

Ια3: Wisdom as *περὶ ἀρχῶν*: expectations of the ἀρχαί and the competing disciplines

Ἀρχαί and causes

What does Aristotle mean by the main conclusion of A1-2, that σοφία is knowledge *περὶ ἀρχῶν*? It is often supposed that "ἀρχή" here is just a synonym for "cause": certainly the words are often used interchangeably, and *Metaphysics* Δ1, saying that "causes are said in the same number of ways [as ἀρχαί], since all causes are ἀρχαί" (1013a16-17), might lead us to think that the words are equivalent, or, if there is a difference, that "ἀρχή" is broader than "cause."¹ But here in *Metaphysics* A1-2 Aristotle is using "ἀρχή" in a strict sense, and not in the broad sense that is coextensive with "αἴτιον". In A1 Aristotle describes other kinds of knowledge, τέχνη and ἐπιστήμη, as being knowledge of causes, but not as *περὶ ἀρχῶν*: indeed, since Aristotle consistently thinks that every science is knowledge of causes, he could not have tried to specify the particular science that is wisdom by saying that it is *περὶ ἀρχῶν*, if "ἀρχή" were equivalent to (or broader than) "cause."² Since A1 argues that the different kinds of knowledge, as they come to know higher and higher causes, come closer to σοφία, it is plausible to think that "ἀρχή" means specifically first cause. Indeed, Aristotle says in A1 that everyone agrees that wisdom is *περὶ τὰ πρῶτα αἴτια καὶ τὰς ἀρχάς* (981b27-9), and in Γ1 that we are searching for *τὰς ἀρχὰς καὶ τὰς ἀκροτάτας αἰτίας* (1003a26-7); and α2 treats it as equivalent to say that there is an ἀρχή and that the causes of things do not regress ad infinitum (994a1-2).

But there is also a further semantic difference between ἀρχή and αἴτιον, and this holds even when ἀρχή is used in a broad sense coextensive with αἴτιον. Aristotle refers to such a difference, without saying what it is, when he suggests that being and unity may be "the same and one nature by being consequences of each other, like ἀρχή and cause, without being expressed in a single definition" (Γ1 1003b22-5). And the difference is not simply an Aristotelian subtlety, but reflects broader facts of Greek philosophical language. An αἴτιον is always an answer to a question why or διὰ τί, that on account of which something is.³ So Aristotle tries to motivate his systematic discussion of αἴτια in *Physics* II by saying that we are aiming at knowledge, and that "we do not think we know each thing until we have grasped τὸ διὰ τί with regard to each thing, and this is to grasp [its] first αἰτία" (II,3 194b18-20); at the beginning of *Physics* II,7, summarizing the discussion, he says "it is clear that there are αἴτια, and that they are as many in

¹note, here or in the previous sections, against another way of thinking about ἀρχαί, illustrated from Wieland's *Die aristotelische Physik* p.52ff, where ἀρχαί are either Sätze or Begriffe, but are not themselves things, and he stresses in particular that they cannot exist separately from what they are principles of. (his evidence is *Physics* I,2 that an ἀρχή must be an ἀρχή of something or of some things, but that doesn't mean it can't exist separately; he also cites *Metaphysics* A9 saying that the οὐσία of something can't exist separately from what it's the οὐσία of, but that's about οὐσία, not about ἀρχαί. he is mainly concerned with the *Physics*, and it's true that matter and form don't exist separately from composites--which isn't to say they're concepts rather than things--but this doesn't apply to the ἀρχή κινήσεως, and esp. not to the first mover of *Physics* VIII,10.) Wieland is, I suppose, following what "principle" or "Prinzip" means for some modern philosophers (connected with the view that they are not remote things to which we must ascend up a causal chain, but presuppositions of ordinary experience which we must uncover); which is a good reason for avoiding these translations

²thus *Metaphysics* E1 1025b6-7 *πᾶσα ἐπιστήμη διανοητικὴ ἢ μετέχουσα τι διανοίας περὶ αἰτίας καὶ ἀρχάς ἐστὶν ἢ ἀκριβεστέρας ἢ ἀπλουστέρας ...* maybe some thoughts about what the last two words might mean (Ross thinks it's about the degree of rigor of the reasoning; I doubt that)

³while Plato seems sometimes to distinguish between αἴτιον and αἰτία (cite Frede), in Aristotle the terms seem completely interchangeable

number as we have said, for τὸ διὰ τί includes so many [senses] in number" (198a14-16), supporting this by pointing out four ways in which we say that one thing is or comes about διὰ another. The equation between αἴτιον and τὸ διὰ τί is not a peculiarly Aristotelian premiss, but something Aristotle assumes his readers will accept even if they do not accept his view of how many kinds of αἴτια there are; the same equation is reflected in what other Greek philosophers say about αἴτια. Plato says in the Cratylus that the cause is that on account of which [δι' ὃ] something comes-to-be or happens [γίγνεται, 413a4-5]; in the Phaedo he says that the project of περὶ φύσεως ἱστορία is to know "the causes of each thing, why [διὰ τί] each thing comes-to-be and why it perishes and why it is" (Phaedo 96a8-9), and he rejects the physicists' claim that Socrates' bones and sinews are the αἴτια of his remaining in prison, on the ground that it would be absurd to say "that I am doing what I am doing διὰ these things" (99a8). So too, after Aristotle's time, the Stoics Zeno and Chrysippus and Posidonius all define αἴτιον as δι' ὃ (Stobaeus I,138 = Arius Didymus Fr. 18 Diels), although unlike Aristotle they think that only efficient causes are αἴτια.

By contrast, the notion of ἀρχή is not so closely connected with explaining why something has come about: Alexander of Aphrodisias explains the difference by saying that the αἴτιον is δι' ὃ and the ἀρχή is ἐξ οὗ, or that the ἀρχή is "the first" [τὸ πρῶτον] of the thing (In Met. 247,13-15). Indeed, the basic sense of ἀρχή, in Aristotle and in Greek philosophical language generally, is the beginning, either the first part of something, or what is entirely prior to the thing (so in Metaphysics Δ1, after listing several meanings of ἀρχή, Aristotle says that what they all have in common is that the ἀρχή is "the first [thing] whence something either is or comes-to-be or is known," some of these being internal [ἐνυπάρχουσαι] and others external, 1013a17-20). The question whether X is an ἀρχή of Y is thus closely bound up with the question whether X is prior to Y: indeed, the disagreements about ἀρχαί that Aristotle describes in the Metaphysics are almost always disagreements about what is prior or first. When Aristotle says that, according to the consensus of everyone with serious claims to wisdom, wisdom is knowledge περὶ ἀρχῶν, he means that it is knowledge about the first things absolutely, i.e. the thing, or the several independent things, that are prior to absolutely everything else. So in trying to refute something that one of his predecessors has claimed as an ἀρχή, Aristotle typically argues that something else would be prior to it: thus "the ἀρχή must not to be said of some subject: for [if it were] there will be an ἀρχή of the ἀρχή: for the subject is an ἀρχή, and seems to be prior to the predicate" (Physics I,6 189a30-32). This would not hold for every ἀρχή in the loose sense which is coextensive with "cause"; "the ἀρχή" here is being taken in the strict sense, equivalent to "the ἀρχή of all things," an expression Aristotle uses, interchangeably with "the ἀρχή" in the parallel argument Metaphysics N1 1087a31-6.

Aristotle does certainly think that ἀρχαί will be causes, and that the ἀρχαί absolutely will be first causes. But the reason for this is that, since we cannot directly observe the ἀρχαί, and since (if we claim wisdom) we must know them somehow, we must know them by inferring them from things we can more directly observe, and this means inferring them as the cause or explanation of the things we observe.⁴ Aristotle assumes that this is uncontroversial, and that the pre-Socratic physicists, and also Plato, do in fact argue for their ἀρχαί in this way. Actually,

⁴it is noteworthy that the only place in Physics II,3 that Aristotle uses ἀρχή rather than αἴτιον/αἰτία (outside of the phrase ἀρχή κινήσεως or ἀρχή μεταβολῆς), he says that we should know the ἀρχαί and then try to "lead back" [ἀνάγειν] to them each thing we study (194b22-3). the ἀρχαί are the only things available for use in causal explanation: e.g., for an Epicurean, given that the ἀρχαί are atoms and the void, when we try to explain any given phenomenon we will try to trace it back to these

though, this was not quite the only way of looking for ἀρχαί: instead of beginning with some manifest object X and asking why is X, διὰ τί X, I can ask what is X, τί ἐστὶ X: and just as, by a basic fact of Greek philosophical language, the answer to the διὰ τί question is the αἴτιον of X, so by an equally basic linguistic fact the answer to the τί ἐστὶ question is the οὐσία of X. And both pre-Socratic physicists and Plato did sometimes argue to their ἀρχαί in this second way, by asking a τί ἐστὶ rather than a διὰ τί ἐστὶ question: the physicists think that the οὐσία of things is a material substratum, Plato that it is a Form or (in the Timaeus, where he is playing physicist) the Receptacle.⁵ Aristotle is not bothered by this because he thinks that the οὐσία of X is always some cause of X (either a material or a formal cause), that is, that a τί ἐστὶ question can always be rewritten as a διὰ τί question.⁶ But a philosopher who did not believe that all τί ἐστὶ questions could be reduced to διὰ τί questions might not think that all ἀρχαί are αἴτια. The Stoics in fact think there are two ἀρχαί, God and matter, God being the αἴτιον but not the οὐσία of things, and matter being their οὐσία but not their αἴτιον: what makes both God and matter ἀρχαί is not that they are both causes, but that they exist prior to everything else, since they are what existed in the conflagration before the production of the ordered world, and have existed through all world-cycles from eternity.⁷

Aristotle thinks there is a broad consensus, among people who pursue different paths to wisdom, not only that wisdom is knowledge of the ἀρχαί and that the ἀρχαί are the first of all things and the causes of what comes after them, but also that the ἀρχαί are eternal: the crucial point is that the ἀρχαί were never generated, that they have existed from eternity, but Aristotle also assumes that they are incorruptible and so will exist to eternity. The basic argument for the eternity of the ἀρχαί is the one Aristotle gives in Metaphysics B4, using the premise that the ἀρχαί are prior to everything else: "if [the ἀρχαί] are corruptible, it is clearly also necessary that they be [composed] out of some things (for things are corrupted into the things out of which they are [composed]), so that the ἀρχαί will turn out to have other ἀρχαί prior to them: and this is impossible, either if [the series of ἀρχαί] stops or if it goes to infinity" (1000b24-8).⁸ Aristotle does not seem to think that anyone will dispute this conclusion, and certainly all the ἀρχαί he attributes to different philosophers in Metaphysics A are things those philosophers thought to be eternal: this is true not only of the Plato's One and Indefinite Dyad and the limit and unlimited of the Pythagoreans, but also of the material substratum of the Milesian monists, the νοῦς and the homoeomerous substances of Anaxagoras, the earth, air, water, fire, Love and Strife of Empedocles, and the atoms and the void of Democritus; it will also be true of the God and matter of the Stoics.

Aristotle also thinks that the fact that the ἀρχαί are prior to everything else implies that the ἀρχαί exist separately from the other things (they are χωριστά or exist χωρὶς or καθ' αὐτά).⁹

⁵references: Antiphon in Physics II,1; Hippocratic texts (De Prisc. Med., De Nat. Hom.) on "what is man?". "οὐσία" as a technical term cannot be securely traced back beyond Plato: Antiphon probably used only "φύσις"; but note Philolaus on ἐστῶ. for Plato, and for argument that ἡ οὐσία τοῦ X means the answer to "what is X", see Iγ and the discussion of Z in Part II below (against errors of, in particular, Burnyeat). but NB the Hippocratic On the Art uses "οὐσίη" to mean existence, as a substantivization of the question "εἰ ἔστι" rather than "τί ἐστὶ". {I see that there is something new on this, Fritz-Gregor Hermann, in eodem, New Essays on Plato: Language and Thought in Fourth-Century Greek Philosophy}; the ordinary meaning "wealth" is a substantivization of "τί ἐστὶ + dative"

⁶here Aristotle is drawing on his discussion of the different kinds of scientific questions in Posterior Analytics II, the basic point being that the question τί ἐστὶ X seeks the explanation for the fact that X ἔστι. Aristotle is clearly drawing on this analysis in Z17: see full discussion in IIe.

⁷references

⁸note second argument 1000b28-9. Aristotle is here apparently following Phaedrus 245d1-e2, cited below

⁹this need not be true of ἀρχαί in a looser sense, such as matter and form and privation, but which are not ἀρχαί in

Aristotle does not make this assumption explicit in Metaphysics A, but he does elsewhere, and he never considers the possibility that someone might dispute it. So he says (as part of an objection to Plato's taking genera as ἀρχαί) that "the ἀρχή and cause must be something beyond [παρά] the things of which it is an ἀρχή, and must be able to exist when separated [χωριζομένην] from them" (B3 999a17-19); Plato will respond by arguing that the genera are indeed separate, not by arguing that non-separate things can be ἀρχαί. Likewise Metaphysics K2 challenges Plato: "if someone posits the ἀρχαί that seem most of all to be unmoved, [namely] being and the one, then, first, if these do not signify a this and an οὐσία, how will they be separate [χωρισταί] and καθ' αὐτάς? But we expect the first and eternal ἀρχαί to be of this kind [sc. separate and καθ' αὐτάς]" (1060a36-b3). Once again, Plato will respond by arguing that being and the one are indeed οὐσία,¹⁰ and exist separately, and are therefore possible candidates for being the ἀρχαί. What exactly Aristotle means by χωριστόν and its synonyms is a technical question which I will take up in Iβ4 below, but it is important to see that he does not mean "separate from matter."¹¹ Aristotle says that an ordinary form-matter composite is χωριστόν ἀπλῶς (H1 1042a29-31); he says, on the correctly emended text of E1, that "physics deals with things that are χωριστά but not unmoved" (1026a13-14),¹² and in On Generation and Corruption II,1 he inquires whether the Receptacle of the Timaeus (which he identifies with matter) is χωριστόν or not. So the requirement that ἀρχαί be separate does not limit the project of wisdom to a Platonic project of looking for immaterial substances. Rather, the point is that the ἀρχαί must be substances, rather than things that exist only derivatively, because some other underlying nature exists, since then that that other nature would be prior.¹³ Even the Milesian material monists, who posit their ἀρχή as the matter of everything else, regard it as separate: "some said that the underlying matter [of sensible bodies] was one, positing e.g. that it was air or fire or something in between, being a body and χωριστόν" (On Generation and Corruption II,1 328b33-35). The same is true for the other ἀρχαί of the pre-Socratic physicists, and indeed not only for their corporeal ἀρχαί, since Aristotle also says that Democritus and Leucippus regarded the void as χωριστόν (Physics III,6 213a31-b2). So when Aristotle says that first philosophy is

the sense in which wisdom is knowledge περὶ ἀρχῶν and the other sciences are not. here I find myself in a dispute with Aubenque and with Annick Stevens: address here?

¹⁰Aristotle attributes this view to Plato at B4 1001a9-12 and A6 987b22-4

¹¹need reference to a standard list of places where Aristotle uses χωριστόν: in Iβ4, where? ... list must include at least Physics I,2 185a31, I,3 186a28-31, 186b26-30, plus texts on whether matter is χωριστόν, Physics IV,7 214a14-16 (here also about the void), IV,9 217a24, GC I,5 321a5-7 (here again also about the void), II,1 329a8-13 (whether matter is "bodily and separate"), 329a24-6, or whether the infinite is χωριστόν, Physics III,5 204a8-9, or where a body or composite is called χωριστόν, GC II,1 328b33-329a1, Metaphysics Z3 1029a26-30, H1 1042a26-31 ... note some texts about being separate from something (with genitive or παρά), others absolute ... in probably Iβ4 also reference to Fine and Morrison in OSAP

¹²i.e., read, with Christ and Ross and Jaeger, following Schwegler, ἡ μὲν γὰρ φυσικὴ περὶ χωριστὰ μὲν ἀλλ' οὐκ ἀκίνητα for the manuscripts' (and Bekker's and Bonitz') ἡ μὲν γὰρ φυσικὴ περὶ ἀχώριστα μὲν ἀλλ' οὐκ ἀκίνητα. for full discussion see Iγ1. With the transmitted reading, ἀχώριστα would have to mean "not separate from matter"; with the emendation, "χωριστόν" would mean what it does in, for instance, Metaphysics H1 1042a29-31 and GC II,1. I will discuss the meaning of χωριστόν in Aristotle in detail in Iβ4, and I will discuss the E1 passage in its context in Iγ1a; both discussions will support the emendation. I need somewhere a discussion, not just of the textual issue, but of the rhetorical structure of E1, making the point that Aristotle is rejecting the claims of physics and mathematics to be wisdom for two contrasting reasons, rather than grading them on a single scale, as is perhaps traditionally thought and as is defended by Merlan. also note the point about the rhetoric of E1 and the meaning of χωριστόν is supported by the K parallel to B#5, K1 1059a38-b3 and b12-14, cited in a note in my paper in Crubellier-Laks; this is very bad for Aubenque's thesis that χωριστόν in K means "separate from matter" }

¹³cite the N1 argument, note connecting it with Posterior Analytics I,4, defer full discussion to Iβ4

περὶ χωριστά (E1 1026a16), this is simply a consequence of the fact that it is περὶ ἀρχῶν. This requirement of separateness implies that, when we say that the ἀρχαί are the first causes, that is, whatever causes are first, we cannot mean simply that they are the first in a given causal chain, for instance, a material cause which has no material cause or a formal cause which has no formal cause: such a cause might still exist inseparably, dependent on some other underlying nature for its existence, and so would fail to be first in the sense in which wisdom is knowledge of the first things, the things properly called ἀρχαί. But Aristotle inherits from his predecessors, and must somehow resolve, disputes not only about which things are first, or about which things are prior to others, but also about the criteria we should use to decide priority.

Physics, mathematics, dialectic, and their ἀρχαί

To understand Aristotle's project of searching for ἀρχαί, and thus in particular for separate eternal beings, we have to see it against the background of the three previously available paths to wisdom that Aristotle discusses in Metaphysics A and beyond, through physics and through mathematics and through dialectic. A1-2 have not mentioned the differences between physics, mathematics, and dialectic, and this is the result of deliberate strategy: Aristotle is trying to tease out a set of presuppositions about wisdom on which those who pursue these rival paths to wisdom will at least implicitly agree, and which he can use as a basis for argument and for adjudicating their disputes. (Compare the Eleatic Stranger's attempt to get both sides of the γιγαντομαχία περὶ τῆς οὐσίας to agree that being is what can act or be acted on.) As Aristotle represents it, the physicists, mathematicians, and dialecticians--or more precisely those who think that physics, mathematics, or dialectic gives a path to wisdom--will all agree that wisdom is pursued purely for the sake of θεωρία, and that it is a knowledge of first causes and ἀρχαί, where the ἀρχαί are the first of all things (and where firstness will imply eternity and separate existence); their disagreement is about what these ἀρχαί are, how they are causes of other things, and what discipline it would take for us to know them. Thus in A3-6, in order to evaluate the different claims to wisdom and ultimately to argue that a new fourth discipline is needed, he reviews these different disciplines, in the historical order of their appearance or at any rate of their appearance as claimants to wisdom: the physicists in A3-4 (beginning with Thales, "the founder of this kind of philosophy," A3 983b20-21, where "this kind of philosophy" might be physics or more specifically the early kind of physics which cited only material ἀρχαί), in A5 "the so-called Pythagoreans, who had been the first to touch on mathematics, advanced these subjects, and, having been brought up in them, thought that the ἀρχαί of these things were the ἀρχαί of all beings" (A5 985b23-6;¹⁴ Parmenides and Melissus, also expressly contrasted with

¹⁴it is disputed whether he is saying that the Pythagoreans were the first to practice mathematics or (as Cherniss {?} says) merely the first to bring it forward in the present context, as a path to the ἀρχαί and thus to wisdom. for my purposes it may not matter. but while we can leave the sense of ἀπτεσθαι alone, the texts cited by Zhmud {which d collect} show that προάγειν means to advance a science, i.e. to cause the science to progress, not merely to bring it forth as an example or argument in something else. the word is used in this way also in Poetics 1448b23 and Sophistical Refutations 183b29-31 ... note from Brussels paper: There are several issues of text and interpretation in this sentence; but let me note the key point, that "προήγαγον [τὰ μαθήματα]" does not mean "they [were the first to] bring them up in this context, i.e. in claiming wisdom or in seeking the ἀρχαί" (as claimed for instance by Jonathan Barnes, The Presocratic Philosophers, London, 1982, p.380 and p.630 n11). Προάγειν is the standard term for advancing or contributing to the progress of a discipline, for which compare especially Sophistical Refutations c34 183b17-34 ("προάγειν" at b29) on the progress of rhetoric, Poetics c4 1448b20-24 and 1449a9-14 on the progress of poetry (especially comedy and tragedy), and Eudemus in Proclus In primum Euclidis elementorum 67,2-8 and 20-23 on the progress of geometry and proportion theory. See discussion in Leonid Zhmud, The Origin of the History of

the φυσιολόγοι, A5 986b9-18, are awkwardly tacked on), and in A6 Plato who turned Socratic dialectic into a path to theoretical wisdom. Much of the Metaphysics will be an implicit dialogue with these different groups of claimants to wisdom, arguing that their disciplines cannot achieve the shared goal, that Aristotle's new discipline of first philosophy will do better on terms that they themselves should accept. Aristotle's main rivals among his immediate audience are the dialecticians and Pythagorizing mathematicians of the Academy, and he devotes more effort to them than to the physicists. But the physicists were there first, and they shape the discussion, because those who put forth other disciplines as ways to wisdom are putting them forth as rivals to physics, and they take basic assumptions over from the physicists, in order to show that they can achieve the shared goal better than the physicists can, just as the physicists in their turn had put themselves forward as rivals to the people Aristotle calls the θεολόγοι, that is, to Hesiodic and Orphic theogonic and cosmogonic poetry.¹⁵

The concept of an ἀρχή, and the claim to give knowledge about the ἀρχαί, arise from the physicists' challenge to the θεολόγοι. 'Αρχαί, beginnings, are important especially because of the narrative character which περὶ φύσεως ἱστορία takes over from θεολογία.¹⁶ The physicist gives an account of the nature of each thing by explaining how it arose; and the goal is to put all

Science in Classical Antiquity (Berlin, 2006), esp. p.77 and p.212, and the older literature there cited. In all these texts προάγειν is connected with ἀρχαί: once you have the right ἀρχή, even in a crude form, it is easy to make progress. The point in Metaphysics A5 may be that the Pythagoreans, having discovered that numbers allowed them to understand e.g. harmonics, thought that they would also allow them to understand cosmology and politics.

¹⁵several notes. (i) the division between the disciplines is more basic in A than that between the four causes: Aristotle starts with those who take up physics, mathematics, or dialectic, notes what ἀρχαί they are led to posit, and then asks in what way they use their ἀρχαί as causes--see discussion in Iβ1 below; (ii) the θεολόγοι in a sense also count, but Aristotle treats them (how seriously, it is hard to say) as implicitly making physical assertions (and if Xenophanes counts as a θεολόγος, then Aristotle treats him as a proto-Parmenides); cp. N4 on Pherecydes mixing mythical and rational exposition, and maybe note the criticism of Hesiod in B#10, treating him momentarily as if he were a serious contender. note with Bodéüs (and already Natorp) that θεολογία for Aristotle is always what the poets (or comparable prose-writers such as Pherecydes) do, never a scientific discipline (I will come back to why he is willing to call his own discipline θεολογική); (iii) in A Aristotle deliberately excludes philosophers who do not make θεωρία the goal and do not posit ἀρχαί, Zeno and Gorgias and Protagoras and Socrates and Isocrates (for arguments against people like Isocrates, who think that wisdom is a practical knowledge of human things, see EE V,7=NE VI,7 1141a20-b8, and NE X,7 1177b31-34; (iv) in showing implicit agreements between the physicists, mathematicians, and dialecticians, and sometimes also the θεολόγοι, Aristotle is trying to tease out assumptions that they all implicitly share, to get them to be arguing about the same thing rather than about different things, and to show that he can do better than them by standards they should all admit; sometimes he agrees with their consensus, but sometimes he will argue against it (as most strikingly on the claim that the ἀρχαί are στοιχεῖα); he is also to some extent trying to bring the moderns down a notch by showing how much they have in common with, how much they have taken over from, their embarrassing predecessors. something like this strategy, with regard to the θεολόγοι and physicists, probably goes back to Hippias, and is taken over by Plato (notably in Laws X), and Plato also applies something like this, in the γιγαντομαχία of the Sophist, to the physicists and the Eleatics and even the "friends of the Forms"; (v) while Aristotle's immediate audience is more likely to be tempted by Platonic dialectic or Pythagorizing mathematics as a path to wisdom, and while he speaks of the physicists as something in the past (esp. in De Partibus Animalium I,1, where people seem to have lost interest in physics), there is no reason to think that pre-Socratic-style physics had died out in Aristotle's time: there is a continuous line of teachers from Democritus to Epicurus, and the Stoics too draw on elements from pre-Socratic physics as well as from post-Socratic philosophy, more likely as a living tradition than as an archaizing revival

¹⁶cite the texts of Simplicius saying that Anaximander was the first person to use the word "ἀρχή" in its technical sense; NB there is no ambiguity about whether it was "ἀρχή" or "ἀπειρον" that Anaximander introduced (bring in references from Brussels paper). compare DL I,116 on Pherecydes, and the ἀρχή of Pherecydes' book cited c119. for the comparison between the mythical-narrative character of the θεολόγοι and the φυσικοί see especially Sophist 242c ff, also texts in Metaphysics Λ6 and N4 and Laws 886 ff. also note Iliad XIV, the citations of which are not a joke

the individual explanations into the context of an overall narrative of the coming-to-be of the cosmos. A chorus in Euripides, praising "him who has learning of ἱστορία", says that he "contemplates the unaging cosmos of deathless nature, how it arose [συνέστη] and whence and in what way" (Fr. 910 Nauck, probably from the Antiope, celebrating the musical-contemplative life); the Dissoi Logoi speak of teaching "about the nature of all things, how it is and how it arose [ἐγένετο]."¹⁷ Thus to contemplate the nature of the cosmos is to contemplate how it arose, and a full account of how the cosmos arose would explain how each of the constituents arose that collectively constitute the cosmos. The author of On Ancient Medicine complains about those doctors and sophists who say that no one can understand medicine until he has learned what man is: "their discourse belongs to philosophy, like Empedocles and others who have written περὶ φύσεως what man is from the beginning [ἐξ ἀρχῆς ὃ τί ἐστὶν ἄνθρωπος], how he first came to be and how he was put together" (c20).¹⁸ For these people who philosophize περὶ φύσεως, we will learn what man is by understanding how he arose, and that means understanding, not just how human beings are currently produced, by sexual generation, but the more difficult steps by which the first humans arose in the formative days of the cosmos.¹⁹ Timaeus follows this model when, since he has devoted himself to "knowing the φύσις of the universe," he is asked to speak "beginning from the generation of the cosmos and ending with the φύσις of man" (Timaeus 27a3-6, where φύσις retains its original ambiguity between "nature" and "generation"). In this context, to say that some philosopher posited X, Y and Z as his ἀρχαί is to say that they are what he posited at the beginning of his narrative, as what existed, temporally prior to everything else, before the ordered world arose, as when Anaxagoras started his book by saying that "all things were together" (Fr. 1), just as Hesiodic and Orphic poetry began with the eldest of the gods and then narrated the birth of the others. The whole current world-order must be explained through these ἀρχαί, often described as "seeds" or "roots" of subsequent things,²⁰ and the way to argue that X, Y and Z are the correct ἀρχαί is to show that the current world-order could not have arisen without them.

While it is not clear how far the physicists themselves used "ἀρχή" as a technical term, they did sometimes use it, either for a beginning of discourse or for a beginning in re (and in a narrative, the right place to begin a discourse is with the beginning in re): Simplicius says that Anaximander was the first to call the substratum "ἀρχή" (In Physica p.150),²¹ and the later pre-Socratics reflect explicitly on their choice of ἀρχαί, whether as in Diogenes of Apollonia Fr. 1

¹⁷ref in DK for the Dissoi Logoi; also note Parmenides B9, esp. lines 5-7

¹⁸it's conceivable that ἐξ ἀρχῆς goes with "have written" rather than with "what is man," but "how he first came to be" still makes the point. in addition to Hippocratic texts affirming ἀρχαί, note On Places in Man c.1 denying them

¹⁹and this is how the Hippocratic On Fleshes proceeds, promising an account of "how man and the other animals arose and came-to-be [ἔφθυ καὶ ἐγένετο], and what the soul is, what is being healthy and being sick, what is good and bad in man and whence he dies" (c1), and does so by narrating how animals and their parts were first formed in the early days of the cosmos "when all things were in disorder" (c2): all of this is supposed to be necessary for practicing medicine now

²⁰I mention this here because it will be very important for Aristotle to reject this description of the ἀρχαί in Metaphysics Θ and Λ ... references on seeds ... note strong interest in generation of animals and plants, the seeds are prior ... reference to Part III for Aristotle against these theories

²¹Simplicius In Physica 24,13-16 is ambiguous as to whether Anaximander invented "ἀρχή" or "ἄπειρον" ("he said that the infinite was [an] ἀρχή and element of the things that are, being the first to supply τοῦτο τοῦνομα τῆς ἀρχῆς"--the name "ἀρχή" or the name "infinite"?), but 150,23-24, "he was the first to call the substratum [an] ἀρχή" is not. (Simplicius In de Caelo 615,15-18, saying that Anaximander "was the first to hypothesize the infinite," does not seem to me to be strong evidence against this interpretation: this passage says nothing specific about what terminology Anaximander used or invented, and it is uncontroversially true that Anaximander was the first to posit that the ἀρχή is infinite--before, as Simplicius goes on to say, Anaximenes, who posits an infinite air.)

the starting-point of the discourse, or as in Philolaus Fr. 6 the things out of which the cosmos is fitted together.²² Certainly by Plato's time "ἀρχή" has become technical and is used technically in describing the views of earlier philosophers. When Timaeus turns from explaining the works of reason to explaining the works of necessity, he has to "go back again and take another ἀρχή," a new beginning of discourse, but also a new ἀρχή to be posited; the way to find this ἀρχή is "to consider the φύσις of fire and water and air and earth before the generation of the heaven, and the state they were in before," against physicists who take fire and the others as ἀρχαί, and do not "tell the generation of these things ... as if we were speaking to people who already knew what fire, and each of the others, is" (Timaeus 48a7-b7).²³ Here, as in pre-Socratic περὶ φύσεως writing, the narrative framework all-but-forces the assumption that the world was generated in time from its ἀρχαί: even if Plato may not believe this, he assumes it for the purposes of the Timaeus, and the atomists, who believe that the universe is eternal, nonetheless narrate the comings-to-be of individual worlds from the collisions of atomic ἀρχαί. By contrast to the world, the ἀρχαί themselves are eternal: as Plato argues, applying a general scheme of argument to show that the soul as a self-moving ἀρχὴ κινήσεως has always existed and will always exist, "an ἀρχή does not come-to-be. For everything which comes-to-be must come-to-be out of an ἀρχή, but it itself must not come-to-be out of anything: for if an ἀρχή came-to-be out of something, it would not still be an ἀρχή" (Phaedrus 245d1-3),²⁴ and "if an ἀρχή perished, neither would it ever [again] come-to-be out of anything, nor anything else out of it, since all things [that come-to-be] must come-to-be out of an ἀρχή" (245d4-6). These arguments are apparently the source of Aristotle's arguments at B4 1000b23-9 (cited above) that the ἀρχαί are eternal, and he seems to treat them as applying equally to any version of theorizing about ἀρχαί.

The concern with ἀρχαί is taken over from the physicists by the mathematicians and the dialecticians, when they in their turn lay claim to wisdom. It might seem strange to propose mathematics as a rival to physics, but this is what Aristotle represents the Pythagoreans as doing: "the so-called Pythagoreans, who had been the first to touch on mathematics, advanced these subjects, and, having been brought up in them, thought that the ἀρχαί of these things were the ἀρχαί of all beings" (Metaphysics A5 985b23-6, cited above), and since "the numbers are by

²²On Philolaus on ἀρχαί, and the broader context of pre-Socratic and Hippocratic discussions of ἀρχαί and ὑποθέσεις (or of the activity of ἀρχὴν ὑποθέσθαι), see Carl Huffman, Philolaus of Croton (Cambridge, 1993), pp.78-92; see also Malcolm Schofield, "APXH," Hyperboreus v.3 [1997], pp.218-36.

²³note the assumption that the way to tell what something is (to someone who doesn't know) is to explain how it arose from something that already existed. maybe compare Philolaus Fr.6 for reasoning to pre-cosmic ἀρχαί.

²⁴In the last clause tentatively reading οὐκ ἂν ἔτι ἀρχὴ γίγνεται with Burnet's OCT (following what seems to be

one reading of the indirect tradition; one late [ca. 1500] manuscript has this text minus the ἔτι). The main manuscripts have οὐκ ἂν ἐξ ἀρχῆς γίγνεται, which Schofield (op. cit., p.228 and n23) tries to defend, but which I still cannot make good sense of. This would have to be part of a reductio ad absurdum: if an ἀρχή came-to-be out of something, then (for some reason) it would not come-to-be out of an ἀρχή, therefore it would not come-to-be at all (since, as we have just said, everything which comes-to-be comes-to-be out of an ἀρχή), thus contradicting the assumption. Metaphysics B4 1000b23-9 should perhaps be added as another indirect witness supporting something like Burnet's text.

nature the first of these things" (b26-7), they took the first terms of the number series, or the more obscure ἀρχαί from which they generated the first numbers, as the ἀρχαί from which to generate all things. Although the Pythagoreans "use stranger ἀρχαί and στοιχεῖα than the physicists", since "they did not take them from sensible things" but from mathematical objects, "nonetheless they discuss and treat everything περὶ φύσεως: for they generate the heaven, and work out the consequences for its parts and affections and actions, and expend their ἀρχαί and causes on these things" (all from A8 989b92-990a3). So they are just doing pre-Socratic physics in a strange and (Aristotle thinks) perverse way: Aristotle is disgusted by their "generation" of numbers, which he thinks implies a temporal cosmogonic sequence, and by their treating numbers as physical objects. Pythagorean mathematics in this form, despite its pretensions, is not a serious rival to Aristotle's project; he is interested in it chiefly as the inspiration behind mathematizing projects of wisdom in the Academy. So I want now to look at Platonic and Academic projects for discovering ἀρχαί, putting them in the context of Plato's rivalry with the physicists. The most important discipline here is dialectic, and Aristotle is especially interested in the rivalry between physicists and dialecticians in their claims to wisdom; but mathematics also plays a role (or rather, two different roles) in the Academic alternatives to physics.

Dialectic--the art of discussing by yes-no questions and answers, the respondent trying to preserve consistency and the questioner testing whether the assertion can be reduced to absurdity--is also not obviously a rival to physics. Plato introduces it in the Gorgias as a rival to rhetoric (the art of long discourses without question and answer), and there is no hint at this stage that it will give knowledge of the ἀρχαί of things or lead to explanations of phenomena. But in the Phaedo dialectic is brought forward as a rival to physics in "knowing the causal accounts [αἰτίαι] of each thing, why [διὰ τί] each thing comes to be, why each thing passes away, and why each thing is" (Phaedo 96a8-9)--strictly speaking, in this sentence Socrates is describing only the goals of περὶ φύσεως ἱστορία, but a few lines earlier he had said that Cebes' objection required a discussion of "the αἰτία of coming-to-be and passing away" (95e9-96a1), and Socrates goes on to do this from the point of view of dialectic, while also showing what is wrong with doing it from the point of view of physics. The physicist explains phenomena by citing what Aristotle will call the material cause, while the dialectician cites the Form in which things participate: as Aristotle puts it, "in the Phaedo it is said thus, that the Forms are causes both of being and of coming-to-be" (Metaphysics A9 991b3-4). The dispute between the dialecticians and the physicists is not only about the causes of things, but also about the οὐσίαι of things, that is, not only about the answer to διὰ τί questions but also about the answer to τί ἐστὶ questions. Only the dialectician is in a position to answer τί ἐστὶ questions, because only he knows how to give definitions, and to sort out correct from incorrect definitions by questioning: this is how he knows the Forms, since what a correct definition of X signifies is the Form of X rather than this imperfect sensible X. The Forms are thus the οὐσίαι of things (as Aristotle says the Platonists say, e.g. Metaphysics A9 992a26-8),²⁵ the οὐσία of man and the οὐσία of the just and so on. Plato says that no discipline other than dialectic "methodically tries to grasp in every case, about each thing itself, what that thing is" (Republic VII 533a8-b3): for "all the other arts are

²⁵in Plato's own usage, οὐσία-with-genitive is very closely bound to the τί ἐστὶ question (rather than to a relation between two entities, X and the οὐσία of X): it is usually more naturally translated by "definition" than by "Form" (examples where the connection to τί ἐστὶ is especially explicit are Euthyphro 11a7 and Meno 72b1). on the other hand, ἡ οὐσία with genitive is clearly the Form at Phaedo 101c3 and Parmenides 133c4: Aristotle is not distorting Plato's views here. incidental note against the bizarre view that οὐσία-with-genitive is not in early Aristotle, but is a later discovery: see Topics 139a30 etc. (also presupposed in λόγος τῆς οὐσίας at the beginning of the Categories--unless we delete the controversial words)

concerned either with people's opinions and appetites, or with [natural] generation [γένεσις] and [artificial] production [σύνθεσις], or with the care of the things that grow or are produced" (533b3-6). Plato makes an exception here for the mathematical disciplines, which he says have at least a dreaming vision of τὸ ὄν, and which surely do define at least some of their objects, but are limited by their dependence on hypotheses of which they can give no account. But Plato does not make an exception for περὶ φύσεως ἱστορία: the implication is that physics is not concerned (like dialectic and, imperfectly, mathematics) with οὐσία, but with γένεσις. This means two things. First, physics is concerned, not with things that (eternally) are, but with things that come to be; second, physics does not ask of its objects τί ἐστὶ, does not try to define them (because definitions are really of eternal objects, and apply only imperfectly to generated things), but rather asks πῶς γέγονεν. That is, physics narrates rather than defining or demonstrating: it cannot demonstrate because it does not define, and it cannot define because its objects are not fixed enough to be definable.²⁶ This is a sweepingly negative judgment on physics as a science, and it will be important for Aristotle to argue that physics is indeed concerned with definitions and with forms (the objects of definition), though Aristotle admits that the way the pre-Socratics practiced physics gave some ground for Plato's judgment. A somewhat fairer way to restate Plato's judgment on pre-Socratic physics is to say that, while the physicists did ask τί ἐστὶ X, that is, did try to state the οὐσία or φύσις of X, they answered this question in answering the question πῶς γέγονε X; with the result that they were not led to "definitions" of the kind that could stand up to elenctic challenge as necessary and sufficient conditions of the definienda. Certainly the physicists often said that the φύσις of X was the underlying ἀρχή from which X arose, or simply that X is this ἀρχή; but, obviously, when we assert "man is air" or the like (cf. the Hippocratic On the Nature of Man c1), we are not giving necessary and sufficient conditions. The physicists might come closer to giving sufficient conditions for something to be called "man" when they specify not only the initial ingredients but also the way they were put together: as Aristotle puts it (stating the view of the physicists, not endorsing it himself), "if someone wants to discover the φύσις of other things [than the ἀρχαί], for example of a bed, [and he learns] out of what parts it was put together and how they were combined, then he knows its φύσις" (Metaphysics B3 998b1-3). Plato himself gives an example of a "physical" answer to the questions--or the single question--"what justice is and whence it γέγονε" (Republic II 358e2). Glaucon's account (358e3-359b5) goes back to the ἀρχαί of human societies and explains how people came to agree on laws, and to call the things commanded by these laws "just": he calls this an account of the "γένεσις and οὐσία of justice" (359a5), and concludes by saying that (according to this account) "this is what the φύσις of justice is and what it is like, and the things out of which it πέφυκε are like this" (359b4-5). But such a historical narration of how the things arose that came to be called X is quite different from a dialectical definition of what it is for a thing to be X.

The Republic also helps to show that the dispute between the dialecticians and the physicists is not only about what are the αἴτια and the οὐσία of things, but also about what is wisdom, and about what is the ἀρχή. The program of study for the rulers in Republic VII includes only mathematics and dialectic, excluding physics (astronomy is included but treated as part of

²⁶this can be supported by comments from the Timaeus about the epistemic status of physics and its objects, and on the unfixity of fire (about which we ask whether it is really any more fire than water, etc.). note that it will be very important for Aristotle to reject this account of physics, not only in the physical treatises but also in Metaphysics E1, and to say that physics deals with forms, or (what is almost the same thing) that physics defines; there are physical definitions and dialectical definitions, and Aristotle thinks that physical definitions (when done right) are in fact more scientific

mathematics rather than of physics, detached from pre-Socratic vortices and indeed from empirical observation). The rulers can rule well only if they are wise, and mathematics will help toward making them wise as preliminary training, but it is dialectic that will actually make them wise. Dialectic--like all the other disciplines with claims to be wisdom--is a knowledge of eternal things, and its final result is knowledge of the Good, which Plato puts forward as the ἀρχή of the Forms and thus of all things: the ἡ τοῦ παντὸς ἀρχή of 511b7, the principle of the Forms, must be the same as the Good of 508e1-509b10, which stands over the world of οὐσία, i.e. of the Forms, as the sun stands over the world of coming-to-be. Plato means this ἀρχή to compete with the ἀρχαί of the physicists: while the immediate context of the phrase ἡ τοῦ παντὸς ἀρχή might suggest only a principle of demonstration, the Good is an αἰτία, not only of knowledge to the knower, but also of truth to the known (508e1-6), or of "being and οὐσία" to the Forms (509b5-7), as the sun is the cause of coming-to-be to things down here (509b2-4). As the sun is (temporally) prior to each of the things that receive coming-to-be from it, so the Good, to be an ἀρχή of the Forms, must be somehow prior to the Forms: Plato says, notoriously, that it is "beyond οὐσία, exceeding it in πρεσβεία and power" (509b9-10). "Πρεσβεία" is here usually translated as "rank" or "dignity," but it literally means "age, seniority": accepting the physicists' terms of argument while reversing their conclusions, the Good must be somehow older than all other things.²⁷ Since all Forms are eternal, this cannot be literally temporal priority: perhaps it is exhausted by the fact that the Good is the cause of being to the Forms,²⁸ but the Republic says very little either about this priority or about whether or how dialectic can discover other priority-relations between Forms.

However, Plato has more to say about dialectical priority-relations elsewhere, in later dialogues and according to Aristotle's testimony. The Republic says nothing at all about a hierarchy of more and less universal Forms, genera and species, but in later dialogues Plato describes such a hierarchy, and gives extensive discussions of some of the most universal Forms, being and sameness and difference and motion and rest in the Sophist, being and unity in the Parmenides. And it is natural to say that in some sense genera are prior to their species: even if there have always been animals, and have always been dogs, still animal is prior to dog in that it is possible for animal to exist without dog existing, but not possible for dog to exist without animal existing. Indeed, Aristotle himself argues for this priority-relation in the Categories: "the genera are always prior to the species, since the implication of existence is not reciprocal: for example, whenever aquatic [animal] exists, animal exists, but when animal exists it is not necessary for aquatic to exist" (15a4-7). Aristotle is here applying a test for priority, or a meaning of "priority," which he had described earlier in the Categories,²⁹ and which in a parallel passage of Metaphysics Δ he attributes to Plato: "things are [also called] prior and posterior by nature and οὐσία, [namely] those things which can be without others, but those others cannot be

²⁷LSJ invent a special meaning of "πρεσβεία" as "rank, dignity," based entirely on this passage. compare the arguments against the physicists in Laws X that soul is older than body; the aim is to undermine the claims of those who say that body and the works of nature (and violent force) are prior to soul and the works of art and νοῦς, esp. with the implication that the gods and justice are merely artificial or conventional (the immediate target is probably Antiphon). the Timaeus also asserts that soul is prior to body, but without the argument or context

²⁸cite passage from the Categories on this last kind of priority

²⁹Categories 14a29-35; note the example of "one" and "two", which I will come back to later, and which is not an example of the more and the less universal. note here as with the case of "animal" and "horse" an ambiguity in ἐστίν: does it mean "there exists animal" (somewhere in the world) or "animal is present" (in the given situation)? the latter makes the assertion of non-reciprocity of being more plausible; especially if there are eternal, and necessary, Forms of animal and horse and one and two. (note that "this given thing is an animal" works OK for animal and horse, but collapses for one and two)

without them: Plato used this division" (Δ11 1019a1-4). This test gives a way of looking for priority, and for ἀρχαί, without supposing (like the physicists) that the world and the different kinds of things in it came-to-be within some finite time in the past, since it can break the tie in temporal priority between two eternal things. It also offers the hope of breaking the deadlock between different criteria for priority: the physicists will tend to say that what is prior in time is prior in οὐσία, or prior simpliciter, prior in the sense in which the desired ἀρχαί must be prior, whereas the dialecticians and mathematicians will tend to say that what is prior in λόγος (what must be cited in the definition of another thing) is prior in οὐσία; Plato's test (as I will call it) offers a criterion for priority in οὐσία that both sides should be able to accept in order to resolve their dispute.³⁰ And Plato's test supports the conclusion that genera are prior to their species, and that the most universal things of all are the ἀρχαί of all things. Above all, being and unity emerge as ἀρχαί, since whenever anything at all exists, being and unity exist; put perhaps more forcefully, whenever there is something of any kind, there is some being and some one. Aristotle speaks of τὸ ἓν as a Platonic ἀρχή in Metaphysics A6, and elsewhere in discussing Platonic views he often groups τὸ ὄν and τὸ ἓν together; in the sixth aporia of Metaphysics B he gives arguments first for the physicists' view of the ἀρχαί, and then for the Platonic view that the ἀρχαί are the genera, and he adds that "also some of those who say that the στοιχεῖα of beings are the one or being or the great-and-small treat these as genera" (998b9-11). In the extant Platonic texts being and unity emerge as ἀρχαί most clearly in the second part of the Parmenides: one result of the arguments is to show that being and unity are ἀρχαί that must exist first for anything else to exist, and then to show that, if we posit being and unity as ἀρχαί (and posit that the one participates in being), we can derive from them a whole series of other things (numbers, infinity, sameness, difference, place, motion, rest, etc.). Especially the chain of positive derivations from being and the one in the second hypothesis is thus a dialectical counterpart, and rival, to the stories of the physicists deriving the world and its constituents from their ἀρχαί.

But Aristotle also describes Plato and other Academics as seeking a different route to the ἀρχαί, and in particular to the One as an ἀρχή, through something like mathematics rather than through dialectic. The Republic describes mathematics as inferior to dialectic, and so presumably as not having its own independent path to the ἀρχαί: mathematics hypothesizes (for instance) pure units which are in no way many or divisible, but only dialectic gives unhypothetical knowledge of such a unity. And by Aristotle's account, Plato thought that mathematical assertions were about a realm of mathematical objects, prior to sensibles (because eternal) but posterior to the Forms (because, as geometrical theorems presuppose, there must be many mathematical objects of each type, so that e.g. the many mathematical triangles are posterior to the Form of triangle): the intermediate status of mathematical objects would correspond to the intermediate status of mathematics as a science, and would imply that only dialectic, not mathematics, has knowledge of the ἀρχαί. Nonetheless, Aristotle reports two different ways that the Academics tried to use something like mathematics to give knowledge of the ἀρχαί. Most obviously, Speusippus, who rejected the Forms and thought that mathematical objects (and specifically the first kind of mathematical objects, mathematical numbers) were the first of all things, naturally thought that the first ἀρχαί were the ἀρχαί of numbers ("unity" and "plurality," however he may have conceived these), and thus that something like arithmetic, rather than dialectic, was wisdom. But Aristotle also reports that Plato, at a later stage in his life, maintained that "the Forms are numbers"--not mathematical numbers, since then there would be many of

³⁰as we will see in Iβ4, Aristotle himself thinks that Plato's test needs to be qualified in order to serve this function

each kind, but a unique two-itself, three-itself, and so on.³¹ This identification would allow Plato to use something like mathematics to understand the Forms themselves, and not merely to provide a bridge from understanding sensible things to understanding Forms. While much here is unclear, it is important that Aristotle introduces this thesis (first in Metaphysics A6) as part of an explanation of how the Forms are supposed to arise from their ἀρχαί. And this context allows us to understand more sympathetically the motivation of the bizarre-sounding Platonic thesis.³² If Plato is trying, in competition with the physicists, to say what the ἀρχαί of all things are, and to show how all things are derived from these ἀρχαί, then it will be very unsatisfactory if he must posit, as a series of independent ἀρχαί, the Form of horse and the Form of pig and the Form of monkey and so on. It is a bit better if we can derive these Forms from their genera and their differentiae, but there seems little hope that we can derive all the Forms in this way from a few simple starting-points comparable to the ἀρχαί of the physicists. By contrast, if we can somehow reduce the Forms to numbers (by reducing being a horse or having a temperate and harmonious soul to imitating some numerical pattern?), we can then generate the Forms in whatever way we generate the numbers from their ἀρχαί, perhaps from the One as a formal principle and from an indefinitely divisible material principle that comes to participate in the One, or by successive addition of ones.

Aristotle's alternative

Aristotle, of course, rejects all of these attempts to derive things from the One, and the details of the different views he rejects may not be so important for understanding his own positive project of a science περὶ ἀρχῶν. What is important, though, is that Aristotle's project appeared as a rival, on the one hand to the projects of the physicists for knowledge περὶ ἀρχῶν, but on the other hand to two different kinds of projects that take the One as among their ἀρχαί: dialectical projects of wisdom, taking the One as an ἀρχή because the One (like being) is a maximally universal predicate, and mathematical projects of wisdom, taking the One as an ἀρχή because the One is the ἀρχή of the numbers.³³ As we will see especially in discussing Metaphysics B, Aristotle will motivate his new project of wisdom by bringing out the aporiai involved in the three available disciplines that claim to give knowledge of the ἀρχαί. Metaphysics K puts the argument for a new discipline in a brutally truncated form: assuming only that "wisdom is a knowledge περὶ ἀρχάς" (K1 1059a18), with the consequence that these ἀρχαί must be eternal and separate, we ask "whether the science we are now seeking is about the sensible οὐσίαι or about some others" (a39-b1). Assuming for purposes of the argument that "if it is about others, it would be either about the Forms or about the mathematical" (b1-2)--that is, it will either be dialectic, as Plato says, or mathematics, as Speusippus says--then it cannot be about the Forms, since "it is clear that there are no Forms" (b3), and again "the science we are now seeking is not about the mathematical, since none of them is separate; nor is it about sensible οὐσίαι, since they are corruptible" (b12-14). Obviously each stage of this argument will have to be filled out to provide a serious argument that wisdom is neither dialectic nor mathematics nor physics, and indeed the course of the argument will have to be modified, since it is on Aristotle's own view

³¹note evidence (from Metaphysics M) that Aristotle took a developmental view of Plato's philosophy

³²there is likely to be some discussion of all this in Iγ2 below, maybe especially Iγ2c; add cross-references, avoid duplication

³³note M8 1084b23-32 saying that the one can't be an ἀρχή in both of these ways at once

not true that all sensible substances are corruptible, but only that they are all changeable.³⁴

Nonetheless, the line of thought stated in this crude form in K is also what underlies the famous division of the theoretical sciences in Metaphysics E1. The classification of the sciences in E1, in the spirit of the Platonic method of division, is all directed toward showing where the "most valuable" or "most choiceworthy" science, the wisdom of A1-2, is to be found, by classifying the sciences and showing where wisdom cannot be located.³⁵ After the productive and practical sciences have been excluded, Aristotle's aim is to exclude the theoretical sciences of mathematics and physics. Mathematics deals with things that are "unmoved but inseparable" (E1 1026a14-15): the thought is the same as in K1, that "the science we are now seeking is not about the mathematical, since none of them is separate" (K1 1059b12-13, cited above), implicitly assuming the premiss that the ἀρχαί are separate. Aristotle would like to argue that physics too cannot be wisdom, since its objects are changeable, but he can assume only that the ἀρχαί are ingenerable and incorruptible, not that they are unchangeable. So instead he argues conditionally, that "if there is something eternal and unmoved and separate, it is manifest that it belongs to a theoretical [science] to know it, but not to physics, since physics is about movable things, nor to mathematics, but to [a science] prior to them both. For physics is about things which are separate but not unmoved, and some parts of mathematics are about things which are unmoved, but perhaps [ἴσως] not separate but rather [existing] as in matter; but the first [science] is about things which are both separate and unmoved" (E1 1026a10-16). If the condition is not satisfied, wisdom or the "first science" would still be about the ἀρχαί, and these would still have to be eternal and separate, but not unmoved: they might be something like the material ἀρχαί of the Milesian monists or of Empedocles, or atoms and the void, or νοῦς or Love and Strife, or (if we took Aristotle's own philosophy and deleted the eternally unmoved substances), the eternally rotating heavenly bodies. In such a case, "if there is no other substance beyond the ones constituted by nature, physics will be the first science" (a27-29)--perhaps it would be more accurate to say that the first science would be a privileged part of physics, such as celestial physics or the theory of simple non-composed natural bodies. But "if there is an unmoved substance, this is first and this is first philosophy" (a29-30). This depends on the assumption that if there is an unmoved (and thus certainly eternal) substance, it will be prior to all moved things, even the eternal moved things. Aristotle does not argue for this assumption, and it might have been disputed by later philosophers,³⁶ but probably no one would have disputed it in Aristotle's time: the dispute is about whether, starting from the sensible and changeable things, we can infer to unchanging things; if there are such things, whether Forms or mathematical or whatever they may be, and if they do not exist "inseparately" and parasitically on the sensibles, they will have been inferred as causes existing prior to the sensible things.

In all this, Aristotle has no particular obsession with the unchanging or the immaterial (he does not accept the Platonic premiss that changing things cannot be objects of science): he is looking for independently existing first causes, whatever they may be. But, of course, a crucial question

³⁴any reservations that one may have about the status of K are irrelevant to the difficulty in Aristotle's saying that all sensible οὐσίαι are corruptible, since he says the same thing at B#8 999b4-5 {d cite in any parallel citations of the K text}

³⁵see E1 1026a21-3; see discussion of this passage and its connections with A1-2 in Iα1 above. for overall discussion of E1, justification of Schwegler's emendation etc., see Iγ1a below

³⁶the Stoics think that there are some unmoved things, namely the four types of incorporeals, but that these "exist"--if they should be said to exist at all--in a weaker sense than bodies, and perhaps dependently on bodies, so they might be said to be posterior to bodies. but, for the same reason, they probably should not be described as "substances" or as "separate"

will be whether there are such separate causes beyond the physical realm or not. If so, there will be a science beyond physics that studies them.³⁷ This science might be mathematics, but not if, as Aristotle has asserted in E1 (but deferred for proof later), mathematical objects do not exist separately. The first philosophy distinguished from physics and mathematics might be Platonic dialectic, if there are separately existing Forms,³⁸ and indeed nothing that Aristotle says in E1 rules out this possibility (he argues that physics deals with forms inseparable from matter, but this is consistent with there being other kinds of Forms). But by announcing, even hypothetically, the project of a first philosophy beyond physics and mathematics, Aristotle has focussed the pursuit of the ἀρχαί on the question whether there is any causal chain that leads up from the physical realm to something beyond the physical realm, where this might be equally a chain of formal causes leading up to a separate Platonic Form (and perhaps beyond that to a first One-itself), or some other causal chain leading to some other kind of ἀρχή. All of the causes, to the manifest things, of being and its per se attributes (unity and multiplicity and sameness and difference and so on), will need to be investigated to see whether they lead to some such cause beyond the physical realm; if the answer, in any case, is yes, then the causes reached in this way will be the ἀρχαί in the strict sense, and they rather than the physical causes will be the objects of wisdom.

One important consequence of this discussion is that the science of wisdom is distinguished from other sciences not, like most sciences, on account of the effect it is seeking to explain, but rather on account of the cause it is seeking to grasp; and so, too, wisdom is specially desired, not because this is the effect we desire to explain, but because these are the causes we desire to grasp. Wisdom is knowledge of the ἀρχαί, however acquired; we must acquire this knowledge by finding the ἀρχαί as causes of being, but God is apparently unaware that he is a cause, and his knowledge of himself is still wisdom. And not all of the causes of being will fall under wisdom, although the first philosopher should investigate them to determine whether they do or not: thus the soul is the cause of being (as formal cause) to living things, but this knowledge belongs to physics and not to first philosophy.³⁹ Indeed, although wisdom is a science that knows causes of being and its attributes, there is a sense in which wisdom does not explain these effects, being and its attributes, because wisdom does not know all the causes of these effects: the causes which wisdom knows are not in themselves sufficient to generate or to explain these effects, and therefore wisdom does not possess a "downward way" from the ἀρχαί back down to their effects (whether we think of this in the grand Fârâbian style as a derivation of the whole cosmos of body and soul and νοῦς from the first ἀρχή, or in the modest Fredean style as a derivation of deficient modes of being from the first perfect mode of being, neither can be found). Theophrastus makes something like these points in his Metaphysics. Of course no inference can be based on the non-authorial title Metaphysics, but Theophrastus begins by asking "how and by what [marks] should

³⁷you might say that, even if the answer is no, there will still need to be a discipline beyond physics to determine this; but then, not having any domain of objects, it will not be a science, and cannot be wisdom

³⁸thus Theophrastus Fr.230 (cited in Iα1) has Plato devoting himself mostly to first philosophy--presumably to the study of the Forms, or to kindred mathematical speculation

³⁹references (i) to my fuller discussions of this point, (ii) to the soul as αἴτιον τοῦ εἶναι (DA II,4 and compare Metaphysics Δ7, De Partibus Animalium I,1), (iii) to the soul, except perhaps νοῦς, falling under physics and not under first philosophy. NB there is no Aristotelian support for the suggestion that physics studies the soul or other natures as causes of motion, first philosophy rather as causes of being. Aristotle never suggests that the same form, or same soul, can be studied (under two different aspects) both by physics and by first philosophy, and when in De Partibus Animalium he does divide up the study of the soul between physics and first philosophy, this is not how he divides it. the Physics argues that form rather than matter is the φύσις καὶ οὐσία τῶν φύσει ὄντων, and the De Anima that the soul is the αἴτιον τοῦ εἶναι to the living body

we characterize the θεωρία ὑπὲρ τῶν πρώτων", and says that this is a study distinct from and better than physics, whose objects are unmoved and intelligible rather sensible; the starting-point for the investigation is whether these intelligible things have some causal connection with sensible things, so that we can come to know them by beginning from sensible things (Theophrastus Metaphysics 4a2-17).⁴⁰ And later, after reviewing the general failure of the Academics to derive very much from their ἀρχαί, Theophrastus says that "the result is contrary to what happens in the other disciplines, for in them the parts of the sciences that come after the ἀρχαί are more powerful and as it were more perfect" (he might be thinking e.g. of geometry, where the definitions and postulates and the immediate inferences from them are not very impressive, but the theorems that can be deduced from them are); and, although this sounds like an annihilating irony against these metaphysical pretensions, Theophrastus concludes instead "and perhaps this is reasonable: for in those disciplines the investigation [ζήτησις] is from the ἀρχαί, whereas here [i.e. in first philosophy] it is of the ἀρχαί" (6b17-22).

Thus for Aristotle's construction of his new discipline in the Metaphysics, it is sufficient that at least one chain of causes of being to sensible things leads up to a separate unmoved cause, and this is what Aristotle will claim to prove. The causal connection is "thin," too thin for a downward way to be possible, but Aristotle had never promised a downward way. And Aristotle's separate unmoved substances are still causes of being, since they are causes of being-as-ἐνέργεια to the heavenly motions, and the heavenly motions are causes of being-as-ἐνέργεια to all sublunar things. (It is debatable whether the heavenly bodies also depend for their actual existence on their movers--Averroes argues that the identity of these bodies depends on their motion, so that they would depend on the movers for their existence, and he might be right⁴¹--but certainly all sublunar substances depend for their existence on the heavenly motions and thus on the activity of the movers.) Aubenque, who rightly stresses that there can be no downward way from separate unmoved ἀρχαί for Aristotle, goes too far in concluding that no causal connection is possible, that the causes of being to sensible things lead not to numerically single eternal substances but only to universal ἀρχαί analogically present in all things, matter and form, δύναμις and ἐνέργεια. Aristotle certainly devotes much energy to showing that the immanent causes of being, the matter and the form, do not lead to single separate ἀρχαί, but his point is to distinguish them from the extrinsic (efficient and final) causes of being, which do lead up to a single separate eternally unmoved ἀρχή.⁴² Ontology is relevant to the project of theology, not because (as Patzig and Frede and Owens think) divine things are or display a special primary meaning of being, nor because (as Aubenque thinks) the failure of any causal chain to reach up to the divine leaves us with an analysis of universal immanent structures of being instead, but because, to search for the ἀρχαί in a critical and scientific way, we have to start by clarifying the different senses of being and of cause (and of unity and so on) yielding the different causal chains some of which lead to the ἀρχαί and some of which do not. Ontology is relevant. It is not simply that physics and first philosophy both investigate causes of sensible things, and that the

⁴⁰given Theophrastus' use of "first philosophy": in Fr. 230 (cited above), he would surely accept that name for the science he is pursuing here

⁴¹reference in Averroes (where? I think it's in the Tahâfut al-Tahâfut, maybe elsewhere too)

⁴²see discussion later of intrinsic and extrinsic causes; this will come up in various places but will be esp. important in A1-5; I'll have some discussion with Aubenque there. Aubenque is of course aware that Aristotle claims that an eternally unmoved divine ἀρχή is a cause to the other beings, he just thinks Aristotle can't consistently make this out, and perhaps that Aristotle at some point realized the failure of his attempt. Berti is right to agree with Aubenque that God is not the primary meaning of being for Aristotle, but to insist against Aubenque that God remains a cause of being (although I don't entirely agree with Berti against Aubenque on how God is a cause; discussion in IIIγ)

investigation is called first philosophy when the cause turns out to lie beyond the physical realm. Aristotle proves in the Physics itself that the first cause of motion is something unchanging and indivisible lying outside the physical world. But to grasp positively what this ἀρχή is and how it is a cause we need a further discipline beyond physics. In particular, critical ontological reflection on the argument of Physics VIII, drawing on the conceptual clarifications and doctrinal conclusions of Metaphysics Θ, will allow Aristotle to conclude in Λ that this ἀρχή is a cause of actuality, of being-in-ἐνέργεια, and that the first cause of being-in-ἐνέργεια is a pure activity, ἐνέργεια unmixed with δύναμις; and there will be further consequences. We will examine these positive theological or archeological uses of ontological reflection when we discuss Θ and Λ in Part III below; until then, the argument will be mostly negative.⁴³

⁴³there is now duplication with Ia4 on the question why eternally unchanging things would have to be prior to physical things, d resolve