

Interpretation

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A Synoptic Introduction to the Ontological Background of Aristotle's Political Theory*

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Aristotle believes that wisdom and not merely philosophy is available. This seems to me to be the difference between Plato and Aristotle...that Aristotle believes that biology, as a mediation between knowledge of the inanimate and knowledge of man is available.

—Leo Strauss to Alexandre Kojève, May 28, 1957

Aristotle's political philosophy is situated in the context of a science of terrestrial life (biology) and of an inquiry into being as such (ontology) as well as logic. Students and scholars of Aristotle's virtue-centered ethics and classical republican political theory are repeatedly reminded of this as they study the relevant texts: when, for example, near the start of his ethics Aristotle deploys his "categories of being" in criticizing the Platonic idea of the good (NE 1096a);¹ when he lays as a cornerstone of his ethics the contention that

* I thank *Interpretation's* three anonymous reviewers for helpful suggestions, corrections, and challenges.

¹ Works of Aristotle will be cited by standard Bekker page and line, and by the following abbreviations (translations are mine): AP = *Posterior Analytics*; C = *Categories*; CIB = *Coming into Being and Passing Away*; EE = *Eudemian Ethics*; GA = *Generation of Animals*; HA = *History of Animals*; IA = *Incessu Animalium (Gait of Animals)*; M = *Metaphysics*; MA = *Movement of Animals*; MET = *Meteorology*; MR = *On Memory and Recollection*; NE = *Nicomachean Ethics*; OH = *On the Heavens*; PA = *Parts of Animals*; PH = *Physics*; POL = *Politics*; PP = *On Perception and Perceptibles*; R = *On Respiration*; S = *On Soul*; SA = *On Sleep and Awakeness*; YOA = *On Youth and Old Age, On Life and Death*.

the functional character of all life forms implies that the human being must have a distinctive function or work (*ergon*—NE 1097b–98a); when he begins his political science with the proposition that the human is a political animal in the same genus as bees, but more so (POL 1253a9); when he draws an elaborate analogy between how “we” explain and classify the diversity of animal species and the explanation and classification of the variety of regimes encountered in actual political life (POL 1290b25–37)—and above all, when he contends that the most flourishing human life, which is *the* standard for the human good, both civic and individual, is that of the theoretician engaged in the study of nature and being (NE 1177aff., POL 1325b). As political theorists we thus come to be in need of some serious acquaintance with Aristotle not only as political philosopher but also as biologist and ontologist as well as logician. We are led to ask: What is the content of the transpolitical thinking that is a chief preoccupation of the life that is held up by Aristotle as *the* normative standard for civic and personal human existence (the life that Aristotle himself lived in exemplary fashion)? I offer here the beginning of, and an invitation to join, an exploration of the answer, while giving indications of where and how to look in Aristotle’s texts for oneself, and while suggesting some other helpful secondary literature.

THE “REAL” WORLD

Aristotle strives to articulate the character and causal necessities of life in the world as directly experienced by us humans. That lifeworld is, in a nutshell: one’s rational consciousness, embedded in one’s body and through its organs receptively perceiving, while mentally articulating and actively engaging with (a) other such human embodied consciousnesses—with whom one passionately interacts, above all through speech (*logos*), in response to a range of needs and concerns uneasily regulated by civic and religious and moral opinions, as (b) we all needfully deal with innumerable kinds of subhuman, perceived, living beings and nonliving, perceived, material entities.

But Aristotle’s ontology acknowledges that terrestrial reality so conceived is not all that exists. Most obviously, we live under a strikingly stable heavenly environment, plainly visible but otherwise unreachable for perceptual study. This realm Aristotle treats in an elaborate natural theology, explicitly following “what has been handed down by the ancients and the altogether old in myth” (M 1074b1–14) and implicitly following Plato’s Athenian Stranger in the *Laws* and in the Platonic *Epinomis*. Aristotle thereby made a decisive contribution to rescuing natural science for coming millennia from the

severe opprobrium and persecution into which it had fallen by the time of the trial and execution of Socrates. As Plato's Athenian Stranger explains, people "think that those who busy themselves with such matters, through astronomy and the other arts that go with it, become atheists, having seen that, to the greatest extent, actions come into being by necessities and not by the thoughts of an intention concerned with fulfillments of good things."² No one could ever accuse Aristotle of teaching that sidereal nature is governed only by necessities indifferent to the fulfillments of good things. But Maimonides (*Guide of the Perplexed* 1.5 and 2.19) highlights Aristotle's expression of deep uncertainty and modesty/awe (*aidōs*) in presenting his thoughts on the heavens—which, Aristotle declares in the passage spotlighted by Maimonides, contain the "greatest perplexities, which are many."³ And Maimonides most helpfully shows that Aristotle in this and in many other ways indicates his profound awareness of the severe challenge posed to philosophy (a challenge that cannot ever be disposed of by philosophic study of nature, or by ontology) from such claims as Hesiod's (*Theogony* 116) that the divine Muses gave him the revelation that "in the very beginning [the god] *Chaos* (Gaping Emptiness) came into being" (*prōtista Chaos genet'*). To put the point in more scientific terms, Maimonides helps us to see that Aristotle from time to time indicates his profound awareness of the question whether reality or the ordered lifeworld may not be ultimately temporary or finite, emergent, derivative—from a fathomless source.

Certain it is that Aristotle explicitly acknowledges that there must be "underlying, prior" roots or sources of perceptually experienced terrestrial reality (e.g., M 1010b30–11a2). He repeatedly discusses at length how his "pre-Socratic" predecessors hypothetically inferred insuperably imperceptible, prehistoric, and "microscopic" as well as "extraterrestrial" roots, causes, and sources (e.g., the atoms of Democritus, the cyclical cosmic forces and the theory of evolution of Empedocles). From all these perceptually inaccessible conjectures, Aristotle takes a more or less respectful, severely critical distance: "for the intellect there is no intellection of outside beings that are without perceptibility" (PP 445b17, and see the context); "the objects of intellect are in the perceptible forms" (S 432a5), and "when one theorizes, it is

² *Laws* 967a; see P. Ahrensdoerf, "The Question of Historical Context and the Study of Plato," *Polity* 27 (1994): 113–32, and E. Derenne, *Les procès d'impiété intentés aux philosophes à Athènes au Vme et au IVme siècles avant J.-C.* (Liège, 1930).

³ *tas megistas aporias, pollōn ontōn*—OH 291b24–29; see also PA 644b27ff., MA 699b13ff., M 1041a1–4.

necessary at the same time to theorize about some imagined picture.²⁴ Aristotle's own gingerly inferences and hypotheses about the imperceptible⁵ cling close to evidence that is directly perceptible. By the same token, Aristotle's strict perceptual empiricism stands far removed from modern science's study of nature by way of mathematical symbolization and the creation of imagined "models"—a study whose foundational levels are verifiable only to the extent that they allow predictive, practical manipulation of perceived reality, and that have proved subject to infinite, radically revisionary progress, thereby disclosing and confronting infinite mystery.⁶

THE CENTRALITY OF HUMAN BEING

From *On Soul*, we learn that the human soul, actualizing sense perception (*aisthēsis*) and intellect (*nous*) in dealing with its needful concerns and in contemplating itself so dealing, is "in a way all the things that are" (*hē psuchē ta onta pōs esti panta*—S 431b20). This is especially true inasmuch as "the intellect [*nous*] is on one hand such as to become all, and on the other hand such as to make all, as a certain habit, like light—for in a certain way light too

⁴ S 432a9; see also 27b17, 31a17; MR 450a1; GA 747b10.

⁵ E.g., S 426a21–27; GA 721a15ff., 54a19, 69b3–10, 71b19–23; SW 455b32–34; CIB 317b23–36.

⁶ A foundational statement is that with which H. Hertz opens his path-breaking *Prinzipien der Mechanik in neuem Zusammenhange dargestellt* (Leipzig, 1894): "the symbols of which we speak are our ideas of things; with the objects, they have one essential conformity, which lies in fulfilling the practical demand of enabling us to predict future experiences so that we may direct our present activities accordingly; but it is not necessary to their purpose that they have any further sort of resemblance to things. In fact we do not even know and have no way of discovering whether our ideas correspond with objects in any other way than just this one fundamental relationship"; for the historical development see E. Cassirer, *Problem of Knowledge: Philosophy, Science, and History since Hegel* (New Haven, CT: Yale University Press, 1950), chap. 5; see also W. Heisenberg, *Wandlungen in den Grundlagen der Naturwissenschaft* (Leipzig: Hirzel, 1945), 36: "the atom of modern physics can be symbolized only through a partial differential equation in an abstract space of many dimensions. . . ; no material properties can be directly attributed to it. That is to say, any picture of the atom that our imagination is able to invent is for that very reason defective." Also Heisenberg, *The Physicist's Conception of Nature* (New York: Harcourt, Brace, 1958), 15: "Nor is it any longer possible to ask whether or not these particles exist in space and time objectively." (See T. Pangle, "On Heisenberg's Key Statement concerning Ontology," *Review of Metaphysics* 67 [2014]: 835–59.) For recent provocative protest, see L. Smolin, *Einstein's Unfinished Revolution* (New York: Penguin, 2019). For a recent provocative survey and marshaling of some attempts to reconcile Aristotelian and contemporary natural science, see E. Feser, *Aristotle's Revenge: The Metaphysical Foundations of Physical and Biological Science* (Neunkirchen-Seelscheid: editiones scholasticae, 2019).

¹ⁿ the early twenty-first century, argument has emerged over the extent to which foundational physics should consider itself in need any longer of being verified by observational-predictive results, or over the extent to which foundational physics can become "postempirical": for an introduction to the literature, see G. Ellis and J. Silk, "Scientific Method: Defend the Integrity of Physics," *Nature* 516 (2014): 321–23; and S. Hossenfelder, *Lost in Math* (New York: Basic Books, 2018), esp. 33–34, 148–49, 176–77, 213.

makes the beings that are potentially colored actually colored” (S 430a14–15); “the soul is as the hand; for indeed the hand is the tool [*organon*] of tools [see also PA 687a20–21], and the intellect is form of forms, and the sense perception is form of perceptibles” (*ho nous eidos eidōn, kai hē aisthēsis eidos aisthētōn*—S 432a1–2; see also 17b23–24 and M 1053a35–b3); being or non-being “in the most authoritative sense” (*kuriōtata*) is “truth or falsehood” (M 1051b2–6). As thus contributing fundamentally to the constituting of, and thereby ontologically prior to, (the rest of) experienced reality, the intellect, although existing “in the soul,” is “separate/separable” (*chōristos*); and while “receptive,” is “not acted upon” (*apathēs*), and is “unmixed, as substantial being [*ousia*] in action” (S 430a13, 17–18; also 408b29, and PA 641a33ff.). We may be tempted to invoke the terminology of Kant and Husserl, in their speaking of the intellect as “transcendental” (*not* “transcendent”). None of this is to reject the general opinion (*doxa*) which holds that while “if animate life were removed, there would be no knowledge, it is still possible for many of the knowables to exist; and so it holds also for matters of perception”; “it would seem / be opined [*doxeien*] that prior to the perceiving the perceptible has existence.”⁷ But it is at least doubtful to what extent the potentially knowable and potentially perceptible could still exist as realities or substantial beings (*ousiai*) in Aristotle’s most decisive sense if animate life and especially its noetic awareness were removed.⁸

Aristotle’s zoological writings teach that the human soul with mind not only thus contributes fundamentally to the constituting of reality, but that the human being, on account of the distinctive activity of intellect and prudence, is the peak among the beings (*ousiai*) of reality thus constituted.⁹ So, reality is profoundly anthropocentric. The entities of or in reality are *pragmata* of human needful *praxis* (including theoretical *praxis* or *pragmateuomai*—e.g., M 1025b9, 18, 27b27–28, 31), entailing human orientation, evaluation, and ranking (e.g., M 1022a9–10). Aristotle endorses a sober interpretation of the famous Protagorean pronouncement, “the human is the measure of all” (M 1053a36). If we may venture to apply somewhat helpful Nietzschean expressions, the “real” world is “the world of concern to us”; reality is inevitably what is experienced from the human “perspective.”¹⁰

⁷ C 7b34–8a12; see also M 1028a1–4, 51b2–6, 65a24–25.

⁸ Cf. M 1027b18–28a6, 36a7–8, 40a3–8, 51b1–2, 70b36–71a3 with 41a1–4 and S 426a21–27.

⁹ PA 656a5ff., 86a26ff.; IA 706a19–20, b9–10; R 477a15–25; see also PA 648a29ff., 53a27, 60a11, 17; GA 781b17–22; HA 491a20–23; contrast C 2b26–27.

¹⁰ See W. Charlton, *Aristotle's Physics Books I and II* (Oxford: Clarendon, 1970), 106–7 (and 124): “it is doubtful whether we should think a thing remarkable, doubtful whether we would even notice it or

Artificial entities obviously have their reality derivatively from their human makers and users (S 412a13; M 1041b29–30).

As for all nonartificial, subhuman entities: they have reality in ranked degrees defined by their comparative distances in kinship from the human at its most rational. This means that living beings count, more than all the lifeless, as the substantial beings (*ousiai*).¹¹ The lifeless entities can be “much, but not many” (M 1056b16); “none of them is a one, but they are like a heap [*sōros*], until they are metabolized [*pephthē*]¹² and there comes into being some one out of them” (M 1040b8–10). And to find our way through the abstruse thickets of the *Metaphysics*—to put flesh on its skeletal bones—I think it is essential that we consult constantly the biological-zoological writings: for in them Aristotle makes much more concrete what he has in mind by “matter,” “form,” “soul,” “cause,” “coming into being and passing away,” “defining account,” “necessity,” and, above all, “substantial being” (*ousia*). I fear that failure to attend constantly to the zoological writings has led to readings of the *Metaphysics* that attribute to Aristotle either an overly confident view of what humans can know about the ultimate, “metaphysical” causes or sources of what exists, or an overly skeptical view of what science can accomplish in terms of causal explanations of life forms. The great program of field research and meditative study in biology initiated by Aristotle died out after Theophrastus in the next generation, and remained pretty much moribund for 2400 years, not least among “Aristotelians” (with rare exceptions such as Harvey).¹³

be able to pick it out from the rest of our environment, if it did not seem to us, at least in a weak sense, such as to be for something.”

¹¹ M 1032a19–20, 34a4, 40b5–16, 43a4–5 (in the context of 42b16–43a28), 43b21–23, 69a32, 70a20, 71a1–3, 77a1–4, a21–23; compare M 1017b10–25, 20a20, 28b10ff., 42a8ff. See also EE 1222b16: “all the substantial beings are by nature certain first causes [*archai*], owing to which each is able to generate many such as itself, for example, a human humans, and, being animal, animals, and plant, plants.”

¹² This term—whose pre-Aristotelian meaning covers changes that occur through heat, in processes such as ripening and cooking and digestion—is used by Aristotle as roughly equivalent to our term “metabolize,” and at M 1049a15 the verb *metaballein* is used instead. The noun is *pepsis*, which at PA 650a5 is paired with *metabolē*.

¹³ See J. Lennox, “The Disappearance of Aristotle’s Biology: A Hellenistic Mystery,” in *Aristotle’s Philosophy of Biology* (Cambridge: Cambridge University Press, 2001). A great twentieth-century exception is D. W. Thompson, esp. *On Growth and Form* (Cambridge: Cambridge University Press, 1917 and 1942). I am much indebted to illuminating work done in the latter part of the twentieth century by Lennox and other scholars of Aristotle’s biology and its ontological implications, esp. D. Balme, A. Gotthelf, P. Pellegrin, and above all M. Furth (“our dangerous purpose not merely to disinter, but to resurrect”—*Substance, Form and Psyche: An Aristotelean Metaphysics* [Cambridge: Cambridge University Press, 2007], 2). Their shared deficiency is a failure to consider the historical, civic-cultural (and above all religious) context within which Aristotle lived and worked, which impelled him to teach and to write deploying an elaborate rhetorical strategy animated by a most

THE CATEGORIES AS ENTRYWAY

Aristotle's more introductory work *Categories* (major aspects of which are restated in such passages as M 1017a8–b14, 26a36ff., 28a10ff., 51a34ff.) teaches that reality (“the beings,” or “the things that are,” *tōn ontōn*, C 1a20)—is twofold.

(a) Preeminently, there exist individual “substantial beings” (*ousiai*)—e.g., “the certain human, or the certain horse” (C 2a13). Such a “certain this here” (*tode ti*—3b10ff.) comes into being and passes away; and, while existing, remains one and the same even while moving and undergoing alteration.

These “primary substantial beings” (*prōtai ousiai*) are “underlying” (*hupokeimenon*), and are defined or given a logos by (*legetai kata*) “secondary substantial beings” (*deuterai ousiai*): fixed classes, species, or “forms” (*eidē*, e.g., “human,” “horse”) that in turn are defined and revealed by wider “genera” (*genē*, e.g., “animal”). “Of the secondary substantial beings, the species-form is more substantial being than the genus; for it is nearer to the primary substantial being” (C 2b7–8). But in a pointer to something much more, Aristotle says at one point that the form “alone of the predications/categories [*katēgoroumenōn*] shows/reveals [*dēloi*]” “what is” the “primary substantial being,” and “so, reasonably, these alone among the others [sc. predications/categories] are said to be substantial beings” (C 2b31–33, 36–37).

(b) Of these primary and secondary substantial beings there exist attributes (e.g., “pale,” “knowing how to read and write”) which are said to be “in” the “underlying” substantial being(s)—“not as parts,” but as what “cannot possibly exist apart from them” (C 1a25–26, 3a31). These attributes are also defined or given a logos by fixed forms or species and genera (e.g., knowledge of “this letter A”—S 417a30—is an item of the *form* that is knowledge of reading and writing, which is a species of the *genus* that is artful knowledge). These attributes are in themselves each unalterable (C 4b10–21; see also M 1034b14–16), but exist in a range of degrees between contraries; and particular degrees are acquired and lost by the individual substantial being(s), thus undergoing alterations (e.g., a human first lacks and then gradually acquires, part by part, knowledge of reading and writing).

Aristotle organizes the genera of attributes into nine “predications” or “categories” (*katēgoriai*) for which he gives examples as follows: “quantity”

cautious and imaginative sense of civic as well as scientific responsibility: see T. Pangle, “The Rhetorical Strategy Governing Aristotle's Political Teaching,” *Journal of Politics* 73 (2011): 1–13.

(“two cubits,” “three cubits”); “quality” (“pale,” “expert in reading and writing”); “relation” (“half, double, greater”); “place” (“the Lyceum,” “the agora”); “time” (“yesterday,” “last year”); “posture” (“lying,” “sitting”); “condition” (“shod,” “armed”); “action” (“cutting,” “burning”); and “being acted upon” (“being cut,” “being burned”). When added to the predication or “category” of *secondary* substantial being (C 1b10–15, 1b25–2a3; “there is no predication/category from the *primary* substantial being; for it is said of nothing underlying”—3a37) we have ten “categories” in all.

It is clear from most of Aristotle’s examples that what he has chiefly in mind as a “primary substantial being” (*ousia*) is not a “thing” in general, but a living, ensouled being—“the certain human, the certain horse.”

SUBSTANTIAL BEING AS FORM IN RELATION TO MATTER

The *Categories* abstracts from a great deal: most massively, matter or the material (*hulē*; this is gestured toward at one point: C 8a9–10), and hence form *as related to matter*. As a result, *Categories* abstracts from cause, and from coming into being and passing away, and from soul. Individuals are conceived as (C 2a11–13, 34–36, b3–6, 3a1–2) not only “especially” (*malista*), and “in the most authoritative way” (*kuriōtata*), the “primary substantial being(s),” but also as “indivisible” or “unanalyzable” (*atoma*, C 1b6). Individuals are “underlying” the forms or species predicated of them as defining and thus revealing classifications (as merely “secondary” substantial beings). The forms are *not* presented as *causes* (indeed, the form is at one point reduced to the status of a quasi quality (*to poion*: C 3b10–22).

In contrast, the more advanced works conceive the individual substantial being as more complex and problematic:¹⁴ as the “ultimate underlying” that

¹⁴ “And indeed also from of old, and now, and always, what is sought, and is always perplexing—‘what is the being?’ [*ti to on*]—this means, ‘what is the substantial being?’ [*tis hē ousia*], ... therefore also by us, about the being in this sense especially and primarily and solely, so to speak, ought there to be theorizing as to what it is” (M 1028b3–7; see also 1003a33ff. and 45b28–33).

Modern rationalism since Descartes has tended to denude substantial being or “substance” of significance, reducing it more and more to a mere focal point of (ultimately energy) relations—in part by largely ignoring animate being: e.g., Locke, *Essay concerning Human Understanding* 2.23–24; Kant, *Critique of Pure Reason* B333ff.; H. Poincaré, *Science and Hypothesis* (London, 2017), 2 and 115: “that which science captures are not the things themselves, but simply relationships between them. Beyond these relations, there is no knowable reality.” See also H. Reichenbach (one of Einstein’s first and closest students), *The Theory of Relativity and A Priori Knowledge* (Berkeley: University of California Press, 1965), 103; in Einstein’s general relativity, “space is filled with the field that determines its metric; what we used to call matter is merely condensations of this field.... Thus the individual thing is dissolved into the concept of the field.” For a synoptic and more philosophic treatment, see E. Cassirer, *Substance and Function and Einstein’s Theory of Relativity* (Chicago: Open Court, 1923), esp. 309–10 and 356–57.

is *also analyzable composite* of form and matter. Aristotle does not mean by “matter” some sort of form-less, blob-like “prime matter”: “those who make one matter beyond those spoken of (perceptible bodies), and this bodily and separable, are in error” (CIB 329a9–10).¹⁵ Speaking generally, “matter” designates whatever is so formed as to have the potential (usually but not always actualized) to be further determined/shaped/formed,¹⁶ under certain conditions (including especially some moving cause[s]—1070a1–2): “in every nature” there is “something that is the matter for each kind [*genei*], and this is what is all those potentially” (S 430a10–11). And so, “matter is among the relatives, for of a different form, a different matter” (PH 194b9). Matter also contains possibilities for what is fortuitous (M 1027a14ff.).

Aristotle speaks a few times of “intelligible” (*noētē*) matter, in contrast to “perceptible” (*aisthetē*) matter. He means by this: the intellected (and not merely perceived) particularity of individuals, and especially their (abstracted) particular mathematical dimensions;¹⁷ also the genera as the noetic matter-potential for the defining accounts of species-forms.¹⁸ Above all, “intellect is on one hand such [i.e., intelligible matter], inasmuch as it becomes all things, and on the other hand such as to make all things” (S 430a14).

Yet Aristotle’s main focus is on “perceptible matter.” The term he introduces for “matter”—*hulē*—he draws from a common word (seen from Homer on) meaning primarily forest, trees, timber, wood, and derivatively wooden material, and still more derivatively, materials generally out of which things are made artificially. Aristotle builds on this last common meaning, and he often illustrates matter’s relation to form by instancing the material whose form is such that the artist or artisan can mold it into the artifact whose form he envisages as his end—with the material, in its pre-formed character as potential, preexisting and then persisting as the “underlying”: the bronze

¹⁵ At one point Aristotle seems to experiment with trying to articulate the idea of such an ultimate, underlying substratum—“which as itself is not something, nor so much, nor spoken of by any of the other [categories] by which that which is [*to on*] is defined [*hōristai*]”—“nor indeed the negations, for these too pertain accidentally”—and he concludes that it is “impossible” (*adunaton*): M 1029a18–30; see also CIB 317b23–36, as well as 320b18, 23; 332a17–20, 27ff.; cf. M 1044a15–17.

¹⁶ See, e.g., M 1032a18–22, 42a27, 49a19ff.; in the PH, esp. bk. 1, Aristotle substitutes “privation” (*sterēsis*) for potentiality, in what would seem to be a somewhat less perspicuous and more exoteric doctrine (appearing in M briefly from time to time—1033a8–16, 26, 42b3, 55b14, 62b30–32, 65b11, 69b34, 70b19, 71a35): see esp. PH 191b28–29 and 93b20–22; D. Bolotin, *An Approach to Aristotle's Physics* (Albany: State University of New York Press, 1998), chap. 1; and consider M 1022b23ff. as well as Maimonides, *Guide of the Perplexed* 1.17.

¹⁷ M 1036a3ff., b33ff., 45a34–36; see also 25b34 and 59b15.

¹⁸ M 1016a26–28, 24b8–10, 38a6, 58a23—see also 23b3, 45a35, and PA 643a24.

in the statue, the wood in furniture (M 984a23–27 etc.). But this frequent illustrative analogy of the arts, while illuminating in some ways, is in crucial respects misleading as regards the matter of the fullest and truest, because living, substantial beings. In the latter, matter does not preexist and persist, in the manner of the artisan’s material (wood, bronze)—organic matter exists in and as a ceaseless metabolic flow; and organic matter acquires or is given form without any need for an external designer or craftsmanship (see Aristotle’s critique at GA 740a15 of a philosopher who supposes that animals are formed on an analogy with those carved in wood or stone). As for why Aristotle exaggerates the analogy with the arts, a major reason is that this serves as part of his rhetorical strategy of presenting his natural science as discovering in nature a divinely intelligent, artful designing—*hē dēmiourgēsasa phusis* (“the nature that works as public artisan”).¹⁹

Crucial dimensions of the teaching on form in relation to matter can be summarized as follows.

(a) Both matter and form are called “substantial being,” but more so the form which is now called “the primary substantial being” (e.g., M 1028a14, a31ff., 32b1–2, 37a5, a27–b5). “We, indeed, speak of one certain genus of the things that are [*tōn ontōn*] as substantial being [*ousia*]”; and “of this, on one hand as matter, which by itself is not the certain this here [*tode ti*]; and on the other hand as shape/structure [*morphē*] and form [*eidōs*], according to which it is now spoken of as the certain this here”; and “third, what is from these”; and “on one hand the matter is potentiality [*dunamis*], while on the other hand the form is completion [*entelecheia*]” (S 412a6–9; see similarly M 1042a26–30, 43a35–b5, and also 29a28–29). “It follows that there are two ways in which the substantial being is spoken of”: as “both the ultimate underlying, which is not further predicated of another,” and as “that which, being the certain this here, would also be separate—but such is the structure and the form of each” (M 1017b23–26).

(b) In the case of the living, fullest, substantial beings, Aristotle identifies the form with the “soul” (*psuchē*): “the soul is necessarily substantial being as form [*eidōs*], of a natural body [*sōmatos*] that has the potential for

¹⁹ See esp. S 415b15–17, also 20b17, as well as PA 641b11ff., 45a9, 54b33. In about a quarter of the 250 or so references to nature in PA (L. Bodson, *Aristote: De partibus animalium; index verborum, listes de fréquence* [Liège: CIPL, 1990]), Aristotle speaks of “the nature” in a way that makes it sound like an agent artisan—and he does not usually employ the language of “as if”—as he does at GA 743b23–24 (in GA, treatment of “the nature” as artisan is somewhat rarer: 730b25–31, 31a24ff., 43b24, 44b16–28, 55a20, 67a17ff., 81b23; see also 40b25–28, 62a16–18, 89b11; for the nature “likely to be wishing,” see 53a8, 57a26—like PA 670b34, 82a6).

life [*zōēn*].”²⁰ The form as the soul is the individual being's living structure, ready to engage in integrated nutritive, maintaining, and reproductive activity—and, in animals, desiring and then locomotive and cognitive praxis of many sorts (*praxis polymorphos*: PA 645b15–20, 646b15)—all *in the distinct manner of the species* to which the individual belongs. While Aristotle closely associates form with shape/structure, he thereby does *not* identify the two.

(c) Form or soul is analyzable, by being formulated as a defining “logos” or “definition” (*horismos*: 1039b29ff.), in terms of diverse genera and subgenera and finally species²¹ (each genus having its own, prior defining account by differentia of the preceding wider genus). The differentiae of each species are essential attributes and especially “parts” (POL 1290b25–30) whose characters vary, between species, over a range of “more and less” between contraries.²² In a defining logos, the final set of differentiae express “the (species) form and the substantial being” as “the what it was to be” (*to ti ēn einai*: a terminology never used in the *Categories*—traditionally translated “essence”; see esp. M 1037b–38b4). The genera are not themselves substantial beings; they are rather “intellectual matter” for the zoological analysis into forms—of parts and of species (M 1038a6–9). But this does not mean that the genera are mere mental classifications; their defining characteristics—e.g., wingedness—play a causal role in limiting what is possible for all the included species (e.g., PA 680b15ff., 84a32–34, 85b15). A completed defining account of a living species-form need not be further divided into subspecies.²³ As we learn from the biological works more fully than from the *Metaphysics*,²⁴ a

²⁰ S 412a20–21; see also M 1035b15–18, 37a5 (“it is clear that on one hand the soul is the primary substantial being, and that on the other hand the body is matter”) and 37a27 (“with the matter there is no [defining] logos...in accord with the primary substantial being there is—such as of human the [defining] logos of the soul; for substantial being is the form within”), 43a35–b5; PA 641a18ff.; GA 738b27.

²¹ Aristotle eschews any sort of Linnaean or Platonic-dichotomous classification of life forms overall; his genera (for which he sometimes uses the term “form” or *eidē*, e.g., GA 719a7; HA 490b15–18 “one form embracing many forms”—even as he sometimes uses *genos* for species, e.g., PA 680a15; HA 535b10, 506a9 along with PA 666b19; M 1057b36ff.) are flexible and adaptable, depending on the causal-explanatory focus of the zoologist: “there happens to be much overlapping of the genera”—GA 732b15 and context; see also 733a27, 49b20, 74b17; and PA 642b5ff.; HA 501a22; many animal species, preeminently the human, overlap major generic divisions; for some vivid examples see PA 669a9, 81b1, 89b32, 90b22, 97b1,14 and GA 772b1, as well as 19a7, 31b9, 74b18.

²² Among similar species “the parts differ” by “greatness-smallness, softness-hardness, smoothness-roughness, and such; and on the whole by the more and less”: PA 643a32ff., 44a14–16, b11–16; see also 92b3–7; HA 486a23–b16; and M 1042b32–35. This dimension of Aristotle's biology was mathematized by D. W. Thompson in his *On Growth and Form*.

²³ M 1034a7, 38a16, a26, 52a32–36; also 16b2, b33–35, and PA 643a1–12, 44a24–26, 45b27.

²⁴ See M 1035b14–27, 36b26–32; in M, examples of defining accounts are given only in truncated and

completed defining account would express the functioning parts, and (in animals) activities and way of life, and dispositions of character (gentle or savage, timid or bold, etc.), that constitute or are “for the sake of” (*heneka tou*) the manifest “flourishing” (*euēmereō*—which for animals is “awakeness,” *egrēgorisis*²⁵) of individuals of one particular species in contrast to the flourishing of individuals of other, similar, species. Thus in the living, most truly substantial beings, “the [defining] logos and the for the sake of which as end [*telos*] are the same [*tauton*].”²⁶

As is made clear especially at the start of book 5 of GA (778a16ff.; see also M 1058b1–2), differentiations that are not manifestly “for the sake of” flourishing (e.g., color of eyes, hair or fur, and skin, in most cases) are attributed to the “necessity” of material and motive cause, and may sometimes mark out

schematic, not to say sketchy versions; in PA, more complete, though never fully completed, defining accounts are given of some species (e.g., 684a32–b1, 85b12–16, 86a25–31)—and also of some genera (e.g., 653b19–27, 78a26–34, 82a35–b32, 93b3–13, 95b17–25).

²⁵ Sleep “belongs to animals for the sake of preservation; but awakens is the end; for to perceive and to think is the end for all to whom either of these belong” (SA 455b22–24; also 58a30–32; GA 778b25ff.; S 434b25, 35b20ff.; EE 1219a24–26; cf. PA 656a6–8, 72b20–24, and M 1035b18). In GA Aristotle first says (717a22–23): “for most animals the work is pretty much nothing more than in plants: seed and fruit.” A bit later (31a30ff., prepared by 18b9–10) he elaborates: “of the animal the work is not only generation (for this is common to all living things) but they all also partake of some knowing—some more, some less, some very little; for they have perception, and perception is a certain knowing. The high or low rank of this differs depending on whether it is regarded in light of prudence or in light of the soulless kind: regarded in light of prudence, partaking only in touch and taste seems almost nothing; regarded in light of absence of perception, very good—for it would be held attractive to have this knowing rather than to lie dead and not being. . . . Still, when the animal has to complete the work of the living, then it copulates and unites and becomes even as a plant, as we’ve said.” And see 42a28ff.: the generative parts are for the sake of the part “having the governing principle and the end of the whole nature” (sc. the heart).

²⁶ GA 715a8–9; see also b15–16, speaking of the persistence of the species-nature in generation: “but the nature flees the not limited [*to apeiron*], for the not limited is goalless [*ateles*], and the nature always seeks goal [*telos*];” also 17a13ff., 31b23ff., 42a29ff., 78a30–b19; and PA 641b25ff.; S 415b1–2, 20–23; SA 455b18; PH 199a21–33, b10–11 and 16–27. At one point Aristotle indicates that it is the failure to seek the for the sake of which that has crippled his predecessors’ biology as a discovery of causes: “for if they had sought the for the sake of what respiration belongs to animals, such as by way of gills and lung, they would have more readily discovered the cause” (R 471b27–29; also 72b24–26). “In almost every passage in which Aristotle introduces, discusses, or argues for the existence of final causality, his attention is focused on the generation and development of a living organism” (“the nature,” not nature as a whole); while “the natural motions and changes of the simple bodies. . . . when outside a living organism. . . . are [*eis*] a place or quality—very infrequently called a *telos*—they are not, and are never said to be, for the sake of anything [*heneka tou*]:” A. Gotthelf, “Aristotle’s Conception of Final Causality,” in *Philosophical Issues in Aristotle’s Biology*, ed. A. Gotthelf and J. G. Lennox (Cambridge: Cambridge University Press, 1987), 207 and 214n19; for full discussion and textual references, see the entire article; also Charlton, *Aristotle’s Physics I and II*, 120–23. MET does not use the “for the sake of which” in its causal explanations: see esp. MET 369b21ff. and 82a28—as regards meteorological phenomena, “the causes beyond the material are two, the making and the undergoing—the making [*to poioun*] as the source of motion, and the undergoing [*to pathos*] as form.”

subspecies but not true species or genera. Whether a certain characteristic is thus part of the species-form is determined only by field studies of the actual flourishing of the various species.²⁷ While the defining logos articulates the functioning material structure of the parts of each animal species (M 1036b22–32, 37a21ff.; PA 643a24–25—“it is the differentia in the matter that is the form”), the defining logos does not articulate what is *divergently unique* about the matter and thus the substantial being of any *particular* individual; *that* articulation or “defining” of the uniquely divergent is only by more or less rough- or fine-grained comparative descriptions (M 1039a15–23, b26ff.).

As defining logos, form is in a sense “separable,” that is, in speech or thought (M 1032b15, 37a1–2), and “to know scientifically each thing is this, to know the what it was to be” (M 1031b22). “Substantial being is the underlying: in one way as the matter—and by matter I am [here] speaking²⁸ of that which, while not being the certain this here in actuality, is potentially the certain this here”; and “in another way as the [defining] logos and the shape/structure [*morphē*] which, being the certain this here, is separable in logos”; and “third, as what is from these, of which alone there is coming into being and passing away, and which is simply separable” (M 1042a26–30).

(d) Form (and soul as form) is “responsible cause” (*aitia*), “on account of which” (*dia ti*), and “governing source” (*archē*): “one responsible cause we declare to be the substantial being and the what it was to be; for the on account of which leads up to the final logos, and cause and governing principle are the first on account of which” (M 983a27–30; see also 88b28, 17b15–17, 41a9ff., 43b6–15). “The cause is being sought, of the matter; and this [cause] is the form, by which it is something; and this is the substantial being” (M 1041b8–9 and ff., esp. b27–28). As governing source and cause, the form is not only the reason why the individual living being shares species-characteristics with other such specimens; the form is above all the reason why the living being *exists, as the particular embodied kind* of being that it is—*this* living oak, *this* living horse, *this* living human (see, e.g., M 1028a24–31, 52a33–36). Form is the principal answer to the questions, “Why and how is this plant or animal here behaving in this way here?” In other words, substantial terrestrial being in the *fullest* sense remains the embodied, living individuals, now

²⁷ See also M 1038a27–29. For some examples of subspecies, see HA 556a15ff. (called *genē*), 605b22ff., 17b29; for some examples of species that change their secondary characteristics over time and as they move from one environment to another, HA 632b15ff.

²⁸ Aristotle seems to use the expression “I am speaking” (*legō*) usually to indicate that he is speaking not generally but with a view to the immediate context: see, for example, M 1032a14, b1, b14, b18, 33a25, a32, b13, 35b32, 36a3, 37b3, 57b38.

seen as caused to be individualized *in the specific way* that they are individualized, by their (species) form—shaping and animating, in-forming, some determinate bodily matter-potentials (M 1029a2ff.). Form or soul as cause is obviously not the same as the individual(s) which are its effects; but form does not exist apart from its caused individual(s). Form conceived universally is somewhat of an abstraction from what exists: “the human and the horse and the terminology thus ascribed to individuals but taken universally is not substantial being but a certain composite whole from this [defining] logos here and from matter as universal: Socrates, however, exists individually and from the final matter, and the same holds for the rest.”²⁹ As cause, “the logos exists simultaneously with its effect”; for “when the human being is healthy, that is when health exists” (M 1070a22). Accordingly, while Aristotle designates the form as “the certain this here” (*tode ti*),³⁰ he insists, in his opposition to Platonism, that the form is not some sort of transcendent, numerically one individual existing apart from individual living beings: “if that were so, there would not ever have come to be the certain this here; but [form] signifies the of-such-a-sort [*to toionde*] and is not this here [*tode*] and defined, but it makes and *generates*, from the certain this here, the of-such-a-sort; and when *that* has been *generated*, it is this-of-such-a-sort...Callias or Socrates” (M 1033b19–26).³¹

“Callias or Socrates”: the form does not manifest itself through individuals that are identical copies—at least in the higher animals. Aristotle ascribes the divergent uniqueness of individuals of the same species to matter rather than form: “even as a number does not have the more and the less, neither does the substantial being according to the form, but if it does, it is so with the matter” (M 1044a10–11); “now the whole—the such-and-such a form in these flesh and bones—[is] Callias, and Socrates; and other through the matter, for that is other; but same [*tauto*] by the form; for indivisible [*atomon*] is the form” (M 1034a6–8; see also 16b33ff., 37a26–30). But: if or since form is soul, can Socrates and Callias be understood to have identical copies of the same soul? Aristotle regularly speaks of individuals that belong to the same species as “same in form” (*homoeidē*). But: granted that the uniquely

²⁹ M 1035b27–31; also 38b8ff., 42a21–22, 53b17ff.; “even as neither is there Being/to-be-ness [*einai*] apart from something or some sort or so much” (54a18; but cf. 61a8ff.).

³⁰ M 1017b25 and S 412a7–8 (form with shape/structure), M 1028a12, 29a28–29, 37b28 (form), 42a26–30 (defining account with shape/structure) as well as 49a35–36, 70a11–12 (“the nature”); and CIB 318b32. See also M 1035a7–9 and 52a.

³¹ The repeated use here of the verb “generates” anticipates the teaching of GA, discussed below, on form and logos as moving or “efficient” cause of offspring; see also PA 646a31ff.

distinguishing differences among individuals of the same species would seem to be due to more or less subtle variations in their matter-potentials and its structure; have we not seen that the form is closely linked with the (material) structure (*morphē*)? Have we not seen that “it is the differentia in the matter that is the form?” So are the individually divergent variations in the matter not also variations in the form? How exactly is matter, rather than, or as distinguished from, form, the explanation for individually divergent uniqueness? What exactly does Aristotle mean by the matter of a substantial living being—especially of a human being?

ORGANIC MATTER IN RELATION TO FORM

At the foundational level of organic matter, we find that living beings are composed out of, and eventually decompose into, four perceptibles that are “called by some elements” (*tōn kaloumenōn hupo tinōn stoicheiōn*)—but are better designated “powers/potentialities” (*dynameis*: PA 646a12; CIB 329a16, 26; cf. M 1014a32–36). Following Empedocles and other pre-Socratics Aristotle labels these air, earth, water, and fire. Today we might call them the gaseous, the solid, and the liquid, together with strong heat. These four entirely fill terrestrial reality, and exist mainly outside organic bodies, in large part as unmixed (MET 354b3ff.), but also as (mere) mixtures, and as integrated (inorganic) “compound bodies” (*suntheta sōmata*—PA 646a17, M 1043a14; e.g., metals—MET 388a13ff.). The four are only “apparently simple” (*ta hapla phainomena sōmata*, CIB 330b2, 23; contrast PH 192b10). For they come into being out of and pass away into one another (contrary to Empedocles—CIB 329b1–3; M 989a23–25; OH 304b23ff.). They do this above all on account of their being analyzable into “mixtures” (*mikta*, CIB 330b22) of two pairs of “tangible” (*haptōn*, CIB 329b8ff.) “first contraries” (CIB 329b17). These Aristotle calls the unchanging (CIB 329b3) “governing principles [*archai*] of the natural elements” (PA 648b9). They are the *hugron* (moist[ening]/liquid-liquifying) vs. the *xēron* (dry[ing]/solid[ifying]);³² and the warm[ing] vs. the chill[ing].³³ So, “earth” is analyzable as dry[ing]/solid[ifying] mixed with chill[ing]; “water” as chill[ing] mixed with moist[ening]/liquid-liquifying;

³² CIB 329b30: “*hugron* is that which is not bounded by any bound of its own but can be readily bounded; *xēron* is that which is readily bounded by a bound of its own and can with difficulty be bounded [from without].”

³³ For the ambiguities and manifold complexities Aristotle recognizes in the application to life forms of the concepts of the moist(ening) vs. the dry(ing) and the warm(ing) vs. the chill(ing), see PA 648b1ff.

“air” as moist[ening]/liquid-liquifying mixed with warm[ing]; and “fire” as warm[ing] mixed with dry[ing]/ solid[ifying] (CIB 333b4–7).

When not formed into living beings, these four exist—whether apart, mixed, or compounded—in various accumulations, some of which are semi-substantial “ones” (e.g., air as winds; water as lakes; ore as veins, earth as hills, etc.). None of these, however, is a fully substantial, structured, individual unity—to repeat, they can be “much, but not many” (M 1056b16); “none of them is a one, but they are like a heap, until they are metabolized and there comes into being some one out of them.”³⁴

But the formed characters of these four “elements,” and of whatever lifeless materials are mixed and compounded out of them, are completely inadequate by themselves to provide an articulation and explanation of living substantial being(s), given the latter’s (a) complex and highly diverse structures, composed of similar or analogous parts, (b) engaging in internally initiated, future-directed change and motion, extremely well adapted to satisfying specific needs, (c) in their diversity fitting well almost every environmental niche, and (d) sorting into distinct, innumerable, and yet (in varying degrees) intelligibly kindred fixed species, (e) all of whose individual members disintegrate into death after a quite limited lifespan (a terrible thing for us humans—GA 731b4), while (f) endlessly generating and leaving behind reproductions of themselves.

These realities of the lifeworld require for their articulation and explanation higher levels of matter-potentialities, all of which are compounds, but of a peculiar kind, of the fourfold “prime matter.”³⁵

To begin with there are the generally softer and more fluid (PA 647b10–19) “parts” (*moria*) that are highly uniform, in the sense that any subdivision is homogenous with the whole (*homoiomeros* is Aristotle’s technical term: HA beg.; PA 640b20–21; 646a21ff.), and that are found in most or many plants or animals: for example, in animals (Aristotle leaves plants to further study: PA 656a3) blood, lard, suet, marrow, semen, bile, flesh—and their analogues in insects.

³⁴ M 1040b8–10 and 56b16; see also 17b10–24, 41b11–32, 49a19ff.

³⁵ The preorganic natures of the fourfold prime material(s), existing unmixed as well as compounded, continue to play an important, basic, and universal causal role in the explanation of living beings: “that these [above all air—see R] are just about the causes of death, as of life, is likely to be manifest; and also of sleep and of waking, and of being at the prime of life and of old age, and of sickness and of health” (PA 648b4–6).

Then there are generally drier and solider “homoiomeros” parts that constitute systems—such as bones forming the skeleton, blood vessels, the circulation system, the teeth, the nails (PA 647b10–19, 654a32ff., 655b2ff.).

At a higher level are parts that are “homoiomeros” and yet with an articulation of their uniform matter that is so complex and distinct that they are in a sense also “anhomoiomeros”: “organs” or instruments, structured for the sake of more specific functions (PA 646b31–34, 47a25ff.)—e.g., the sensory organs, the viscera, and preeminently the heart (or its analogue), which is “the ruling source of life and all movement and of perception,” or of “the sovereign perception,” as well as of growth.³⁶

Then again, “put together from the homoiomeros parts” (GA 722a29), there are instrumental parts with structured, “anhomoiomeros” subdivisions—e.g., head, limbs, the digestive system (HA beg.); “face, hand, foot” (PA 640b21).

The highest level of life-matter is the individual body as structured whole, with the individualized species-soul as its form, using the whole body as material organ or tool (S 415b15–21, PA 642a1)—apprehending through the “homoiomeros” sensory organs so as to lead and to maintain its way of life, carrying on outer activities accomplished chiefly by the “anhomoiomeros” organs as long as possible, and reproducing itself.³⁷

The higher levels of organic matter have forms that structure and thus realize the matter-potential formed in and provided by the lower levels, and thereby offer themselves as the formed matter-potentials to be structurally formed or coordinated and realized by, and “for the sake of” (PA 646b7ff., 653b30–37; *charin*—GA 738b18), the higher levels—“flesh and bone and each of such parts is double, even as the other things having form in matter, for both the matter and the form are said of flesh or bone.”³⁸

Unlike inorganic compounds of the prime materials, the organic compounds cannot exist as what they are except when performing, or resting so as to perform, their distinctive *functions* within, in structural relation to, and “for the sake of” more complex organs, which in turn make up, and exist “for the sake of,” a single, independent, living substantial being (see especially the

³⁶ PA 665a12 and SA 456a6–7; also PA 646b30–34, 47a3ff., 56a28ff., 66a12ff., 72b15–24, 73b12, 81a36, b16; GA 735a15ff., 38b18, 40a18ff., 41b15ff.; PP 438b25ff.; MA 703a10ff.; YOA 469a–b.

³⁷ PA 646b7ff., 47a3ff., 56a1–3; GA 722b30–34; HA 489a24–29.

³⁸ CIB 321b20–23 and context; PA 646b11ff., 72b19–23.

opening of GA as well as PA 645a32–33, 46b11–27, 47b21–28). If and when these life-materials cease their functioning (and do not merely rest from it), they collapse into lifeless compound-heaps of the fourfold prime matter.³⁹ At the same time, the functioning organic parts, and thus their substantial beings, are maintained while their fourfold prime matter changes constantly, through the ebb and flow of metabolism.

From the embryology of GA (see also PA 646a25–26, S 468b28–33), we learn in detail how the stages in the generation of the animal proceed in a succession roughly opposite to the hierarchical order of the materials: what first appears is a plant-like entity with nutritive soul, followed by the emergence of the heart, and then of other parts—the blood vessels, then flesh, then skeleton and organs, from inner to outer and from upper to lower, in a sequence that moves from the more universal and generic to the specific: “for there doesn’t come into being at the same time animal and human, nor animal and horse, and similarly with the other animals; for last is the end [*telos*], but what is unique [*idion*] is the end of the generation of each” (GA 736b2–5; 39b34ff., 45b; PA 666a20ff.).

It is apparent that the “potentiality” of organic matter is of two types: some has a potential to develop into or to bring about something newly formed, changing or ceasing to maintain its original form—exemplified most vividly in the plant seed, the paternal semen, and the maternal menses; and some has a potential to have actualized its latent fulfillment, in action, while maintaining its form—exemplified vividly in the bodily organs and the living body as a whole.

In his biological works other than his lengthy HA, Aristotle is concerned to explain the causes (the why) of the existence of the material parts in general and then of the differences in the parts (and their analogues) among species within genera, and among narrower genera within broader genera, as catalogued in HA bks. 1–4, beginning with the human species (see esp. HA 491a7–14). The order of topics in PA as a whole—first the internal homoiomerous parts, overall and one by one; then the nonhomoiomerous, among the blooded and then among the bloodless animals, from upper down to lower,

³⁹ PA 640b34ff., 46a21ff.; M 1035b20–25, 36b30–32, 40b5–7, 51b12–16, 77a21–23; also GA 741a10–14; see esp. S 412b20—“if the eye were an animal, sight would be its soul; for this is the substantial being of the eye according to the [defining] logos; and the eye is the matter of vision, and when the latter [vision] is taken away, there is no eye, except in word, like an eye in stone or painted. One should indeed take what is applied to the part and apply it to the whole of the animal body; for analogously, as the part is to the part so the whole of perceiving is to the whole body capable of perception, as such.”

and external parts treated after completion of the internal—is guided in part by a focus on the human species but also by a movement from the more general to the more specific. Generally speaking, the explanations proceed by showing how the differences are *chiefly* “for the sake of”⁴⁰ the maximal flourishing of the members of each species in its environmental niche (and therefore much is said also about the activities and ways of life and environments in relation to the parts).⁴¹ *Secondarily* and *subordinately*, “necessity” is a cause—either simple necessity, on account of the nature of the materials, including “residue” (*perittōma*) organically produced,⁴² or as a required condition for the combinations of the matter-potentials “for the sake of” the animal’s flourishing: “necessity sometimes means that if *that* will be for the sake of something, then *these* things are necessary, if it is to be so; and sometimes, that that’s just the way things are and have become by nature” (PA 642a33–35 and context). Three brief examples will indicate the varied character of Aristotle’s causal analysis.

(1) Why is the esophagus fleshy and sinewy, while the windpipe is cartilaginous? The esophagus “must necessarily” exist as a long channel to convey food from mouth to stomach—because the latter are separated by the lungs,

⁴⁰ “One of our principles is that the nature does nothing pointless [*mataion*], but always, given the possibilities, does what is best for the substantial being of each kind of animal” (IA 704b12–16; see also 8a9–10, 11a18–20; PA 658a24 and OH 271a33, 90a31, 91b13); “we make it an underlying hypothesis, doing so on the basis of what we observe, that the nature neither omits [*elleipousan*], nor makes anything pointless, among the possibilities in each case” (GA 788b20–23; see also 39b20, 41b4, 44a37; also PA 658a9, 61b24, 91b4, 94a15, 95b19; R 476a13; S 432b22–23, 34a32–34). These blanket overstatements have exceptions, however: e.g., IA 710a1ff.; PA 659a19, 63a8–11, 64a5–8, 84a32–b2, 94a20; GA 773a33ff., 76a10–14; see also PH 198a18; M 1044b12. A more cautious statement is: “for what is not by chance but for the sake of something is in the works of the nature, and especially so; and that end [*telos*] for the sake of which [a living being and its parts] is put together or has come into being has taken the place of the beautiful”—PA 645a24–26; see similarly 39b19–21 (“the for the sake of which and the beautiful is more in the works of nature than in those of art”), and 83a20–26, 84a28, 88a24, 94b14, as well as GA 778b2ff. and 87b3ff.; for some vivid examples, see PA 659b30ff., 61b1ff., 95b17–27, and GA 717a13ff., 31b23ff., 38b1–5, 43b2–6, 55a23ff., 89a10ff. PA’s analysis of causes constantly employs the “for the sake of” but only a few times the beautiful (*kalon*), as sort of a superlative of the “for the sake of”: 640a37, 48a11, 54b23, 56b28, 57a12, 59b30, 61b7, 64b32, 70b24; see also 65b20; GA almost never employs the *kalon* in explanations: 760b1, 77a22; the same is true of S. But see YOA 469a28–30: “we see that the nature in all makes from the possibilities what is most beautiful.”

⁴¹ Aristotle seems to have largely completed the writing of his intended works on the causes of the animal species’ differing *parts* and their functions (PA and GA and IA) but to have left incomplete his publication on the causes of the animal species’ differing *activities* and *ways of life* (HA bks. 5–8; see also PP 436a5), and *dispositions* of character (HA bk. 9): see HA 487a10–11, 91a7–14. For, of the well over five hundred species he treats, about eighty percent are mentioned *only* in HA, which provides the preparatory data for the subsequent teachings on causes.

⁴² “Sometimes the nature makes use for betterment even of residues, but one ought not on this account to seek for all things to be for the sake of something; but in many cases, some things being such, other things necessarily follow” (PA 677a16–18).

and that is because the latter's proximity to the mouth and nose is "most beautiful for respiration"; and the esophagus is "sinewy so that it can stretch as the food enters, but fleshy so that it would be soft and yielding and not damaged by being scraped as the food goes down." The windpipe is cartilaginous because it is "not only for the sake of respiration but for voice, and that which is going to make sound should be smooth and hard" (PA 664a21–b3).

(2) Some, but not all, species possessing bladders also have (a pair of) kidneys: why? And why are kidneys the fattiest of all innards? Animals have kidneys "not out of necessity, but for the sake of what proceeds well and beautifully," for "the kidneys in their distinct nature are present for the sake of the collection of residue in the bladder, in animals that have more such deposit, so that the bladder can function better." And the reason kidneys are the fattiest of all the innards is "on one hand, out of necessity," since fat is a necessary byproduct of the kidneys' filtering of the blood, "and on the other hand, the fat comes to be for the sake of preserving the kidneys' hot nature," which is needed for their optimal (but not strictly necessary) functioning.⁴³

(3) Deer alone, of the horned species, shed their horns each season, and grow new ones again (HA 500a10–11): why? Because "the horns are solid throughout in deer alone," and so they are shed "on one hand for the sake of the benefit, so as to be lighter, and on the other hand from necessity, owing to the heaviness" (PA 663b12). But this is under the shadow of remarkable observations about the ways of life of some of the horned species and especially deer: in some, the horns are "useless," and in the case of deer, the horns are not only "useless" but "their size, and many branches, harm rather than benefit."⁴⁴

Each individual animal (or each colony, in the case of highly "political animals" like the bee) is moved by "caring for/through itself" (*tēn di' hautou trophēn*). There is little if any caring for the species. Nonetheless, we do not encounter much if any discussion of uniquely divergent, distinguishing qualities of the self-caring individuals of the same species.

But the picture changes when we consider Aristotle's account of the reproductive parts and their functioning, especially in the human species.

⁴³ PA 670b23–28, 72a13–16; more generally, 63b23–24: "the nature in accord with the rational account uses, for the sake of something, things that are present out of necessity" (for some other vivid examples, see GA 738b1–5, 39b29, 43b1–6, 55a23ff., 76a15ff.).

⁴⁴ PA 663a8–11 (and also 64a5–8); remarkably—especially for a student of Plato—Aristotle has little if anything to say about how parts may be for the sake of attracting and winning erotic mates, even when he notes that "the nature has adorned [*epikekosmēken*] with hair" some animals such as lions and horses (PA 658a33; cf. 44b34).

FORM AND MATTER IN THE GENERATION OF ANIMALS

Aristotle does not assign reproduction to a distinct capacity of soul, but includes it within the soul's capacity of nutritive individual self-caring.⁴⁵ Accordingly, he conceives the individual plant's and animal's reproductive striving as not for the sake of the preservation or continuation of the species, or for the sake of bringing into being or fostering other kindred specimens, or for any self-transcending end; instead, generation is understood as expressing the individual living being's drive to preserve its own individual existence, forever: "for the substantial being of the things that are is in the individual; and if it could be such, it would be everlasting; but by species-form [*eidei*] that is possible"; and "that is why there is always a continuous generation [*genos*: see M 1024a30] of humans and of animals and of plants" (GA 731b31–36; see the context and also 35a13–26). "Since it is impossible to share in the everlasting and the divine by continuing, because none of the things subject to perishing persists as the same and one in number, each [*hekaston*], insofar as it is able to partake, shares in this way, one more, one less; and there persists not itself, but a such-as-itself, in number not one, but by form [*eidei*] one" (S 415b3–8). An important dimension of this teaching, referred to humans, is made explicit when in POL 1252a30 Aristotle speaks of the "pairing together" of human "male and female for the sake of generation, and this *not from choice* [*ouk ek proaireseōs*] but even as in the other animals, and plants, natural is the directedness [*to ephiesthai*]⁴⁶ to leave behind another, such as oneself, such a one [*hoion auto, toiouton*]." Every living individual, plant or animal, has an elemental urge to persist infinitely as the individual that it is. Aristotle goes so far as to say that it is "just" to speak of "the generation of another like itself" as the "end" (*telos*) of self-nourishment (S 416b24).

Aristotle elaborates through GA's inferential (and in part tentative—771b19–24) theory of (mainly higher animal) reproduction.⁴⁷

The male semen, which is a superheated (GA 735a30ff.) and super-"metabolized" (*pephthē*), foamy (watery and airy) distillate of each male's individually unique⁴⁸ blood, does not convey his shape/structure and his

⁴⁵ S 415a23ff., 16a19–20, b16–17; GA 735a16ff.; see also 77a4ff.

⁴⁶ Newman, *The Politics of Aristotle*, vol. 2 (Oxford: Clarendon, 1887), ad loc.: "This impulse of reproduction can hardly be an *orexis*, for it is shared by plants...it may, however, possibly be an *hormē* (Pol. 1. 2. 1253a29)."

⁴⁷ The precision and complexity of the account in GA corrects the cruder, brief versions in passages such as PH 190b5ff. and M 1049a1–3, 15 (contrast 44a34ff.).

⁴⁸ GA 726b10—"and so it is very reasonable that the offspring resemble the parents"; see also 22a20ff., 37a18–22.

form⁴⁹ in any sort of miniature (or as a “pangenesi,” from all parts of the animal, as Darwin proposed).⁵⁰ Instead, semen transmits (without having any consciousness) an intricate matrix of precisely sequenced, wound-up, spring-like, potentially generative, motive causes (“the logos of the motion/change,”⁵¹ including the change that is “metabolism”). When the male sperm has undergone its final metabolism during copulation (GA 718a7) and encounters the maternal menses, the sperm’s motive causes are sprung in a protracted sequence, governing a vast, slow cascade of constructive motions and “metabolisms” in the awaiting, receptively mobile matter of the menses—that thereby develops into a fetus (*kuēma*). As the cascade of motions proceeds (see again the embryology), the completed infant is finally generated (well before birth), and then makes itself grow, using the nourishment provided by its mother. The material of the sperm completely evaporates (GA 737a12) and contributes nothing to the material of the offspring.⁵² Each individual father thus becomes not only a final and formal, but primary *efficient* cause, or “first moving source of the form”⁵³ (GA 765b12–14) of his offspring, in the matter that is entirely provided by the mother.

But this natural urge in each male has been largely doomed to failure, by nature. For in each female there is the drive to replicate *her own unique* being. Her “spermatoc/seminal” (*spermatikos*) menses, which is “sperm/seed

⁴⁹ *Morphē* at GA 767b18, *eidos* at 66a20; whereas each of these passages suggests a uniquely individual paternal shape and shaping, this is not the case with the use of *eidos* earlier, at 729a11, b18–22, 30b14–16, 32a5, 35a5 (and at M 1034a4–5).

⁵⁰ See Darwin’s *Variation of Animals and Plants under Domestication* (1868), chap. 27.

⁵¹ “For to say ‘semen,’ or ‘motion that grows each of the parts,’ makes no difference, nor ‘the growing [motion],’ or ‘the putting together [motion] from the origin;’ for it is the same logos of the motion” —GA 767b21; also 34b33, 40b32ff. and esp. 35a. Max Delbrück, Nobel laureate in genetics, lightheartedly proposed that Aristotle be awarded a posthumous Nobel prize for “the discovery of the principle implied in DNA”—that what is transmitted is “not a mini-man,” “as Hippocrates had taught,” but a “form-principle,” or in modern parlance, “information,” “the plan of the development,” which is “not altered” in the development and “is not, properly speaking, part of the finished product” (Delbrück, “Aristotle-totle-totle,” in *Of Microbes and Life*, ed. J. Monod and E. Borek [New York: Columbia University Press, 1971], 50–55).

⁵² In describing the matter of the semen, Aristotle for once (barely) introduces particles that we would term “microscopic”: the “foam” that is semen is “out of the tiniest *particles* lying together, and so small that each bubble exists *invisibly*” (GA 736a15–16)—of course, the general foam-character is readily visible, and tangible, so the inferential jump to the microscopic bubbles, if not to the particles, is small.

⁵³ Note that the modern term “efficient” causality is not quite proper terminology for Aristotle’s “moving” cause or “source of moving”: modern “efficient cause” is reducible to “necessary and sufficient condition,” or even statistical correlation and dependence, whereas Aristotle has in mind uninterrupted, even if sequential, pushing and pulling: one thing moves another by contact (see PH 244a–b; GA 734a4; HA 586a17).

that is not pure but needs working on”⁵⁴ has its *own unique logos* of (receptive-reactive) generative motions (GA 768a13ff.; consider also 23a30, 37a18ff., 38b4)—which is (without any consciousness) in resistant, if also complementary, contention with the unique “logos of the motions” that her mate’s semen drives to impose on her maternal matter. We have here a case, Aristotle says, of the general phenomenon that “what acts is also acted upon by what is being acted upon,” and “sometimes it is even totally acted upon rather than acting” (768b15 and ff.; 67b23). If the semen injected into the menses “is well metabolized, the motion of the male will make a shape/structure in accord with itself” (767b15–18); but “when the principle does not prevail nor is able to metabolize on account of deficiency of warmth, and does not lead to the form unique to itself [*to idion eidos to autou*], but is defeated, of necessity it goes over to the contrary—and the contrary to the male is the female”; and “since it has a difference in capacity, it has difference in the organ”; “but when one crucial part changes, the entire composition of the animal becomes *very different in form*” (*polu tōi eidei diapherei*—766a19–25; note that in this crucial sentence, the repeated use of “form” or *eidos* does not mean simply “species” form).

Uniquely divergent generative individuation becomes still more pronounced when Aristotle stresses that this complementary antagonism of parents is not simply resolved by whether a son or a daughter is born; for many daughters manifestly resemble their particular fathers in more ways than their mothers, and sons their particular mothers (GA 768a28–30): “if the motion from the maleness prevails, but that from Socrates does not prevail, or the other way around, then it happens that there is generated a male like the mother and a female like the father” (see also 769a3, 16, b6; n.b. a girl “like Socrates”). And this can happen either as regards the whole offspring or any of its parts: “it is the same way also as regards the parts” (768b2 and ff.; see also 21b29–35). What one is tempted to call the (friendly) battle of the sexes in forming the offspring is evidently fought on many fronts: “on one hand, mastery is gained here; but on the other hand, not there” (768b29; see also 72b33).

But there is still greater complexity and still more intense manifestation of the uniquely divergent individuation of the form that is transmitted and generated. For *both* the paternal and maternal logoi of the motions may in different ways fail to prevail, and this opens the way for inherited “logoi of

⁵⁴ GA 728a26, 37a28, and 74a2; see also 16a10ff., 24b14, 25b3, 28a30–31 (the maternal menses actively “generates” when “mixed with semen”), 28b22 (seed is in the menses), 41a28 (the menses even without the semen can convey nutritive soul); and note 51b2–3.

motions” from uniquely divergent individuals of earlier generations, long latent, but never ceasing their drive for individual perpetuation, to emerge and to acquire predominant causal force, leading to the well-known (GA 722a7ff.) generation of offspring who resemble in varying ways and degrees not their parents, but rather the uniquely divergent characters of various individuals in earlier generations (768a32–34: “if the motions relapse [*luthōsin*], and the maleness holds but that of Socrates relapses to his father, there will be a male like its grandfather, or one of the other earlier progenitors”; also 769a5, 24, b7). The combinatory possibilities are innumerable, given the array of competing, individually different, parental and ancestral “logoi of the motions” at play within both paternal and maternal “sperm/seed.”

Ontologically speaking, this account brings unmistakably to the fore the uniquely divergent individuality of the substantial form in its most dramatic constructive working—above all in human beings; and note that what is transmitted includes all sorts of secondary, inessential characteristics, such as eye and hair and skin color, that are not part of the species form and logos, or the for-the-sake-of, or the “what it was to be” for a specimen (GA 778a16–b19; and Aristotle, like Darwin, countenances the inheritance of characteristics, even scars, acquired in the unique lifetimes of the various individual progenitors—GA 721b28ff.). “The generator is not only male but such and such a male, such as Coriscus or Socrates, and is not only Coriscus but also human.” And “always stronger as regards generation is rather the unique [*to idion*] and the individual [*to kath’ hekaston*]; for Coriscus is also human and animal, but the human is nearer to the unique than the animal.” So “there is generation in accord with both the individual and the genus, but more in accord with the individual; for this is the substantial being.” And “that which is generated comes into being on one hand also as a certain *sort* [*poion ti*], but on the other hand as the certain this here [*tode ti*], and this is the substantial being” (GA 767b25–34; consider also 36b4 and see M 1071a17–24).

Yet Aristotle insists on something more, of crucial ontological importance, which he emphatically applies to human generation. Sometimes all the inherited, uniquely divergent, individual generative motions “finally pour together such that” the offspring “are like none of the household and kin, but there is left only what is common and to be human; and the cause of this is that this follows/is-consequential-upon [*akolouthēi*] the individual [*kath’*”

hekaston]; for the human is of the universal [*katholou*], but Socrates as father, and the mother, whoever that was⁵⁵—are of the individuals” (GA 768b11–15).

So: Aristotle goes so far as to suggest that there *are* generated a few *generic* humans (and members of other species), but *they are not normal*. They thus spotlight by contrast what is normal (GA 767b7–8): “indeed, one who is not like the parents is in a certain way a monstrosity [*teras*]; for the nature has in these strayed, in a way, from the continuous generation” (*genos*—see again M 1024a30). What is generated most naturally is not a generic copy but a unique version, in a process that is from beginning to end aimed at reproductive continuation of *uniquely distinct individual* progenitors competing with one another—a process whose uniquely distinct outcome of course continues to unfold after birth, in the growth to maturity of the individually unique offspring.

Still, the species-form never ceases to be also at work—even if only “following,” or “consequential” to, even if almost always subordinate to, the more powerful working of the uniquely individual; as regards generation, the species is surely not a mere classification—it is a constructive power (though far from dominant normally) with undeniable, empirically manifest results. What is more, the fact that reproduction aims chiefly at the duplication of the unique form of individual parents and ancestors does not in itself entail great difference among the members of a species—though that impression may be left by the fact that Aristotle foregrounds, and focuses our attention on, human parents and offspring, above all Socrates, whose individuality is very prominently stated in this immediate context: “for Socrates is a male human who is the certain such and such” (GA 768a24).

THE PUZZLE OF UNIQUELY DIVERGENT INDIVIDUATION

It is this account of generation that has furnished some of the most plausible textual evidence for some scholars’ contention that there is in Aristotle a conception of form (soul) as uniquely individual: that each member of at least the higher species must be understood to have, either in addition to, or even instead of, their individual form/soul as species members, a *uniquely*

⁵⁵ We cannot avoid noting that Aristotle’s expression here bespeaks his indifference to, or neglect of, the role of selective (and competitive) attraction, and then cooperative affection, between parental mates in his causal account of the generation of higher animals, above all humans. Perhaps this neglect would have been remedied if he had lived to elaborate his full teaching on the causes of the activities and ways of life and dispositions of animals—to repeat, what we have is only his account focusing on the causes of animal *parts* and their functions.

differentiating individual form/soul.⁵⁶ But this encounters enormous textual difficulties in the *Metaphysics*. To begin with, the form is said not to come into being.⁵⁷ For another thing, form is formulated in a defining logos, and “of the perceived substantial beings individually there is neither definition [*horismos*] nor demonstration” (M 1039b27ff.; also 36a2–8 and 26b10 with context). For yet another, when Aristotle speaks of natural generation, especially of humans, in *Metaphysics* (1033b31–33), he says that “the one generating is such as the one generated—not, indeed, the same, nor one by number, but [one] by form.” In addition, to conceive of uniquely divergent forms of *individuals* would seem to entail conceiving the species-form as a sort of genus for the unique individual forms; and when explaining, somewhat defensively, why he will treat the parts of animals by proceeding through genera and not through each species separately, Aristotle concedes that “substantial beings [*ousiai*] are the ultimate forms [*ta eschata eidē*], and these are not differentiated in form—such as Socrates, Coriscus” (PA 644a24–26; granted, this sentence by itself is ambiguous, but see what follows in the context). Above all, Aristotle declares: “humans are not forms of human”; “different are the flesh and the bones out of which is this fellow and this fellow: but the composite whole is on one hand other, but on the other hand not other in form, because there is no contrariety in the [defining] logos, and this is the ultimate indivisible—and Callias is the defining logos with the matter” (M 1058b8–12; consider also 999b24).

Still, Aristotle also recognizes that the “substantial being of each is that which is unique to each, which does not belong to another, while the universal is common/shared” (M 1038b10). And he declares that since “the separable, and the being the certain this here, are opined/seem [*dokei*] to belong especially to substantial being, therefore the form, and the from-both [matter and form], would seem to be substantial being rather than the matter” (M 1029a28–29;

⁵⁶ See D. Balme, “Aristotle’s Biology Was Not Essentialist,” “Teleology and Necessity,” and “The Place of Biology in Aristotle’s Philosophy,” in Gotthelf and Lennox, *Philosophical Issues* (esp. 304–5); earlier and rather abstract is W. Sellars, “Substances and Form in Aristotle,” *Journal of Philosophy* 54 (1957): 69–99—with a more helpful response by R. Albritton, *ibid.*, 699–708; versions of this thesis are found also in Charlton, *Physics I and II*, 70–73 (who refers us to, among other passages, 1070a1); A. C. Lloyd, *Form and Universal in Aristotle* (Liverpool: Cairns, 1981); and E. Hartman, *Substance, Body and Soul* (Princeton: Princeton University Press, 1977 and 2015), chap. 2. Consider also Lennox, *Aristotle’s Philosophy of Biology*, 168 and 177. Furth—who argues strenuously against the idea that there is an Aristotelian form uniquely peculiar to the individual—is impelled to contend that bk. 4 of GA is “inconsistent with the preceding” books and “incoherent internally” (*Substance, Form and Psyche*, 193; see context and 111, 127–41, 193); he appeals for support to some brief similar remarks of Galen in *On Semen* 2.38–40 (602–3).

⁵⁷ M 1033b5–19, 34b7–19, 39b20–40a8, 43b14–21, 44b21–29.

see also 29b14–16). But he says this as he launches an investigation into form as the “most perplexing” (*aporōtatē*) aspect of substantial being. That investigation leads eventually to the statement that “the final matter,⁵⁸ and the shape/structure [Aristotle does not go so far as to say “and the form”] are the same, by potential and also by the actuality” (M 1045b17–18). I am inclined to take this to mean that the form exists most truly in individual specimens, the precise structure of whose matter uniquely differentiates them without thereby making them differ (but only vary) in species-form (and species-structure). Thus Aristotle writes (M 1071a26–29): the causes of “things in the same form/species [*eidei*] are different, not by form [*eidei*], but because they are other of things individually—your matter [*hē te sē hulē*] and the form [*kai to eidos*] and the moving, and mine; but the same in the [defining] logos of universal.”

Aristotle does seem to allow, at least once in *Metaphysics*, for speaking of the uniquely individual soul of Socrates (1037a5–10); but the context suggests that we would be speaking with more ontological precision if we spoke rather of Socrates as the uniquely individual *composite* of species human soul/form with a uniquely distinguishing human bodily structure;⁵⁹ and when Aristotle raises what he calls “the sophistic refutations” of his position, such as the challenge, “is Socrates the same as to-be Socrates?” the “solution” to which he refers is: “how/in a way [*pōs*] the same, but how/in a way not the same, has been said” (M 1032a5–12)—which I take to mean, to-be-Socrates as form/soul, which can be expressed in a defining logos, does not capture the “to-be” of Socrates as an individual composite of form/soul and matter, which cannot be so formulated (so there will be a paradoxical sense in which, “substantial being inheres in Socrates, who is [also] a substantial being, so that substantial being will be dual”—1038b29–30; for individual “to-be-ness,” see 29b14 and 39b25).

We get some help in understanding how organic matter may differentiate individuals within the same species if we consider what the biological works say about the way bodily organs allow for a “more and less” of degrees of structure and capacity, which differentiates closely related species—a conception which seems employable not only for differentiations of subspecies but also even for (rough, descriptive though not definitional) differentiation of individuals within the same species or subspecies. May not the describable

⁵⁸ See M 1035b30: “Individually, Socrates is from final matter, and similarly with others.”

⁵⁹ Aristotle in his civic-religious sense of responsibility does explicitly leave open the consoling possibility that “some parts of soul are separable from body,” and “the soul may be the completion of the body even as a sailor is of a ship” (S 413a6–9; see also 6b3–5, 7b2–6, 13b25–29, 30a23–25; and M 1043b18, 70a24–26).

differentiation of individuals by the “more and less” of capacity of organs make for a substantial “more or less” of excellence in attaining the kind and degree of flourishing (awakeness) that is the aim of each animal species—at least in the case of the higher species, above all the human, and especially as regards intellect (see PA 645a10; contrast C 3b34ff., noting the hesitant verb *dokei*)? Specifically: one reason why the human is “the most prudent of the animals” is that “as regards touch” the human “in precision is much distinguished from the rest”; and (Aristotle adds) individual humans are “naturally well endowed [*euphueis*] or unendowed [*aphueis*] with intelligence [*dianoia*] in proportion to this sense capacity” (S 421a23–26). In PA Aristotle declares that “best are those [animals] having blood that is warm and light and clear/pure; for nobly do such characteristics dispose to courage and prudence” (PA 648a9–11; see also 51a13–19): Aristotle is speaking of variation among species, but may these corporeal factors not apply also in differentiating individuals within a species, especially the human?

One might ask whether uniquely divergent individual human form/soul is not implied, as regards intellect, inasmuch as its thinking always entails *self*-consciousness. But while Aristotle does highlight the individuality of the human mind’s beginning deficiencies in both practical and theoretical knowledge (M 1029b3–12), his pithy thematic account of self-consciousness, that is, of the soul’s intellect “intellecting” itself, makes no reference to intellection of *uniquely divergent* individual subjectivity. The intellect, in knowing itself, or its individual subjectivity, is like all intellects in their actively knowing the common truth about intellect, with a subjectivity that is individual, along with other individuals, but is not said to be uniquely divergent in its individuality.⁶⁰ One might even submit that Aristotle holds that those human individuals most perfected in self-conscious intellect, since they are (self-consciously) most absorbed in and dedicated to study of the whole, and of human nature, are least given to becoming preoccupied with what is *uniquely divergent* about their personal subjectivity (without ever forgetting it, and not least the impending uniqueness of mortality—“*my* death sentence”: see Xenophon’s *Apology* 27).

If we maintain that there is no uniquely divergent individual form/soul in Aristotle’s ontology, then we are led to this paradox: Socrates was momentarily unique, in that he launched a philosophizing grounded in refutational investigation of the “human things,” the “just and noble/beautiful [*kalon*],”

⁶⁰ S 429b27ff.; cf. Aristophanes, *Acharnians* 396–99 and L. Strauss, *Socrates and Aristophanes* (New York: Basic Books, 1966), 64.

a philosophizing that was ultimately aimed at and culminated in an understanding of nature as a whole, including human nature, in terms of forms (*eidē*, answers to the “What is...?” questions); but this understanding of nature is not mainly directed to uniquely divergent individuality, including first and foremost that of Socrates (consider the last sentence of Xenophon's *Apology of Socrates to the Jurors*, as well as Plato *Phaedo* 78a).⁶¹

⁶¹ At the other extreme, ontologically speaking, would be Protagorean relativism as presented in Plato's *Theaetetus* (“human is the measure of all”—M 1062b12–15; also 1009a6ff.; but contrast 53a35–b3). Less extreme but more profound contrasts are seen in Rousseau and Nietzsche, in their diverse stresses on their own unique “personalities” as keys to human existence or to nature or being. Nietzsche's Zarathustra proclaims: “the individual himself is the most recent creation” (*Thus Spake Zarathustra*, “The Thousand Goals and a Goal”). Consider the close of L. Strauss, *Natural Right and History* (Chicago: University of Chicago Press, 1953): “The quarrel between the ancients and the moderns concerns eventually, and perhaps even from the beginning, the status of ‘individuality.’” Furth (*Substance, Form and Psyche*, 277) sheds some revealing light on Plato's *Republic* when he observes that the guardians therein are given an education and a way of life that in its extraordinary depreciation of the importance of, and the attachment to, divergent individual uniqueness would render them perhaps able to accept with equanimity the diminished status of and attention to their own and others' uniquely divergent individuality in Aristotle's ontology (and, we would add, in Aristotle's theology).

