SENECA AND NATURE*

THOMAS G. ROSENMEYER

Ralph Waldo Emerson addresses nature in two of his works: an 1836 booklet which is a ponderous religious tract[1] and an elegant and sophisticated essay, one of the second series of essays published in 1844.[2] His first words, "On a beautiful October day," furnish the clue for how he starts: he begins by talking of nature as if it were synonymous with the out-of-doors, especially a landscape unspoiled by human intrusion, the kindly counterpart of Tennyson's "Nature, red in tooth and claw." "Here no history, or church, or state, is interpolated on the divine sky and the immortal year"; "we nestle in nature, and draw our living as parasites from her roots and grains, and we receive glances from the heavenly bodies, which call us to solitude." But then he suddenly stops in his tracks and recalls that the schoolmen's *natura naturata*, nature as it contrasts with cities and the laws, is not the only understanding of the word. "Let us no longer omit our homage to Efficient Nature, *natura naturans*, the quick cause, before which all forms flee as the driven snows . . ." As a matter of fact, as we look back over his earlier rumination on unspoiled nature, he had said that it "judges like a god all men that come to her." "Judges like a god" is not quite at the level of full personification and efficient cause; but the notion of judgment reminds us of the Stoic tendency to see in nature a lawgiver that invites men to obey its rules.

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1 Spiller and Ferguson 1971.1–45.

2 Erdman 1926.380–401.

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Emerson's beautiful essay, which, in its later sections, strikes some rueful notes and ultimately equates nature with the mind imagining, is a splendid demonstration of how many different meanings the term packages within itself. As one critic has it: "Nature and the natural are the most porous words in the language; they soak up ideology like a sponge," and "The invocation of nature . . . is more often a way of pre-empting discussion than generating it. It exacts assent."[3] At the level of least semantic force, and especially in modern science, nature can be a shadow word, an excess term attached to a noun or adjective that could very well do without it.[4] "The nature of man" is man as we know him. In Greek, this usage is particularly common in the accusative (e.g., ἀνδρείους φύσιν, Eur. fr. 495.41 Nauck[2]). Remarkably, in the very first occurrence of *phusis* in Greek, which is, in fact, the only instance of it in Homer, in the passage on the *molu* which Hermes gives to Odysseus to help him against the bewitchment of Circe (*Od*. 10.303), the word is used in roughly that way: "Hermes," Odysseus says, "showed me its *phusis*." This is virtually the same as saying: "Hermes showed it to me."[5] True, in the next line, the *phusis* is glossed with references to the blackness of its root and its blossom-like appearance. Apparently the deictic move prompts further clarification. At that level, "form," or "essence," or "constitution," would be appropriate translations. A number of scholars, including most notably Diskin Clay in his wonderful book on Lucretius and Epicurus, have argued that *phusis*, in its beginnings, designates birth, growth, and origins, a proposition which Heidegger, in his *Introduction to Metaphysics*, had also advanced for his own purposes.[6] I prefer to go along with the common view that the translation of *phusis* (and *natura*) as "birth" is a specific, *ad hoc* etymological sounding taken by

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3 Beer 1998.16–17. I shall not here concern myself with the use of "nature" as a manipulative or evasive stratagem to dodge questions of power and the powerless.

4 Westman 1955.57–58 argues that that is how Colotes (Plutarch *Col*. 10) understood Empedocles' φύσις οὐδένος ἐστὶν ἁπάντων θνητῶν, B 8.1–2.

5 Commentators have attempted to read different meanings into Homer's φύσις: "hidden power of the plant," Heubeck and Hoekstra; "natural form of the plant," Stanford; "process of growing," H. Jones; see Heubeck and Hoekstra 1989.2.60.

6 Clay 1983.82–95 and 308 note 29, invoking the support of Werner Jaeger and Otto Seel; Heidegger 1953.12: "φύσις ist das *Ent-stehen*, aus dem Verborgenen sich heraus- und dieses so erst in den Stand bringen." Hence, he argues, the Latin *natura* is a mistranslation of φύσις. Clay 86 says that "*Nature* first emerges in the proem [of Lucretius] in its primitive and largely dormant sense of birth and genesis . . ." "Dormant" is right; "primitive" does not seem to me correct. For a soft deconstructionist argument against Heidegger's remarks on φύσις, see Benjamin 1989, chs. 1 and 2.

Empedocles and by Lucretius in the proem of *De rerum natura*, itself heavily indebted to Empedocles. "Birth" is, generally speaking, a distinctly marginal aspect of the reach of "*phusis*."[7]

From the very start, it seems, the term *phusis* covers a wealth of significances: from the bare sufficiency of "essence" or "being" through the condition of normalcy opposed to civilization and corruption, and the collective mass of physical phenomena (*rerum natura*), to the powerful resonance of a personified agency that governs the world. The first widely to personify Nature are the Hippocratics, where *phusis* takes on the role of a maker, or an arranger, or a craftsman, or a signaller or withholder of signals,[8] in addition to many other less august connotations. Earlier, Heraclitus has Nature playing hide and seek (B 123: φύσις κρύπτεσθαι φιλεῖ), which may or may not imply incipient personification. The Sophistic contrasting of *nomos* and *phusis* furnishes a temporary systematic reduction of the stretch of *phusis* to that of unimpaired physical or mental normalcy, a usage which Euripides picks up. But that is an exception. Plato recovers a wealth of meanings, but largely avoids the personification of *phusis*; in his writings, *phusis* is predominantly used to cover human activities or qualities.[9]

Aristotle has two complex analyses of *phusis*: *Phys*. B 1 and *Met*. Δ 4. The passage in the *Metaphysics* is shorter than the other, but embraces more material, some of it inconsistent with what is said in the *Physics*. One gets the impression that Aristotle has great difficulty with the term. At one point, he acknowledges his frustration by saying that it is foolish, *geloion*, to prove the existence of *phusis*; we just take it from what *has* it. The *Physics* passage especially is not devoid of circularities, helping itself to the dative *phusei* to explain *phusis* and ending on a note of uncertainty, both turning against the Ionians' identification of *phusis* with element and also objecting to the etymological implications of the term: he is reluctant to have it depend on the idea of birth, though he allows a factor of growth.[10] In the *Metaphysics*, *phusis* is either merely essence, or the matter from which natural objects are produced (note that, in this case, Ionian science *is* supported), or the

7 See now the careful formulation in Sedley 1998.25–26.

8 Heidel 1910.106–07 cites a number of fifth-century treatises. Cf. Eur. *Tro*. 886: Ζεύς, εἴτ' ἀνάγκη φύσεος εἴτε νοῦς βροτῶν. See also Beardslee 1918. For a more exhaustive list of the uses of "nature" in philosophy and literature, see Boas and Lovejoy 1935.447–56.

9 Except in *Crat*., where it is applied to words, *Soph*., where it is used of γένη, and *Tim*., where it designates aspects of the creation.

10 Note *Physics* 2.1.193b12: ἡ φύσις ἡ λεγομένη ὡς γένεσις ὁδός ἐστιν εἰς φύσιν.

internal principle of movement in natural objects aiming at their *telos*. Once again, the dative *phusei* marks the circularity which Aristotle's argument seems unwilling to avoid. Again, like Plato, Aristotle, in this discussion, steers clear of the personification of *phusis*, its elevation into a creative agency, a personification whose currency the Hippocratics had demonstrated. Nor does his *phusis* designate the "all," the total complex of things we look at and study, as it does in Epicurus and in the late commentators who titled many ancient treatises *peri phuseos*. For Aristotle, *phusis* is in things, they *have* nature, or work *by* nature. A follower of Foucault might point to Aristotle's difficulties as evidence for the problems of concept formation.[11]

As we get to the Hellenistic period, the great difference between Epicurus and Lucretius is that, in Epicurus' physics, personification is totally absent.[12] Lucretius' *Natura*, the creative force, the arranger and designer and artist who makes our world unthreatening and enjoyable,[13] plays no role whatever in Epicurus, no doubt because he shuns any chance that personification might transmogrify itself into deification. Lucretius takes that chance, thus connecting with the ancient medical writers in a metaphorical gamble that, he trusts, leaves his materialism and his refutation of divine agency intact. Nature, in Lucretius, is deified to foil the authority of the traditional gods. Thus, in his campaign against Stoic cosmology, he falls back on a Stoic doctrine while sanitizing and undermining the purpose the doctrine is designed to buttress.[14] For it was the Stoics, from Zeno onward, who completed the personification and deification of Nature, as the

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11 Foucault 1972.40–63. The frequent assertion in Aristotle's biological works that nature does nothing in vain (e.g., *PA* 4.ll.691b5) and that nature assigns to creatures what is best for them (e.g., *IA* 8.708a10), cannot be regarded as anything more than a figurative manner of talking about the normative aspect of nature, the principle of movement toward the τέλος. The assertion operates at a uniformly low level of figurality, in no way approaching that of the Hippocratics in their statements about the creativity of Nature. For the usage, see most recently Lennox 1997.

12 In the words of Clay 1983.88: "Only in his ethical writings does Epicurus come close to adopting language suggesting that nature is a mother rather than a stepmother to man." He cites Arrighetti 240, with its reference to μακαρία Φύσις.

13 Long 1997.132–33 cites *DRN* 3.931–62.

14 I am not persuaded by Furley's notion that Lucretius' argument is unaffected by Stoicism: Furley 1966; cf. also Sedley 1998.73–85. *Contra*: Long 1997. It is of course true that Lucretius does not polemicize against the Stoics. For a convenient if unanalytic tabulation of Lucretius' many uses of *natura*, see Merrill 1891.

guiding and creative power, by linking or identifying it[15] with the gods, or Zeus, as well as with fire, reason, fate, necessity, providence, and especially *pneuma*, the generative wind or *spiritus* whose potency has a history of its own in the Presocratics and in Aristotle (*Meteor*. 2.7–8) in the form of *anathumiasis*, the procreative vapor.[16] Stoic vitalism dealt with Nature more imaginatively than any other philosophical school. Stoic Nature sustains and administers the *kosmos*; it plays an important social role as the inducer of *oikeiosis*, of self-realization and self-preservation. Equally importantly, the Stoic charge to live one's life in response to the commands of Nature[17] implies a confirmation that Nature is a supreme rule-giver.[18] But it also suggests, as in Aristotle, that we have nature within ourselves as a normative power, a force for the good, which we can exploit by not obstructing it with irrelevant impulses and by actualizing its potential via self-improvement.[19]

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15 It is tempting, and would be politically correct (see, e.g., Merchant 1980, ch. 1: "Nature as Female"), to use the feminine personal pronoun especially in cases where φύσις or *natura* appears in the guise of a creative power. But the back-and-forth between "she" and "it" would introduce a taxing element of unevenness.

16 See Cicero *Nat. Deor.* 2.81–87, Balbus speaking. Cotta's rebuttal at 3.27–28 merely reinforces the Stoic view. Cf. Seneca *NQ* 2.45: *vis illum [sc. Jovem] naturam vocare, non peccabis*. Seneca adds that the Etruscans made the same identifications as the philosophers, i.e., the Stoics. The context is the question whether Jupiter casts lightning.

17 Submission to the laws of nature or to natural law (cf. Striker 1996, chs. 11 and 12) does not, in my view, carry any implications of social tension. Only educated people, to be sure, knew enough to call themselves Stoics. Being educated did not necessarily, in imperial Rome, mean belonging to the ruling class. The willingness to submit to a notional higher authority is not a warped inversion of the aggressiveness of the powerful. It is a common legacy of civilized humanity.

18 For this, see now the full coverage of Striker 1996, ch. 12 and Seneca *Epistles* 124.11–14, where the argument characteristically shifts from *natura* = essence to *natura* = universal power (cf. below, note 40). For a critique of "living in accord with nature" and the notion of "the law of nature," see John Stuart Mill's "Nature," in Cohen 1961, esp. 472: "It has never been settled by any accredited doctrine, what particular departments of the order of nature shall be reputed to be designed for our moral instruction and guidance." On the contrary, much good arises out of going against nature: draining marshes, curing toothache, putting up an umbrella (465).

19 The notion of "normative nature" has come under attack. See Beer 1998.22: "The emphasis on the "malleability" of nature . . . defines Darwinian evolution . . . The evolutionary perception that nature is various and unstable . . . has proved oddly difficult to accommodate in post-evolutionary understanding. The difficulty has to do with the vexed relations between the natural and the normative." This difficulty corresponds in part to Seneca's occasional opinion, as in *Const. Sap*. 19.3–4, that the wise man is *not* restricted to the fighting position *Natura* has assigned to him. The malleability of nature = essence is recognized by Seneca: for example, in *Ira* 2.15, he echoes the Sophistic insight that the nature of the Scythians is imperfect and has to be tamed by art, i.e., discipline.

Finally, as philosophers of materialism, the Stoics are given to recognizing the material character of all *phusis*, its susceptibility to concrete investigation and analysis.[20]

Seneca is, by his own confession, an eclectic adherent to Stoicism, and thus an heir to the deification of Nature.[21] But, as a writer of great learning, he is also, like Cicero and Pliny, familiar with the many other uses of *phusis* and *natura* which the literary tradition offers.[22] He is, in the way of Bacon or Montaigne, more essayist than systematic philosopher, and so we do not expect him to advance a coherent theory of *phusis*.[23] In his *Epistles* and most of the *Dialogues*, he is free to employ the term *natura* as the context calls for it. The moral discourse to which most of his prose oeuvre is devoted finds many opportunities for a differentiated appeal to *phusis* in all of the senses we have discussed. In the tragedies, remarkably, *natura* is a virtual no-show; for whatever reasons, ideological, thematic, or generic, Seneca chose to make little use of the term in his tales of human error and viciousness.[24] That is doubly surprising because one of the really savage anecdotes in the *Naturales Quaestiones* (1.15.7–17.2) might well have

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20 The possible alternative identifications of Stoic φύσις seem endless. For an example, see Galen *Defin. Medicae* 95. vol. xix p. 371 K., cited by von Arnim vol. 2.328. The Academic Cotta, in Cicero's *Nat. Deor*. 3.27–28, agrees that *natura* is the organizing power of all motions, but dissociates *natura* from the authority of the gods.

21 For an unsuccessful attempt to de-Stoicize Seneca in his *NQ*, see Gigon 1991.

22 For Pliny's treatment of nature, see Beagon 1992. For an exhaustive study of the semantic history of *natura* in Latin, see Pellicer 1966, esp. pp. 35–39. Pellicer 42–57 and 63–76 argues against the translation of *natura* in Plautus and Terence and subsequent authors as "birth," in spite of the fact that in origin *natura* is derived from the same root as *nasci*. He finds, p. 77, that *natura* is generally used in one of three senses: l. an aspect or disposition of being, 2. the sum of what exists, and 3. a creative power. He also concludes, pp. 482–88, that, on the whole, the coverage of Latin *natura* is from its extant beginnings coextensive with that of Greek φύσις.

23 Cf. Reinhardt 1976.137–39, Williams 1978.175. Williams 1978.143–44, who does not look kindly upon what Seneca is doing, contrasts him with Cicero, who used Greek writings to construct a Roman system of thought, while Seneca "was a Hellene for whom ideas were Greek in origin" and remained so in substance but pried loose from their ancient coherence. For a different, more positive appraisal of Seneca's achievement as a philosopher, specifically a Roman philosopher, see Inwood 1995.

24 One might have expected *Natura* and *natura* to play a prominent role in the dramas, especially in some of the choruses. The exception is *Phaedra*, where the nurse's promptings and Hippolytus' difficulties provide the occasion for seven uses of the term, two of them by the chorus. Elsewhere in the dramas, it occurs two or three times on the average and not at all in *Hercules Furens*, *Troades*, and *Medea*.

furnished the material for a typically Senecan tragedy. This is the extended, macabre tale of Hostius Quadra, an Oscar Wilde as seen by the Marquess of Queensbury. It is prompted by the study of two natural events, the rainbow and the sun's corona. Seneca suspects their reality to be as illusory as the images cast by certain distorting mirrors before which the atrocious libertine, himself an explorer of the opportunities of *natura*, does his cavorting. In the plays, the workings of nature and natural phenomena, especially monstrous ones, are of course common, but the term *natura* is avoided.

Which brings us to the *Naturales Quaestiones* (hereafter, *NQ*).[25] It too, as the tale of Hostius Quadra shows, can accommodate passages of a moralizing bent, and it has been a perennial scholarly exercise to ask whether the moralizing insets, including, particularly, the prefaces which introduce three of the seven books (1, 3, 4a) and some of the endings, bear a meaningful relationship to the science which is the manifest focus of the work.[26] Apart from the prefaces, the principal *loci morales* are 1.16–17, on seeing oneself in a mirror and the chimerical nature of images; 3.18, against the *luxuria* of insisting on freshly killed mullet; 4b.6–7, against the superstition of hail watching; and 5.15, a tale about the boldness, and the frustration, of men who ventured underground to look for gold, only to find vast subterranean rivers and lakes in which they took no interest. (In this tale, the role of *ventus*, paramount in book 5, is characteristically void.) Goethe, in his *Farbenlehre*, condemned the insets as ineffective "tub-thumping," *Kapuzinerpredigten*.[27] I suspect that Seneca would find the issue trivial. If physics is the science of how the world behaves, then ethics must be its mandatory junior or perhaps even senior partner. In any case, formal or intellectual straitjacketing is not one of his priorities. True, each of the books of the *NQ* is tidily restricted to the discussion of a different topic or bundle of topics. But within that frame, anticipations, cross-overs, and repetitions are given a free run, and now and then Seneca allows his preoccupation with moralising

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25 I use the splendid Teubner edition of Hine 1996. I have not been able to consult C. M. Codoñer, ed., *L. Annaei Senecae Naturales Quaestiones* (Madrid 1979); D. Vottero, *Questioni Naturali di L. Anneo Seneca* (Turin 1989); M. F. A. Brok, ed. tr., *L. Annaeus Seneca: Naturales Quaestiones* (Darmstadt 1995); or H. Strohm, "Griechische Naturwissenschaft in Rom: Senecas *Naturales Quaestiones*," in *Festschrift H. Gern* (Erlangen 1985) 263–71.

26 *Pro*: Codoñer 1989.1803–08; *contra*: Holl 1935.9, Gross 1989.328, and Waiblinger 1977.20, concerning the preface to book 1.

27 Reported by Waiblinger 1977.3.

to break through, no matter what the context. Teasingly, on at least two occasions (2.59.1 and 4b.13.1), both at the ends of their respective books, Seneca pretends that he needs to be reminded by an interlocutor that the scientific focus is not as important as talk about the ethical issues raised by the science.

In his *Epistles* and usually in the *Dialogues*, Seneca arrives at his topics from the presumption that his addressees need his advice because they are distressed, or lonely, or exposed to flattery and, in any case, imperfect Stoic adepts. In the *NQ*, Seneca's *peri phuseos*, that is not the case; it is composed for the purpose of reasoning with himself. True, it is addressed to Lucilius, the addressee of his *Epistles*; but the warrant of a partner is, as often in philosophical letters intended for publication, largely a focusing device to enliven the discourse, and it would be fair to say that Seneca is, in this case, his own addressee. One example: in the preface to book 4a, a condemnation of flattery, Seneca proposes to cure Lucilius of his self-flattery, his vain pride at being the governor of so rich a province as Sicily, and suggests they talk about the Nile: the Nile's majesty will prevent him from taking his job too seriously. (This is not the only occasion on which Seneca sternly rebukes his partner for his inadequacies: *nihil adhuc consecutus es, multa effugisti, te nondum*, you are a non-achiever, you have concentrated on nothing, except always yourself, 1 preface 6.) What follows is a mixture of doxography and speculation, strictly aimed at inquiring into all aspects of the intriguing riddles of the sources and the flooding of the Nile. The extended harangue to Lucilius, longer than other prefaces, has nothing to do with the subject that follows, and much of it bears the stamp of Seneca wrestling with a problem that is really his own. Why he inserts it at this point is unclear; the avowed explanation—is it merely that a contemplation of the great river will turn Lucilius away from his self-absorption, or is there an putative identification of Lucilius' fancied presumption and the Nile's *tumescere*?—is too flimsy to persuade.

At the start of *Epistle* 89, Seneca divides philosophy into three parts: *moralis*, *naturalis*, and *rationalis*. The *NQ* is Seneca's contribution to natural science, covering, in the random sequence of the books as we have them, celestial fires, lightning and thunder, terrestrial waters, the Nile, clouds, winds, earthquakes, and comets. Questions have been raised about the order in which the books were originally meant to stand; the vulgate arrangement of the topics is either chaotic or it is a testimony to Seneca's formal insouciance. But if we are willing to overlook the shagginess of the

arrangement, there is much to interest us in how Seneca, forced out of public life by Nero's disfavor, tackles the politics of the universe.[28]

There is a peculiar but ultimately significant paradox that affects the discussion of the *NQ* from the start. At the beginning of our book 1, Seneca sets up a division that is different from that of *Epistle* 89: he distinguishes between *two* kinds of philosophy, that which pertains to humans and that which pertains to gods. The latter is higher and *animosior*, bolder; it does not rely on our eyes (cf. *Epistles* 90.34); it assumes that there is something greater and more beautiful which Nature, one might say, has placed beyond our sight: *quod extra conspectum natura posuisset*. They are the *secretiora* of Nature, and Seneca is grateful to *rerum natura* for allowing him to cut through to them. They include such secrets as the nature of god, whether god is creative every day or a one-time creator, whether god can make a decision and then change it, and much more, all of them questions that are not followed up in the sequel. Now this train of thoughts, the distinction between what is visible and what is not, deriving ultimately from Plato's Cave and from Aristotle's *On Philosophy*, might well have been written by a Middle Platonist for whom visible things are paltry tokens of what really counts, and it is striking that it is nature that has removed this reality from our vision. But, in what follows, the distinction is not between physics and metaphysics, but, at best, between ethics and natural science. The vast bulk of the work deals with matters that *can* be seen with the eyes. They are surveyed for themselves and rarely for what they say about the *secretiora*. The subject with which he is concerned lies *between* the two kinds of philosophy heralded at the start, which, as so often in Seneca, turns out to have been a false start.[29] And indeed, at the beginning of book 2, on air, Seneca allows a domain of *sublimia* between the *caelestia* and the

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28 Only the remarks about Callisthenes and Alexander at 6.23.2–3 could be regarded as a subtle hint at the current falling out of philosopher and emperor (with Gross 1989 and others I believe that the *NQ* must be dated after the break with Nero); they are uncannily prophetic of the outcome of that breach. The three mildly complimentary passages in which Nero is mentioned by name (6.8.3, 7.17.2, 7.21.3) concern incidents prior to the rupture.

29 The notion that the preface was really designed for another book, now lost, on *caelestia*, rather than the *meteora* which now engage book 1, is implausible for the simple reason that the stars and the sun and the moon, the *caelestia*, are also accessible to sight. I take no position on the issue of the intended arrangement of the books.

terrena. But the function of *natura* as a hider of visibles will continue to play a role in the work. In fact, one of the roles ascribed to *natura* is to be penetrated (1 preface 7–8): only if we break the barrier set up by *natura* or, another image, if we hide in the *interior naturae sinus*, its sheltering but obstructive lap, can we begin to study the secrets of a universe which is divine because it is natural.[30] By way of contrast with the godhead incorporated in the universe, all other things are limited or skimpy, *angusta* (1 preface 17), a very peculiar adjective designed to introduce the exploration of natural phenomena taken up in the work. In sum, nature is a barrier to be broken, to be left behind, to get one's proper bearings on—nature.[31]

It is beginning to become clear, I trust, that the plethora of meanings attached to *natura* in the tradition exercises a peculiar effect on Seneca: it plays into his hand as a less than systematic literary explorer of the world,[32] and it leads him along strange paths as he emulates his predecessors in the art of *peri phuseos*. It involves him in odd comparisons and value judgments: at one point (3 preface 5–6), in the book on waters, he derogates the importance of a Philip or an Alexander; their fame, based on exterminating whole peoples, made them, he contends, no lesser *pestes mortalium* than such an offense of nature as a flood by which a whole plain is inundated. To call an inundation a *pestis mortalium* would seem to be a curious way of talking about a natural phenomenon. The same preface (16–18) provides an exemplary case of the slippage between meanings of *natura*: he recommends liberty, *non e jure Quiritium sed e jure naturae*, a liberty not of civic status but of natural right.[33] The servitude which plagues you is easy to escape if you place before your eyes (note the function of the eyes) both your *natura* and your *aetas*. And then the mention of *natura tua* leads him back to the original topic: to achieve this, it will be useful to inspect the *rerum natura*. And (note the immediate deflection) such research is good for

30 For the same exhilaration of breaking through an intermediate layer of nature and arriving at an experience of the *summa*, cf. Seneca's description of the use he made of his exile in Corsica, *Ad Helviam* 20. Also *De Otio* 5, where *natura* is credited with giving to men, at her own cost, the mental equipment for the contemplation of the wonders of the cosmos. For the special problem of Seneca's use of images in the *NQ*, see Armisen-Marchetti 1989.286–311.

31 Perhaps digitization is a modern analogue: the message has to be deconstructed before we can receive it.

32 See also Reinhardt 1976.137–39. But Reinhardt makes too much of the occasions when Seneca associates *natura* with, as he puts it, "Offenbarung und Mysterium."

33 Liberty, Seneca says, is an effect of *in primis labris animam habere*.

the soul; for the study of hidden mysteries, *occulta*, will ready the mind for the therapeutic lessons to counter our *nequitia* or our *furor*.[34]

It is important to remember that all this is part of a preface; for, as the treatise itself gets underway, the first words are: *quaeramus ergo de terrestribus aquis*. The *ergo* is a puzzling transition: *because* we have pushed beyond nature and asked questions about the gods and about our own vices, we may now more securely look at the behavior of water? It might seem that Seneca is almost desperately looking for ways to integrate scientific study with moral instruction. But I prefer to think that the frictions merely show us a writer who is trying to produce a *peri phuseos*, but will not get away from the mode of writing that is his specialty.[35] And *natura*, in the process, becomes a pawn of the enterprise. Some commentators are so impressed with what is said in the prefaces that they permit themselves the observation that the *NQ* is "dominated by the idea that everywhere, even in what appears to be most unaccountable, the weather, the cosmic *ratio* is in control, which to the Stoic was God."[36] But, outside of the prefaces, Seneca puts no premium on accountability or rational order. As he looks at his natural phenomena, the accent is often on the unexpected and the exciting, on disasters and catastrophe, with little effort to accommodate their strangeness to a divinely constituted whole.

This is perhaps the greatest surprise of the argument of the *NQ*: the Stoic identification of *natura* with the divine creator and the spermatic *pneuma* is so little in evidence.[37] Perhaps, however, this is not so surprising after all. Seneca's venture into the field of natural phenomena is a kind of dare. Not being himself a scientist or a philosopher of nature, he looks to his predecessors for the various theories about lightning and clouds and comets and the other *meteora* that interest him, theories that are often in conflict

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34 In the *Dialogues* and *Epistles* such slippages are common. For an example, see the important passage in *Ep.* 124.7–19, a rearguard skirmish against the notion that animals have their own, perfect, *bona*: *natura* = essence and universal nature are played off against each other in a manner which approximates them closely to one another. For similar slippages, see Cicero *De Legibus* 2.1–5, where *natura* is, as in Emerson, alternately the source of both laws and justice, and the setting of a beautiful landscape. Cf. also below, note 40.

35 For the looseness of the argument in the *Epistles*, see the apt summary of Wilson 1988.118–19.

36 Maurach 1991.145 (my translation).

37 For a rare exception, see *NQ* 2.43.2–45.2: god is also *providentia*, *natura*, the cosmos, and its *ratio*, not to mention *pneuma* which, in the form of wind, is the topic of the book.

with one another, and proceeds to complement them with his own observations and with instances of their occurrence, often in the form of polished anecdotes. In this work, Seneca is a provider of material and only tangentially a seeker of meaning.[38] If there is a divine *natura*, a mover, or artificer, or orderer, that is responsible for a conceivable cosmic pattern or even harmony, he is willing to allude to this in prefaces and occasional brief reflections. We find such statements as "*natura* arranges things so that the *mundus* is always balanced" (3.10.3) and "nothing is difficult for *natura*, especially where it rushes toward its goal" (3.27.3). The sense of this latter ambivalent assertion becomes ominously clear in what follows: wherever *natura* has modified the ordinary state of things, it will be sufficient for the undoing of mortals. This introduces us to Seneca's graphic description of the great flood, which is part of the Stoic cycle. But it is not a little curious that Seneca should have no comment on the apparent paradox of a *natura* that keeps the world perfectly balanced *and* is intrinsically designed to run the world down.[39] Elsewhere, the active power so dominant in works like *Epistles* 121, *De Otio* (especially the beautiful paean of 5.3–5), and *De Beneficiis* presents itself so evasively that it comes to be indistinguishable from what earlier I called "essence." An example: saying that, in all cases, the *natura* of standing and enclosed water cleans itself (3.26.8) really means that the water does its own cleaning. It must, in fact, be acknowledged that *natura* as power and *natura* as mere essence can at times converge. In *De Clementia* 1.19.3, Seneca comments on the stinglessness of the queen bee (or king bee, as he knows it, and as his argument requires it). "*Nature* did not wish him to be fierce . . . so it extracted his weapon and left his anger impotent; a magnificent paradigm for great kings. For it is nature's custom to show itself in little things and to serve up the most insignificant items for

38 Seneca himself sees it differently: *facilius natura intellegitur quam enarratur*, *Epistles* 121.11.

39 At *NQ* 2.45.2, Seneca appears to exempt *natura* from responsibility for ruin: he speculates that *providentia* counsels and provides for the *mundus* so that it *inoffensus* (or *inconfusus*) *exeat*, an exemption that puzzles Hine 1981.398. At this juncture, it seems, Seneca takes refuge in the Stoic tenet that disasters, even the periodic total conflagrations and inundations stipulated by Stoic historiography, are part of the cosmic plan. Cf. 3.27–30: *natura* has destruction inscribed in it. At such moments, Seneca may, with some license, be called an early forerunner of the modern neocatastrophists, who hold "that the rock record attests" not to a continuous history but "to mass extinctions and the occurrence of rare, wide-spread events of immense magnitude during the course of earth history," Huggett 1990.4.

their relevance to what is important." Here it is really the character of the king bee, his stinglessness, that is said to furnish a model for the good ruler.[40]

The *natura* that most interests him is a disorderly mixture of visible or tangible masses and processes whose relation to one another remains a mystery. He looks at his materials more or less in the haphazard manner outlined in *Ad Marciam* (17–18): as we live our lives we cannot depend on our expectations; as in the larger cosmos, though we find celestial bodies that seem to obey eternal laws, the great bulk of what we see does not fit into a pattern. And he proceeds to provide an extended inventory of findings, from clouds to shipwrecks, whose occurrence and behavior cannot be predicted or taken for granted. The moral of *Ad Marciam*, as of all his consolatory writings, is to prepare us and himself for the unexpected. Syracuse is a city full of delights; if one goes there, one might run into the crimes of Dionysius. Does one go? The visitor must decide. The implications of the science of the *NQ* are similar: the air of adventure that informs it rests on a pessimistic sense of surprise and randomness.

This is particularly true of book 6, the book of earthquakes. We are lucky to have this book, because other ancient writings on earthquakes are either brief or lost.[41] In his youth, Seneca had experienced an earthquake that seemed like a total derailment of nature, and it had motivated him to write about it, to advertise the study of vagrant nature as a regimen for the strengthening and improving of the mind (4.2). Now, years later, on the occasion of another quake which has just struck Campania (on February 5, 63 C.E.), he wonders whether he can do better justice to the disaster. As in the earlier work, he assures us in his best Lucretian manner that death from earthquake is no worse than any other kind of death, to which we are all exposed, and that, therefore, fear is groundless. If we are frightened, it is because we look at the quakes with our eyes instead of analysing them with our reason. (This, once again, is an undue diminishment of the role of the eyes, as well as of the senses in general, without whose work there would be no acquaintance with physical events in the first place.) More important, he

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40 For a similar slippage, or conflation, see Cicero *Fin*. 5.33: Piso's speech slides from "Nature implanting self-preservation in men" (and animals and plants) to "the nature of man" as if he were talking about the same thing. Cf. also Pliny *Nat. Hist*. 2.1.2: nature is its own creator.

41 For a survey of the evidence, see Capelle 1924. For a survey of work done on the *NQ* since World War II, see Chaumartin 1989.1581–85.

stresses that the gods are not the authors of these great disruptions; the quakes have their own causes, analogous to the disruptions in our bodies.[42] There is nothing more important, he says in ch. 4, than to know nature, *nosse naturam*: it makes for many uses,[43] it impresses with its magnificence and is studied for its marvels. (This is as close as Seneca, probably a rough contemporary of Longinus, gets to linking *natura* to the Sublime. But that convergence with the Sublime, with its indispensability of excess and its terrors, further enhances the opacity of *naturam sequi*.)

The uncoupling of the gods from nature,[44] and the idea that nature can be known for its uses as well as its visual magnificence, is symptomatic: in the book on earthquakes, as in all of the *NQ*, the Stoic deification of Nature is mostly dropped from sight. One might have expected an author of Seneca's versatility and lack of rigor to put a divinely destructive *natura* in charge of the horror of the quakes, especially since, at the beginning of the book, he talks of *lex* and *fatum*, other synonyms of the Stoic godhead, in commenting on the mutability to which we are all subject: not only humans, but cities, coasts, and the sea itself come under the yoke of *fatum* (1.14), and it is *fatum* that is responsible for the fault of all soil that it is not firmly packed and can be broken up by a number of causes (1.15). Quakes can occur anywhere (a surprising remark, documenting a questionable historical and geographical awareness),[45] in some places more often than in others (1.13), and that makes them part of the universal norm of mutability. There is no defence against them: what does it matter whether at the moment of death *I* decide to have the earth cover me, or the earth itself does so on its

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42 This contention, introducing ch. 3, is implicitly gainsaid two chapters later (5.2). For both the text and the argument of the analogy between quakes and sickness, see the excellent remarks of Gross 1989.261–62.

43 *cum multa habeat futura usui* reminds us of the old tradition of the proximity of nature and culture, of φύσις and διδαχή (Democritus B 33). As Quintilian has it, 9.4.5: *id est maxime naturale, quod fieri natura optime patitur*—a maxim that lends itself to the thought that nature is of use to us especially if it is developed.

44 It would be too much to expect Seneca to be entirely consistent in this, though a remark like that of 6.5.2, *magni animi res fuit rerum naturae latebras dimovere . . . et in deorum secreta descendere*, with its formulaic reminder of the penetration of nature, should not be taken to represent an unqualified acknowledgment of the divine origin of earthquakes. After all, in *De Ben*. 4.6.2, he assures his friend Liberalis that god *ingens tibi domicilium sine ullo incendii aut ruinae metu struxit.*

45 In ch. 26, Seneca claims, on the basis of what his authorities tell him, that even Egypt has been the victim of quakes, and he chastises Vergil for supposedly, on the authority of Pindar, implying (*Aen*. 3.77) that Delos is not susceptible to earth movements. For the possible ambivalence of "earth movement," see Lapini 1995.

own (2.7)? These are the general reflections which might encourage the belief that earth movements are part of a divinely inspired world order, as was believed by the uniformitarians of two centuries ago: "Though terrible . . . to the present inhabitants of the globe, the earthquake has its place in the great system of the geological operations, and is part of a series of events, essential . . . to the general order, and to the preservation of the whole."[46]

But once Seneca begins to face the individual facts, the numerous theories and varieties of quakes whose inventories he had inherited from Aristotle and Theophrastus via Posidonius and his disciple Asclepiodotes (4.1),[47] his eye is trained on nature, that is, on the elements alleged by his predecessors to have a stake in the disasters, and on the processes invoked. The almost automatic manner of oratorical largesse (I avoid the recently fashionable cussword "rhetorization") which characterizes most of Seneca's prose works is here held in check.[48] As in Cicero, who ascribes typhoons, storms, shipwreck, ruin, and conflagrations to *Fortuna* rather than to *Natura* (*Off*. 2.6.19), earthquakes are not looked upon as if they were part of a grand design but rather as chance happenings due to the misbehavior of a fallible world. The best experts, Seneca says, including Anaxagoras and Aristotle, ascribe the principal cause not to water, or fire, or the earth itself, but to *pneuma*, *spiritus*, which is either identified with *aer* or *ventus* or even *anima*, or brought into close relation with them (12.1–13.1, 14, 16, 18–19).[49]

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46 The quote is from John Playfair, *Illustrations of the Huttonian Theory of the Earth* (London 1802) p. 95. I owe the reference to Leask 1998.191–92.

47 See Ringshausen 1929 and Theiler 1982.1.262–64 and 2.236–39, also Traglia 1955. Holl 1935.13 notes that whereas elsewhere Seneca looks critically at the theories that are handed to him, in *NQ* 6, he subjects only Thales to a brief critique. Pliny's discussion of earthquakes (2.191–205) is introduced with a quote from the *Babyloniorum Placita*. Kroll 1930.50ff., citing *NQ* 33.29.1, suggests that this means Berossus, who is presumed to have gotten his material from Posidonius. The tradition about varieties of quakes is most fully and conveniently reported in [Aristotle] *De Mundo* which may be roughly contemporary with Seneca's work. They are: ἐπικλίνται (horizontal), βράσται (heaving), χασμάτιαι (sinking), ῥῆκται (rending), ὦσται (thrusting), παλμάτιαι (vibrating), and μυκήτιαι (bellowing). Gross 1989.240 furnishes the information that today quakes are divided into three kinds, according to whether the earth collapses within itself (3%), erupts volcanically (7%), or responds to the movement of tectonic plates (90%).

48 Cf. Armisen-Marchetti 1989.307 on the more rigorous and less expansive character of the images in the *NQ*.

49 Though the three terms are virtually interchangeable, there are passages in which a distinction is made between *ventus*, the mobile manifestation of *aer*, and *spiritus*, the more effective force of the element. In Lucretius' passage on earthquakes, 6.535–607, the terms are *ventus* and *anima*. In Epicurus' *Ad Pythoclem*, the term is πνεῦμα, as it is likely to have been in περὶ φύσεως, book xiii.

The only question is whether this *spiritus* causes the damage by unsettling the earth mass from the outside, or whether it does so by collecting within the earth and then trying to find its way out through narrow or blocked channels. Seneca favors this latter explanation, as do Pliny (*Nat. Hist*. 2.79–84) and the *Aetna* (158–74, 307–85), and he spends considerable time tracing the subterranean courses of the *spiritus* and identifying the havoc it creates. Seneca's inconclusive and embarrassed footnote on the analogy between the eruption of *spiritus* and human farting (5.4.2) does little to relieve the sobriety of the discussion. The emphasis on *spiritus* is of course interesting because that force is a factor in the Stoic divine equation.[50] Moreover, the foregrounding of *pneuma* revalidates the analogy between the dislocation of the ground and the sickness of the human body, with its chills, fever, and violent tremors (18.6–7).[51] But nowhere is a divine *natura* said to be identical with the *spiritus*, or said to command the *spiritus* to do its ruinous work. Unlike his nephew Lucan, Seneca is unwilling to make a *natura discors* (*Pharsalia* 1.589–90) responsible for the upheaval or to have *natura* reverse the laws and compacts of things (2.2–4).[52] As Seneca says about anger (*De Ira* 1.5.3): "what greater ignorance of *natura rerum* could there be than to credit its best, most flawless work (i.e., man) with this savage and pernicious vice?"[53] The alternative view, voiced at *NQ* 3.29.4, that *natura* is the beneficiary of inundations, earthquakes, and conflagrations, in that these dislocations somehow help to accomplish Nature's program, is surely a counsel of despair within the context.

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50 Cf. Lapidge 1989.1399.

51 See Gross 1989.261–68. Gross also has a good discussion of the textual crux of 14.2. In ch. 24, the thesis of an analogy between earthquake and sickness is partly modified.

52 Cf. also Johnson 1987.46–47 on Lucan's problems with nature. Manilius, who can conceive of the breaking of nature's compact (2.489), goes so far as to proclaim that *natura* often drifts towards the worse, as when a female pursues males: *et saepe in peius deerrat natura maresque / femina subsequitur* (2.709). Manilius' handling of *natura* within a scientific frame is even more versatile than Seneca's; *Natura* as an organizer and distributor is especially prominent in book 2. Likewise Pliny, in whose *Natural History* *natura* as the whole and *Natura* as the creator often virtually coalesce, is capable of regarding nature as a savage, destructive force. Especially in talking of earthquakes he speaks of *scelera naturae*: *Nat. Hist.* 2.206.

53 Note that Pliny *Nat. Hist*. 2.113, in a footnote to 112 on the dimensions of the earth, questions the ultimate authority of *rerum natura*: *harmonica ratio, quae cogit rerum naturam sibi ipsam congruere, addit huic mensurae stadiorum xii terramque xcvi partem totius mundi facit*, Nature must be (made) perfect; since earlier calculations of the size of the earth had fallen short by 12 stades, they must be added to satisfy the principle of harmony, which thus assumes (at least figurative) precedence over nature.

There is thus a good reason for this reticence about one of the central lessons of Stoicism. The details of the Campanian earthquake—600 sheep killed by the fumes released by the quake (27.1–4), a statue split[54]—are only a very small sample of the horror and human suffering earth movements bring about.[55] If, as we know from *De Ira* 1.5, anger is contrary to human nature, how could its terrestrial equivalent be reconciled with cosmic nature? Seneca is not willing to stipulate a nature that turns against itself. Better to charge not *natura* (whom, like Cicero's Stoic spokesman [*Nat. Deor*. 3.9.9], he calls wise, *sapiens*) but *spiritus*, a physical entity that can be thought of as an irresistible, unfeeling force, and to chart its movements as it struggles to rise from subterranean lakes and rivers to break violently through the earth's crust to regain its more natural abode above. The coverage of this subject takes up a lot of space; it is not just that the obvious precedent of the *Phaedo*[56] encourages Seneca to develop an extensive underworld topography. The complexity and the variety of the vehemence with which *this spiritus* operates must serve as a deflector of the ordinary Stoic expectation that the force that rules the world is orderly and beneficent. But even as he builds up his generic scenario of specialized, disinterested horror, Seneca cannot resist the anecdotal impulse. He quotes an eyewitness about the secondary effect of an eruption of *spiritus*: the pieces of mosaic in the bath in which a person was sitting successively separated and joined together again, with the water in its turn alternately settling into the cracks as the ground was breaking up and vaporizing as the pieces were pressed together again. This is the sort of descriptive particularity which also helps to dispel too close an attention to the potential question how *natura*, the great lawgiver of the universe, can allow the undisciplined cruelty of a quake.

And when, in the last chapter of this book (6.32), Seneca launches

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54 30.1–5: With this detail Seneca seems to play upon the religious anxieties of his readers. He argues at length, quoting Vergil for good measure, that the fracture of a bronze statue is no more surprising than the sundering of a hill from its foundation. It is noteworthy that Seneca says nothing about homes destroyed, the food supply interrupted, and lives lost; such details would merely once again invite the question how *Natura*, the ruler and emblem of a regular world order, can endorse such irregularities. Contrast *De Beneficiis* 4.6.2 quoted above, note 44.

55 It is a mark of Seneca's relative downplaying of ethics in the *NQ* that he never asks what can be done to prevent the sufferings resulting from quakes.

56 Seneca actually makes no reference to *Phaedo* 109Aff., but we must presume that he was familiar with it.

the rolling cadences of the final moral, the *natura* that comes into play is that of the lower case. The mind, he tells Lucilius, gets *robur*, toughness and endurance, from the contemplation of nature, that is, of what happens around us. We are faced by death everywhere, so why should we fear death more than weapons or the ills of old age? Death can also come from a cold, or an infected hangnail. *Pusilla res est hominis anima, sed ingens res contemptus animae*, the breath of life is a tiny thing, but disdain of that life is a very big thing. Or should we, in this case, take *anima* to be a near equivalent of *spiritus* and translate more freely: disdain for the disturbances created by the *pneuma* is the big thing? In any case, the scientific observer will not jump into the fray of the quake, but will talk about it from a distance. The role of the scholarly essayist precludes the role of the intrepid Stoic, personally confronting upheaval. In the sequel, 32.7, there is talk of a paradise in which no disturbances take place: that is precisely where death will take you; the fear of death must be surrendered, it is the source of all evils; I am suspended on the cusp of fleeting time, 32.10; it is worth much to have been *modicus*, uncomplaining, unresistant; for *mors naturae lex est*, death is the law of nature.[57] Thus, at the end, nature is once again the lawgiver, but its legislative sting has been pulled: for once, but perhaps also more generally in the light of the destructive power described in much of the treatise, the principal law it dispenses is the ceasing of life. What comes before, life as it is lived, seems withdrawn from its rule.

This is how Seneca, as he tries his hand at doing the science of *meteora* and *terrena*, demotes and virtually banishes deified *Natura* from his compass and falls back on the various other, often contradictory, uses of *natura* which his literary erudition has privileged him to exploit. This may not help him to be a methodical, systematic scientist, but it encourages him to tell us what he has heard and what he has seen, without fitting the material into the tight frame of an encompassing creed. For which favor, I submit, we should not be ungrateful.

University of California, Berkeley

57 Or: death is *a* law of nature. But the cumulative force of the emphasis on disruption and destruction in *NQ* 6 seems to me to demand the definite article, whatever its costs to the rest of Seneca's thinking about nature.

BIBLIOGRAPHY

Armisen-Marchetti, Mireille. 1989. *Sapientiae facies: Étude sur les images de Sénèque*. Paris.

von Arnim, Hans. 1964. *Stoicorum Vetera Fragmenta.* Stuttgart.

Beagon, Mary. 1992. *Roman Nature: The Thought of Pliny the Elder*. Oxford.

Beardslee, John Walter. 1918. *The Use of φύσις in Fifth-Century Greek Literature*. Chicago.

Beer, Gillian. 1998. "Has Nature a Future," in *The Third Culture: Literature and Science*, ed. Elinor S. Shaffer. Berlin. 15–27.

Benjamin, Andrew. 1989. *Translation and the Nature of Philosophy*. London.

Boas, George and Lovejoy, Arthur O. 1935. *Primitivism and Related Ideas in Antiquity*. New York.

Capelle, Wilhelm. 1924. "Erdbebenforschung," in *RE Suppl*. 4. Stuttgart. 344–74.

Chaumartin, Francois-Régis. 1989. "Quarante ans de recherche sur les oeuvres philosophiques de Sénèque," in *ANRW* 36.3. Berlin. 1545–1605.

Clay, Diskin. 1983. *Lucretius and Epicurus*. Ithaca.

Cohen, Marshall (ed. intr.) 1961. *The Philosophy of John Stuart Mill*. New York.

Codoñer, Carmen. 1989. "La physique de Sénèque: Ordonnance et structure des *Naturales Quaestiones*," in *ANRW* 36.3. Berlin. 1779–822.

Diller, Hans. 1939. "Der griechische Naturbegriff," *NJAB* 2.241–57.

Erdman, Irwin (ed. intr.) 1926. *Essays by Ralph Waldo Emerson*. New York.

Foucault, Michel. 1972. *The Archaeology of Knowledge*. London.

Furley, David. 1966. "Lucretius and the Stoics," *BICS* 13.13–33.

Gigon, Olof. 1991. "Senecas *Naturales Quaestiones*," in *Entretiens Fondation Hardt* 36.313–46.

Gross, Nikolaus. 1989. *Senecas Naturales Quaestiones* (*Palingenesia* 27). Wiesbaden.

Heidegger, Martin. 1953. *Einführung in die Metaphysik.* Tübingen.

Heidel, William Arthur. 1910. "περὶ φύσεως: A Study of the Conception of Nature among the Pre-Socratics," in *Proceedings of the American Academy of Arts and Sciences* 45.4.79–133.

Heubeck, Alfred and Hoekstra, Arie (eds.) 1989. *A Commentary on Homer's Odyssey,* vol. 2. Oxford.

Hine, Harry M. (ed.) 1981. *Seneca: Natural Questions Book Two*. New York.

———. (ed.) 1996. *L. Annaei Senecae Naturalium Quaestionum Libros*. Stuttgart.

Holl, Karl. 1935. *Die Naturales Quaestiones des Philosophen Seneca*. Berlin.

Huggett, Richard. 1990. *Catastrophism: Systems of Earth History*. London.

Inwood, Brad. 1995. "Seneca in his Philosophical Milieu," *HSCP* 97.63–76.

Johnson, Walter Ralph. 1987. *Momentary Monsters: Lucan and his Heroes*. Ithaca.

Kroll, Wilhelm. 1930. *Die Kosmologie des Plinius* (*Abhandlungen der schlesischen Gesellschaft für vaterländische Kultur* 3). Breslau.

Lapidge, Michael. 1989. "Stoic Cosmology and Roman Literature, First to Third Centuries A.D.," in *ANRW* 36.3. Berlin. 1379–1429.

Lapini, Walter. 1995. "Seneca e il terremoto di Delo," *Maia* 47.183–200.

Leask, Nigel. 1998. "Mont Blanc's Mysterious Voice: Shelley and Huttonian Earth Science," in *Third Culture: Literature and Science*, ed. Elinor S. Shaffer. Berlin. 182–203.

Lennox, James G. 1997. "Nature does nothing in vain . . . ," in *Beiträge zur antiken Philosophie*: *Festschrift für Wolfgang Kullmann*, eds. Hans-Christian Günther and Antonios Rengakos. Stuttgart. 199–214.

Long, Anthony A. 1997. "Lucretius on Nature and the Epicurean Self," in *Lucretius and his Intellectual Background*, eds. K. A. Agra, M. H. Koenen, P. H. Schrijvers, *Koninkl. Nederl. Akad. van Wet., Verhand., Afd. Letterk., Nieuwe Reeks* 172.125–40.

Maurach, Gregor. 1991. *Seneca: Leben und Werk*. Darmstadt.

Merchant, Carolyn. 1980. *The Death of Nature*. San Francisco.

Merrill, William Augustus. 1891. "The Significance and the Use of the Word *Natura* in Lucretius," *Proceedings of the American Philological Association* 22.xxxii–xxxiv.

Pellicer, André. 1966. *Natura: Étude sémantique et historique du mot latin*. Paris.

Reinhardt, Karl. 1976. *Poseidonios*, vol. 1. Hildesheim.

Ringshausen, Karl Wilhelm. 1929. *Poseidonios, Asklepiodot, Seneca und ihre Anschauungen über Erdbeben und Vulkane*. Munich.

Sedley, David. 1998. *Lucretius and the Transformation of Greek Wisdom*. Cambridge.

Spiller, Robert E. and Ferguson, Alfred R. (eds.) 1971. *The Collected Works of Ralph Waldo Emerson*, vol. 1. Cambridge, Mass.

Striker, Gisela. 1996. *Essays on Hellenistic Epistemology and Ethics*. Cambridge, Mass.

Theiler, Willy (ed.) 1982. *Poseidonios: Die Fragmente* (*Texte und Kommentare* 10). Berlin.

Traglia, Antonio. 1955. "Il valore dossografico del *De terrae motu* di Seneca," *Studi in onore di B. Nardi*. Florence. 733–52.

Waiblinger, Franz Peter. 1977. *Senecas Naturales Questiones* (*Zetemata* 70). Munich.

Westman, Rolf. 1955. *Plutarch gegen Kolotes* (*Acta Philosophica Fennica* 7). Helsingfors.

Williams, Gordon. 1978. *Change and Decline: Roman Literature in the Early Empire*. Berkeley.

Wilson, Marcus. 1988. "Seneca's *Epistles to Lucilius*: A Revaluation," in *The Imperial Muse*, ed. Anthony James Boyle. Berwick, Australia.