

THE COSMIC VIEWPOINT



A STUDY OF SENECA'S
NATURAL QUESTIONS

GARETH D. WILLIAMS

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Preface

This study aims to contribute to the modern reassessment of Seneca's *Natural Questions* as a meteorological work of considerable literary sophistication and importance—a highly original production in comparison with what survives of the larger Greco-Roman meteorological tradition. Initial studies of different aspects of the work (Williams [2005a], [2005b], [2006a], [2007], [2008a] and [2008b]) were not systematically planned as coordinated pieces. This study supplants those writings by attempting to take stock of the *Natural Questions* as a whole; although I have drawn extensively in this volume on my previous articles, they have undergone very significant modification, correction, revision, rearrangement and refashioning into the sequence of chapters that is presented here, and much new material has been added.

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Abbreviations

- CIL *Corpus Inscriptionum Latinarum*. Berlin, 1863–.
- DG H. Diels, ed. *Doxographi Graeci*. Berlin, 1879.
- D-K H. Diels and W. Kranz, eds. *Die Fragmente der Vorsokratiker*. 3 vols. 6th ed. Berlin, 1952.
- E-K L. Edelstein and I. G. Kidd, eds. *Posidonius, I: The Fragments*. 2nd ed. Cambridge Classical Texts and Commentaries 13. Cambridge, 1989.
- FGH F. Jacoby, ed. *Die Fragmente der griechischen Historiker*. Leiden, 1923–1958.
- L-S A. A. Long and D. N. Sedley, eds. *The Hellenistic Philosophers*. 2 vols. Cambridge, 1987.
- LSJ H. G. Liddell and R. Scott, eds., revised by H. Stuart Jones and R. McKenzie. *A Greek-English Lexicon*. 9th ed. Oxford, 1968.
- OED *Oxford English Dictionary*. 2nd ed. Oxford, 1989.
- OLD P. W. Glare, ed. *Oxford Latin Dictionary*. Oxford, 1968–1982.
- PIR *Prosopographia Imperii Romani saec. I. II. III*. 2nd ed. Berlin and Leipzig, 1933–1999.
- RE A. F. von Pauly, ed., rev. G. Wissowa et al. *Realencyclopädie der classischen Altertumswissenschaft*. Stuttgart, 1893–.
- SVF H. von Arnim, ed. *Stoicorum Veterum Fragmenta*. Leipzig, 1903–1924.
- TLL *Thesaurus Linguae Latinae*. Leipzig, 1900–.

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Introduction

quid est praecipuum? erigere animum supra minas et promissa fortunae, nil dignum putare quod speres... quid est praecipuum? posse laeto animo aduersa tolerare, quidquid acciderit sic ferre quasi uolueris tibi accidere... quid est praecipuum? animus contra calamitates fortis et contumax, luxuriae non auersus tantum sed infestus, nec audius periculi nec fugax... quid est praecipuum? non admittere in animo mala consilia, puras ad caelum manus tollere, nullum bonum petere quod ut ad te transeat aliquis dare debet aliquis amittere... quid est praecipuum? altos supra fortuita spiritus tollere, hominis meminisse ut, siue felix eris, scias hoc non futurum diu, siue infelix, scias hoc te non esse si non putes...

Ad hoc proderit nobis rerum inspicere naturam: primum discedemus a sordidis; deinde animum ipsum, quo summo magnoque opus est, seducemus a corpore; deinde in occultis exercitata subtilitas non erit in aperta deterior. nihil est autem apertius his salutaribus quae contra nequitiam nostram futuroremque discuntur, quae damnamus nec ponimus.

NATURAL QUESTIONS 3 PREF. 11–15, 18

What is most important? Raising your mind above the threats and promises of fortune, and considering nothing worth hoping for... What is most important? To be able to endure adversity with a glad mind, and to experience whatever happens to you as if you wanted it to happen... What is most important? A mind that is bold and confident in the face of calamity, not just averse to luxury but hostile to it, neither courting danger nor fleeing from it... What is most important? Not to admit bad intentions into your mind, to raise pure hands to heaven, to seek no good thing which, for it to pass to you, someone must give, someone must lose... What is most important? To raise your spirits high above chance occurrences; to be mindful of being human, so that, if you are fortunate, you know that this will not last long, and if unfortunate, you know that you are not so if you do not think so...

For these reasons the study of nature will be helpful to us: first, we shall leave behind what is sordid. Second, we shall separate the mind, which needs to be elevated and great, from the body. Third, when we have exercised our intellect on hidden obscurities, it will be no less effective in dealing with matters that are in plain view. But nothing is more visible than these salutary lessons that we are taught in order to combat our own wickedness and follies, which we condemn but fail to renounce.

The study of nature as characterized here, and as conducted throughout the eight surviving books of Lucius Annaeus Seneca's *Naturales Quaestiones* (parts of two of them, Books 4a and 4b, are now lost),¹ is no narrowly focused exercise in purely technical exegesis. The weight of precedent in the Greek meteorological tradition naturally influences both Seneca's choice of topics and his commitment to the rational explanation of natural phenomena in this late work, on which he embarked in the early 60s CE, some four years before his forced suicide in April 65.² His range of subject matter is impressive: lights in the sky in Book 1; lightning and thunder in Book 2; terrestrial waters in Book 3; the Nile in Book 4a; clouds, rain, hail and snow in Book 4b;³ wind in Book 5; earthquakes in Book 6; and comets in Book 7. But the technical thrust of his coverage of these various phenomena is inseparable from the ethical drive that guides his entire undertaking in the *Natural Questions*. Although Stoic physics provides a coordinating framework for the eight books, that physics is itself part of a Stoic philosophical holism that fundamentally shapes the *Natural Questions*—the holism, that is, among the parts of philosophy, ethics, physics and logic,⁴ the first

1. The title, so attested in the manuscript tradition, may be assumed to be Seneca's own, but definitive proof is lacking; for the wording cf. also *cum uentum est ad naturales quaestiones* (*Letters* 88.24). On its equivalence to the Greek Προβλήματα φυσικά or Ζητήματα φυσικά (cf. *SVF* 3 App. II LX p. 205.6–13), and firmly against any possibility that Seneca derived the title from Asclepiodorus, see Hine (1981) 24–29, especially 24–27 on *N.Q.* 6.17.3, with Vottero (1989) 19–20.

2. Further on the dating, n. 26 below.

3. Only hail and snow are treated in the surviving fragment, but references there and elsewhere in the *Natural Questions* indicate that clouds and rain had been discussed in the lost portion; see Hine (1996a) 189.5–7 with Vottero (1989) 506.

4. On this holism, Hadot (1998) 77–80 and now Boeri (2009) 174–75; in general on the relationship of physics and ethics in Seneca's *Natural Questions* and beyond, Limburg (2007) 56–83.

two of which are inextricably intertwined in Seneca's tour of the natural world in his eight books.

A (perhaps *the*) dominating principle in the *Natural Questions* is that the study of nature is inseparable from reflection on human nature. For Seneca, by studying nature we free the mind from the restrictions and involvements of this life, liberating it to observe, and luxuriate in, the undifferentiated cosmic wholeness that is so distant from the fragmentations and disruptions of our everyday existence. So, in the contemporaneous *Moral Letters*, the *sapiens* is described thus:

adhaeret quidem in corpore suo, sed optima sui parte abest et cogitationes suas ad sublimia intendit... interdici mihi inspectione rerum naturae, a toto abductum redigis in partem?

Letters 65.18–19

He is bound closely to his body, but he is an absentee in the best part of himself, and concentrates his thoughts on lofty matters.... Do you forbid me to contemplate the universe? Do you force me to withdraw from the whole and to be restricted to only a part of it?

By reaching for perception of this *totum*, we move toward a completeness of self-realization:

Virtus enim ista quam adfectamus magnifica est non quia per se beatum est malo caruisse, sed quia animum laxat et praeparat ad cognitionem caelestium, dignumque efficit qui in consortium <cum> deo ueniat. tunc consummatum habet plenumque bonum sortis humanae cum calcato omni malo petît altum et in interiorem naturae sinum uenit.

N.Q. 1 pref. 6–7

The virtue to which we aspire is magnificent not because freedom from evil is itself so marvelous, but because it releases the mind, prepares it for knowledge of the celestial, and makes it worthy to enter into partnership with god. It possesses the full and complete benefit of human existence when it has spurned all evil, it has sought the heights and it has entered the inner recesses of nature.

This release brings with it the truest gratification and delight (cf. 1 pref. 3; *iuuat*, 7). It brings contempt for the literal and figurative narrowness of space and thought that the liberated mind has left behind, soaring as it does high above the pettiness of conventional values and vices at ground level (cf. 1 pref.

8–13). Above all, through knowledge of nature, it brings knowledge of god, who *is* nature:

illic demum discit quod diu quaesit, illic incipit deum nosse.

1 pref. 13⁵

There [sc. in the measureless space of the heavenly region where the *animus* roams free] the mind at last learns what it has long sought; there it begins to know god.

In *Dialogue* 8, *De otio*, Seneca portrays mankind as born to contemplate nature, to marvel at her wonders, to probe into her secrets and finally to unleash our investigative instinct so that “our thought bursts through the ramparts of the sky” (*Dial.* 8.5.6). Beyond the ethical imperative sampled just above, this innate disposition to inquire into nature is the second of two Senecan motives for studying physics that Brad Inwood neatly summarizes as follows: “Studying physics provides direct instrumental support to what we might call the enterprise of ethics, but it also fulfils something very important and fundamental in our natures, the built-in drive for contemplation of nature.”⁶

The physics of the *Natural Questions*, then, is inseparable from ethical self-development. This book explores the artistic strategies by which Seneca develops and complicates this dynamic fusion of the physical and ethical components across his eight books. More particularly, my objective is to show that the *Natural Questions* is not so much about the natural world as an active form of engagement *with* nature: far from treating his diverse topics in the books with a steady, objective detachment, Seneca, I argue, constructs an eventful, often highly dramatized mode of discourse that not only brings the natural world to colorful life within the text but also activates the reader to be more than just the passive recipient of Seneca’s researches; to be truly moved and transported by the figurative mind travels that the eight books instigate and enact; and to find in that energized state that the *Natural Questions* itself amounts to a form of literary participation in nature. The two objects of study, *natura ipsa* and the Senecan text, are in a way commensurate: the arduous and gradual task of probing nature’s secrets (*secre-*

5. God as nature: cf. 2.45.2 with Hine (1981) 398 and Chaumartin (1996) 183. On “this equation of physical investigation with the contemplation of god” see Setaioli (2007), especially 334, 338–39, with Inwood (2000), especially 23–26; (2002), especially 119–25 = (2005) 157–65; (2009b) 215–22; Parroni (2000a), especially 437–38. Cf. also n. 7 below.

6. (2009b) 214–15.

tiora, 1 pref. 3) is replicated in Seneca's patient textual probings and doxographical surveillance across the books; but replicated also, perhaps, in the reader's task of probing and interpreting the artistic contours and subtleties of Senecan nature as drawn in the *Natural Questions*. On this approach, Seneca's meteorological theme, although traditional in one way, offers scope for real innovation in another: by focusing on *sublimia*, or atmospheric phenomena in the intermediate zone between the terrestrial and celestial regions (cf. 2.1.1), he raises our gaze above the level of what might be termed terrestrial perception. As we strive to understand such phenomena as rainbows and comets, the nature of winds and the cause of earthquakes, visual observation carries us only so far before the mind's eye becomes our guide in the formulation of conjecture and hypothesis at the intermediate, meteorological level of study. Within the overall framework of Stoic physics, the meteorological theme conveniently lends itself to a conceptual structure that differentiates between lower and higher forms of knowledge—a metaphysical distinction, if you will, not un-Platonic in character⁷—in the imaginative world of the *Natural Questions*.

The cognitive associations of Seneca's meteorological theme will be explored in detail in due course. But my insistence thus far on the hybrid status of the *Natural Questions* as a work that inextricably conjoins the physical and ethical strands immediately raises two basic questions. First, how does this vision of the *Natural Questions* as a hybrid physico-ethical production relate to the meteorological tradition that precedes it? Second, how does my own approach to the physico-ethical fusion in the *Natural Questions* relate to the directions taken in the existing scholarship? These questions are addressed in the next two subsections.

The Natural Questions and the Meteorological Tradition

Beyond Seneca's contribution to the founding of a meteorological literature in Latin, just how enterprising or novel a project is his *Natural Questions* when

7. On the Platonic aspect, Stahl (1964) 438–40 = Maurach (1975) 283–85; Donini (1979); Natali (1994); Chaumartin (1996) 180–81, 186–88; Setaioli (2007) 342–47; Limburg (2007) 401–11; and now Reydam-Schils (2010) with Hine (2010c) 58–61. True, an immanent Stoic god would seem to be incompatible with a transcendent, Platonizing image of god (see Limburg 401 with Natali 433); but my interest in the Platonic dimension in this book is to suggest only that Seneca experimentally appropriates within his Stoic worldview, and in his world picture in the *Natural Questions*, aspects of a metaphysical, Platonizing structure of thought—aspects that nevertheless hardly compromise his basic commitment to Stoic monism. Cf. in sum Natali 447 for Seneca as “uno ‘stoico platoneggiante’” while always remaining fundamentally “very far from becoming a Platonist.”

viewed against the other surviving remnants of the ancient meteorological tradition? Certainly, at least three interrelated factors underline his conformity to inherited practices.

First, there is the deep conservativeness of the meteorological tradition in general⁸: although the attempt to explain fearsome meteorological phenomena by appeal to reason rather than divine intervention extends back to the Pre-Socratics, Aristotle's demarcation of meteorology as a particular branch of knowledge in his *Meteorologica* was profoundly influential on his successors in the field, from Theophrastus onward.⁹ Seneca is no exception. The range of topics covered in the *Meteorologica* is very similar to that on offer in the *Natural Questions*, as well as that "of every other meteorological work whose contents are known to us."¹⁰ In several passages Seneca draws explicitly on Aristotle, although it is by no means certain that he knew the *Meteorologica* at first hand.¹¹ In sum, as Roger French puts it, "in understanding the natural world Seneca goes back principally to Aristotle."¹²

Second, in an important article Inwood fully acknowledges the imprint of tradition on the *Natural Questions*, but he plays down the ultimate significance of the meteorological component in Seneca:

I will argue... that Seneca presents his readers with the fruits of serious thought about the relationship between god and man, and would like to suggest (though proof is not possible) that *Seneca's most important concern in the book as a whole is not the overt theme* (explanations of traditionally problematic natural phenomena) but the subterranean theme of the relationship between god and man, and most particularly the epistemic limitations of human nature.¹³

But, counters Margaret Graver, epistemological and theological reflections of the sort that Inwood attributes to Seneca are already present in the earlier

8. On this feature, Mourelatos (2005) 285.

9. Concisely on the Pre-Socratic contribution, Taub (2003) 72–76 with Frisinger (1971); succinctly on Aristotle's contribution and influence, Taub 77–115 with Frisinger (1973). Conveniently on the entire tradition down to Seneca, Frisinger (1977) 1–30, albeit with (for my purposes) unhelpful final judgment on the *Natural Questions*: "In the early development of meteorology the importance of Seneca's *Quaestiones Naturales* was its compilation of ancient Greek meteorological theories" (p. 30).

10. Graver (2000) 48–49.

11. Conveniently, Hine (2010b) 5.

12. French (1994) 170; cf. for this standard line e.g., Grant (2007) 96.

13. (2002) 125 = (2005) 164–65, and cf. (2000) 26; my emphasis.

meteorological tradition from the Pre-Socratics onward.¹⁴ On the epistemological front, the limits of knowledge are tested in this tradition by the challenge of explaining phenomena that lie beyond our everyday observation and experience. On the theological front, naturalistic explanation supersedes the religious or magical interpretation of phenomena. Hence Graver finds “reason to believe that the meteorological project was in fact driven, all along, by concerns about the limits of our knowledge and about our relation to the divine”¹⁵; and hence a significant qualification to Inwood’s thesis, with the further thought that Seneca was perhaps not the first Stoic to experiment with the epistemological and theological ramifications of meteorology.¹⁶

Third, there is the Epicurean tradition. “In turning to the meteorology of Seneca, . . . we should be aware,” Graver urges, “that its emphases on the nature of divinity and on the limits of human knowledge are not his alone, and, further, that by the time of his writing this approach to meteorology had acquired a distinctly Epicurean flavor.”¹⁷ In his *Letter to Pythocles* (= Diogenes Laertius 10.85) Epicurus broaches his treatment of phenomena of the sky (τὰ μετέωρα) as follows:

In the first place, remember that, as in the case of everything else, knowledge of phenomena of the sky, whether taken along with other things or in isolation, has no end in view other than peace of mind and firm conviction (ἀταραξίαν καὶ πίστιν βέβαιον).

In *De rerum natura* 6, Lucretius naturally follows this rationalizing path in his own extended treatment of meteorological phenomena—a treatment interrupted when he embarks on a digression (6.703–11) on the principle of the plurality of causation, that “hallmark of Epicurus’ approach” in his *Letter to Pythocles*.¹⁸ Seneca, too, deploys this technique in the *Natural Questions*, not least in his account of the Epicurean theory of earthquakes at 6.20.5–7. Even though multiplicity of causation is in fact, as Mourelatos duly stresses, “the standard and almost commonplace methodological tenet in many contexts of ancient natural philosophy,”¹⁹ Graver presses its Epicurean associations hard in

14. Graver (2000), especially 45, 51.

15. Graver (2000) 45.

16. Graver (2000) 51.

17. (2000) 51.

18. Taub (2003) 130.

19. (2005) 284.

arguing for the larger Epicurean impact on the *Natural Questions* generally. The Epicurean flavor she detects in Seneca's reflections on the nature of divinity and the limits of human knowledge suggests, she writes, that "Seneca is consciously adapting a hallmark of the competing system."²⁰ Again, this Epicurean presence contributes significantly to Graver's broader critique of Inwood's thesis: in calling for that thesis to be fully contextualized within the meteorological tradition as a whole, she persuasively locates the *Natural Questions* within a larger community of thought, and Seneca's originality is qualified accordingly. In terms purely of its meteorological substance, and in terms of its many inherited strategies of procedure and argument, the *Natural Questions* marks no significant departure within the tradition.

Conformity to tradition on various fronts, then; but Seneca's fusion of the scientific²¹ and artistic outlooks—his creation of a highly self-conscious mode of *literary*-scientific investigation—is another matter entirely. A central claim of this book is that the *Natural Questions* reveals a spirit of creative ambition and adventure that quite sets it apart from the meteorological tradition, at least as it survives on the prose side (we shall turn momentarily to the meteorological component of Lucretius' *De rerum natura* 6). The literary strategies of engagement with nature that we shall monitor in detail in the ensuing chapters are themselves richly diverse, as if the different faces of nature are matched in the *Natural Questions* by restless variations of artistic angle and approach; and yet those variations are coordinated by Seneca's overall promotion of what might be called cosmic consciousness, or the attainment of "seeing the all" (cf. *animo omne*

20. Graver (2000) 51.

21. About my use of "scientific": certain investigative techniques that Seneca uses in the *Natural Questions* may reasonably be so described, at least in their conformity with familiar ancient procedures of analysis and argument. Beyond his basic quest to explain phenomena in purely naturalistic terms, among these features are his frequent argumentation by analogy, his critical engagement with the ideas of earlier theorists, his judicious weighing of competing possibilities and his stress on the unreliability of the senses and the need instead for inferential speculation; see conveniently on these features Hine (2010b) 7–9, and cf. for the positive projection of Seneca as scientist Cailleux (1971). From a modern perspective, however, the *Natural Questions* must (*pace* Cailleux) in many ways appear un-, or at least pre-, scientific; and even from an ancient perspective, the prominent moralizing component, Seneca's eye for artistic elaboration, and his powers of imaginative reconstruction (e.g., of the cataclysm at the end of Book 3) surely complicate any straightforward generic designation of it as "a work of science," even in comparison with other works that in some ways challenge the definition, such as Pliny's *Natural History* (see now Doody [2010] 14–23 on "Science and Encyclopedism: The Nature of Pliny's Scholarship," and cf. Taub [2008] 12–13 on "What Is 'Scientific?'"). In the following chapters, therefore, the word is used sparingly of the *Natural Questions*, and then only advisedly. Cf. Hine (1995) 204 n. 1 on his use in that study of "the word 'scientific' to describe the subject-matter of Seneca's work—which falls within the sphere of several of our modern-day natural sciences—and not to imply anything about Seneca's methodology."

uidisse, 3 pref. 10)—the liberation of mind that, as we saw above, is the ultimate Senecan/Stoic goal of studying nature.

This cosmic consciousness suggests another important facet of Senecan originality, especially in relation to Lucretius' demystification of meteorological phenomena in *De rerum natura* 6. If in that great poem Lucretius offers his own highly original response to the meteorological tradition, naturally extending to such phenomena as thunder, lightning and earthquakes, etc., the fortifying reach of Epicurean *ratio*, then the *Natural Questions* can profitably be viewed as a Stoic response to the Lucretian undertaking.²² On this approach, the Epicurean flavor that Graver discerns in the *Natural Questions* is indeed a profoundly significant presence: on the one hand, Seneca follows Epicurus/Lucretius in striving to assert a rhetoric of reason over that of wonder and to provide fortification in the face of awesome nature; on the other hand, Seneca's version of cosmic consciousness supersedes Epicurean *ratio* in the nonatomic and animated, Stoic world structure of the *Natural Questions*. In stressing the creativity of his response to Lucretius in particular, I also credit Seneca with a freedom of maneuver that surely tells against any subservient or dutifully mechanical reliance on his sources for the meteorological substance of his work. The belief that he relied on a single source, whether Posidonius or Asclepiodotus, his pupil, or a doxographical collection, has long given way to a more flexible approach that stresses the need to proceed cautiously, on a case-by-case basis, with alertness to the possibility that Seneca draws on a wide plurality of sources.²³ Above all, this study is committed to the view that he controls his sources rather than being controlled by them; as we shall see, the *Natural Questions* is a work of such diverse range and inventive literary design in and across the books that it is surely unlikely to have been slavishly reliant on its sources, let alone a single master source.

While Lucretius offers one antimodel for the Senecan worldview on offer in the *Natural Questions*, the elder Pliny (23–79 CE) offers another useful point of contrast in his *Natural History*, that massive feat of encyclopedic world collection in thirty-seven books: Lucretius and Pliny adopt distinctive approaches to rationalizing the world, whether through atomist explication or exhaustive cataloguing of facts, but Seneca brings the world to order through his own highly creative systematization in the *Natural Questions*. Further, the comparison with Lucretius and

22. On this line see Baldacci (1981) 587–88; Weber (1995) 91–92; Parroni (2002) xxxiv and (2004) 315.

23. See for succinct review of the whole question Vottero (1989) 24–39 with Parroni (2002) xxii–xxvi. The latter (p. xxiii) underscores the benefits of the case-by-case approach, with acknowledgment of the important advances made in this respect by Setaioli (1988) 375–452 and, on the plurality of sources, by Gross (1989); cf. in commendation of Gross' thesis Parroni (1992a) and (2000a) 434.

Pliny, both branches of which will be treated in greater detail later in this study,²⁴ contextualizes Seneca's project within a broader Roman interest in rationalizing, mapping and classifying the physical world in the late Republic and early Empire. The times matter: writing in the darkness of the later Neronian years, Seneca promotes cosmic consciousness in the *Natural Questions* not just, I propose, as an intellectual experiment whose timing is unimportant, or as a purely literary/theoretical response to Lucretius and the larger meteorological tradition, but as a work fundamentally shaped by the sociopolitical context in which it was written.²⁵ By personalizing the study of nature, as if giving the reader a sense of participation in a world far greater than the world of Rome; by constantly reinforcing the guiding principle that there *is* a governing *ratio* to things; by moving us toward the serenity of the detached, cosmic viewpoint—in these ways and more, the *Natural Questions* is no narrowly defined project of a forbidding, technical kind, but a work of very practical, therapeutic value. The detachment it fosters coincides all too suggestively, of course, with Seneca's literal detachment from the Neronian court after 62 CE²⁶, a turning point that might cause us to detect in the work a vision of expansive, uncontaminated nature that is implicitly contrasted by all the symbolic unnaturalness and claustrophobia of Nero's Rome.

24. For Lucretius, Chapter Six, Section III; Pliny, Chapter One, Section IV.

25. Further, Chapter One, Section V.

26. Much has been made in this respect of Tac. *Ann.* 14.52–6, but cf. Hine (2006) 71: “One might argue that we should not be too fixated on Tacitus’ account of the interview between Seneca and Nero in A.D. 62 as a turning point, for the change in Seneca’s influence and standing in the court, and in the balance he struck between court duties and philosophy, may have been more gradual.” The work appears to have been well advanced—and perhaps concluded—by late 64, if not (considerably?) sooner, for in Book 7 Seneca mentions the Neronian comet of 60 (7.6.1, 17.2, 21.3–4, 23.1, 28.3, 29.2–3) but makes no allusion to that of May–July (or autumn?) 64 (see Plin. *Nat.* 2.92, Tac. *Ann.* 15.47.1, Suet. *Ner.* 36.1 with Ramsey [2006] 40, 146–48 and [2007] 181). Attempts to gauge the rate of composition around, and after, Seneca’s *de facto* withdrawal in 62 are complicated by the problem of determining in which year, 62 or 63, the “recent” Campanian earthquake (6.1.1–3) is located. Seneca’s text as we have it dates the earthquake to February 5, 63, in the consulship of C. Memmius Regulus and L. Verginius Rufus (*Regulo et Verginio consulibus*, 6.1.2). Wallace-Hadrill (2003) inclines to 63 (so p. 190: “An earthquake in February 63 allows a far more comfortable chronology for composition over a matter of months in 62–63, with the news arriving in mid composition”; cf. also Parroni [2002] 573). But see now Hine 68–72 for a judicious reevaluation of the whole question, with a cautious preference for 62 (so Tac. *Ann.* 15.22.2), the phrase *Regulo et Verginio consulibus* then being adjudged an interpolation (further, Hine [1984] with Vottero [1989] 178–79 for additional bibliography). Without reference to Wallace-Hadrill, 62 is now also defended by Gauly (2004) 22–24. The position taken in this book is that the earthquake happened in 62; and, on the basis of an original ordering of the books in the sequence 3, 4a, 4b, 5, 6, 7, 1 and 2 (see below in this Introduction on “The Addressee, and the Original Order of the Eight Books”), that the work was already at an advanced stage of progress by the end of that year/early 63 (cf. Vottero 20–21).

The Moralizing Component in the Natural Questions, and the Relation of This Study to Existing Scholarship

Many aspects of that unnaturalness are colorfully condemned in the moralizing prefaces, digressions and epilogues that are strewn across the eight books. In keeping with my emphasis above on the holistic fusion of physics and ethics in the *Natural Questions*, the direction taken in this book is that these moralizing passages are no mere interludes detachable from Seneca's main scientific project, and that they are not designed merely to offer relief or distraction from the drier, more technical portions of the work; nor, on the other hand, are they to be viewed as the main focus of the work, the scientific portions secondary to Seneca's ethical thrust. On the balanced approach offered here,²⁷ the challenge, taken up in Chapter Two in particular, is to show in point of detail how the moralizing passages are fully integrated with their surrounding material; the normative functioning of nature in the scientific portions will be seen to be consistently contrasted with the abnormal disruptions to natural appetite, limit and process in the moralizing sections.

This integrating approach is certainly not unprecedented in the existing scholarship, but the detailed readings I offer are no mere reproductions of established interpretation. Above all, we shall trace the emergence in the *Natural Questions* of a community of related deviants across the eight books—a community exerting a gravitational force, as it were, that pulls downward even as Seneca impels his reader to look upward, to transcend ordinary life at ground level, to reach for cosmic consciousness. Senecan doxography contributes importantly to the tension that exists between this upward momentum and that downward drag: the deviants we encounter are contrasted by “the community of scholars” who are assembled via that doxography,²⁸ a community that strives in an enlightened Senecan direction while the deviants lose their way in the moral darkness. Through these contending forces the text is set profoundly in tension with itself, and there is arguably no easy winner by the work's conclusion. The delinquent counterculture of the *Natural Questions* grounds Seneca's promotion of cosmic consciousness in the grit of “real” life and vice, thereby defining the path of virtue through graphic representation of its opposite. But the deviants who infest the work amount to a formidable, perhaps even an overwhelming, body of opposition to

27. Similarly, Hine (2010b) 12–13. Key items in the recent bibliography are Codoñer (1989), especially 1803–1822; Salanitro (1990); Scott (1999); Berno (2003); Gauly (2004); and Limburg (2007).

28. Hine (2006) 53; cf. p. 58 for “the virtual academy” constructed by Seneca, “a community of inquirers that stretches across the centuries, backwards as far as the Pre-Socratics, and far forwards into future generations.”

the claims of the philosophical life, and Seneca himself concedes in moments that the struggle against vice is a lost cause (cf. 4b.13.1, 7.32). And can we also detect in his portrayal of at least certain vicious types, chief among them the loathsome Hostius Quadra who is featured late in Book 1, a blend of revulsion and yet fascination, as if the artistic eye is perversely drawn to, even galvanized by, the luridness that it condemns? Is there a disconcerting attractiveness to the vices Seneca inveighs against in passages of a quasi-ecphrastic attention to detail, as if he inscribes himself as an all-too-enthusiastic witness into the scene he deploras?²⁹ Yet after we have moved through his latest outburst of moral outrage, his continuing investigation into nature's secrets returns to its steady rhythm, detaching us once more from the vicious ways of the world; the moralizing interludes function as interferences that recurrently challenge the uplifting trajectory of the *Natural Questions*.

The Addressee, and the Original Order of the Eight Books

Beyond this contrast between base deviance and philosophical uplift, a different tension exists in the *Natural Questions* between author and addressee, Seneca and his friend Lucilius Iunior, to whom *Dialogue 1* (*De providentia*) and the *Moral Letters* are also addressed.³⁰ Lucilius was younger than Seneca, but apparently not by much (*iunior es*, *Letters* 26.7; cf. 35.2). Of humble origin (*Letters* 19.5) in Campania, Pompeii seemingly his birthplace (*Letters* 49.1, 70.1), he rose to equestrian rank (*Letters* 44.2, 6). After varied military service outside Italy (cf. *Letters* 31.9), he eventually became procurator of Sicily in or around 62 CE—in fact, “not a very important post.”³¹ So, in *Natural Questions* 4a pref. 1, Lucilius is installed in Sicily, and apparently enjoying his new position and the leisure time it affords him (*Delectat te . . . Sicilia et officium procurationis otiosae*)—*otium* that Lucilius will use well, Seneca is sure, because “I know how disinclined you are to ambition, and how devoted to leisure and study” (4a pref. 1). As Lucilius embarks on his new role, however, Seneca is in a very different position. Announcing, in the preface to Book 3, his ambitious new task of surveying the universe (*mundum circumire*), he claims to have thrown off the encumbrances of the occupied life so as to devote himself exclusively to his new project, his mind entirely free for itself (cf. *sibi totus animus uacet*, 4a pref. 2). It is from this liberated viewpoint in 62 CE, or

29. Further, Chapter Two, Section V.

30. For Lucilius, *PIR*² 5.1 pp. 103–104 no. 388 with Delatte (1935) and now Hine (2010c) 31–32; succinctly, Griffin (1976) 91, 94 with Vottero (1989) 21–24.

31. Griffin (1976) 350 n. 2; further on Lucilius in Sicily, Grimal (1980).

perhaps a little before,³² that he urges Lucilius to devote himself to leisured study as best he can during, or despite, his term of office in Sicily.

Lucilius is making his way in the world, then, just at the time when Seneca is withdrawing from it and embarking on the *Natural Questions*. But this storyline of divergent life paths takes on added force if we accept that the books were originally ordered in the sequence 3, 4a, 4b, 5, 6, 7, 1 and 2. All editions print the books in the sequence 1, 2, 3, 4a, 4b, 5, 6 and 7, which, idiosyncrasies apart, is one of three orders found in the manuscript tradition.³³ Of the other two orders, one diverges from that given above to yield 1, 2, 3, 4b, 5, 6, 7 and 4a. The other, the so-called *Grandinem* order (named after the first word of Book 4b), has the sequence 4b, 5, 6, 7, 1, 2, 3 and 4a. It was demonstrably the order of the archetype from which the extant manuscripts descend, and this order is still upheld by some scholars.³⁴ But the position taken here is that the case for an order of 3, 4a, 4b, 5, 6, 7, 1 and 2, first proposed independently by Carmen Codoñer Merino and Harry Hine, is overwhelming: the preface to Book 3 reads naturally as an introduction to the whole work, the displacement of Books 3 and 4a in the archetype is readily explained, and the internal evidence derived from cross-comparison of the books further consolidates the overall case for the 3, 4a, 4b, etc., ordering.³⁵ In a pioneering, and welcome, development, Hine's 2010 translation of the *Natural Questions* presents the books in this order, which is also accepted throughout this study, an acceptance that naturally influences my characterization of the interrelationship between the different books. But to anticipate any continuing resistance to this ordering: although I do suggest that the work as a whole yields an arc of meaning predicated on the 3, 4a, 4b, etc., sequence, my readings of the individual books in the chapters that follow are for the most part deliberately self-contained,³⁶ and in no case is the interpretation of a given book built entirely on, or guided solely by, the assumption that the Codoñer Merino/Hine ordering is correct.

32. See n. 26 above.

33. Here and later in this paragraph I rely on Hine (1981) 2–23, (1983) 376–78 and (1996a) xxii–xxv with Vottero (1989) 109–13, Parroni (2002) xlvii–l and Gauly (2004) 53–67.

34. See e.g. Gross (1989) 320, albeit with the further hypothesis of a lacuna before Book 4b, caused by the loss of two books in which Seneca treated *caelestia* in accordance with the agenda apparently set out in 2.1.1–2 (see also Gross 310 B on the history of scholarly acceptance of the *Grandinem* ordering); Vottero (1989) 109–13; Gigon (1991) 321–22; Marino (1996) 11–38.

35. See Codoñer Merino (1979) 1.xii–xxi; Hine (1981) 6–19, especially 16–17, and (1996a) xxiv. For approval of this ordering cf. Parroni (2002) xlix, Gauly (2004) 66–67 and Limburg (2007) 11–12; but for assembled bibliography on the whole question, now Hine (2010c) 28–31.

36. Individual chapters are dedicated to Books 4a, 4b, 5, 6, 7 and 2. Given their relevance to disparate parts of my study, however, my treatment of Books 1 and 3 is spread over parts of Chapters One, Two, Three and Seven.

By reading in the sequence 3, 4a, 4b, etc., we soon find Seneca's inner turning in the preface to Book 3 contrasted at the beginning of Book 4a by the *negotium* of Lucilius' calling in Sicily.³⁷ Seneca hopes that his friend can maintain at least a measure of detachment from the task in hand (4a pref. 1), but Lucilius evidently takes pride in his responsibilities as procurator of a place of such historical importance (cf. 4a pref. 21). Lucilius may have traveled far, but Seneca has traveled further as a cosmic voyager, with Sicily now but a relative speck (cf. *punctum*, 1 pref. 11) in the cosmic mindscape. Two further allusions to Sicily occur later in the *Natural Questions*, at 6.8.2 and 6.30.3 (cf. also 6.30.1), but no reference is made in either case to Lucilius' role on the island; after Book 4a, there is no further mention of Lucilius as *procurator* anywhere in the 3, 4a, 4b, 5, 6, 7, 1 and 2 ordering. The omission may be casual and insignificant. But if Seneca is credited with a more calculating agenda, he not only qualifies Lucilius' (self-)importance in his mere *procuratiuncula* (cf. *Letters* 31.9) in Sicily by transporting him to the truly awesome spectacle of the Nile in the main body of Book 4a. After that first departure from Sicily, we also lose sight of Lucilius' mission and standing on the island in the rest of the work, where the localized ministrations of the *procurator Siciliae* give way, as if forgotten, to Seneca's free-ranging movement through the cosmic whole (cf. 1 pref. 7–13). Moreover, the 3, 4a, 4b, etc., ordering allows a loose thematic pattern to be drawn across the books, the four elements providing structure:³⁸ Books 3 and 4a, on the Nile, form one grouping based on water; then 4b, 5 and 6 treat phenomena caused by or consisting of air; and fire links Books 7, 1 and 2.³⁹ By allowing us to glimpse the celestial level above atmospheric *sublimia* in Seneca's theory of comets in Book 7 (he holds that they are planetary bodies moving in unknown orbits), the work shows a rising trajectory from ground level in Books 3 and 4a—a form of transcendence⁴⁰ that replicates, in the work's structure, Seneca's increasing distance in the *Natural Questions* from the world of the here-and-now, from Lucilius' Sicily, from Neronian Rome.

37. The order of the books may still be contested in some quarters, but there is no doubt that "Book IVa follows directly after Book III" (Hine [1981] 9).

38. See Codoñer (1989) 1799–1800, and cf. Hine (1981) 31 ("There is no other obvious pattern in the work"). For a brief overview of opinion on the thematic arrangement of the books, Gauly (2004) 69–70. Despite the interest of the thematic book pairings proposed by Waiblinger (1977) in particular (1 and 2 on fire; 3 and 4a on water; 4b and 5 on air; but the elemental link breaks down in the case of 6 and 7), I cannot accept the 1–7 ordering on which his thesis is based.

39. This arrangement assumes that the *Natural Questions* was planned in eight books. Though it is conceivable that Seneca wrote or planned more books than actually survive, there is no evidence to take us beyond mere speculation (see Hine [1981] 32 with Limburg [2007] 14–15).

40. Codoñer (1989) 1800.

The Scope of This Book

In the first of the eight chapters that follow, I present what I identify as certain fundamental characteristics of Seneca's self-presentation and world outlook in the *Natural Questions*, an outlook defined partly through contrast with the world-views on display in Cicero and in Pliny's *Natural History*. Chapter One thus seeks to provide a foundation for our examination of each of the eight books in later chapters. In Chapter Two, however, our theme is general, and one much discussed in recent scholarship: how, and how successfully, does Seneca reconcile his moralizing passages in the *Natural Questions* with his scientific agenda? The sample cast of deviants whom we review in Chapter Two is drawn from Books 1, 3, 5 and 7; those deviants are the very embodiment of the sordidness that, Seneca proclaims (3 pref. 18), we transcend through the study of nature. But our focus late in Chapter Two is on the drama Seneca generates by pitting the claims of philosophical enlightenment against the allurements and trappings of vice. This ongoing struggle, I argue, accompanies Seneca's symbolic shaping of meteorology as an area of study that raises us from a terrestrial level of thought and being; in terms of the tripartite division of the world into *caelestia*, *sublimia* and *terrena* at 2.1.1, the study of meteorological *sublimia* figuratively marks an intermediate stage in our philosophical striving toward "knowledge of the celestial" (*ad cognitionem caelestium*) and "partnership with god" (*consortium <cum> deo*, 1 pref. 6).

In Chapter Three we move to Egypt, and to Seneca's treatment of the River Nile in Book 4a. In this chapter, the Nile flood is viewed in relation to the awesome cataclysm that Seneca recreates in his own tsunami of description at the end of Book 3: the artful juxtaposition of the two books coordinates both floods, Nilotic and cataclysmic, as related events in nature's great scheme, events that are very different in scale but still obedient to the same cosmic timetable. Then, in Chapter Four, the free-flowing waters of Books 3 and 4a give way to Seneca's treatment of snow and hail in what survives of Book 4b. In his testing of different theories of hail in particular, I argue, Seneca experiments with various techniques of scientific argument and persuasion; we might call this introspective turning in Book 4b a form of methodological stock taking at this still relatively early stage in the *Natural Questions*.

Our journey recommences in Chapter Five, on winds, with our coverage of Seneca's careful delineation of wind types early in Book 5. The winds are brought to life, I argue, in a personifying account that reaches its climax in the short-lived violence of the hurricane (*ἐκνεφιάς*) of 5.12 and the whirlwind (*turbo*) of 5.13. Later, in 5.18, Seneca condemns man's exploitation of wind, that gift of nature, to set sail in search of war and conquest. Can a comparison be drawn between the human marauders of 5.18 and the hurricane and whirlwind of 5.12–13? Or a contrast between, on the one hand, Seneca's mapping of the winds, local and global, in

generally regular and predictable motion and, on the other hand, the deviant, “unnatural” movements of the warmongers, those models of ethical misdirection, who take to their ships in 5.18? In addressing these questions, Chapter Five argues strenuously against any judgment that Book 5 constitutes, at least down to its moralizing conclusion in 5.18, “[o]ne of the driest discussions in the entire *Naturales Quaestiones*.”⁴¹ When we turn, in Chapter Six, to Seneca’s treatment of earthquakes in Book 6, Lucretius comes to the fore: in responding to news of the catastrophic Campanian earthquake of February 62,⁴² Seneca deploys consolatory strategies and techniques of rationalization that, I argue, are consciously Lucretian in color. More importantly, Seneca asserts a form of superiority over nature that corresponds to the Lucretian sublime—a method of controlling awesome nature that, I propose, is as relevant to Seneca’s portrayal of the cataclysm at the end of Book 3 or the great spectacle of the Nile in Book 4a, the ominous appearance of a comet in Book 7 or the intimidating lightning flashes of Book 2, as it is to the earthquake of Book 6. My reading of the Senecan sublime in Chapter Six therefore has implications for much of the *Natural Questions* beyond Book 6.

In Book 7 Seneca rises to new conceptual heights in the *Natural Questions*, going beyond the meteorological realm of *sublimia* to locate comets as planetary phenomena in the celestial region. In plotting Seneca’s ascending path from sublunary to supralunary theories of comet in Chapter Seven, I argue that the importance of Book 7 lies not just in the counterweight that it offers to Aristotle’s influential, sublunary theory of comets; in its dynamic, upward movement toward this celestial climax, the book also serves as a symbolic enactment of progress toward the ultimate goal of liberated, cosmic vision. Finally, in Chapter Eight I turn to Book 2, on lightning and thunder, with particular attention to Seneca’s extended treatment of divination from lightning at 2.32–51. In striving to reconcile Etruscan belief and Greek/Stoic philosophical rationalization of divinatory practice, he is engaged, I argue, in but one aspect of a larger restructuring of Roman systems of knowledge in the late Republic and early Empire. By relating his chapters on divination to the model of cultural revolution recently proposed by Andrew Wallace-Hadrill,⁴³ I try to inscribe Book 2—and, by extension, the body of specialized knowledge that is the entire *Natural Questions*—in the changing intellectual climate at Rome in the late first century and beyond. There, after a brief epilogue, my treatment of the *Natural Questions* ends, but not without stressing to the last the *artistic* impulse that drives and shapes Seneca’s entire project—his world tour, if you will, meteorology his vehicle.

41. Inwood (2002) 137 = (2005) 178.

42. For the date, n. 26 above.

43. Wallace-Hadrill (1997) and (2008).

Interiority and Cosmic Consciousness in the Natural Questions

I: Seneca's Totalizing Worldview

What is the origin of the waters that flow continuously from river to sea? Why is the sea apparently not enlarged by the addition of those waters, the earth unaffected by their loss? How does the earth produce such vast quantities of water? After raising these well-worn questions early in Book 3, “On the waters of the earth” (*de terrestribus aquis*, 3.1.1), Seneca reviews five theories in a survey (3.5–10) that, as so often in Senecan doxography in the *Natural Questions*, is vague in its allusion to sources (so, e.g., *Quidam iudicant*, 3.5.1; *Quidam existimant*, 3.6.1, 8.1).¹ The first theory is that the porous earth receives back into it whatever water it emits into the sea via rivers (3.5). The second, that rivers are derived from rainfall (3.6), is immediately refuted by Seneca (3.7); his own experience of viticulture² ostentatiously supplies the counterargument (*inter alia*) that rainwater does not penetrate deeply enough into the earth to supply subterranean rivers with sufficient abundance. The third and fourth theories proceed by analogy, the third (3.8) asserting that great expanses of fresh water exist in the earth's interior as they do on its surface; the fourth relates atmospheric change into rain above the earth (*aëris mutatio imbrem facit*, 3.9.2) to a parallel process below, where permanently cold, dense air is transformed into water. The fifth theory develops Seneca's claim at the end of 3.9 that “we [sc. Stoics] are satisfied that the earth is subject to change,” and that the dense subterranean exhalations it gives off are turned into moisture (3.9.3). Elaborating on this changefulness, Seneca posits in 3.10.1 the mutability of the elements one into another: “You can add the principle that everything is produced from everything

1. See on 3.5–10 Brutsaert (2005) 567–58 with Rossi (1991) 149–52 = (1992) 50–56. Conveniently on the origins of each theory, Gilbert (1907) 431–33; Vottero (1989) 392 n. 1 on 5.1; 393 n. 1 on 6.1; 395 n. 1 on 8.1; 396 n. 1 on 9.1; and 396 n. 3 on 9.3 with n. 1 on 10.1.

2. For which cf. *Letters* 104.6, 112.1–2 with Col. 3.3.3 (on high-yielding vineyards such as Seneca's, which apparently produced eight *cullei* per *iugerum*, or the equivalent of approximately 1,096 U.S. gallons; Jellinek [1976] 1724–25 and n. 17), Plin. *Nat.* 14.50–2; Griffin (1976) 289–90.

[*fiunt omnia ex omnibus*]: air from water, water from air, fire from air, air from fire. Why, then, not water from earth? If the earth can change into other elements, it can also change into water, or rather, most especially into water.”³

If we accept, as we should, that the books of the *Natural Questions* were originally ordered in the sequence 3, 4a, 4b, 5, 6, 7, 1 and 2, this doxographical survey marks Seneca’s first extended recourse in this new work to the theories of earlier investigators. His procedure has long prompted a familiar line of questioning in modern scholarship: How accurate is Seneca as a source for earlier meteorological thought? Can we identify his unnamed sources at 3.5–10, or does he transmit the imprecision that he himself found in his informants, doxographical handbooks presumably among them?⁴ Does he rely on a single dominant model or a combination of models for the inspiration and architecture of Book 3 as a whole?⁵ Beyond the challenges of source analysis, however, Seneca’s doxography in these early chapters has a programmatic quality to it as a model exercise that sets a standard for the *Natural Questions* as a whole: on the one hand, he establishes his credentials as a fair-minded, seemingly objective reporter by apparently letting the facts speak for themselves, recording received opinion without comment or objection in e.g. 3.5 and 3.8; on the other hand, his extended critique in 3.7 of the rivers-caused-by-rainfall theory (3.6) redresses the balance, asserting his self-presentation as a critical respondent who is no passive transmitter of inherited theory.⁶ More important for present purposes, however, is the overall tendency that permeates the different theories he presents. Whatever the merits or plausibility of individual theories, each in its own way projects an

3. But in Stoic theory elemental transformation follows a fixed order, for Chrysippus fire changing into air, then water and then earth (the same order also applies in reverse), as at *SVF* 2.413 p. 136.19–24; cf. 1.495 p. 111.6–8 (Cleanthes), and for further sources see Hine (1981) 312 on 2.26.2 with Wildberger (2006) 62 and 578–79 nn. 378–80.

4. See on this nexus of problems Setaioli (1988) 434 and n. 2048 for bibliography with Gross (1989) 122–26.

5. On the problem as traditionally framed—Asclepiodotus as the main source, or reliance on Posidonius as well as Asclepiodotus, his pupil?—see Setaioli (1988) 432–33.

6. Seneca’s doxographical approach may be compared to (and possibly influenced by?) Aristotle’s use of the so-called *endoxa* (“reputable opinions”; on this translation, Taub [2003] 94 and 211 n. 98). For Freeland (1990) 78–79, Aristotle’s refutation of *endoxa* not only gives him “a kind of rhetorical advantage” as he presents and dismisses his predecessors’ efforts, but it also serves two other related purposes: (1) the technique might “indicate a special way in which Aristotle sees science as a sort of cumulative group endeavour,” with possible advantage and insight to be gained from seeing where an existing theory fails; and (2) his “surveys of *endoxa* reflect a picture of science as a problem-solving activity,” with significant questions raised and framed by the theories he reviews/rejects. Both purposes might equally be discerned in Seneca’s use of critical doxography throughout the *Natural Questions*.

integrating vision of nature's workings: in 3.5 the water that flows from land to sea is returned from sea to land in cyclical fashion, while in 3.6 rainfall is recycled via river flow. So too in 3.8 and 3.9 analogy forges a conveniently close connection between conditions at the earth's surface and in its interior, while this vision of correspondence gives way in 3.10 to fundamental interchangeability and balance at an elemental level:

nihil deficit quod in se redit. omnium elementorum alterni recursus sunt: quidquid alteri perit in alterum transit, et natura partes suas uelut in ponderibus constitutas examinat, ne portionum aequitate turbata mundus praeponderet. omnia in omnibus sunt. non tantum aër in ignem transit sed numquam sine igne est: detrahe illi calorem, rigescet, stabit, durabitur; transit aër in umorem sed nihilominus non est sine umore; et aëra et aquam facit terra sed non magis umquam sine aqua est quam sine aëre. et ideo facilius est inuicem transitus quia illis in quae transeundum est iam mixta sunt. habet ergo terra umorem: hunc exprimit. habet aëra: hunc umbra inferni frigoris densat ut faciat umorem. ipsa quoque mutabilis est in umorem: natura sua utitur.

3.10.3–5

Nothing becomes deficient if it returns to itself. Among all the elements there are reciprocal exchanges: whatever is lost to one element passes into another element, and nature weighs its parts as if they were placed on scales, to ensure that the world does not lose its equilibrium because the balance of its proportions is disrupted. Everything is in everything. Air not only passes into fire, but it is never without fire. Remove its heat, and it will become stiff, solid and hard. Air passes into moisture, but it is nevertheless not without moisture. Earth produces both air and water, but it is never without water any more than it is without air. And so the reciprocal transformation of the elements is easier because they are already mixed with the elements into which they must pass. Therefore, the earth contains water, and it forces it out. It contains air, and the cold darkness below condenses it so that it forms moisture. The earth is itself also capable of changing into moisture; it draws on its own natural capacity.

The key emphasis on interchangeability here is neatly underscored by the tight analogical relation that Seneca draws between different elements when, at 3.10.2, nature's endless flow of water effortlessly finds a cognate in air: "You show surprise [*miraris*]...that there is always new water available for rivers. You might as well be surprised [*quid si mireris*...] that, when the winds put the entire

atmosphere in motion, there is no shortage of air . . .” So, too, at 3.12.3, the different elements merge into each other through verbal correlation and overlap (*quomodo aër . . . uentos et auras mouet, sic aqua riuos et flumina. si uentus est fluens aër,⁷ et flumen est fluens aqua*); to investigate any one of the four irreducible elements is, in a sense, to interrogate all of them simultaneously,⁸ with findings that are necessarily common to all (“You realize that whatever proceeds from an element cannot run out,” 3.12.3). The elements are profoundly equivalent, even if Seneca is inclined to agree with Thales and with his fellow Stoics that water is the most powerful of the four (*ualentissimum elementum est*, 3.13.1).⁹

This concentration on elemental interchangeability so early in the *Natural Questions* sets the stage for, and lends an anticipatory or even programmatic form of coherence to, Seneca’s tour through phenomena related to elemental fire, air, earth and water in the subsequent books; at this, our entry point in Book 3 into his literary-scientific world, his unifying approach also suggestively recreates at a narrational level the physical coherence effected by Stoic *sympatheia*.¹⁰ For present purposes, however, this vision of oneness provides the starting point for what we shall see to be Seneca’s construction in the *Natural Questions* of a unifying mindset that redirects our focus away from the ordinary fragmentations and interferences of life at ground level, as it were, toward the alleviating, integrating perspective of cosmic consciousness: as we move from partial sight toward fuller insight, and from local participation to a more complete form of cosmic belonging, we begin to see the world for itself, not for ourselves.¹¹ The rightness or wrongness of a given theory, Seneca’s technical accuracy in rendering it, the particular identity of the sources implicated in formulations such as *Quidam existimant*: while evaluation of Seneca’s inventory early in Book 3 may begin with controversies of this familiar stamp, an alternative approach stresses the *cumulative* effect of his doxographical collecting, and also the common enterprise to

7. Cf. 5.1.1 and Chapter Five, Section II.

8. Cf. 3.12.1: “So you ask me how water is produced? In reply, I’ll ask how air or earth is produced.”

9. For Thales, D-K 11A12 and Graham (2010) 1.28–9 and 39–40 on Text 15 with Vottero (1989) 404 n. 2 on 3.13.1. On the Stoic side, Seneca here massages the familiar (Chrysippan) conception of fire as the primordial element from which the others are formed, and into which they are eventually resolved at the end of the world cycle: see *SVF* 2.413 p. 136.11–14 with Parroni (2002) 536 and Setaioli (1988) 435.

10. I.e. (Sambursky [1959] 9), the elements “subsisting only in co-existence with the rest, and not able to exist if the organization as a whole disintegrates”; further, Wildberger (2006) 16–20.

11. Cf. Hadot (1995) 254.

which each theory individually contributes. This communal enterprise is not so much, or only, the collective striving of the “virtual academy” of inquirers across time that Seneca assembles in the *Natural Questions*.¹² The different cumulative effort to be stressed here is rather the integrating tendency that takes shape in and across the inventory; and, to anticipate the objection that this tendency is naturally embedded in the theories and sources on which Seneca draws, and that it is no specially drawn emphasis of his own, we shall soon see that his preface to Book 3 lays an idiosyncratic foundation for the distinctively Senecan world perspective projected in 3.5–10.

II: *The Senecan Worldview Defined by Contrast with Cicero*

Before we turn to this preface, however, an important Roman literary precedent further informs our integrating approach to the *Natural Questions* in general, and to Book 3 in particular. It was of course no innovation for Seneca to emphasize the interactive relationship between different world parts and phenomena; we need look no further than the Pre-Socratic use of analogy to find this relational emphasis already deeply embedded in such fields of Greek natural science as meteorology, astronomy, biology and medicine.¹³ In terms of Stoic cosmic sympathy, however, the long account of Stoic theology that Cicero delivers in the voice of Balbus in *De natura deorum* 2 is predicated on “the sympathetic relationship, interconnection and affinity of things” (*tanta rerum consentiens conspirans continuata cognatio*, 2.19). Cicero anticipates a key feature of the *Natural Questions* in Balbus’ creative reenactment of this “affinity of things,” especially in his extended argument for the providential government of the world at 2.73–153. Exquisite details fill out Balbus’ picture of the wonders of interactive nature, the cooperation of the planets, the anthropocentrism of the physical world, and the harmonious perfection of the world’s workings—a perfection, he argues, that can only be attributed to divine intelligence. The overall picture is sufficiently alluring and persuasive to survive Cotta’s Academic critique of Stoic theology in *De natura deorum* 3, at least in the sense that Cotta endorses Balbus’ view of nature’s wondrous regularity and interconnectedness even as he contests the divine cause of that perfection (3.28).

Predictably enough, many of Balbus’ familiar Stoic themes find representation in Seneca’s own integrating worldview in the *Natural Questions*, among

12. For this “virtual academy,” Hine (2006) 58, and cf. Introduction n. 28.

13. Lloyd (1966), especially 304–83. Further on analogy specifically in the *Natural Questions*, Armisen-Marchetti (1989) 283–311 and (2001), and see also Chapters Four, Section IV (B); Six, Sections III and V (C); and Eight, Section III (B).

them—to glance back at *N.Q.* 3.10—Balbus’ disquisition on “the continuum of the world’s nature”:

et cum quattuor genera sint corporum, uicissitudine eorum mundi continuata natura est. nam ex terra aqua ex aqua oritur aër ex aëre aether, deinde retrorsum uicissim ex aethere aër, inde aqua, ex aqua terra infima. sic naturis his ex quibus omnia constant sursus deorsus ultro citro com-
meantibus mundi partium coniunctio continetur.

N.D. 2.84

And since there are four kinds of matter, the continuum of the world’s nature is constituted by the cyclical changes of those four kinds. For earth turns into water, water into air, air into aether, and then the process is reversed: aether turns into air, air into water, water into earth, the lowest of the four. Thus the world parts are conjoined by the constant passage up and down and to and fro of these four elements, of which all things are composed.

For now, however, two particular features of Balbus’ exposition serve usefully to illuminate foundational principles of Seneca’s worldview. First there is the movement from literal seeing to mental insight. At 2.45 Balbus prefaces his discussion of the nature of the gods as follows:

...in quo nihil est difficilius quam a consuetudine oculorum aciem mentis abducere. ea difficultas induxit et uulgo imperitos et similes philosophos imperitorum ut nisi figuris hominum constitutis nihil possent de dis immortalibus cogitare.

...on this subject nothing is more difficult than to divert the mind’s eye from seeing as our eyes usually see. This difficulty has caused both the uneducated generally and those philosophers who resemble the uneducated to be unable to reflect upon the immortal gods without envisaging human forms.

Although his agenda evidently differs from Balbus’ narrower theological motivation in *De natura deorum* 2, Seneca too strives to redirect our gaze from an ordinary way of seeing toward a higher, less literal form of sight and intuition. So in his preface to *Natural Questions* 1 he distinguishes two branches of philosophy, ethics and theology:

altior est haec et animosior; multum permisit sibi; non fuit oculis contenta: maius esse quiddam suspicata est ac pulchrius quod extra conspectum natura posuisset.

1 pref. 1

The latter [sc. the theological branch] is loftier and more noble; it gives itself much freedom; it is not satisfied with what is seen with the eyes; it suspects that there is something greater and more beautiful that nature has placed beyond our vision.¹⁴

This philosophical branch “rises far above this gloom [*caliginem*] in which we wallow and, rescuing us from the darkness [*e tenebris*], it leads us to the source of illumination [*illo unde lucet*],” our vision at last unimpaired and clear (1 pref. 2). To seek insight into nature’s mysteries is to aim in this uplifting direction, to free the mind to look serenely down from its cosmic viewpoint (cf. *secure spectat* [sc. *animus*], 1 pref. 12), and hence “to see the all” (cf. *animo omne uidisse*, 3 pref. 10). Any reversion from this elevated vantage point marks a return to impaired vision: “Whenever you withdraw from consorting with things divine and return to human affairs [*a diuinorum conuersatione quotiens ad humana recideris*], you will be blinded, like people who turn their eyes from the bright sunlight to dark shade” (3 pref. 11).

Secondly, by structuring higher and lower ways of seeing, this vertical axis in Seneca represents an informal hierarchy of world perception. Within this hierarchical scheme, his meteorological theme in the *Natural Questions* takes on a suggestive significance as an intermediate object of focus: it symbolically elevates our gaze from ground level, but in our concentration on meteorological phenomena we focus on a region of often random happenings and sporadic events, as opposed to the serene regularity that prevails in the celestial realm. This distinction between the sublunary and celestial regions is helpfully illuminated by the contrast that Cicero’s Balbus draws at *De natura deorum* 2.56 between celestial regularity and its opposite in the zones below:

nulla igitur *in caelo* nec fortuna nec temeritas nec erratio nec uanitas inest contraque omnis ordo ueritas ratio constantia, quaeque his uacant ementita et falsa plenaque erroris, ea *circum terras infra lunam*, quae omnium ultima est, *in terrisque* uersantur. caelestium ergo admirabilem ordinem incredibilemque constantiam, ex qua conseruatio et salus omnium omnis oritur, qui uacare mente putat is ipse mentis expers habendus est.

In the heavens, therefore, there is no chance happening or random event, no deviation from any path, and no empty illusion, but absolute

14. Cf. 7.30.3–4; the limits of human vision as portrayed there are pointedly reasserted at 1 pref. 1 if we presuppose a book order of 3, 4a, 4b, 5, 6, 7, 1 and 2.

order, exactitude, system and regularity. Whatever lacks these qualities and is deceptive, false and full of error belongs to *the region between the earth and the moon* (which is the last of all the heavenly bodies), and *on the earth*. Anyone therefore who thinks that there is no rational basis to the wonderful order and the incredible regularity of the heavenly bodies, which is the sole source of the preservation and well-being of all things, cannot himself be regarded as a rational being.

This Ciceronian argument for the divine operation of the heavenly bodies is unparalleled in Seneca, but the conventional tripartite division of the universe into *caelestia*, *sublimia* and *terrena* recurs at the beginning of *Natural Questions* 2—a Senecan classification without ancient parallel in its fullness and clarity.¹⁵ There, the stately regularity of the planets is itself suggestively reflected in the steady measure and movement of Seneca's one-sentence description of the celestial level:

prima pars naturam siderum scrutatur, et magnitudinem et formam ignium quibus mundus includitur, solidumne sit caelum ac firmae concretæque materiae, an ex subtili tenuique nexum, agatur an agat, et infra se sidera habeat an in contextu sui fixa, quemdamodum anni uices seruet, solem retro flectat, cetera deinceps his similia.

2.1.1

The first division investigates the nature of the planets, and the size and shape of the fixed stars which enclose the universe;¹⁶ whether the heavens are solid and made of firm and compact substance, or woven from matter that is delicate and fine; whether they are moved or impart motion,¹⁷ and whether the stars are held beneath them or are embedded in their structure; how they maintain the seasons of the year, turn the sun back,¹⁸ and all other questions of a similar kind.

The expansive beginning (*naturam . . . et magnitudinem et formam*), the complex elaboration, the three carefully balanced disjunctive questions¹⁹ before “whether”

15. See Hine (1981) 125.

16. For *siderum* of planets, *ignium* of the fixed stars, Hine (1981) 129.

17. On the difficulties of interpretation here, Hine (1981) 129–30.

18. Of the solstices; Hine (1981) 131, (2010b) 212 n. 2.

19. Perhaps a recurrence of “the multiple disjunctive question as a stylistic device for stimulating *contemplatio*” (Williams [2003] 85 on *Dial.* 8.4.2).

gives way to “how” in a further round of questioning (*quemadmodum . . . similia*): in these ways this single sentence, open-ended in its closing allusion to *cetera . . . his similia*, itself projects in its ornate design and scale the dimensions and complexity of its elevated subject matter. Then to the intermediate level of *sublimia*:

secunda pars tractat inter caelum terrasque uersantia. hic sunt nubila imbres niues,²⁰ et humanas motura tonitrua mentes, quaecumque aër facit patiturue.

2.1.2

The second division deals with phenomena that occur between the heavens and the earth. In this category are clouds, rain, snow “and thunder which will trouble the hearts of men” [Ovid, *Met.* 1.55], and whatever the atmosphere brings about or undergoes.

The volatility intrinsic to this zone is enacted in the unsettled gathering of shifting conditions (*nubila . . . tonitrua*), in Seneca’s sudden movement from prose to verse quotation, and in the juxtaposition of atmospheric action and passivity in *facit patiturue*—a phrase lacking the smoother symmetry of *agatur an agat* at the celestial level.²¹ In his quotation of *Metamorphoses* 1.55, Seneca perhaps injects a further hint of chaos—or of order emerging out of chaos, as in the universal systematization at *N.Q.* 2.1.1–2—by alluding to the moment in the Ovidian cosmogony when the air/atmosphere is first assigned to its position above the land (cf. 1.53–4: “It was there that the creator ordered the mists and the clouds to settle, / there that he assigned the thunder to trouble the hearts of men”); and it is surely no accident that “[i]n this quotation the passing allusion to the fears aroused by thunder and lightning anticipates the theme of ch. 59, the epilogue,”²² in an understated form of ring composition. Finally, the terrestrial level, investigating “water, earth, trees, plants

20. Hine (1981) 69 and (1996a) 53.13–54.14 follows Gercke (1907) 42.10 and other editors in proposing a supplement—in Hine’s case *uenti terrarum motus fulmina*—after *niues*, thereby filling out the lacuna apparently demanded by 2.1.3 “*Quomodo*” inquis “*de terrarum motu quaestionem eo posuisti loco quo de tonitribus fulminibusque dicturus es?*” (earthquakes and lightning bolts have seemingly been mentioned in Book 2 before 2.1.3). For full discussion of the case for and against a supplement, Hine (1981) 132–33. But (I owe these points to John Henderson) (1) what pressing need is there for supplementation when *quaecumque* can surely include the “missing” phenomena that Seneca goes on to mention? And (2) the more pertinent point in any case—one well made via the Ovidian quotation—is the disturbing *effect* of phenomena in this intermediate zone, not the enumeration of the phenomena themselves.

21. On Seneca’s penchant for pairing the active and passive forms of the same verb, Hine (1981) 130.

22. Hine (1981) 133, adding “but this may be chance.”

and—to use a legal term [*ut iurisconsultorum uerbo utar*]²³—everything that is connected to the soil [*quae solo continentur*]²⁴ (2.1.2): Seneca’s legal terminology here²⁵ lends a suitably mundane pitch to his diction as he addresses *terrena*; and given that in law *quae solo continentur* (“real estate”) stood in contrast to *res mobiles* (“personal or movable property”),²⁴ he perhaps plays wittily on volatile, shifting *sublimia* as an unconventional branch of “movable property.”

The *Natural Questions* is, as Hine neatly puts it, “literally poised between earth and heaven, for its principal subject is meteorology, the study of the phenomena occurring in, or caused by, the air or atmosphere.”²⁵ But we shall see that Seneca channels his particular focus on *sublimia* in a highly idiosyncratic and—at least in comparison to what survives of the earlier meteorological tradition—original way in the *Natural Questions*. This independence of outlook is conveniently illustrated by a brief glance at his argument in Book 1 that atmospheric lights such as rainbow, streaks and double suns are optical illusions. As so often in Senecan prose, a countervoice here dramatizes the proceedings by creating the illusion of energetic dialogic exchange and disagreement.²⁶ As soon as the many interlocutory interventions in the main body of Book 1 are granted to the same narrative voice, a consistent character emerges to provide formidable opposition to Seneca’s argument for the reflection theory of rainbow in particular. This interlocutor is brought to life as no mere straw man for Seneca’s “superior” position, but as a rounded *dramatis persona* in his own right, a literal-minded character, albeit capable of mordant wit and irony, who argues doggedly for a plainer interpretation of such phenomena as rainbow. This difference in outlook is summed up at 1.15.6–7:

de prioribus quaeritur (de arcu dico et coronis) decipiant aciem et mendacio constent, an in illis quoque uerum sit quod apparet. nobis non placet in arcu aut corona subesse aliquid corporis certi, sed illam iudicamus speculi esse fallaciam alienum corpus nihil amplius quam mentientis.

Concerning the phenomena discussed earlier (I mean rainbow and haloes), there is a question whether [as Seneca holds] they deceive our

23. On which Hine (1981) 134.

24. Cf. *OLD solum* 4b, *res* 1d; Hine (1981) 134.

25. Hine (2006) 67–68.

26. There are many cases (e.g., “*Quomodo*” inquis “*tu mihi...?*,” 1.3.9; “*Fulgores*” inquis “*quomodo fiunt...?*,” 1.15.1) where *inquis* need not refer exclusively, or at all, to Lucilius, the recipient of the work, but to a third, imagined participant in the proceedings (cf. Vottero [1989] 23–24, 45)—a third party who allows Seneca to indulge in sharper exchanges (e.g., in 1.5–8) than if his Lucilius, *uirorum optimus* (cf. 1 pref. 1), were visualized as the interlocutor.