in his attempt to determine what the *physis* of man *is*, it is the principle of *dynamis* which makes the inner reality of *physis* knowable at all, and which furnishes knowledge of Nature that is empirically real and certain.[46] It is on the basis of this epistemology, I think, that he insists that real knowledge of *physis* is unobtainable except through medicine, and that those ultimate questions concerning the nature of man with which natural philosophy begins can be answered only though the empirical rationale and method of medicine.[47]

by nature, and none of these constituents of the *physis* is similar to the other. They could not be similar to each other, since their colors are not alike to the sight, nor their tactile qualities alike to the hand. They are not equally cold or warm or dry or moist. These constituents of *physis*, then, differ in "form" as well as in *dynamis*.

[44] Cf., e.g., *VM* 19.43; 23 *init.*; 24.5.

[45] I.e., the same constituent of *physis* could be experienced and thought of by the author as a *dynamis*, as a "humor" (with, of course, the exception of the "opposites"), and as an *eidos*.

[46] In *VM* 24, the author thinks of a "humor" altering spontaneously (not by *synkrêsis*) into some other "humor," with a consequent alteration of *dynamis*. This suggests that he would, perhaps, not deny the possibility of an ultimate, elemental substance or reality underlying the *dynameis*, but he would deny that it could be known empirically.

[47] Since this paper is concerned principally with the relationship of *dynamis* and *physis* in the author's thought, I have not attempted to discuss several other important aspects of his conception of human nature, e.g., the importance of the "structures" of the body (*VM* 22 and 23), his perception of the individualism of human nature, and the influence of habit or custom upon the body (*VM* 10–12).