CHAPTER 4

History peri physeos

The term that is perhaps most closely associated with Presocratic inquiry is *physis*, often translated as "nature." From the late fifth century, the "inquiry into nature" is associated with sophists and philosophy – and with the study of causes, constitutions, existence, and death. According to Charles H. Kahn, it is the "catchword of the new philosophy."[1] It is regularly contrasted with custom, law, and convention (*nomos*), and in such instances *physis* is associated with truth, reality, necessity, animal life, and, at times, self-interest. This chapter looks to the emergence and evolution of the concept of *physis* and the *Histories*' incorporation of the term in its narrative. As we shall see, *physis* creates regular patterns in the natural world and has predictive value for the study of the past. It organizes categories including geology, wildlife, and the human into stable configurations and establishes a set of important limits for the inquirer. *Physis* also invites consideration of the relationship of nature to humanity. Select passages may suggest a causal connection between the physical world and human culture, in a form of environmental determinism. However, it will become clear that the *Histories* expresses no unequivocal support for the notion that the condition of man is dictated by environment. Ultimately, it subverts strict environmental determinism. Herodotus emerges from this analysis as a figure deeply implicated in the Presocratic preoccupation with *physis*, even as he innovates within this tradition.[2]

[1] Kahn (1960), 201; Pohlenz (1953), 426, "the concept of *physis* is a creation of Ionian science, in which they summed up their understanding of the world"; quoted by Guthrie (1962), 82.

[2] For studies on *physis* generally, see Classen (1863); Lovejoy (1909); Beardslee (1918); Veazie (1921); Thimme (1935); Holwerda (1955); Bremer (1989); Patzer (1993); Naddaf (2005); for treatments of Herodotus and *physis*, see Heinimann (1945); Corcella (1984), 74–84.

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Early Greek *physis*

The first use of *physis* occurs in the *Odyssey*.[3] Odysseus comes upon the god Hermes in a sacred grove before reaching the home of Circe, where he intends to rescue his men, who have been unceremoniously turned into swine. In the course of the god-meets-mortal set piece, Hermes ensures Odysseus' escape from inevitable defeat by digging up "moly," a drug to protect the hero against the destructive magical powers of Circe:

> So, having said this, the Argus-killer gave me the drug, | pulling it from the earth, and he explained its *physis* to me (ἐκ γαίης ἐρύσας καί μοι φύσιν αὐτοῦ ἔδειξε). | Its root was black, its bloom like milk. | The gods call it "moly," and it is indeed difficult | for mortal men to dig up. But the gods are capable of all. (10.302–6)

Scholars continue to debate the precise meaning of this, the earliest instantiation of *physis*. According to Felix Heinimann, it refers to the exterior appearance of the plant, as the term *phue* does, which is common in Homer.[4] Conversely, Howard Jones has suggested it is the *process* of growing;[5] Émile Benveniste interprets it as the "realization of a becoming" or the nature of the thing realized entirely.[6] And Charles Kahn proposes that it is "its bodily form at maturity" rather than growth.[7] Alfred Heubeck adds that it means "hidden power" on the basis of the verb δεικνύναι (*deiknunai*).[8] With just a single passage in the epic it is difficult to reject or confirm the analysis of any single definition. A conservative position would certainly connect it to appearance, as this is described immediately afterward. Whether it encompasses processes of growth and hiddenness at this date is less obvious and must remain conjectural without additional evidence.

Presocratic philosophers around the turn of the fifth century begin to employ *physis* with increasing frequency in relation to their inquiries.[9] At the start of Heraclitus' philosophical treatise, conventionally called *On*

[3] For discussion of this passage, cf. Lovejoy (1909), 376; Beardslee (1918), 6; Holwerda (1955); Kahn (1960), 201; Clay (1972); Jones (1973), 16–17; Naddaf (2005), 13–14.
[4] Heinimann (1945), 16–17.
[5] Jones (1973), 16, "What Hermes actually points out to Odysseus is not the supernatural qualities of the plant, but the visible characteristics of it: the black root and white blossom." And again, "What Odysseus was actually shown was the way in which the plant was growing as manifested by its outward appearance: he was shown, in fact, the *process of growing*."
[6] Benveniste (1948). [7] Kahn (1960), 201 n. 1.
[8] Heubeck and Hoekstra (1989), 60: 10.302–6. [9] See the Word-Index in DK, s.v. φύσις.

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Nature – though this title is unlikely to have been original[10] – the philosopher explains his method of inquiry. As G. S. Kirk translates, "I distinguish each thing according to its constitution and declare how it is" (DK 22 B 1: κατὰ φύσιν διαιρέων ἕκαστον καὶ φράζων ὅκως ἔχει).[11] While definitions of *physis* vary, Kirk is persuasive in his translation of it as "real constitution."[12] On his reading, *physis* connotes a disposition or an organization of various parts, which in turn leads to behavioral norms. Kahn specifies further that the word signifies the "genuine nature or structure of a thing" and as such positions Heraclitus as a rival purveyor of wisdom among philosophers exploring the world order.[13] Another fragment of his states that *physis* likes to hide itself (B 123), a tendency that necessitates Heraclitus' disclosures. Kahn's translation is supported by the subsequent references to the concept in the extant fragments of his treatise. He chastises Hesiod for not knowing that the *physis* of each day is one, with no good or bad days (B 57); for Heraclitus, the structure of "day" is uniform, and this can admit no internal variation. This use suggests a clear departure from the focus in epic on the exterior form of the object. Elsewhere, he declares it wisdom to act with a knowledge that accords with *physis* (B 112); this formulation sets *physis* within the sphere of the human.[14]

Parmenides too incorporates *physis* into his *historie* – probably in the second half of his work, the *Doxa* (DK 28 B 10).[15] As Hermes had explained *physis* for Odysseus, so too the mouthpiece of Parmenides' philosophy, the goddess, promises the youth she will give him knowledge of the aethereal *physis* – or the constitution of the heavens. The goddess specifies that this will comprise knowledge of the signs in the heavens; the brilliant, destructive works of the sun; and the genesis of these things. Elsewhere, Parmenides bridges the human body and thought by using *physis* as an agent. He argues that the mixture of the limbs corresponds to human cognition, "for it is the same thing that the human frame of *physis* apprehends, both for all and for each individual, for thought preponderates" (DK 28 B 16: τὸ γὰρ αὐτό | ἔστιν ὅπερ φρονέει μελέων φύσις

[10] It was current as a description in the fifth century, see Hippoc. *de Carn.* 15; *VM* 20; but Schmalzriedt (1970) convincingly argues that the Alexandrian scholars assigned the title indiscriminately to Presocratic philosophers' works, while early Presocratics would not have used them.

[11] Kirk (1954), 33. The programmatic fragment is connected to Herodotus' project by Walter (2017), 161.

[12] See Kirk (1954), 42–3, 228–31. It is adopted by Robinson (1987), F 1 at 11.

[13] Kahn (1979), 99. [14] Cf. too B 123. Heraclitus and *physis* is discussed by Hülsz (2013).

[15] Though for an argument on the placement of B 10 in the *Aletheia*, see Bicknell (1967), 3, 16.

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ἀνθρώποισιν | καὶ πᾶσιν καὶ παντί· τὸ γὰρ πλέον ἐστὶ νόημα).[16] Any potential for mind-body dualism is undercut by the grounding of *physis* in the corporeality of the body, itself the vehicle for thought. This passage also points to the stability of human *physis*. As a conceptual category, it operates in the same way for humankind, without exception.

Likewise, Empedocles embeds in his philosophy a theory of epistemology that includes a reference to *physis*:

> For if you fix them firmly in your crowded mind | and kindly attend with pure efforts, | all these things will be with you always through life, | and you will take many things from them, for these things themselves increase | in each character, according to the *physis* of each individual (ταῦτ' εἰς ἦθος ἕκαστον, ὅπη φύσις ἐστὶν ἑκάστῳ). | If you should extend yourself for what is of a different kind, | for the myriad trifles beside men that blunt thought, | then yes, they will quickly abandon you, as time cycles by, | desirous of their own kind, to arrive at a race like themselves; | know that all possesses thought and a share of the guiding power. (DK 31 B 110)

As in Parmenides, *physis* serves to demystify epistemology. Empedocles' philosophical program calls for the integration of "these things" (σφ'; αὐτά) – meaning the previous sentiments on the four roots and the influence of Love and Strife – in the mind of his interlocutor, Pausanias.[17] Their incorporation will shape Pausanias' *ethos*, or character, according to *physis*, leading to his improvement.[18] Empedocles triangulates, then, ideas, cognition, and character. The *physis* of the individual – conceived again as a strong agential force – will determine the acceptance of arguments and plays an important role in self-fashioning. It is figured as an elastic state molded in response to one's information diet, but it also exercises control over the acquisition of new knowledge. Empedocles holds that his philosophy can only be integrated properly if its host has sought out what is elevated – it cannot abide in a habitat that is vile (δειλά). Like is akin to like. Man's constitution emerges as an interdependent structure responsive to external stimuli. The prominent position that Empedocles awards *physis* in the processing of information points to its rising value as a heuristic.

The Milesian and subsequent Presocratic thinkers who analyzed *physis* move incontrovertibly beyond appearance and naturally occurring

[16] See Vlastos (1946).
[17] Trepanier (2004), 66. Long (1966); Kamtekar (2009) interprets this fragment as working on the basis of analogical reasoning whereby one recognizes "X by X."
[18] Wright (1981), 258–61.

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phenomena.[19] This marks a shift from the preceding epic tradition – or, in the words of Lloyd:

> *We* should certainly not imagine that Homer and Hesiod and the audience for whom they composed were somehow unaware of the regularities of what we call natural phenomena ... but first there is a fundamental difference between an implicit assumption and an explicit concept. (2005), 133–4

The ubiquity of *physis* as a *topos* in Presocratic philosophy is assured by its presence in popular lampooning, as displayed, for example, in the *Clouds*.[20] It may have been satirized even earlier, if an extant fragment of the Syracusan comic poet Epicharmus (fl. ca. 480–470) is accepted as authentic. In the fragment, a character parodies the new fetish of inquiring into the nature of man with the words, "Then what is the *physis* of men? Bloated bladders!"[21] As the comic poet registers, man's *physis* comes increasingly under the microscope in the fifth century in sophistic and medical texts.

Herodotus' *peri physeos*

If "appearance" was in fact *physis*' primary meaning in the *Odyssey*, it is plain from even the scanty remains of the Presocratic philosophers that by the mid-fifth century its semantic range had expanded beyond this. Yet, despite Herodotus' position as the only substantially surviving Presocratic author, this feature of his narrative has received little attention.[22] The neglect can be traced to two separate scholarly tendencies of the twentieth century. The first was to connect the intellectual concerns of the *Histories*

[19] Despite the related verb φύομαι, and its primary meaning "grow," the noun is only seldom connected with growth in philosophical texts, cf. DK 31 B 8.1, and the discussion in Kirk (1954), 228–31. For the verb in Herodotus, see Powell, s.v. φύομαι, whose perfect stem is also used eight times as "to be so by nature" and used equally of the "natural" (i.e., biological) and human world.

[20] On eleven occasions; Aristophanes uses the term twice as often here as in his other comedies, a fact that supports reading it as a term associated with Presocratic philosophy. See Heinimann (1945), 107.

[21] F 10 *PCG*: ἆ γα φύσις ἀνδρῶν τί ὦν; ἀσκοὶ πεφυσιαμένοι. Cf. also F 2, which is interpreted as a parody of Heraclitus' theory of flux in terms of human *physis*, though this fragment is doubted by Kirk (1954), 146. For the relationship of Epicharmus to philosophy, Nestle (1902); Gigante (1953); Pickard-Cambridge (1962), 247–55; Barnes (1979), i.74, 87–8, 106–7; Alvarez Salas (2007), 23–72; Rodríguez-Noriega Guillén (2012), 87–95.

[22] For exceptions, see Heinimann (1945); Corcella (1984), 74–84. For human nature as a causal explanation in historiography, see Reinhold (1985), *passim*.

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more closely with predecessors than contemporaries.[23] So, according to Heinimann in his monumental work on *nomos* and *physis*, "There is no doubt that Herodotus stands closer to this conception of an archaic way of thinking."[24] An additional cause of the neglect has been Herodotus' ambiguous position in the *nomos-physis* debate that dominates scholarly attention in discussions of *physis*.[25] It is often doubted whether Herodotus was in fact part of that conversation; Max Pohlenz, for example, writing in response to Heinimann's seminal investigation, found Heinimann's conclusions on Herodotus and *physis* misleading. According to Pohlenz, the *Histories* predates the *nomos-physis* debate.[26] On this reading, when Herodotus does use the language of *physis*, he connects it to land, a tendency of early ethnography.[27] He finds that the *Histories* employs the term for human beings only rarely, as at 2.35.2, where the text states that the *nomoi* of Egyptians are to be understood as arising from their land's *physis*. Pohlenz continues with the reservation, "But he [Herodotus] does this only in this passage, and there is not the slightest evidence to suggest that this was done generally in ethnography before Hippocrates."[28] In the apparent absence of any opposition between *nomos* and *physis* in the *Histories*, the work that *physis* does becomes irrelevant.

If we turn to the *Histories*, *physis* in fact occurs in the context of humans and the physical world. Land, rivers, animals, elements, and men are all described as possessing a given "nature." As has been observed in prior scholarship, Herodotus' exploration of Egypt attests the significance of this as an index of *historie*.[29] Herodotus' inquiry there first aimed at its

[23] As argued especially by Thomas (2000), 5–8; Raaflaub (2004), 234.

[24] Heinimann (1945), 24: "Es ist kein Zweifel, daß Herodot mit dieser Auffassung der archaischen Denkweise nähersteht."

[25] For the *nomos-physis* debate generally, see Guthrie (1969), 55–134; Kerferd (1981), 111–30; Ostwald (1986), 250–73. Winton (2000), 98, is typical in his assertion: "The contrast between *nomos* and *physis* . . . constitutes the single most fertile and most influential idea to emerge in fifth-century Greece." For an excellent analysis of the debate in Democritus and Plato, see Taylor (2007).

[26] A similarly reductionist view, though in contradistinction to Thucydides' complexity, can be found in Reinhold (2002), 46, "the first to use the concept of human nature as a motive force in history was not Herodotus, but Thucydides." At 117 n. 6, he explains "Herodotus was the first to use the term, but he employed it merely to indicate the limits of human beings." See also Evans (1991), 23, on Herodotus: "[*Nomos*] is not the antithesis of *physis*." For a positive judgment on Herodotus, *nomos*, and *physis*, Hunter (1982), 264–77.

[27] An alternative but related position was to reject the importance of the term in the *Histories*, see, e.g., Evans (1991), 24, "*Physis* was in no sense a technical word: it might refer to the appearance of the hippopotamus, the life cycle of the crocodile, or the physical stature of man."

[28] Pohlenz (1953), 425, "Aber das tut er nur an dieser einen Stelle, und nicht das geringste Anzeichen spricht dafür, daß dies schon vor Hippokrates grundsätzlich in der Ethnographie geschehen sei."

[29] For Herodotus on Egypt, see generally A. Lloyd (1975); Froidefond (1971), 115–207; Vasunia (2001), 75–109; Moyer (2011), 42–83. The Egyptians represent for Herodotus a petri dish par

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geological and aquatic ecology. Egypt represented an earth science laboratory, a position that underwrites the narrator's assertion that it possessed "the most wonders and works superior to description" (2.35.1). At the start of Book 2 and the Egyptian *logos*, Herodotus' discussion turned immediately to the physical features of Egyptian land (2.5.2: Αἰγύπτου γὰρ φύσις ἐστὶ τῆς χώρης τοιήδε, "the nature of Egypt's land is like this"). Like Heraclitus, Herodotus carefully sets out *physis* as the conceptual guide to his inquiry. Immediately following this, he elaborates a series of proofs to support the thesis that the existing geomorphology of Egypt is a recent phenomenon, a product of the extended silting from the Nile. Previously, Herodotus explains, the area below Lake Moeris was underwater. Geomorphological change is not visible to the eye, however, so the thesis is supported by a hypothetical offshore excursion to test the muddy bottom of the water in order to illustrate the reality of the silting process: a day's sail away would reveal to one that a piece of lead cast into the sea would only sink eleven fathoms before hitting mud.[30] This theoretical voyage transitions into a discussion on the length of the coast, the range of the interior hinterland, and the type of earth – flat and muddy – to be found in Egypt and the mountain ranges that ring it. This usage challenges the early references to *physis* as appearance or growth. It encompasses external features as well as internal ones and has a role in determining human events as well as the natural world. It is best translated as "nature" or "natural constitution" in the *Histories*.[31]

The opening is bookended by ring composition, with "such is this land's constitution" (2.9.1: πέφυκε μέν νυν ἡ χώρη αὕτη οὕτως).[32] Egypt's *physis* is shielded from view and requires the penetrating gaze of the narrator to expose its hidden constitution, as Heraclitus had declared. Importantly, an element of the *physis* of the land is its dynamism – silting

excellence for *historie*, cf. Luraghi (2001b), 152. Donadoni (1947), 205, notes in passing that Herodotus envisions Egypt as utopian; and Hartog (2001), 47, sees Egypt as a space "back in time" for the Greek traveler of the sixth-fifth centuries; as does Vasunia (2001), 115–16.

[30] 2.5–6. *Physis* often covers the features not subject to direct autopsy as well as those which are; in this way, Herodotus corresponds to Heraclitus' dictum: φύσις κρύπτεσθαι φιλεῖ (DK 22 B 123), that "nature likes to hide itself," with Corcella (1984), 76.

[31] Corcella (1984), 75; with Falus (1977), 371. Cf. the *physis* of the crocodile at 2.68.1, which includes not simply its physical appearance but its living and feeding habits, its habitat, reproductive processes, its physical development, its interaction with other animals, both positive (with the trochilus) and negative (everything else), and its position respective to the Egyptian people as either sacred or otherwise. Human *nomoi* affect behavior toward the animal as recorded by Herodotus. Observations on *physis*, as is evident, are not limited to the exterior of the object of inquiry.

[32] For ring-composition in the *Histories*, Fränkel (1955), 71 n. 4; Immerwahr (1966); Beck (1971); de Jong (2002); for the metanarrative function of such signposting, see Munson (2001), 20–44.

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increases the landmass relative to the passage of time. The country is in an ongoing state of change, transforming itself from a moist swampland to dry, flat earth.[33] Its constitution is reminiscent of Anaximander's comments on the formation of the earth:

> For at first, they say, the entire area around the earth was liquid, but as it was drying under the sun, one part of it evaporated and created winds and movements of the sun and the moon, while the remaining part became the sea. Whence they believe that the sea becomes smaller as it dries out and one day all of it will eventually become land. (DK 12 A 27)

Herodotus is likely adopting the theories of Anaximander here and in his discussion of the consequences of Egypt's *physis*:[34]

> εἴ σφι θέλοι, ὡς καὶ πρότερον εἶπον, ἡ χώρη ἡ ἔνερθε Μέμφιος (αὕτη γὰρ ἐστὶ ἡ αὐξανομένη) κατὰ λόγον τοῦ παροιχομένου χρόνου ἐς ὕψος αὐξάνεσθαι, ἄλλο τι ἢ οἱ ταύτῃ οἰκέοντες Αἰγυπτίων πεινήσουσι (2.14.1)
>
> If the land that is below Memphis – which is increasing – should increase in height, as I said before, proportionally as it has in the past, what else will happen to those Egyptians inhabiting the region but that they will starve?

The points of contact with the philosophers are conspicuous. First, in its focus on empirical phenomena, Herodotus' recounting of Egyptian geology is comparable to Parmenides' promise to disclose the science of the heavens. Herodotus' argument on silting in Egypt consists of a hypothetical in a conditional statement, affirmed with a first-person backward reference, and is supported by explaining the conditions under which the hypothetical obtains. The conclusion propels the theoretical event into a distant future through a rhetorical question that relies on inductive reasoning.[35] Thematically, it is the language of *physis*, associated as it is with the intellectual circles of the Presocratic thinkers, that gives Herodotus the conceptual toolkit to demonstrate the geological sophistication that he does. It is the

[33] A. Lloyd (1975), 137, Herodotus refers to the Egyptian land as the "gift of the river" (2.5.1), which derives from Hecataeus *FGrH* 1 F 301, though the proofs are substantially Herodotus'. Silting occurs in Greece as well, around Troy, Teuthrania, Ephesus, and the Maeander plain, while the Achelous in Acarnania bridged the Echinades islands, 2.10.

[34] He may be silently correcting Xenophanes' conception of earth as mixing with sea and being dissolved by increasing moisture (DK 21 A 33) with the same piece of evidence: seashells, Hdt. 2.12.1.

[35] For these elements as distinctive to early philosophical and sophistic writing, see Thesleff (1966); Poulakos (1983); Consigny (1992). I do not accept that "sophistic rhetoric" is a mirage, contra Schiappa (1991b). This depends on an overly rigid schematization of what are broad stylistic trends in fifth-century intellectual culture.

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predictability of evaporation that clarifies its dynamic constitution, not its external appearance. By applying the findings familiar from Presocratic thinkers such as Anaximander on the origin and evolution of landmasses, Herodotus demonstrates the explanatory power of their inquiry for his narrative, even as he stakes out a place as one capable of applying those inquiries to new contexts for his own purposes.

As we saw in Chapter 1, Herodotus' most famous eristic exchange is with his Presocratic predecessors and contemporaries on the subject of the Nile. His conclusion indicates that the environment is a system of interdependence, with the wind and the sun entangled in the behavior of the Nile. Again, he flags the importance of *physis*.[36] The Nile floods in summer rather than winter, contravening the behavior of all other rivers. Its providential flooding eliminates the need for agricultural labor and allows Egyptians to produce their harvest with almost no effort, in a nod to Golden Age man's capacity to live without toil due to the earth's unstinting supply of good things.[37] Despite inquiries into its alien nature, Herodotus is stymied: "as to the *physis* of the Nile, I was unable to ascertain anything from the priests or anyone else" (2.19.1).[38] Here the meaning of the term narrows and clearly refers not to the external form of the river, as this is observable, but instead to the obscure mechanism of its irregular current. The narrator produces three theories on its unique hydrological cycle, and although Herodotus does not name the authors of these hypotheses, there is evidence connecting them to Thales, Hecataeus, and Anaxagoras.[39] They attributed its *physis* to the Etesian winds, Ocean, and melting snows. After discarding these theories, Herodotus offers his explanation that evaporation takes place in winter in Egypt due to wind taking the sun from its regular position in the sky.[40]

[36] For the prominence of the natural wonder, Aeschylus, Sophocles, and Euripides each give an account of its sources: Aesch. F 300 Radt; Soph. F 882 Radt; Eur. *Hel.* 1–3, and F 228 Kannicht; Sen. *Q. Nat.* 4a.2.16 = DK 59 A 91. For Herodotus and the Nile, see A. Lloyd (1975), 91–107; Corcella (1984), 77–82; Thomas (2000), 136–9; and most recently, Graham (2003). A fascinating genealogy of the question of the Nile's source and swelling is found at Diod. Sic. 1.37–41.

[37] Cf. Hes. *Op.* 116–20; alternatively, for the state of man in Hesiod's day as full of toil, see, e.g., *Op.* 91–3.

[38] At 2.19.3, Hdt. expresses the same frustration, τούτων ὧν πέρι οὐδενὸς οὐδὲν οἷός τε ἐγενόμην παραλαβεῖν παρὰ τῶν Αἰγυπτίων, ἱστορέων αὐτοὺς ἥντινα δύναμιν ἔχει ὁ Νεῖλος τὰ ἔμπαλιν πεφυκέναι τῶν ἄλλων ποταμῶν. ("Concerning these things, although I inquired of them what quality the Nile had that made it by nature the opposite of all other rivers, I was unable to ascertain this from any of the Egyptians.")

[39] For this passage, see Graham (2003).

[40] Evaporation is a prominent explanation in the Presocratic authors: see Asheri-Lloyd-Corcella, 2.25.1 for bibliography.

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This keeps the Nile from overflowing in winter.[41] The structure of the argument, in its overturning of rival theories, evokes contemporary philosophical practice.[42] Herodotus' original thesis aspires to impress the same audience as those listening to Thales, Hecataeus, and Anaxagoras and to accrue the same cachet.

Yet in line with the increasing focus on anthropocentric inquiry in this period, Herodotus also sets *physis* in relation to human habits and customs by drawing attention to the ambiguous homology between Egyptian climate, hydrology, and culture:

> Αἰγύπτιοι ἅμα τῷ οὐρανῷ τῷ κατὰ σφέας ἐόντι ἑτεροίῳ καὶ τῷ ποταμῷ φύσιν ἀλλοίην παρεχομένῳ ἢ οἱ ἄλλοι ποταμοί, τὰ πολλὰ πάντα ἔμπαλιν τοῖσι ἄλλοισι ἀνθρώποισι ἐστήσαντο ἤθεά τε καὶ νόμους· (2.35.2)
>
> As with their climate, which is distinctive to them, and their river, which has a constitution that is different from other rivers, so the Egyptians have made both their habits and customs the opposite in many respects to others.

The connection drawn here between the Egyptian climate and the constitution of the river, which act in ways particular to the region, depends upon Herodotus' argument on the relationship of meteorology to the flooding of the Nile.[43] Climate's influence on the Nile parallels the Egyptians' establishment of customs opposite other peoples. But it is the environmental system that offers insight into the behavior of humanity, not the other way around.

The homology raises the inevitable question: does *physis* influence custom?[44] Is humanity part of the interdependent system theorized by

[41] It is thus opposite to the Ister, which exhibits a unique *physis* in that its channel flows the same in both summer and winter. Herodotus explains this as occurring due to the snow in winter, which makes it a little greater than its true constitution, while the excessive summer rain combined with evaporation maintains the levels of its current, 4.50.2.

[42] E.g., Heraclitus' critiques of Hesiod, Pythagoras, Xenophanes, and Hecataeus at DK 22 B 40; Homer and Archilochus at B 42; Hesiod at B 57 and 106. See also the comments of Thomas (2017), 568.

[43] For this passage, see Thomas (2000), 124–5. See also Soph. *OC* 337–8: ὦ πάντ' ἐκείνω τοῖς ἐν Αἰγύπτῳ νόμοις | φύσιν κατεικασθέντε καὶ βίου τροφάς. ("Those two have become altogether assimilated to the *nomoi* in Egypt, in their *physis* and way of life"). The *physis* of Oedipus is said to be capable of alteration by the spell of friends, *OC* 1194; cf. also Soph. *Aj.* 548–9, where *physis* is not innate but shaped by *nomoi*.

[44] Again, cf. DK 31 B 110: αὐτὰ γὰρ αὔξει ταῦτ' εἰς ἦθος ἕκαστον, ὅπη φύσις ἐστὶν ἑκάστῳ. For its interpretation as environmental determinism in the *Histories*, see Asheri-Lloyd-Corcella 2.35.2; Redfield (1985); for responses against these and over-schematization in general, see Pelling (1997); Thomas (2000), 86–98, 103–14; Chiasson (2001), 56–68.

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Herodotus? First, it is important to note that *physis* in the fifth century seldom refers to "Nature" as a uniform, rational force operating in the world.[45] It is more often localized, attached to an object such as, in this case, the Nile. Herodotus associates the Nile's *physis* with the country's weather patterns, but climate and aquatic geography's participation in the human sphere of culture is more ambiguous. The comment may be merely provocative – correlation and not causation.[46] Lateiner is likely correct in holding that this statement does not commit Herodotus to a strong view of determinism by which men are like plants, predetermined by their environmental conditions.[47] Still, given the period in which Herodotus is writing, in which *physis* begins to refer to natural history and to bear on ethical questions relating to the human, it is difficult to avoid the conclusion that this is not simply a flippant aside or an accidental echo of Presocratic thought but that Herodotus is gesturing toward the investigation into humanity's place in the natural world.

For some thinkers, this does entail dependence. Aeschylus' *Suppliants* makes a comparison that is evocative of Herodotus. Danaus requests that a group of attendants from Athens accompany him and his daughters because "the *physis* of my shape is not alike, for the Nile rears a race not similar to that of Inachus" (496–8: μορφῆς δ' οὐχ ὁμόστολος φύσις. | Νεῖλος γὰρ οὐχ ὅμοιον Ἰνάχῳ γένος | τρέφει), and he fears unwitting violence from the citizens because of this.[48] Again, the Nile is implicated in the production of human difference – in this case, racial difference – with man conceived of as a product of nature.

Herodotus' connection of *physis* with human institutions allows him to raise a vitally important question in the fifth century: to what extent is the human conceived of as a product of his unique environment? As for Egypt, the question is left open: environment, *ethea*, and *nomoi* may participate in a reciprocal relationship, but the conditions under which this occurs are left unclear.[49]

[45] For exceptions to this general rule, see DK 59 A 30; DK 44 B 1.

[46] Thomas (2000), 103, 112, sees this passage as misleading with respect to Herodotus' larger narrative aims.

[47] Lateiner (1989), 158. See also Chiasson (2001), 57–8, who rightly points to the caution in Herodotus' formulation.

[48] Elsewhere, Aeschylus refers to *physis* in terms of Persian strength, *Pers.* 441; a herald reports that the sun nourishes the *physis* of the earth at *Ag.* 633; and at *Cho.* 281, infernal disease is said to eat away at one's "old constitution" (ἀρχαίαν φύσιν).

[49] His implicit comparison is activated by the narratee: see Munson (2001), 71, "reconstruction of analogical networks is almost entirely dependent on the interpretative operations of the listener."

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The fifth-century philosophers evidently explored the entanglement of man's *physis* and the natural world. The anonymous author of the Hippocratic treatise *Airs, Waters, Places* is perhaps the best evidence for this.[50] In the text, mankind is autochthonous, sprung from the earth, and so resembles in physique the landscapes that gave rise to him: "for the most part you will find that the physiques and habits of men follow the *physis* of their land" (*Aer.* 24: εὑρήσεις γὰρ ἐπὶ τὸ πλῆθος τῆς χώρης τῇ φύσει ἀκολουθέοντα καὶ τὰ εἴδεα τῶν ἀνθρώπων καὶ τοὺς τρόπους). The assimilation of man to landscape supports some degree of determinism. That is, humans are subject to the influence of their natural environment.

In the treatise, the elasticity of human *physis* is connected not only to geographical changes but also to human *nomoi*, a phenomenon particularly evident in a long excursus devoted to the "Longheads" (14). The Longheads turn culture into *physis* by correcting for the undesirable roundness of the cranium. Upon birth, the skull is immediately molded into a more suitably elongated shape and then bound until it remains in place. Generations later, this *nomos* becomes a trait in the *physis* of the people, "So in the beginning *nomos* acquired it by labour, resulting in the fact that such a *physis* arose by way of compulsion" (*Aer.* 14: οὕτως τὴν ἀρχὴν ὁ νόμος κατειργάσατο, ὥστε ὑπὸ βίης τοιαύτην τὴν φύσιν γενέσθαι). Euripides composes a similar sentiment in the *Bacchae* in a comment on the divine, which is described as "what is *nomimos* for a long span of time and is ever there by nature" (895–6: τό τ᾽ ἐν χρόνῳ μακρῷ νόμιμον | ἀεὶ φύσει τε πεφυκός).[51] Among these authors, culture is in dynamic interrelation with and even determines nature.

Noteworthy is the stark dichotomy in *Airs* between the *physis* of individuals in Asia and Europe. There, the *physis* of what grows from the earth and that of humans in Asia are interactive, with the added information that these differ greatly from plant and human *physis* in Europe.[52] This is largely, though not entirely, attributed to the environment.[53] Asiatic peoples are grown in a hothouse of eternal spring; theirs is a coddled

[50] For a discussion of Hippoc. *Aer.*, generally, see Grensemann (1979); Calame (1986), 85–99. The dating of *Aer.* is widely taken to be roughly contemporaneous with Herodotus, e.g., Jouanna's edition of the Budé (1996), suggests 430/20 BCE. The best treatment of *Aer.* in relation to Herodotus is now Thomas (2000), *passim*, especially 86–98.

[51] For the opposition of *nomos* and *physis* in the *Hippolytus*, see Berns (1973).

[52] *Aer.* 12: "I say that Asia differs widely from Europe with regard to the constitutions of all things growing from the earth and to the constitutions of all men." For which, see Calame (1986), 88.

[53] Lateiner (1989), 158, who rightly points out that neither Herodotus nor the author of *Aer.* are, *sensu stricto*, environmental determinists. Pind. *Nem.* 7, 54–5, too sees *physis* as varied, though individually rather than nationally.

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stability. Their temperature and seasons are invariable and so their men are domesticated and easily enslaved. In contrast, the volatile climate of the Europeans makes their *physis* more wild, unsocial, spirited, and courageous (23). The emphasis on human bravery in the treatise is particularly interesting and is part of an attempt to rationalize the outcome of the Greco-Persian Wars, in which the vastly superior force of the Persians was defeated by the modest numbers of their Hellenic opponents, a subject that we will turn to in Chapter 5.[54]

It will be instructive to contrast the *Histories* with this conception of the dynamism of human *physis* in relation to culture.[55] Like the Hippocratic treatise, *Airs, Waters, Places*, the *Histories* emphasizes the interrelation of man's constitution and the natural world; however, it is resistant to claims of environmental determinism and to the ethnic plasticity of human *physis* found there. Unlike habit or custom, man's *physis* is constituted by a set of dispositions that are not altered by geography or climate. This fixity of the human becomes an explanatory paradigm in the *Histories*, one that allows Herodotus to reject the more fantastic narratives that he is presented with. One such episode occurs in the context of the race of the one-eyed Arimaspians. This mythical people, perhaps the inspiration for the Cyclops in Homer, were rumored by the Scythians to collect abundant gold in the north of Europe from griffins. Herodotus' skepticism borders on derision, "I do not believe that there are one-eyed men born, having a constitution similar in every other way to other men" (3.116.2: πείθομαι δὲ οὐδὲ τοῦτο ὅκως μουνόφθαλμοι ἄνδρες φύονται, φύσιν ἔχοντες τὴν ἄλλην ὁμοίην τοῖσι ἄλλοισι ἀνθρώποισι).[56] With marked polyptoton, Herodotus rejects the possibility of extreme physiological difference in *physis* because of its departure from the standard of human form.[57] Other men have two eyes, so the *physis* of man is two-eyed. In the *Histories*, the Scythians do not understand that the *physis* of man, like rivers, is predictable. Extravagant suppositions of semi-legendary,

[54] For the opposition between Persians and Greeks as the motivator of the differentiation found in *Aer.*, Backhaus (1976). The concept remains influential: cf. Pl. *Resp* 470c; Isoc. *Paneg.* 157, 184; *Panath.* 163.

[55] See Soph. *Aj.* 548–9, for *physis* as subject to change by *nomoi*; contrast Eur. *Hipp.* 79–81, for *physis* as fixed and untaught.

[56] An implicit correction of his predecessor, Scylax, *FGrH* 709 F 7b. Similarly, Corcella (1984), 76, notes that on account of the law of uniformity in nature Herodotus rejects anomalous distant wandering islands, 2.156.

[57] Though it is impossible to verify, it seems plausible that human *physis* encompasses the breadth of racial difference. At 2.22.3, the Egyptian skin is burned black by heat, οἱ ἄνθρωποι ὑπὸ τοῦ καύματος μέλανες ἐόντες. Note that present-day Spartans were originally Egyptians, according to Hdt. 6.55.

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unverifiable data are called into question through the association of *physis* with an underlying stability or regularity.

Social praxis in cooperation with the environment can modify an individual's form, but these modifications are not transgenerational. When Herodotus travels to the battlefield of Pelusium in Egypt and views the skulls of the fallen Persian and Egyptian warriors, he finds that the cranium of the Egyptians is much thicker than that of the Persians. The reason for this is not, however, the unique *physis* of the Egyptians or the Persians. As in the example of the Longheads, it is the result of custom: the Egyptians shave their heads from childhood, a process that Herodotus argues thickens their skulls because of their exposure to the sun; the Persians, meanwhile, wear caps and keep themselves in the shade, which keeps their skulls thin (3.12.2–4). There is, however, no suggestion that in the passage of time this practice will lead to a permanent change in each group's *physis*, in contrast with *Airs, Waters, Places*. Human *physis* at birth remains undifferentiated through different cultures. Like the genealogical maps that crisscross east and west in the *Histories*, disturbing the dichotomy of Asia and Europe, *physis* is a unifier.[58]

This is corroborated in Herodotus' excursus on the Greek confusion concerning Heracles' origins, where the narrator corrects the *mythos* of Heracles' sojourn in Egypt.[59] Some Hellenes foolishly believe, he relates, that during Heracles' travels to Egypt he was wreathed and placed in a procession that was meant to end in his being sacrificed to Zeus. According to this fiction, Heracles remained passive until the moment of the sacrifice, at which point he revealed his might and killed the myriad Egyptians present. Here the narrator interjects: "Now in my opinion, the Greeks who tell this story are totally lacking in autopsy of the *physis* of the Egyptians and their customs" (2.45.2: ἐμοὶ μέν νυν δοκέουσι ταῦτα λέγοντες τῆς Αἰγυπτίων φύσιος καὶ τῶν νόμων πάμπαν ἀπείρως ἔχειν οἱ Ἕλληνες). Again, *physis* and *nomos* in Egypt are flagged alongside one another, and the Greeks lack familiarity with both. Their inexperience gestures to a kind of secondary Herodotean autopsy, as it suggests that he has seen and personally investigated enough of human nature and customs in general, and Egyptian ways in particular, to guarantee that such a radical departure in the past is impossible. The Greeks' perception of the Egyptian *physis* as

[58] E.g., Gruen (2011), 37–9.

[59] A. Lloyd (1975), 139, notes this is an attack on a Hecataean *logos*; cf. also Wardman (1960), 404; Munson (2001), 142, on Herodotus' dismantling of the more savage parts of the Greek conceptions of Egypt.

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somehow distinctive leads to this false story about the activity of Heracles.[60] Further, it is the lack of awareness of the religious traditions of Egypt that hinders the Greeks from forming a correct account of the episode; the *mythos* as it is told is patently impossible, since it transgresses the *nomoi* of the Egyptians, who have strict mandates against animal sacrifice, and a fortiori, would not permit human sacrifice. Ignorance of each prohibits a correct accounting of events, while at the same time, Herodotus' superior knowledge allows for his correction of the Hellenic version without in fact having witnesses or personal autopsy involved in this rewriting of the distant past.[61]

Reference to the *physis* of the Egyptians might initially be interpreted as indicating a distinctive quality to their constitution. Aeschylus exemplifies this position in his *Suppliants* in the passage noted above. His μορφῆς φύσις should be interpreted as "external appearance," a meaning that potentially also underlies the passage in the *Odyssey*. In the *Histories*, the *physis* of the Egyptians is clarified through Heracles' own humanity: "And since Heracles was still only one, and still a human being, as they themselves say, how does he possess a *physis* to slaughter so many tens of thousands of men?" (2.45.3: ἔτι δὲ ἕνα ἐόντα τὸν Ἡρακλέα καὶ ἔτι ἄνθρωπον, ὡς δὴ φασί, κῶς φύσιν ἔχει πολλὰς μυριάδας φονεῦσαι;) Since he is subject to the limitations of humankind, he could not possibly have wrought the destruction upon the Egyptians that the Greeks incorrectly assert. The Heracles familiar from mythology is quickly dispatched.[62] It is partly this traditional interpretation that keeps the Greeks from recognizing the necessities of human *physis* and the impositions this makes upon the mortal Heracles and upon the Egyptians as well. "Heracles, still a human," could not have killed the myriad Egyptians in any heroically stylized bloodbath: this is beyond the capacities of the human constitution.[63] In the course of deflating the Busiris myth, in which the Egyptian king put to death foreign visitors by sacrificing them, Herodotus attributes to the Greeks the notion of a superhuman *physis* that Heracles could use to defeat his savage enemies. Herodotus rejects the

[60] Cf. Soph. *OC* 337–8, where Oedipus maintains the difference between the Greeks and Egyptians while maligning the lack of support from his sons Eteocles and Polyneices.

[61] Cf. Plato's concern for correcting representations of the divine acting in ways that they did not, e.g., *Resp*. 377e-8a.

[62] Herodotus treats Heracles as a subject of historical inquiry rather than the subject of epic fabrication, with Moyer (2011), 79.

[63] On the danger of transgressing *physis*, DK 68 B 3; DK 87 B 44 F A-B, *passim*; Kouremenos, Parássoglou, and Tsantsanoglou (2006), on the Derveni Papyrus IV 6–9.

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possibility of an exceptional *physis*. Universalizing the human constitution works against the argument for Hellenic exceptionalism. Herodotus' additional thesis holds that Greek unfamiliarity with the *physis* of Egyptians led them to believe a mere man, as even they say Heracles was at this period, could defeat myriads. The suppressed premise here is that the parity between Greek and Egyptian *physeis* mandates against a single man being able to surpass multitudes. As the regularity of the winds throws the sun off course into Libya and desiccates the Nile during winter, creating the conditions for the observable decrease of water during this season, so the parameters of human action follow regular courses, ruling out the potential for "heroic" but anomalous action. Heracles is human and so are the Egyptians. Human nature emerges as an atemporal category through which Herodotus is able to correct the interpretation of the events of the past.[64] Even if the Greeks are not aware of the *nomoi* of the Egyptians, knowledge of the human constitution can act as a control on the fantastic embroidery that these sources attempt to pass off as accurate history.[65] In sum, the rejection of the historicity of the one-eyed Arimaspeans as well as the impossibility of Heracles' attack on the Egyptians demonstrates the limits of the human constitution.[66] This stands in marked contrast to those treating *physis* as a historical category subject to radical change in time or place, as in *Airs, Waters, Places*. This is not to say that the author of *Airs, Waters, Places* would accept the *physis* of Heracles as superhuman in the terms that Herodotus rejects; this is a more restricted claim that Herodotus uses *physis* as a stable category that makes it possible to interpret events and groups distant in space and time.

In the above cases, Herodotus underscores the way in which human *physis* functions as a circumscribed set of dispositions. Yet, as noted above, Herodotus also raises the possibility of some interrelation between Egypt's climate and customs. There is a generative ambivalence to this formulation. It opens up the potential for climate and geography to influence

[64] DK 87 B 44 F B col. II 15–20, Antiphon similarly states, F B col. II: σκοπεῖν δ[ὲ] παρέχει τὰ τῶν φύσει [ὄντων] ἀναγκαῖ[α ἐν] πᾶσιν ἀν[θρώ]ποις ("But it is possible to consider what is necessary by nature in what exists for all men").

[65] Eratosthenes too rejects the narrative, see Strabo 17.1.19. The limits of human nature take on significance in contemporary ethics. In the text known as the *Anonymous Iamblichi*, the author argues at DK 89 B 6 against pursuing a life devoted to desiring more by arguing that even if a superhuman (ὑπερφυής) were to emerge, human nature's incapacity for surviving alone and its inevitable movement toward forming alliances would lead to the destruction of such an individual.

[66] See the new Heraclitus fragment, Kouremenos, Parássoglou, and Tsantsanoglou (2006), iv.6–9: "the sun's *physis* cannot exceed its own spatial limit, without punishment from the Erinyes, attendants of Justice."

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culture. It does not suggest that these alter man's *physis*. However, an ethnocentric nature is raised explicitly within the *Histories*. After the fall of Sardis, its former ruler, Croesus, advises Cyrus against the destruction of the city. In his effort to persuade Cyrus to stop sacking it, he warns that "the Persians are poor being unruly by nature" (1.89.2: Πέρσαι φύσιν ἐόντες ὑβρισταὶ εἰσὶ ἀχρήματοι) and that whoever takes the greatest wealth from the plunder will be the first to revolt against him. Like Herodotus, Croesus uses *physis* for its predictive potential. Yet, it takes on a dispositional quality that is specific to the Persian *ethnos*, a usage that we have seen was prominent in *Airs, Waters, Places* and the distinctions made between European and Asian peoples.[67] A *hybristes* is associated with overconfidence, unruliness, and an over-valuation of the self, all qualities that would presumably be exacerbated by unexpected prosperity and lead to the attempt to topple Cyrus' rule. Croesus' claim that Persians have a distinctive (and undesirable) *physis* due to their privation is clearly persuasive, as it has its intended effect when Cyrus stops the ruin of the city. Yet the narrative does not let Croesus' words go unchallenged. After the Lydian Pactyas is entrusted by Cyrus with the wealth of Sardis, he quickly rebels against the Great King, much to Cyrus' chagrin. Croesus' warning finds fulfillment in the case of Pactyas but not in ethnic terms. Pactyas is, after all, a Lydian (1.153.3). Apparently, the deleterious effect of sudden wealth on one's subjects transcends ethnicity. The *Histories* undermines the association of Persia with an ethnically motivated hybris, even as it registers the presence of this kind of thinking.

One further passage may be thought to provide evidence for environmental determinism. It comes at the close of the *Histories*, in an episode that returns to the rule of the great Persian emancipator, Cyrus. We are told that once the Great King had entertained a suggestion by one of his men, the Persian Artembares, who proposed transferring the population of Persia to a more fruitful land. Herodotus records that Cyrus responded as follows:

> ὡς οὐκέτι ἄρξοντας ἀλλ' ἀρξομένους· φιλέειν γὰρ ἐκ τῶν μαλακῶν χώρων μαλακοὺς γίνεσθαι· οὐ γὰρ τι τῆς αὐτῆς γῆς εἶναι καρπόν τε θωμαστὸν φύειν καὶ ἄνδρας ἀγαθοὺς τὰ πολέμια. (9.122.3)
>
> [He said that] they would no longer rule but be ruled, since usually soft men come from soft lands: for the same land cannot grow marvellous fruit and men noble in the affairs of war.

[67] This is common, however, in Thucydides, 1.121.4, 3.64.4, 6.79.2, 7.14.2, 7.14.4, 7.48.4.

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The narrator expands on this with the sentence that completes the work: "defeated in their judgment by Cyrus, they chose to rule while inhabiting a poor land rather than to be slaves to others and sow plains" (9.122.4: ἐσσωθέντες τῇ γνώμῃ πρὸς Κύρου, ἄρχειν τε εἵλοντο λυπρὴν οἰκέοντες μᾶλλον ἢ πεδιάδα σπείροντες ἄλλοισι δουλεύειν). This closural moment has often been interpreted as a veiled *Luxuskritik*, providing a contrast between the now-enervated Persians and their "hard" forebears. It would thus be a nostalgic return to their former status as fearsome warriors.[68] On this model, as we saw above in the discussion of the Hippocratic *Airs, Waters, Places*, Persian men are like plants, as they too are nurtured by the earth, climate, and water. Cyrus' closural ecology certainly merits explanation and potentially aligns the *Histories* with the tradition in *Airs, Waters, Places*, with its implicit critique of contemporary Persia. Above all, it raises the question of whether men's dispositions on the battlefield are shaped by their environment.

A complicating feature for the argument in favor of environmental determinism is the fact that Herodotus immediately shifts away from geography or climate to cultural factors: if the Persians were to depart for a fertile land they would become an agricultural people by "sowing the plains" (πεδιάδα σπείροντες), which is evidently viewed as an obstacle to their military aspirations. This suggests that the reciprocity between physical environment and the human is not direct but mediated by social praxis. Cyrus' language of "soft lands" is a reference to the way geography shapes human cultural practices, not human *physis*, at least not directly. In line with this interpretation and the imagery of Persians sowing plains in this closural moment, it is preferable to interpret Cyrus' reference to men's excellence in war as the growth of a crop (φύειν) as a figure of speech. If Cyrus' dictum is not a literal reference to the man-as-plant argument, but a means of introducing the consequence of cultural practice – in this case, farming – on the Persians, this undermines the argument that the passage represents a straightforward case for environment shaping man's disposition in war. In fact, Cyrus raises a more complex problem, on the extent to which cultural practices that

[68] See Rood and Kingsley (forthcoming). According to Thomas (2000), 217: "There are elements of such thinking [environmental determinism], most prominently in the final paragraph (9.122)." Redfield (1985), 114, "This bit of Persian wisdom is in fact an ironic criticism of the Persians: if the Persians had been true to this judgment, the Great Persian War would not have happened; if Cyrus himself had been true to it, he would not have attacked Babylon and then the Massagetae." The *topos* of impoverishment is evident in Demaratus' speech as well, 7.102.1, τῇ Ἑλλάδι πενίη μὲν αἰεί κοτε σύντροφός ἐστι ("poverty has always been a foster-sister of Hellas").

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are at least in part dependent on environmental conditions determine military excellence.[69]

Cultivation of the earth is linked to the hypothetical enslavement of the Persians, which contrasts sharply with *Airs, Waters, Places*, where the earth gives of its produce due to the paradisiacal state of nature and the inhabitants make use of it in an effortless life of enervating ease (*Aer.* 12). On the Hippocratic author's reading, the *physis*-derived cause of the cowardice of the Asiatics is due to the invariability of the seasons, which leads to the body's lack of excitement (*Aer.* 16).[70] Alternatively, in Herodotus it is the physical activity of farming that creates a state of sufficiency that the Persians have been famed for lacking since their introduction in the *Histories*. In Book 1, the Lydian Sandanis warned Croesus of Persia's dearth: "They eat not what they want but what they have, since their land is harsh" (1.71.2: σιτέονται δὲ οὐκ ὅσα ἐθέλουσι ἀλλ' ὅσα ἔχουσι, χώρην ἔχοντες τρηχέαν). Cyrus' words raise the issue of the extent to which the poor environment of Persis is responsible for the valor of the Persians. Readers of the *Histories* are equipped to answer this in the negative. The Persians had inhabited Persis long before the rule of Cyrus and remained a subject people during all that time. Environment is neither a catalyst nor a precondition for military prowess.

It has been suggested that this scene jars with an earlier one found in the first book, in which Cyrus, intent on persuading the Persians to support his claim to the Median throne, has the Persians gather on two successive days to gain their assent to his coup.[71] On the first day, Cyrus brought the people to an uncultivated area and had them reclaim it for farming (1.126.1: ἐξημερῶσαι); on the second, he entertained the Persians with a lavish feast. On Vivienne Gray's reading of 9.122, "the epilogue contradicts the earlier story in which Cyrus puts a choice in front of his Persians – to work the land all their lives or feast in luxury (1.126). He uses their preference for the soft life there to motivate them to rise against the Medes and set out on the path to empire."[72] However, this interpretation neglects a key detail for interpreting these two passages – in the preamble to the revolt, Cyrus brings the Persians to feast as an *army*.[73] Recall that Cyrus

[69] Cf. 2.164.1, for the case of Egypt and its distinct warrior class. At 2.168.1, this class is also associated with agriculturalism, which undermines Cyrus' contention. See Rood and Kingsley (forthcoming) for additional discussion.

[70] As noted above, this was compounded by their *nomoi* and monarchy in particular.

[71] Most recently, Xian (2020), 19–22. [72] Gray (2002), 314.

[73] He stage-manages the revolt by first calling his men to an "assembly" (1.125.2: ἁλίην; 1.125.3: συνάλισε).

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first contrives to present himself as a general ordering his troops to be present, ἔφη Ἀστυάγεά μιν στρατηγὸν Περσέων ἀποδεικνύναι (1.125.2). Herodotus then recounts the tribes of the Persians, as though giving a war catalog. Cyrus compels the Persians to practice cultivating the earth, a day of hard labor that they describe later as "full of evils"; on the second day, Cyrus sacrifices and prepares a feast for the men to receive the Persian army (1.126.2: ὡς δεξόμενος <τούτοισι> τὸν Περσέων στρατόν). Why is this assembly of Persians referred to proleptically in this way? Significantly, it is only at this moment that he lays bare his intention to lead them in war against the Medians – a war that would free the Persians. Note here that agricultural activity is considered "servile" (1.126.5: πόνον δουλοπρεπέα), while its opposite, war, is coded to freedom (1.126.6: νῦν ὦν ἐμέο πειθόμενοι γίνεσθε ἐλεύθεροι, "now be obedient to me and become free"). In this passage and at 9.122, Cyrus opposes agricultural activity to war and treats them as entailing, respectively, slavery and freedom. It is paradoxically the absence of cultivation that necessitates Persia's success in its imperialist project. All this is rather removed from consideration of strict environmental determinism that we saw above in *Airs, Waters, Places*. To summarize, Cyrus' description of the relationship of Persian men to Persian soil is a metaphorical representation of the opposition of cultivation to imperialism, not a literal espousal of environmental determinism. There is no evidence that natural landscape shapes man's valor.[74]

In the *Histories*, *physis* encompasses the set of possible dispositions and physical attributes of its object. There are also metaphysical limits. In a final moment of mental clarity, the Persian despot Cambyses notes the bounds set on man's nature.[75] Following the revelation that the Persian Empire has been taken by surprise by the False Smerdis, Cambyses recounts his secret murder of his brother, the true Smerdis, and asks his courtiers to take revenge on his behalf against this imposter:

> In Egypt, I saw a vision while asleep – if only I hadn't! I supposed that a messenger came from the house to announce that Smerdis was sitting on the royal throne and that he touched heaven with his head. Afraid that I would be deprived of my rule by my brother I did what was more hasty than wise. For it is not in the constitution of man to turn aside the future

[74] Chiasson (2001), 62–4, also rejects environmental determinism, although on different grounds. For a compatible refutation of corrupting wealth in the overthrow of the Medes and at the end of the *Histories*, see Gorman and Gorman (2014), 81–6.

[75] For more on Cambyses in the *Histories*, see pp. 48–71.

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(ἐν τῇ γὰρ ἀνθρωπηίῃ φύσι οὐκ ἐνῆν[76] ἄρα τὸ μέλλον γίνεσθαι ἀποτρέπειν). Fool that I was, I sent Prexaspes to Susa to kill Smerdis. (3.65.2–3)

Like Croesus on the pyre, the near-to-death Cambyses is granted a moment of mental clarity in which he correctly assesses the injury he has imposed upon himself by not understanding the limits of the human.[77] He perceives that his attempt to prevent the dream's message from occurring has been misguided in the extreme and that the violence against his natal family was unmotivated and detrimental to his interests. It was the secretive murder of Smerdis that created the possibility for the Median imposter to emerge and take over the throne. The limits of man are thus not only physical. Cambyses' recognition of this demonstrates man's inability to steer his destiny – a leitmotif from the proem. Recall that while Croesus was able to get an extension on his deposition, he too ultimately could not turn his fate aside (1.91.1). The theme is prominent elsewhere: following Xerxes' war council and his opposition to waging war against Greece, Artabanus is threatened in a dream for trying to turn aside what must be, "neither in the future nor in the present will you get away scot-free with turning aside what is fated to happen" (7.17.2).[78] Human *physis* is finite.[79] This account levels the playing field in terms of self-determination – all may not have an equal chance at success, but all are constricted by the same rules. Cambyses' statement echoes popular wisdom, but its framing in the domain of *physis* places it in a wider context of inquiry into the human taking place in the fifth century. In this way, Herodotus expands the parameters of *physis* to include human limits in altering their own destinies, a usage with ethical implications that go far beyond issues of natural science.

This raises a further question, on whether the divine operates through the expression of *physis*. At least some sophistic treatises seem to have supported this. The author of the Hippocratic *On Regimen*, for example,

[76] I take this imperfect to be an instance of the "imperfect of a truth just realized," for which see Smyth s.v. 2795.

[77] Knowledge of *physis* is in Heraclitus a vital component of correct action, cf. DK 22 B 112: σωφρονεῖν ἀρετὴ μεγίστη, καὶ σοφίη ἀληθέα λέγειν καὶ ποιεῖν κατὰ φύσιν ἐπαΐοντας. ("Sound thinking is the greatest virtue and wisdom, to speak the truth and to act according to *physis*, by understanding.") For cogent argument on the authenticity of this fragment, see Kahn (1979), 119–23.

[78] An anonymous Persian prior to the battle at Plataea echoes the sentiment, 9.16.4. On what "must be", see Gould (1989), 73–8; Harrison (2000), 226ff; Mikalson (2003), 148–50.

[79] For the limits of human *physis*, see Th. 2.50.1; Pl. *Leg.* 713c. According to Antiphon, life *and* death are both aspects of *physis*, DK 87 B 44 F A col. III 25–8; similarly, DK 82 B 11a.

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declares that while men are responsible for the establishment of custom, the gods have ordered the *physis* of all.[80] Herodotus reveals a rather different conceptualization of the divine and *physis* in his discussion of the "forethought" (προνοίη) of the divine (3.108–9). Herodotus judges that divine providence deliberately keeps the reproductive systems of prey fecund and restricts that of harmful predators. Such forethought maintains the diversity of animal species. A counterfactual proves the point: if vipers and winged snakes came into being "as their *physis* already is" (3.109.1: ὡς ἡ φύσις αὐτοῖσι ὑπάρχει) then mankind would go extinct.[81] He goes on to explain that the male serpent is murdered by the female in the act of mating. Meanwhile, she meets an appropriately grisly fate at the hands of her offspring, who eat through her womb (3.109.2). This is an example of the way in which Herodotus' view of nature treats it as a system of interdependence. In this case, interdependence is explicitly related to man's place in the world, since snake proliferation would endanger *human* existence (3.109.1: "life would not be liveable for humans"). The echoes of Protagoras – or at least Plato's Protagoras – in this argument on divine providence have been ably remarked upon already and require no repeating here.[82] But the implications to be drawn from the reference to *physis* remain unclear.

Since the divine works to negate the existing constitution of these pests, it is difficult to interpret *physis* itself as divine. This is itself a contrast with *On Regimen*, where the gods arranged the constitutions of all things. For Herodotus, animal *physis* is counteracted by the divine to bring about a kind of balance. Interestingly, this also cuts against the grain of Plato's *Protagoras*. In Protagoras' Great Speech, he famously has Epimetheus distribute faculties for the survival of animals and humans. In the process, he is described as "granting a *physis*" (*Prt.* 320e: διδοὺς φύσιν) to these species. Herodotus innovates by projecting the mythological narrative of mariticide and matricide onto the natural world and by treating it as an example of divine providence. This continues the correspondence between the nonhuman and the human spheres. Herodotus' ecological paradigm inscribes excess onto nature but curbs it through the agency of the gods.

Conclusion

The study of *physis* as an object of scientific interest matured through the investigations of Presocratic philosophers on the observable world. Despite

[80] *Vict.* 1.11 Littré. [81] For discussion of the passage, see Demont (2022).
[82] See Thomas (2000), 141–50, with reference to Hippocratic treatises and Democritus as well.

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the loss of much of this material, hints of its primacy persist in their fragmentary remains. Herodotus' contemporary, Antiphon, claims that

> Since at least by nature (φύσει) we all are fitted similarly by nature (πεφύκ[α]μεν) to be Greeks and non-Greeks. But it is possible to consider what is necessary by nature in what exists (τὰ τῶν φύσει [ὄντων] ἀναγκαί [ων]) for all men . . . and in these things none of us has been defined non-Greek or Greek. For we all breathe in air through our mouths and noses. (DK 87 B 44 F B col. II 10–33)[83]

The underlying unity of mankind is supported by reference to the shared activity of breathing. Although Antiphon's fragment is frustratingly lacunose, even in this state it appears to communicate the same notion that is found in the *Histories*. The human constitution is universal, embracing Greeks and non-Greeks explicitly. It should inspire mutual respect and understanding on the basis of equality. This last feature of *physis* is largely implicit in the *Histories* but runs through Herodotus' deflation of cases of apparent exceptionalism including the Arimaspeans, Egyptians, Heracles, and the Great King.

As we have seen, the *Odyssey* had a single, uncertain use of *physis*. By contrast, Herodotus is in dialogue with those expanding its domain into the spheres of natural science and the human. *Physis* embraces the interior and exterior regularities of subjects as diverse as landmasses, rivers, seas, elements, animals, and men. Unlike *nomos*, which separates human populations into discrete groups within an ordered system, *physis* highlights the structural elements shared by mankind. Specific to Herodotus is the use of *physis* as a category of historical explanation; it is a standard of measurement that permits historical inference. This standard depends on the dispositions that constitute man's *physis*. Environmental factors shape human culture, but it is less clear how they impact man's constitution. In any case, Herodotus appears to challenge theories of environmental determinism current at the time of the composition of the *Histories*.

[83] There is additional evidence for the unity of human nature in Plato. His *Protagoras* uses the sophist Hippias as a mouthpiece for a point that can be interpreted this way: "Men I consider you all kin and relatives and fellow-citizens by *physis* and not *nomos* (φύσει, οὐ νόμῳ). For like is akin to like by *physis* (τὸ γὰρ ὅμοιον τῷ ὁμοίῳ φύσει συγγενές ἐστιν). But *nomos* being *tyrannos* of all men compels things contrary to *physis* (πολλὰ παρὰ τὴν φύσιν βιάζεται)" (DK 86 C 1 = Pl. *Prt.* 337c7-d3). It remains unclear whether this refers to the human race or the Greek race, Guthrie (1969), 162; however, Guthrie adds, 163, that it is suggestive that Hippias includes foreigners in the list of authors he anthologizes in the *Synagoge*. For a more detailed discussion of the *nomos-physis* debate and Hippias, see Johann (1973); Patzer (1986).

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Placing the *Histories* alongside its extant successor in Thucydides' *History of the Peloponnesian War* exposes some of the distinctiveness of Herodotus' conception of *physis*. While the Halicarnassian is willing to explore the alligator's *physis* in Egypt or the bizarre regularity of the Nile's flooding out of season, for Thucydides, nature is most often *human* nature. In the *History*, individuals associate the constitution of man with desire, with domination (1.76, 5.105), and with ethnic individualism (1.121, 7.14). It cannot be stopped by justice, *nomos*, or fear (3.45, 3.84). It might lie hidden, but its truth eventually shines forth (3.64). In these respects, Thucydides' treatment of the nature of man is striking for its departure from what is found in the *Histories*. However, in his famed description of the stasis at Corcyra, Thucydides relies on *physis* as a category of historical explanation in much the same way as his predecessor. Revolution, he narrates, brought about great horrors to those poleis in which they occurred, "as happen and always will be as long as human nature is the same" (3.82.2: γιγνόμενα μὲν καὶ αἰεὶ ἐσόμενα, ἕως ἂν ἡ αὐτὴ φύσις ἀνθρώπων ᾖ).[84] This bleak judgment relies on the underlying unity of the nature of man, which corresponds closely to Herodotus' own position. For both, this allows for *physis* to become a category of historical explanation. Chapter 5 develops this focus on the human by looking to the role of man's constitution on the battlefield and the rhetoric of surpassing the limits of *physis*.

[84] Cf. his use of τὸ ἀνθρώπινον, 1.22.4.

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