

The Role of Medical Metaphors in Aristotle's Ontology

Abstract thinking is thinking purified, according to Aristotle,¹ but purified from what? From matter, or so he thinks. The most abstract thinking of all is theology and metaphysics, ontology, or first philosophy, as Aristotle himself calls it.² In thinking ontological thoughts, then, we should expect to find him at his most pure, his most immaterial, his most formal. Ironically, however, his ontological thinking proves to be far from formal. For the most basic concepts of his ontology are not definitions, essences, and thus pure forms; indeed, as we shall see, they cannot be. Instead, they turn out to be analogies, metaphors of a decidedly material cast. *πέψις* (cooking, concoction) proves the most interesting of these, not least because it shows the special debt of Aristotle's ontology to medicine.

Aristotle conceives the universe as a hierarchy of actuality. At the bottom are the least actualized of all substances, the four elements: earth, water, air, and fire. Away at the top of this hierarchy is God, the most actual of all substances. Everything else -- from plants to animals to ourselves -- is ranked in between according to its mixture of actuality and potentiality. Since Aristotle equates potentiality with matter, and actuality with form, however, this hierarchy is likewise one of form and matter. A substance finds its rung on the ladder of being according to its form's mastery over matter. A plant's form gains little mastery over its matter; so, earthy as it is, its roots must stay in the ground. Our form, by contrast, gains so much mastery over our matter that we can stand upright; in fact, our purely formal intellect rises to join God, who is pure form eternally.

But how exactly does form master matter? And why should there be gradients of this mastery? Although the answers to these questions are, properly speaking, ontological, the answers to them come not in the *Metaphysics*, or even the *Physics* -- the

¹ "thinking . . . about this world considered in abstraction from its impurities." Lear, 247.

² *Metaphysics* IV.I, 1003a21.

two treatises in which Aristotle's most famous ontological doctrines appear -- but instead in the *Heavens* and *Meteorology*. For in them we learn that besides the four sublunary elements, there is fifth, which is superlunary in origin.³ Sometimes Aristotle calls this *σῶμα πρῶτον*, elsewhere it goes by the name of *αἰθέρη* (ether). I refer you to three passages which together show this chameleon element playing a fundamental role in Aristotle's universe. In sum, its natural motion is circular, driving the heavenly bodies perfectly and eternally around the earth. By their motion along the border of the two realms, however, they stir the ether into the sublunary realm, where it is more prevalent near the border, but can even be found far below, as far as the surface of the earth, and even below it, where it is of course much rarer.

Down here, mixed in with the sublunary elements, its circular motions impart structure to them, actualizing their potentialities in direct proportion to its quantity. The measure of this quantity is 'natural heat', and Aristotle describes both natural heat and the cooking it effects in a long passage of *Meteorology* IV, which discusses this cooking or concoction, as *πέψις* is often translated. Appropriately enough, this long passage is more easily digested in three smaller parts. Here is the first part . . .

πέψις is a process in which the natural and proper heat of an object perfects the corresponding passive qualities, which are the proper matter of any given object. For when *πέψις* has taken place we say that a thing has been perfected and has come to be itself.

This is the most ontological part of the passage. To begin with, the natural and proper heat, while not named as such, seems to be ether; nothing else is up to the metaphysical tasks Aristotle soon sets it. For in this passage he equates the passive qualities of an object -- any object -- with its matter. Another way of describing these passive qualities in Aristotelian terms is as *potentialities*. He next describes *πέψις* as a

³ Reeve, n.7, p.14. There are few passages on ether, but its necessary role in Aristotle's universe can be reconstructed. Reeve assumes this reconstruction, which G. Freudenthal has performed in *Aristotle's Theory of Material Substance: Heat and Pneuma, Form and Soul*.

process which perfects – that is to say, actualizes – these potentialities, and we have already noted ether performing this role.

While the process is rather mysterious when applied abroad, as here, to *all* objects, there is nothing peculiar about it when it is kept close to its home -- that is, in the kitchen. After all, *πέψις* was originally a homely word: 'cooking' is much better than 'concoction'. Although Aristotle enlists it for a crucial role in his ontological campaign, it becomes obvious in the next part of this passage from the *Meteorology* that despite its incorporation into abstract ontology, Aristotle wished to preserve its concrete connotation:

It is the proper heat of a thing that sets up this perfecting, though external influences may contribute in some degrees to its fulfillment. Baths, for instance, and other things of the kind contribute to the *πέψις* of food, but the primary source is the proper heat of the body.

Baths cook flesh, at least when they are hot enough. This process perfects it *as food*, since flesh's proper heat, or quantity of ether, is insufficient on its own to do this. Not surprisingly, the form of flesh, or flesh actualized, is not food; this is a human goal, effected for our own nourishment, in order to sustain our *own* form, not that of the flesh we eat. But this passage claims that the primary source of *πέψις* is not the cooking pot but the body. What can this mean -- the body cooking food? The reference is medical, and can be explained by the examination of a few Hippocratic doctrines.⁴

A passage from the early Hippocratic treatise *Fleshes* describes digestion as a process in which the body heats food and by this heating extracts its nourishment:

⁴ Others have noticed the appearance of medical thought in Aristotle. G. E. R. Lloyd (1967) and Werner Jaeger (1957) have exposed it in Aristotle's ethical and political thought; V. P. Vizgin (1980) alone has noticed it in his metaphysical thought, even discussing this very same passage from the *Meteorology*. However, Vizgin's focus is not *πέψις* but instead Aristotle's notion of the elements as powers rather than qualities. This notion is drawn, he believes, from the Hippocratics.

For when food and drink collect in the stomach and intestines, and are heated, the vessels arising there draw off the finest and moistest part, leaving the thickest part behind, which turns to faeces in the lower intestines.⁵

Another Hippocratic passage, from the fourth-century treatise, *Places in Man*, extends the process of digestion from the body's heat to its mastery over food.

From the correct measure of foods the body is nourished equally and the foods are mastered by the body, but when more foods are administered than can, in changing to something different, be mastered, the foods take mastery, and when the body is mastered by the things administered to it, the same things that otherwise make it thrive prevail over the body and produce the opposite effect.⁶

Taken together, these two passages present a picture of *πέψις* rather like that found in Aristotle's *Meteorology*. Just as the philosopher has a body's quantity of natural heat, or ether, informing raw matter by mastering it, so too does the physician have the human body's heat mastering food in order to digest it. Moreover, the philosopher follows the physician by naming his rarefied, ontological process *πέψις*, after that most inglorious of all bodily processes, digestion.

This conception of digestion fit neatly with other doctrines of Greek medicine, especially its nosology. According to the Hippocratics, epitomized by *Nature of Man*, disease begins by a “disturbance in the composition of the constituents of the body,” the humors. If all goes well, according to W.H.S. Jones, the body tries to correct this disturbance by bringing “these irregularities to a normal state, apparently by the action of innate heat, which ‘concocts’ the ‘crude’ humors of the body,” re-integrating them into it.⁷ To the Greek physician, the ‘innate heat’ of this cooking was most obvious during the

⁵ *Fleashes* 13. Jouanna (1999) dates this treatise to the fifth century, although the ideas may survive from the sixth (pp. 391-392).

⁶ *Places in Man*, 43. Jouanna (1999) dates this treatise to the fourth century (pp. 404-405).

⁷ Jones, General Introduction to the Loeb.

fever that was a symptom of most Hippocratic cases.⁸ Its operation is evident in nearly every case of the *Epidemics*:

The patients frequently coughed up small, concocted sputa, brought up little by little with difficulty. Those exhibiting the symptoms in their most violent form showed no concoction at all, but continued spitting crude sputa.⁹

But we have already seen that the healthy body, without fever, possesses enough innate heat to digest by cooking, finishing what was begun over the fire and in the pot, and thereby integrating crude elements into the delicate humoral balance of the body. Organic bodies are uniquely able to digest, but they are not alone in possessing innate, natural, or proper heat; as has already been mentioned, every Aristotelian substance possesses this heat inasmuch as it has a form sustained by ether. But the human body does excel in the quantity of its innate heat. For it is naturally far warmer than the bodies of lesser animals, like cold-blooded frogs for example. Aristotle's ladder of nature can thus be ranked not only according to actuality, but also according to innate heat.

As for the exceptional heat of fevers, since some restored health while others augured death, the Hippocratics distinguished perfect from imperfect *πέψις*. In the perfect version, noxious humors are mastered by the heat, literally informed by it, and become re-integrated into a fully restored humoral balance.¹⁰ With imperfect *πέψις*, on the other hand, the offensive humors are not completely mastered, and so some excess of them will remain. If the so-called 'crisis' of the disease is successful, the body will expel this excess. Imperfect *πέψις* thus produces, quoting a case from the *Epidemics*, "crude and unconcocted evacuations, which change into bad abscessions."¹¹ These unconcocted

⁸ Hippocrates discusses fevers and their different cycles in detail in *Nature of Man*, 15. Apparently, malaria was a common affliction in the Aegean basin of antiquity, and victims of malaria experience intermittent fevers. Cf. Jones 1923, I, lvii. Jouanna 1992, 143 lists the diseases found in the Hippocratic Corpus that still "figure in the most recent dictionaries of medicine."

⁹ *Epidemics I*, First Constitution, 2.

¹⁰ *Epidemics I*, 11.

¹¹ *Epidemics I*, 11.

humors exit the body in one or both of two ways: by “the ordinary means of evacuation – mouth, bowels, urine, [and] pores,”¹² or by extraordinary means, meaning boils and the like. We are now in a position to appreciate the longest, third, and final part of the *Meteorology* passage in question:

In some cases of *πέψις* the end of the process is the nature of the thing – nature, that is, in the sense of the form and essence. In other cases it leads to some latent form which is attained when the moisture has acquired certain properties or a certain magnitude in the process of being broiled or boiled or of putrefying, or however else it is being heated; for then the thing has some use and we say that concoction has taken place. Must is an instance of this, and the matter in boils when it becomes purulent, and tears when they become rheum, and so with the rest. *πέψις* ensues whenever the matter, the moisture, is mastered. For the matter is what is determined by the natural heat in the object, and as long as the ratio between them exists in it a thing maintains its nature. Hence things like the liquid and solid excreta and waste-stuffs in general are signs of health, and *πέψις* is said to have taken place in them; for they show that the proper heat has mastered the indeterminate matter.¹³

If nothing else is clear about this passage, Aristotle is undeniably distinguishing here between two types of *πέψις*. In some cases, first of all, the process achieves “the nature of the thing,” which he also calls “the form and essence”. In these cases, the substance has become actualized, or what it most fully is. Quite literally, therefore, this is a perfect *πέψις*, although Aristotle seems to be extending the Hippocratic notion far beyond its original application. In the medical texts, for instance, a perfect *πέψις* achieved a perfect blending of humors; here in the *Meteorology*, by contrast, a perfect *πέψις* can distinguish things rather than blend them, actualizing their distinct form rather than breaking it down to create some mixture.

Such tensions remind us that no analogy is perfect – otherwise it would be an identity, rather than an analogy – but with each departure a philosopher drifts further from the images and thoughts that make sense of his claims. This danger makes clear

¹² Jones 1923, I, liii.

¹³ *Meteorology* IV 2 379b18 – 380a3.

why Aristotle wishes to preserve the original meaning of *πέψις*, and remind us of it, despite its tensions with his extended usages. The alternative is a technical term without meaning; a bloodless shell, so to speak; a formal notion without material content.

At any rate, in the second type of cases Aristotle mentions, *πέψις* appears imperfect: the form of the substance remains latent, and moist matter seems to be as yet unmastered by it. The resulting examples are must, pus, and rheum – the second and third of which are the very sort of humoral byproduct awaited by the Hippocratic physician throughout the *Epidemics* as the extraordinary sign of an imperfect *πέψις*. Moreover, the passage concludes with a fuller list of the usual signs of an imperfect *πέψις*, which our translator delicately renders as “the liquid and solid excreta”.

A perfect *πέψις* would assimilate into a body all the matter of ingested food, no matter how moist. But our food cannot be so digested because of its impurities; an imperfect *πέψις* is the best we can hope for from healthy digestion. Through innate, natural, or proper heat, healthy digestion integrates into our body as much of our food as it can, blending its elemental nourishment with the humors already in our body, always careful not to upset their balance. The residue, however – that which cannot be so integrated, the unconcocted byproducts of our digestion, the overly moist matter that escaped the mastery of form, the impurities, in short the piss and the shit – must be expelled.

We began examining this long passage from the *Meteorology* in order to answer crucial questions left unanswered by the *Physics* and the *Metaphysics*: How exactly does form master matter? And why should there be gradients of this mastery? We are now in a position to answer these questions: the forms result from circular motions of ether; *πέψις* is the process during which they are produced; and the ranks of the substances that they inform are inversely proportional to their distance from the superlunary realm whence came their ether.

πέψις thus plays a very important role in Aristotle's ontology, next in importance only to the central notions of form and matter, actuality and potentiality. In order to fully understand this putatively abstract science, then, this so-called science of being *qua* being,¹⁴ a student must understand *πέψις* as clearly as he understands form and matter, actuality and potentiality. With these other notions, there cannot be definitions or essences – the hallmarks of standard, deductive Aristotelian sciences – because they are primitives, the very tools with which we understand the necessity and significance of definitions themselves. We grasp these notions instead by analogy. First, by metaphors, and then by observation of their explanatory power in the various sciences.

Accordingly for *πέψις*. Unlike form and matter, however, which can be easily appreciated without much theoretical background, *πέψις* demands of us at least an introduction to Hippocratic medical theory. The *Meteorology* passage adduced cooking, which already seems a long way from the purified thought advertised by the *Metaphysics*. But, almost inevitably, it also adduced excreta. Were Aristotle to have been squeamish about waste, he could have discussed sexual reproduction instead, since the male is, according to him, a product of perfect *πέψις*, whereas we have imperfect *πέψις* to thank for females. The details of this claim are as complex as the details of digestion, but in the end it takes deep thought about semen and menses to fully understand it.

Consequently, in order to understand the most abstract and putatively rarefied of sciences, one must dwell upon impurities. This is not a trivial irony from which Aristotle could easily escape by simply admitting the role of these impurities in his ontology. So unlike the epistemologies of modernity that have alienated themselves from the world and seek somehow to return to it, Aristotle's boasts a close connection between the world and the mind that understands it. To understand something, Aristotle argued, is to assume

¹⁴ *Metaphysics* IV 1 1003a 21.

the very form of the understood in one's mind. In this way, to understand a frog is to abstract the form of the frog, its essence, its definition -- all of which are the same thing for Aristotle -- and incorporate them into one's own mind.

Thus, as an inquirer understands more highly actualized substances, his own mind, by assuming their forms, becomes itself more highly actualized. The picture is complicated by the fact that man's unique potentiality among animals is to understand, and he becomes actualized by any exercise of his understanding. But it is also true that he becomes more actualized in direct proportion to the actualization of the objects he understands. As the understood substances become less earthy, and more ethereal, so too does his mind become more ethereal and less earthy. After all, he is incorporating their forms into his own understanding.

Once a philosopher has mastered the individual, theoretical sciences, though, his next, and highest task is metaphysics: to consider the analogies between the lower sciences, seeing the central roles played in them by metaphysical notions such as form and matter, actuality and potentiality. In the final analysis, this is, according to Aristotle, to see God's role in the universe -- as pure form and pure actuality, underwriting the rest of existence by actualizing it. To see this role is to understand Aristotle's God, and thereby to assume the most fully actualized thing there is or could be: the necessarily and eternally actual, thought thinking itself. By understanding God, then, the philosopher assumes God's form, and since God is but pure form, this philosopher assumes, or perhaps even is assumed by, God.

The details are not exactly clear, to say the least. What does seem clear, however, is that the penultimate rung in that ascent to purity seems to involve a plunge back down into the impurities from which philosophers so often wish to escape.