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Scientific Realism and the Objects of Medicine in the Hippocratic Treatise *On the Art*

I

On the Art is a treatise in the Hippocratic Corpus that has been dated to 450–400 BCE.¹ It is a polemical work that defends the existence of medicine against detractors. In defense of the existence of medicine, the author employs indispensability arguments that purport to demonstrate that medicine must exist independently from human intellectual or practical activity because its existence is necessary to explain the efficacy of clinical practice. For this reason, the author is a realist regarding medicine. The import is that this work is one of the earliest scientific essays that intentionally advances a medical realism.

My method is the following. I argue that the author of *On the Art* advocates for scientific realism by situating the work in respect to the rise of the sophists and the *nomos* vs. *physis* debate. Once I contextu-

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¹ For a defense of this dating, see Alberto Jori, “Note per un’attribuzione del peri technes pseudoippicratico,” *Atti dell’Istituto Veneto di Scienze, Lettere ed Arte* 143 (1985): 245.

alize the piece, I analyze the two arguments in *On the Art II*, and I argue by contraposing spatiotemporalist, constructivist, and realist interpretations of the passage that the author grapples with the semantic stretch of the word εἶδος. Thereafter, I propose the arguments are best understood as indispensability arguments in which medical realism is defended in order to explain clinical practice.

II

Scholars categorize *On the Art* as one of the polemical writings from the Hippocratic Collection. As a polemical writing, a primary goal of the author is to refute detractors of medicine who argue against medicine as an expertise or science.² The author of *On the Art* clarifies their understanding of these arguments against medicine when they argue that one cannot know what does not exist.³ According to the author's argument, to argue that medicine is not a science is to assert that medicine does not exist. I will argue that the author's argument for the existence of medicine represents the medical author's realism regarding sciences, and in particular medicine. The claim is that the effectiveness of sciences depends on their existences. In order to make sense of these claims, I think it is necessary to situate *On the Art* within the larger context of the *nomos* vs. *physis* debate.

After Athens' rise to power in the ancient Greek world through its leadership during the Persian War, a sort of itinerant teacher referred to

² I make this equivalence between expertise and science with full knowledge that our contemporary understanding of science is anachronistic and to that degree inappropriate. Nonetheless, I believe the word science, understood broadly to connote the field of expert knowledge, is appropriate. In addition, insofar as this is the beginning of the contemporary science of medicine in the West, I believe my decision is defensible. I will employ the words expertise, craft, art, and science interchangeably throughout the rest of the essay.

³ *On the Art II*.

as sophist became prevalent and influential.⁴ Sophists claimed to teach skills essential to a successful and powerful life. The claim can be summarized accordingly: whenever one wants to exercise control over the affairs of the city or public life, one needs to speak and argue persuasively, and one should be able to do this in regard to any subject and in respect to any position on any subject.⁵

As advocates of the power of speech and argument, sophists' philosophical positions have been associated with relativism.⁶ Two sorts of relativism are important to understand *On the Art*. Relativism in respect to metaphysics is the position that there is not an objective way that the world is. Epistemological relativism claims that there cannot be objective knowledge of reality. Although it may not be radical relativism in accordance with some scholarly interpretations, metaphysical and epistemological relativism are conveyed in Protagoras' claim that humans are the measure of that which exists and that which does not exist.⁷ Furthermore, development of the skill to argue any side of an issue, as demonstrated in the *Dissoi Logoi*, connects without difficulty to relativism because it is not necessarily accompanied by a commitment to the pursuit of truth.⁸

⁴ Michael Gagarin, *Antiphon the Athenian: Oratory, Law, and Justice in the Age of the Sophists* (Austin: University of Texas Press, 2002), 13–16. Kerferd argues that Pericles played a key role in the sophist phenomenon in addition to Athens' social situation. See G. B. Kerferd, *The Sophistic Movement* (Cambridge: Cambridge University Press, 1981), 15–23. For another survey of the sophists, see W. K. C. Guthrie, *The Sophists* (Cambridge: Cambridge University Press, 1971).

⁵ Some have chosen to categorize this skill under the term rhetoric. See Guthrie, *The Sophists*, 44. Gagarin argues for the use of *logos* to construe a broader area of interest (Gagarin, 23–31).

⁶ On the sophists and relativism, see Gagarin, *Antiphon the Athenian*, 31–36.

⁷ Diels, Hermann, and Walter Kranz. *Die fragmente der Vorsokratiker*. 3 vols. Dublin: Weidmann, 1972, 80 B 1 (this will henceforth be called *D-K*).

⁸ For a reaction against sophism and its ability to teach this kind of persuasion, see Aristophanes' *Clouds*.

The sophists gave rise to what is called the *nomos vs. physis* debate.⁹ *Nomos* refers to that which dependently develops upon human activity. Anything dependent upon humans is convention. If something is convention, it could be different than it is. *Physis* refers to the nature of a thing, in which nature connotes the way something is independent from human actors. As relativists, sophists use argumentation to reduce a belief or an institution widely perceived to be natural to human convention. This distinction between convention and nature produced consequences for ethical and political philosophies. Antiphon's *Truth*, a prime example of *nomos vs. physis* literature, juxtaposes human and natural laws and advises that it is most beneficial for one to follow human law when under the eyes of other people, but to follow natural law when unobserved.¹⁰

On the Art addresses an audience which is familiar with detractors of expertise, including medicine, "who make an art of demeaning the arts."¹¹ Although the identity of the detractors is uncertain, it plausibly includes sophists on the grounds that sophists helped initiate the *nomos vs. physis* debate, wherein they attempt to reduce nature to convention. Whether Protagoras is one of these antagonists, Plato's attribution to him of attacks on the expertise provides evidence that there were some who did slander medicine, contributing to a situation in which medicine and the other fields of expertise were forced to perform introspective analyses and apologetics. When that sophistic practice is applied to medicine, a sophist, or a sophist's convert, would argue that medicine is not nature but convention. The assertion that medicine is

⁹ For an overview of *nomos vs physis*, see Guthrie, *The Sophists*, 55–134.

¹⁰ *D-K* 87 B 44. See Mauro Bonazzi, "Ethical and Political Thought in Antiphon's *Truth and Concord*," in *Early Greek Ethics*, ed. David Conan Wolfsdorf (New York: Oxford University Press, 2020), 149–168.

¹¹ *On the Art I*; translation in Joel E. Mann, *Hippocrates, On the Art of Medicine* (Boston: Brill, 2012), 57.

convention, not nature, indicates that medicine does not align with some objective reality and that there cannot be objective knowledge of medicine. In other words, clinical practice does not work because it carves nature at the joints to correctly identify the ill person's disease. There is not an objective disease, and there cannot be objective knowledge by which one can identify a disease. On my re-creation, the sophistical argument against medicine as an expertise is an anti-realist argument.

III

After the above summary of the context of *On the Art*, I turn now to the passage of the two primary apologetic arguments for medicine. My purpose in the following sections is to demonstrate that these are realist arguments for medicine that are best understood as indispensability arguments. For my purpose, an indispensability argument asserts that there is ample reason to believe X exists if X cannot be eliminated without explanatory loss. Substituting medicine for X yields that there is ample reason to believe medicine exists if medicine cannot be eliminated without explanatory loss. Explanatory loss would accrue regarding the alleged evidence of successful clinical practice if the scientific theory behind that practice were not true. As I shall argue, the author of *On the Art* believes that for medicine to exist, the objects of medical theory must exist; *On the Art* argues for the existence of the science of medicine by providing two arguments for the existence of the objects of science in general as indispensable.

It seems quite clear to me that, on the whole, there is no art that is not, since it's just absurd to believe that one of the things-that-are is not.

For what being could anyone observe of the things-that-are-not and report that they are? For if indeed it is possible to see the things-that-are-

not, just as it is to see the things-that-are, I don't know how anyone could believe of those things that it were possible both to see with his eyes and to know with his mind that they are, that they are not. Isn't it rather more like the following? Whereas the things-that-are always are in every case seen and known, the things-that-are-not are neither seen nor known. Accordingly, the arts are known only once they have been taught, and there is no art. that is not seen as an outgrowth of some form. In my opinion, they acquire their names, too, because of their forms. For it's absurd—not to mention impossible—to think that forms grow out of names: names for nature are conventions imposed by and upon nature, whereas forms are not conventions but outgrowths.¹²

According to the author, the existence of the arts can be detected perceptibly or intelligibly. Art is described as an outgrowth of an εἶδος. Prior to Plato and 450 BCE, scholars report that the Greek word εἶδος means bodily form, outer visible form, inner form, or more generally shape.¹³

¹² *On the Art II*; translation in Joel E. Mann, *Hippocrates*, 24.

Δοκεῖ δὴ μοι τὸ μὲν σύμπαν τέχνη εἶναι οὐδεμία οὐκ εὐδῶσα· καὶ γὰρ ἄλογον τῶν ἐόντων τι ἤγεισθαι μὴ ἐνεόν· ἐπεὶ τῶν γε μὴ ἐόντων τίνα ἂν τίς οὐσίην θεησάμενος ἀπαγγεῖλειεν ὡς ἔστιν; Εἰ γὰρ δὴ ἔστι γε ἰδεῖν τὰ μὴ ἐόντα ὡς περ τὰ ἔοντα, οὐκ οἶδ' ὥπως ἂν τις αὐτὰ νομίσειε μὴ ἐόντα ἅ γε εἶη καὶ ὀφθαλμοῖσιν ἰδεῖν καὶ γνωμῆ νοῆσαι ὡς ἔστιν. Ἄλλ' ὅπως μὴ οὐκ ἦ τοῦτο τοιοῦτον· ἀλλὰ τὰ μὲν ἐόντα αἰεὶ ὀράται τε καὶ γινώσκεται, τὰ δὲ μὴ ἐόντα οὔτε ὀράται οὔτε γινώσκεται. Γινώσκεται τοίνυν δεδιδραγμένων ἤδη τῶν τεχνέων καὶ οὐδεμία ἐστὶν ἢ γε ἕκ τινος εἶδους οὐκ ὀράται. Οἶμαι δ' ἔγωγε καὶ τὰ ὀνόματα αὐτὰς διὰ τὰ εἶδεα λαβεῖν· ἄλογον γὰρ ἀπὸ τῶν ὀνομάτων ἤγεισθαι τὰ εἶδεα βλαστάνειν καὶ ἀδύνατον· τὰ μὲν γὰρ ὀνόματα φύσιος νομοθετήματ' ἐστὶν, τὰ δὲ εἶδεα οὐ νομοθετήματα, ἀλλὰ βλαστήματα.

Working with the two manuscripts, A and M, that are believed to have come from the original itself, Gomperz transposed φύσιος to the position after βλαστήματα. *Die Apologie der Heilkunst. Eine griechische Sophistenrede des fünften vorchristlichen Jahrhunderts*, 2nd ed. (Leipzig: Viet & Comp, 1910). Following the reasoning of Mann (2012, 104–105), I would let it stand after ὀνόματα.

¹³ *LSJ*, s.v. εἶδος.

Εἶδος appears in several extant medical writings in accordance with the meaning visible form.¹⁴ Contextual evidence suggests that *On the Art* also employs these earlier and nontechnical meanings. Nonetheless, on the acknowledgement that medical texts do engage in the semantic stretch of words towards technical connotation, it is possible that the author engages in the semantic stretch of εἶδος to capture the idea of kind or type.¹⁵ In light of the terseness and ambiguity of the passage, the author's argument could be interpreted as representative of different contemporary metaphysical positions with respect to the objects of medicine, namely spatiotemporalism, constructivism, and realism. My tasks are to exposit the arguments, to juxtapose those different interpretations of the author's metaphysics, and to determine whether those different interpretations affect the author's position on the existence of medicine.

The place to begin for analyses of the arguments in the passage is with the sentence that introduces the author's apologetic intent: "Isn't it rather more like the following?"¹⁶ This is the sign that what follows is the author's explanation. The author continues:

Whereas the things-that-are always are in every case seen and known, the things-that-are-not are neither seen nor known.¹⁷

¹⁴ For the literature on εἶδος in the Hippocratic Collection and in Greek literature in general, see A. E. Taylor, *Varia Socratica* (Oxford: Clarendon Press, 1911) and Fritzgregor Edt Hermann, *Words and Ideas: The Roots of Plato's Philosophy* (Swansea: The Classical Press of Wales, 2007). For a contrasting take from Taylor's see C. M. Gillespie, "The Use of Εἶδος and Ἰδέα in Hippocrates," *The Classical Quarterly* 6, no. 3 (1912): 179–203. See also Gerald Frank Else, "The Terminology of the Ideas," *Harvard Studies in Classical Philology* 47, (1936): 17–55.

¹⁵ Mark J. Schiefsky, *Hippocrates: On Ancient Medicine* (Boston: Brill, 2005), 260–263.

¹⁶ *On the Art* II.

¹⁷ *Ibid.*

According to the author, if something exists, it must be able to be seen or known.¹⁸ The author has previously rejected the claim that what does not exist can be seen and known on the grounds that detectability by human faculties would indicate existence, not non-existence:

For if indeed it is possible to see the things-that-are-not, just as it is to see the things-that-are, I don't know how anyone could believe of those things that it were possible both to see with his eyes and to know with his mind that they are, that they are not.¹⁹

Given that the goal is to argue for the existence of the sciences, we expect the next line to specify how the sciences can be seen or known. Our expectations are not disappointed. Accordingly, the arts are known only once they have been taught, and there is no art that is not seen as an outgrowth of some form.²⁰

Sciences are seen and known when they are taught. For something to be taught, it must have a few characteristics, included among which is that one can be correct or incorrect regarding the objects of that art.²¹

¹⁸ Compare this to an interpretation of Protagoras' self-professed agnosticism or atheism in which he is taken to argue that what is not able to be known cannot be said to exist. Tim Whitmarsh, *Battling the Gods: Atheism in the Ancient World* (New York: Penguin, 2015), 88–89. Protagoras *D-K* 80 B 4. For a treatment of *On the Art's* parallels with various Presocratic thinkers, see Mann, *Hippocrates, On the Art...*

¹⁹ *On the Art* II.

²⁰ *Ibid.*

²¹ David Roochnik, *Of Art and Wisdom: Plato's Understanding of Techne* (University Park: The Pennsylvania State University Press, 2007), 42–57. *On the Art* V. *On the Art* I asserts that the apologetic aim of the treatise is suitably prepared by medicine itself. I believe the author intends that the demonstrability of what must be true if medicine is a science is what makes the author prepared to defend it. In other words, the author is saying, I was taught medicine and I can teach medicine because the objects of medicine exist and have been discovered so my defense of medicine is easy work for those who understand.

Teachability is then directly associated with εἶδος as the object upon which the pedagogical claim stands. An εἶδος is manifest in sensible objects. I believe the clear intention is that many sensible objects share a common εἶδος in respect to which some science is discovered and thereafter can be taught. The sciences are known through their teachability because their existence is proven or disproven by the fact that their work relates to an object of concern and their effect in regard to that object is thereby demonstrable or not. When a science can be taught, according to the author, it becomes absurd to claim it does not exist.

It seems quite clear to me that, on the whole, there is no art that is not, since it's just absurd to believe that one of the things-that-are is not. For what being could anyone observe of the things-that-are-not and report that they are?²²

The looming question in regard to εἶδος is its ontological status; what sort of object is it? I believe the passage represents scientific, in this case medical, realism on the grounds that only if medicine exists can the efficacy of clinical practice be satisfactorily explained. I derive support for my claim from the apologetic purpose of the passage because the existence of experts indicates that one can be correct or incorrect about the objects of their science. I find further support for my position by looking to another argument for scientific realism that is estimated to be temporally close to *On the Art*. Plato's argument from the sciences asserts that the existence of the sciences can be satisfactorily explained only if for each science there is an εἶδος, a form for Plato.²³ Aristotle's criticism is that Plato did not successfully demonstrate that this εἶδος is identical with what he refers to as a Form, i.e., an intelligible, unchanging, eternal object of knowledge. I

²² *On the Art* II.

²³ "If every science does its work by referring to some one and the same thing, and not to any particular thing, there must be, in the case of each science, something else apart from sensible things which is eternal, and a model of the things that come to be in

believe that the similarity of the two arguments is evidence that the medical author is an advocate of medical realism on the grounds that the objects of medicine exist. In the spirit of Aristotle, however, there is not sufficient evidence for conclusive proof about the medical author's belief regarding the ontological status of an εἶδος as an object of medical knowledge. Nonetheless, by arguing that the sciences are knowable through their instruction, the author is asserting that that by which medicine does its work grounds the epistemic claim of the expert and must be nature, not convention.

In the second argument of the passage, the author describes the existence of εἶδος in organic, causal language, βλαστήματα, language recalling the relation of children to parents.²⁴ No small matter depends on what precisely the author intends by that choice description. Prima facie there is little in the way to interpret the last occurrence of εἶδος in accordance with its common usage, as visible shape, and I do believe the author expected his audience to have that in mind. However, the context of the passage may demonstrate a stretch of the semantics of εἶδος beyond that standard use. To put it in our modern terminology, the author is grappling with the metaphysics and epistemology of abstraction and abstract objects.²⁵

each science. But the Idea is a thing of this sort. Again, the things of which there are sciences are; but the sciences deal with certain things apart from particular things, for these latter are unlimited and indefinite, whereas the objects of the sciences are determinate (horismenos). Therefore, there are certain things apart from particular things, and these are the Ideas. Again, if medicine is the science not of this particular health but simply of health, there will be a health-itself... And these things are the ideas." Alexander, *Metaphysics*, 79.1–15; translated in Alexander of Aphrodisias, *On Aristotle's Metaphysics* 1, ed. Richard Sorabji, trans. William Dooley (New York: Bloomsbury), 2014, 115–116.

²⁴ *LSJ*, s.v. βλαστήματα.

²⁵ For a discussion of abstraction in ancient Greek Philosophy, see Christoph Helmig, *Forms and Concepts: Concept Formation in the Platonic Tradition*, vol. 5, *Commentaria in Aristotelem Graeca et Byzantina* (Berlin: De Gruyter, 2012).

Here is how I believe this organic description relates to an argument for the existence of a science. The science of medicine develops from concern and inquiry into some εἶδος. If there is to be a genuine science of that respective εἶδος, which is called medicine, then that εἶδος must exist. With just a single additional step of reasoning, we get a remarkable similarity to the Argument from the Sciences. The εἶδος must be some one character that is true of the many sensible objects because those are offshoots from some root. I think the best understanding of the organic causal language is that those visible shapes are themselves explained by real objects that undergird them so that the author's use of εἶδος is playing at two levels: on one hand, there are visible shapes, i.e., offshoots, that are detectable in sensible objects; on the other hand, those visible shapes grow out of some shared attribute that explains their commonality, i.e., the root, and that shared attribute is the object of scientific explanation.

I believe evidence for my claim can be found in the author's argument for the existence of medicine on the grounds that the therapeutics of medicine work on account of something (διὰ τι) which can be found even in unexpected, nonmedicinal objects.

Seeing then that there is nothing that cannot be put to use by good physicians and by the art of medicine itself, but in most things that grow or are made are present τὰ εἶδεα of cures and of drugs, no patient who recovers without a physician can logically attribute the recovery to spontaneity. Indeed, under a close examination spontaneity disappears; for everything that occurs will be found to do so through something (διὰ τι), and this through something (διὰ τι) shows that spontaneity is a mere name and has no reality. Medicine, however, because it acts through something (διὰ τι), and because its results may be forecasted, has reality, as is manifest now and will be manifest forever.²⁶

²⁶ *On the Art VI.*

That on account of something (a cause) is taken as evidence against the existence of spontaneity because spontaneity, in accordance with the author's assertions about detectability, cannot be seen or known in principle; the moment that one posits that there is a cause, spontaneity ceases to be a genuine option for explanation. Returning to the context of *nomos* vs. *physis*, the postulation of a cause in refutation of spontaneity relates to an argument from *physis* intended to dispel the *nomos* of an argument from spontaneity. Without explicitly asserting it, the author associates *διὰ τι* with an *εἶδος* that is present in natural and artificial objects that can operate in therapeutics, which I take to mean that the author believes there is an *εἶδος* present in all sensible objects, but nontherapeutic objects do not have an *εἶδος* useful for therapeutics. The author takes *εἶδος* to be an object of causality, the presence of which affects significant and measurable change. When I insert this back into the organic causal language of parent and offspring, it yields that *εἶδος* is a natural object that explains the attribute or quality of a group of sensible objects. Thereby, the additional step of reasoning for which I am arguing, i.e., the object of science is some one character that is true of many sensible objects, is supported.

I believe that this is further demonstrated by the author's use of *εἶδος* in another passage:

For in that they committed themselves with confidence to the [science], they thereby acknowledged also its *εἶδος*, and when its work was accomplished they recognized its power.²⁷

When the author asserts that the patient who relies on medicine acknowledges the *εἶδος* of medicine, the author intends that they acknowledge it is by nature, not convention. Those committed recognize it is by nature because of its power, which, returning to the previ-

²⁷ *On the Art* IV.

ous refutation of spontaneity, is accounted for by the cause, which explains medicine's consistent efficacy. This completes the prior recognition of medicine's εἶδος. Medicine possesses the power to cure because it has an εἶδος that explains its effectiveness.

To summarize what I have argued so far, the author is grasping after a language to express the process of intellection for which we readily have a name: abstraction. For example, the doctor abstracts from all the many healthy bodies an idea of health. In addition, the author is struggling to voice the ontology of the abstract object if it is to serve the explanatory purpose that science requires of it. For example, is the abstract object health a spatiotemporal, conceptual, or nonspatiotemporal object?

The lack of detail in the passage suggests the author did not possess a clear view of the ontology of an εἶδος. Nonetheless, I believe there is enough evidence to reason that some ontological positions are not genuine options for the author. The author's thought is compatible with some variants of ontological spatiotemporalism and ontological realism. It is incompatible with constructivism and some sorts of spatiotemporalism. Spatiotemporalism encompasses any ontological theory in which all existent objects are extended in space and time. Constructivism posits that mind-dependent, nonspatiotemporal objects exist in addition to spatiotemporal objects. Realism asserts that mind-independent, nonspatiotemporal objects exist in addition to spatiotemporal objects. If the author implies ontological spatiotemporalism, I believe it is incompatible with a sort of nominalism that, in my opinion, would make the argument for the existence of the science of medicine insufficient. Nominalism is a sort of spatiotemporalism that reduces existent objects to concrete particulars, such as can be pointed to by a finger, while rejecting the existence of spatiotemporal universals.

I will consider resemblance nominalism insofar as I believe it is the strongest variant of nominalism that could fit the arguments in *On the Art*. Someone could argue that the author's account appears similar to

a resemblance nominalism. The language of parent and offspring could be interpreted as the selection of paradigm cases to which other sensible objects can be related by means of their resemblance. However, resemblance must be taken as a brute fact behind which there can be nothing further. I believe this undermines the apologetic purpose of the author. The author is inspired to defend the science of medicine's ability to explain disease and the mechanisms by which it is treated successfully. If it is a resemblance nominalism, it must take resemblance to the paradigms as an explanation for the character of a spatiotemporal object. By contrast, the author asserts that a sensible particular has a power to produce a specific result by virtue of its possession of some εἶδος. Resemblance nominalism would assert that it does not have that affect because of its εἶδος, but because of its resemblance to some paradigms. Simply put, a resemblance nominalism asserts the brute fact of resemblance, and this completely undercuts the author's appeal to a *shared* εἶδος as productive of the changes in question. Therefore, a resemblance nominalism would be insufficient to account for the objects of the science of medicine having the characters they have in fact in accordance with the author.

Neither could the author be a proponent of constructivism in accordance with the arguments of *On the Art*. In the final sentences of the passage from *On the Art*, the author offers a separate argument regarding linguistic conventionalism and realism for the existence of the abstract objects of science.²⁸ Contextually speaking, the assertions of

²⁸ Jacques Jouanna recognizes a connection between the theory of language endorsed by the doctor and Plato's *Cratylus* with respect to a debate about language. Jacques Jouanna, *Hippocrates*, trans. M. B. DeBevoise (Baltimore: The Johns Hopkins University Press, 1999), 247–48, fn 13. Others point out this connection, too: see Alberto Jori, *Medicina e medici nell'antica Grecia: Saggio sul peri technes ippocratico* (Bologna and Naples: Il Mulino, 1996), 380; and Mario Vegetti, *Technai e filosofia nel Peri Technes pseudo-ippocratico. Atti della Accademia della Scienze di Torino* 98 (1964): 368.

the doctor belong to a period when thinkers were considering the nature of language and its relation to what is. Again, I believe it is profitable to look to Plato to assist in the goal of interpreting the passage in *On the Art*.

In *Cratylus*, Socrates' interlocutor Hermogenes represents a conventionalist theory of names whereby the name which a linguistic community composed of one or more persons agrees upon is the correct name, whatever the name may be.²⁹ Accordingly, no standard external to that linguistic community exists by which the name can be judged on correctness. Hermogenes asserts this conventionalism while nonetheless agreeing to the existence of objects of *technai* on the grounds that in science correctness, truth, and wisdom exist. Socrates argues for realism from this point. His position is that names have functions and their success or failure at performing those functions and achieving their goals determines their truth or falsity as names.³⁰ Plato argues that the commitment to realism regarding objects of *techne* is incompatible with linguistic conventionalism concerning the truth of names. Although a name may be created by a linguistic community, the standard by which the correctness of the name is judged is determined by the objective accuracy concerning the object it picks out. Since Hermogenes agrees that those objects exist, a name is a true name if it correctly associates and delineates its object from other objects; while the name itself is admittedly a convention, the requirements of true naming restrict the scope of conventionalism. By convention the multiplicity of human languages exists, but by nature the names in those languages are true or false.

Regardless of whether the author of *On the Art* would give assent to Plato's position, what can be asserted regarding the author's own

²⁹ Plato, *Cratylus*, 384 c 8 – d.

³⁰ Cf. Scott Berman, "Plato's Refutation of Constructivism in the *Cratylus*," *The Journal of Neoplatonic Studies* 2, no. 2 (1994): 50–51.

argument by elucidation of Plato's is that it likely intends to support medical realism.³¹ Their similarity warrants at least that concession.³² I am not suggesting that the medical author was an advocate of Forms before Plato or Aristotelian universals before Aristotle; there is not enough evidence to make a productive comparison. Set in the socio-historical context of the *nomos* vs. *physis* debate, the argument can be understood as a defense of the author's pedagogical claim. In my opinion, the argument is that medicine is in fact a science, and it is a science because an εἶδος exists, which is an abstract object. This εἶδος meets the need for another kind of cause that explains why sensible things have the identities they do as cures and drugs. The possession of that εἶδος serves as a metaphysical explanation for why each sensible object that has that attribute has similar powers to other sensible objects like it. Additionally, these abstract objects also serve in an epistemological explanation for why medicine is an expertise because it is by knowing these abstract objects and correctly identifying them in sensible objects that doctors can be said to have an expert knowledge that laypersons do not, a key feature in an argument for the existence of a science. I think it is likely that the author's intention is that εἶδος cannot be caused by naming because, if it were, it would not be able to explain the existence of the science of medicine by serving as a metaphysical explanation for sensible objects' qualities, nor would it explain why a doctor has true knowledge when laypersons do not. The author yields to *nomos* the distinct variety of human language, while reserving for *physis* the suitability of names to preserve truth and cor-

³¹ *On the Art's* author could be a subscriber to Plato's position as argued, but the author's curt statement provides no room for strong conviction. David Sedley remarks on this surprisingly close relation between *On the Art* and *Cratylus* as he perceives it in his book *Plato's Cratylus* (New York: Cambridge University Press, 2003), 72.

³² Cf Mann, *Hippocrates, On the Art...*, 102. For a contrasting position, see Gillespie, "The Use of Εἶδος and Ἰδέα in Hippocrates."

rectness regarding the objects of science and to support the prior assertion that the sciences are known through teaching.

IV

I have defended my position that *On the Art* II gives two arguments in support of the existence of the science of medicine. The first argues that medicine exists because observation of visible forms attests the existence of types or kinds. The second argues that scientific kinds exist because the successful functioning of names requires those kinds even while human agreement plays a necessary but not sufficient role in naming those kinds. Granted the accuracy of my position, *On the Art* is one of the earliest defenses of scientific realism.

Now that I have given my interpretations of the arguments, I want to categorize the arguments to provide my position further clarity. In my opinion, the two arguments are best understood as indispensability arguments. An indispensability argument proceeds by attempting to demonstrate that the effectiveness of a science can be explained only if that science, and its objects, exist. It is an argument type that is grounded in a presupposition: if a science and its objects did not exist by nature independently from humans, then the fact that science is able to consistently produce predictable change in the world would be a matter of miracle, or in the words of the author of *On the Art*, spontaneity.³³ For that reason, *On the Art* is one of the earliest examples of scientific realism and indispensability argumentation. Even so, the ontology of the objects of medicine is never clarified by the author's arguments. The objects of medicine could be spatiotemporal universals

³³ I take Hilary Putnam's "no miracles" argument to be an indispensability argument that is an inference to the best possible explanation. Hilary Putnam, *Mathematics, Matter and Method* (New York: Cambridge University Press, 1975), 69–75.

present in concrete particulars or nonspatiotemporal entities. The specific details of the ontology of medicine's objects does not affect the author's defense of medical realism.



Scientific Realism and the Objects of Medicine in the Hippocratic Treatise *On the Art*

SUMMARY

On the Art is a polemical treatise in the Hippocratic Corpus that has been dated to 450–400 BCE. As a polemical work, the author defends the existence of medicine against detractors. I argue that the author employs two arguments for scientific realism in defense of medicine that are among the earliest known. First, I situate the work in the context of the sophistic movement and the *nomos* vs. *physis* debate. Second, I analyze the two arguments in *On the Art* II, and I argue by contraposing spatiotemporalist, constructivist, and realist interpretations of the passage that the author grapples with the semantic stretch of the word εἶδος. Thereafter, I propose the arguments are best understood as indispensability arguments in which medical realism is defended in order to explain clinical practice.

Keywords: scientific realism, medicine, ancient Greek philosophy, sophism, abstract objects, ontology

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