Rome, the Cosmos, and the Emperor in Seneca's *Natural Questions**

HARRY M. HINE

I INTRODUCTION

This paper examines the political content and context of Seneca's *Natural Questions*, and argues that the work moves in two apparently contradictory directions. On the one hand there is a grand vision of the cosmos and its splendour, in comparison to which empires and imperial power, including Rome's, recede into insignificance; similarly the pursuit of philosophy, particularly the branch of philosophy that studies the cosmos, is elevated above other pursuits, including political life and historical writing, to which members of the Roman élite were typically devoted. But at the same time the work is firmly anchored in the Roman world, drawing widely on information about the natural world that was garnered from all corners of the Empire and from beyond; Seneca situates himself in a long and continuing tradition of investigation of the natural world, a tradition in which Roman writers hold their own alongside Greeks, Egyptians, and Chaldaeans; and there are several brief references to the current emperor Nero, which present him not just as princeps and poet, but also as sponsor of geographical and scientific investigation of the Nile. The paper is structured so as to oscillate between these two perspectives: Section II analyses various ways in which Rome is marginalized in the work; Section III shows how at the same time the work is firmly anchored in the contemporary Roman world; Section IV argues that Seneca in effect constructs an ideal intellectual community that includes Rome, but also transcends it in time and space; Section V starts with the representation of Nero in the work, and goes on to explore what we know of the contemporary intellectual context; finally Section VI offers some concluding remarks on how the two perspectives coexist.

At several points in the paper the elder Pliny and his *Natural History* will be contrasted with Seneca and the *Natural Questions*. Both works were written in the final years of the author's life. Seneca wrote his in the early 60s, before his enforced suicide in A.D. 65. Pliny wrote his in the 70s, before his death in the eruption of Vesuvius in A.D. 79.[1] The superficially similar titles of their two works conceal significant differences. One might say that Seneca's title (which would be better translated 'questions about nature', or 'investigations into nature', or 'physical investigations') promises more than it delivers. For *natura* is a very broad term, yet Seneca does not deal with astronomy, nor with plant, animal and human nature, all of which are included, with much else besides, in Pliny's *Natural History*. Seneca covers what was known in the Greek world as meteorology. This term, which was first used in this way by Aristotle, covered the study of physical phenomena occurring in the air, and certain phenomena occurring on or within the earth that

* Earlier versions of this paper were read to audiences at Mannheim and St Andrews, and I am grateful to those who offered criticisms or suggestions on each occasion. The paper has also benefited from the helpful suggestions of the Journal's Editor and anonymous readers. Professor Gareth Williams kindly allowed me to see the typescript of the paper published in this volume, pp. 124–46, and I have added some cross-references to his arguments. Of course all remaining deficiencies are my own responsibility. The paper was completed during a period of research leave funded by the Arts and Humanities Research Council, for which I am grateful.

[1] See the Appendix for further discussion of the date of composition of Seneca's work. Briefly, Books 6 and 7 can be dated on internal evidence between A.D. 62 (or 63) and 64, and Book 3 may well postdate Seneca's withdrawal from Nero's court in A.D. 62. The date of Pliny's work is broadly established by the preface addressed to Titus, and the regular hostile references to Nero within the text, which clearly postdate his death.

JRS 96 (2006), pp. 42–72.

were believed to be connected with the air (as Seneca explains in *Nat.* 2.1–10).[2] The principal topics of each of Seneca's books, here listed in what in this paper will be accepted as the original book order,[3] are: Book 3 rivers; 4a the river Nile; 4b <clouds, rain,>[4] hail, snow; 5 winds; 6 earthquakes; 7 comets; 1 meteors, rainbows, halos, and other optical meteorological phenomena; 2 thunder and lightning. Pliny had covered these topics rather more briefly in one section of his second book (2.89–153).

In the modern literature on the *Natural Questions* there has been more written about Seneca's debt to Greek writers, and about the interplay between scientific themes and ethical themes within the work, than about the political context and content.[5] That is not so surprising, since the work contains little that is directly connected with contemporary politics, aside from a few brief references to Nero, and an account of the political career of the dedicatee, Lucilius, which have received considerable attention. Some scholars have also argued that, besides the explicit, flattering references to Nero, the work contains oblique and critical allusions to the emperor. A recent major study by Gauly has gone much further in seeking to contextualize the *Natural Questions*, arguing that the work by various means, including the use of scientific themes as metaphors for the relationship of human beings to the cosmos, reflects the anxieties of the later years of Nero's reign.[6] The present paper takes a different approach to Gauly's, though there are areas of overlap and convergence that will be signalled below.

11 MARGINALIZING ROME

O quam ridiculi sunt mortalium termini![7]

The name *Roma* occurs only once in the *Natural Questions*, and the adjective *Romanus* just six times.[8] Contrast about two hundred occurrences of each word in Pliny's *Natural History*. His work is more than eight times as long as Seneca's, but even when that is taken into account, the difference remains striking. Though Rome itself is not prominent, Seneca makes some interesting assertions about empires. At the end of Book 3, in the course of a long and lavish description of the great flood that will one day wipe out the whole earth, Seneca says:

> 3.29.9 unus humanum genus dies condet. quidquid tam longa fortunae indulgentia excoluit, quidquid supra ceteros extulit, nobilia pariter atque adornata, magnarumque

[2] See L. Taub, *Ancient Meteorology* (2003), 1–2; *OCD*[3] s.v. 'meteorology'; *Neue Pauly* s.v. 'Meteorologie'.

[3] The arguments for this order have most recently been restated by B. M. Gauly, *Senecas* Naturales Quaestiones. *Naturphilosophie für die römische Kaiserzeit*, Zetemata 122 (2004), 53–67, with references to earlier literature. The order was first proposed independently by C. Codoñer Merino, *Naturales quaestiones, texto rev. y trad., I: Lib.* I–III (1979), xii–xxi, and H. M. Hine, *An Edition with Commentary of Seneca*, Natural Questions, *Book Two* (1981), 4–23.

[4] The end of Book 4a and the beginning of 4b are lost, but 4b certainly covered these topics originally.

[5] Recent discussions of Seneca's sources: A. Setaioli, *Seneca e i Greci. Citazioni e traduzioni nelle opere filosofiche* (1988), 375–452; N. Gross, *Senecas* Naturales Quaestiones. *Komposition, naturphilosophische Aussagen und ihre Quellen*, Palingenesia 27 (1989). On the relevance of the ethical sections, see recently: F. R. Berno, *Lo specchio, il vizio e la virtù. Studio sulle* Naturales Quaestiones *di Seneca* (2003); G. Williams, 'Interactions: physics, morality, and narrative in Seneca *Natural Questions* 1', *CPh* 100 (2005a), 142–65; idem, 'Seneca on winds: the art of anemology in *Natural Questions* 5', *AJP* 126 (2005b), 417–50; and Williams' article in this volume, pp. 124–46. Discussions of political themes and context will be mentioned below.

[6] Gauly, op. cit. (n. 3); see the sometimes sceptical review of F. Limburg, *BMCR* 2005.01.16.

[7] 1.praef.9; 'How ridiculous are mortals' boundaries!' All references are to the *Natural Questions* unless another work is indicated, and Latin quotations are taken from the Teubner edition of H. M. Hine (1996).

[8] Four of the passages concerned mention events involving Roman armies (1.1.14, 3.praef.6, 4a.praef.21, 5.16.4), one is about the boundaries of the empire (1.praef.9, quoted below, p. 45); in only one is *Romanus* used not just descriptively but with positive, evaluative connotations, and that in connection with philosophy: 7.32.2 'Sextiorum noua et Romani roboris secta inter initia sua, cum magno impetu coepisset, extincta est', 'the new sect of the Sextii, with its Roman vigour, died out while it was beginning, though it had started with a great impact'.

gentium regna pessum dabit.

A single day will bury the human race. All that fortune's indulgence has fostered for so long, all it has elevated above the rest, the noble and the honoured alike, and the kingdoms of great nations, will be brought to ruin.

As Murphy has commented, this prediction must be understood to apply to Rome and her empire too, though Seneca does not say as much.[9] This is not the only passage where an assertion of the impermanence of nations implicitly includes Rome. To illustrate the precariousness of fortune, the preface of Book 3 refers to the demise of great empires in the past, and says that the process of the rise and fall of empires is continuing right now:

3.praef.9–10 regna ex infimo coorta supra imperantes constiterunt, uetera imperia in ipso flore ceciderunt; iniri non potest numerus quam multa ab aliis fracta sint. nunc cum maxime deus extruit alia, alia submittit, nec molliter ponit sed ex fastigio suo nullas habitura reliquias iactat. magna ista quia parui sumus credimus: multis rebus non ex natura sua sed ex humilitate nostra magnitudo est.

Kingdoms have risen from the lowest levels and towered over their rulers, ancient empires have collapsed at the peak of their prosperity, and it is impossible to count how many empires have been destroyed by others. At this very moment god is building up some, overthrowing others, and not putting them down gently but hurling them from their pinnacle so that nothing will be left. We believe such things are great because we are small: many things derive their greatness not from their intrinsic nature but from our lowly status.

In the second sentence the rise and fall of empires is a process currently continuing, sometimes gradually, sometimes suddenly; and the last sentence touches on the theme that, from a true philosophical perspective, empires are not great at all. Elsewhere Seneca makes the potential threat to his own political world more specific. At the end of Book 5 he talks about the harmful misuses of winds that human beings have devised, one of the worst being warfare:

5.18.12 nulla terra tam longe remota est quae non emittere aliquod suum malum possit. unde scio an nunc aliquis magnae gentis in abdito dominus, fortunae indulgentia tumens, non contineat intra terminos arma, an paret classes ignota moliens? unde scio hic mihi an ille uentus bellum inuehat? magna pars erat pacis humanae maria praecludi.

No land is so remote that it cannot export some evil of its own. How do I know whether at this moment some obscure lord of a great people, puffed up by fortune's kindness, is no longer confining his forces to his own territory, whether he is building fleets, making unknown plans? How do I know whether this wind or that is bringing me war? Shutting down the seas would be a large contribution to human peace.

Perhaps the risk of such an invasion would have seemed remote or fanciful to Seneca's contemporaries, even to Seneca himself; and here he is making a philosophical point, not writing an official report on the state of the Empire's defences. Nevertheless, Roman writers were not in the habit of speculating about unknown military threats in such a fashion. Vergil's Jupiter granted that Rome would have *imperium sine fine*, empire without end in either time or space (*Aen.* 1.278–9).

Seneca not only says that all empires eventually come to an end in time, but the last passage draws attention to the fragility of Rome's spatial boundaries. Not only are the boundaries fragile, but they are unimportant, according to another passage:

1.praef.8–10 non potest (sc. animus) antea contemnere porticus et lacunaria ebore fulgentia et tonsiles siluas et deriuata in domos flumina quam totum circuit mundum, et

[9] T. Murphy, *Pliny the Elder's* Natural History. *The Empire in the Encyclopedia* (2004), 187.

> terrarum orbem superne despiciens angustum ac magna ex parte opertum mari, etiam ea qua extat late squalidum et aut ustum aut rigentem, sibi ipse dixit: 'Hoc est illud punctum quod inter tot gentes ferro et igne diuiditur!' (9) O quam ridiculi sunt mortalium termini! ultra Histrum Dacus non exeat, imperium Haemo Thraces includant, Parthis obstet Euphrates, Danuuius Sarmatica ac Romana disterminet, Rhenus Germaniae modum faciat, Pyrenaeus medium inter Gallias et Hispanias iugum extollat, inter Aegyptum et Aethiopas harenarum inculta uastitas iaceat. (10) si quis formicis det intellectum hominis, nonne et illae unam aream in multas prouincias diuident? . . .
>
> The mind cannot despise colonnades and ceilings gleaming with ivory and topiary forests and rivers channelled into houses until it has toured the entire universe, has looked down from on high at the earth — tiny, and predominantly covered by sea, and even when it rises above it, mainly uncultivated, and either burnt or frozen — and has said to itself: 'This is that pinprick that is divided up among so many nations by sword and fire!' (9) How ridiculous are mortals' boundaries! The Dacian must not pass beyond the lower Danube, let the Thracians enclose their empire with the Haemus mountain, the Euphrates block the Parthians, the Danube form the boundary between Sarmatian and Roman territory, the Rhine set a limit on Germany, the Pyrenees raise their ridge in between the Gallic and Spanish provinces, uncultivated desert sands lie between Egypt and the Ethiopians. (10) If someone gave human intelligence to ants, would not they also divide a single threshing-floor into many provinces? . . .

'How ridiculous are mortals' boundaries!' The generalization is given a very Roman context, some of the boundaries being between Rome and her neighbours — Dacians, Sarmatians, Germans, and Ethiopians — and others lying within the Roman Empire — the boundary of the Thracians[10] and that between the Gallic and Spanish provinces. The use of a series of commands with jussive subjunctives (*exeat, includant*, etc.) suggests the viewpoint of the superpower and its policy-makers deciding how the world is to be carved up. How ridiculous, says Seneca.[11]

One might say, quite rightly, that the theme of empires rising and falling is a traditional one, and argue that one should not read too much contemporary significance into such statements in Seneca. But with commonplaces one must look at the context, and at the arguments they serve. The passage just quoted is part of a sustained argument, running through the preface to Book 1, about what is really important: for Seneca it is not the pursuit of luxury, or of earthly glory, but the pursuit of philosophy, and particularly the branch dealing with cosmology and theology. The message is that when we have studied the whole universe in its amazing entirety, then we shall inevitably despise the trappings both of luxury and of earthly power and glory. At the end of Section 8, in the passage just quoted, Seneca uses the traditional image of the earth as a mere dot or pinprick (*punctum*). The reader may well think of a famous passage of Cicero that also applied the image to the Roman empire.[12] In the 'Dream of Scipio' at the end of his *Republic*, Cicero has the younger Scipio describe his thoughts as in his dream he gazes down from the Milky Way (*Somnium Scipionis* (*Rep*. 6.)16): 'iam uero ipsa terra ita mihi parua uisa est, ut me imperii nostri quo quasi punctum eius attingimus paeniteret' ('Now the earth itself seemed to me so small that I felt ashamed of our empire, with which we touch as it were only a pinprick on the earth's surface'). This at first sight looks like disparagement of the Roman empire,

[10] The text here is uncertain; with the above text and translation Seneca seems to speak as though the Thracians have their own empire. By the 60s A.D. Thrace was a province, separated from the province of Moesia by the Haemus mountains.

[11] At 6.7.1 Seneca speaks more neutrally of rivers as boundaries.

[12] For this image see also 4b.11.4, and *Dial*. 6.21.2 with Manning's commentary; Cic., *Tusc*. 1.40; Euclid, *Phaenomena* 1; Str. 15.1.24; Plin., *Nat*. 2.174; Cleomed. 1.5, 72, 1.8, 32, 79, etc., Todd; Gruber on Boeth., *Cons*. 2.7.3; and compare how Aristotle says the size of the earth is 'nothing' compared to the universe, *Mete*. 1.3, 340a6, 1.14, 352a27. The comparison with the *Somnium Scipionis* is made by O. Gigon, 'Senecas *Naturales Quaestiones*', in P. Grimal (ed.), *Sénèque et la prose latine: neuf exposés suivis de discussions*, Entretiens sur l'antiquité classique 36 (1991), 313–46, at 328. For a fuller discussion see Gauly, op. cit. (n. 3), 181–90.

similar to what we find in Seneca. But one must remember the immediate dramatic setting: this is not an authorial statement by Cicero, but a spontaneous, passionate cry of a man who in his dream has been transported high up into the Milky Way and suddenly finds himself for the first time looking down at the earth far below.[13] Secondly, one must remember the wider message of the Dream and of the *Republic* as a whole. How is one to attain the marvellous celestial destiny glimpsed in the dream, compared with which the earth is so puny? By achieving true glory, to which the chief route is public service to one's country. So Scipio's glimpse of something better than earthly kingdoms is part of a strategy to inspire the reader to serve Rome's earthly kingdom better. By contrast, when Seneca uses the commonplace of the earth as a dot, he uses it in his own authorial voice, he presents it not as a spontaneous and short-lived reaction, but as a point of view that we need to cultivate, and he uses it to show how laughable are the struggles of men to seize and control some portion of the earth. His message really is that there are more important things than earthly, military glory.[14] He returns to the image of the earth as a pinprick later on:

> 1.praef.11 punctum est istud in quo nauigatis, in quo bellatis, in quo regna disponitis, minima etiam cum illis utrimque oceanus occurrit. Sursum ingentia spatia sunt, in quorum possessionem animus admittitur, <s>ed ita, si secum minimum ex corpore tulit, si sordidum omne detersit et expeditus leuisque ac se contentus emicuit.
>
> It's a mere pinprick on which you sail, in which you wage war, in which you lay out your kingdoms, tiny even when the ocean breaks on either side of them. Up above there are vast spaces, which the mind is allowed to enter and occupy, provided that it takes scarcely anything of the body with it, that it wipes away any uncleanness, and that it soars upwards unencumbered, nimble, and self-sufficient.

So much for Rome's military might, one may infer.[15] In Seneca the contrast is not, as in Cicero, between more and less enlightened views of what constitutes earthly glory and Romanness, but between earthly glory and the pursuit of philosophy.[16]

A comparison with the elder Pliny is also instructive. There is nothing in Seneca remotely like the ecstatic praise of the Roman Empire that we find about fifteen years later in Pliny, when he enthuses about the foreign plants that have been transported across the empire,

> Plin., *Nat.* 27.3 ... inmensa Romanae pacis maiestate non homines modo diuersis inter se terris gentibusque uerum etiam montes et excedentia in nubes iuga partusque eorum et herbas quoque inuicem ostentante. aeternum, quaeso, deorum sit munus istud! adeo Romanos uelut alteram lucem dedisse rebus humanis uidentur.
>
> ... all owing to the boundless grandeur of the Roman Peace, which displays in turn not only human beings with their different lands and tribes, but also mountains, and peaks soaring into the clouds, their offspring and also their plants. May this gift of the gods last, I pray, for ever! So truly do they seem to have given the Romans to the human race as it were as a second sun. (trans. W. H. S. Jones, altered)

[13] The 'view from above' was traditional, see R. B. Rutherford, *The Meditations of Marcus Aurelius: A Study* (1989), 155–61; P. Hadot, *Philosophy as a Way of Life. Spiritual Exercises from Socrates to Foucault* (Eng. trans., 1995), 238–50; J. Pfeiffer, *Contemplatio caeli. Untersuchungen zum Motiv der Himmelsbetrachtung in lateinischen Texten der Antike und des Mittelalters*, Spolia Berolinensia 21 (2001), 51–62 on Seneca.

[14] The theme had also emerged at the start of the work, at 3.praef.10.

[15] Naturally Seneca can make different points about warfare elsewhere; see 4a.praef.21–2, 6.1.6, 6.32.7.

[16] See Gauly, op. cit. (n. 3), 164–90, who argues for a Platonic, transcendental reading of this and other passages; but B. Inwood resists a Platonic reading, in 'God and human knowledge in Seneca's *Natural Questions*', in D. Frede and A. Laks (eds), *Traditions of Theology: Studies in Hellenistic Theology, its Background and Aftermath*, Philosophia Antiqua 89 (2002), 119–57, at 151, reprinted in B. Inwood, *Reading Seneca: Stoic Philosophy at Rome* (2005), 157–200, at 194.

Seneca does acknowledge that winds facilitate trade and enable knowledge to be communicated across the world (5.18.14), but that passage is not given a specifically Roman colouring, and it is part of a longer chapter in which the misuse of winds for harmful ends is given fuller treatment than the benefits of winds (cf. 5.18.12, quoted above).[17]

Scio quam sis ambitioni alienus[18]

Seneca's work is dedicated to his close friend Lucilius Iunior, who is also dedicatee of the *Epistulae Morales* and the *De Providentia*. Lucilius is a procurator in Sicily, a relatively modest position, as Seneca hints at the opening of Book 4a:[19]

> 4a.praef.1 Delectat te, quemadmodum scribis, Lucili uirorum optime, Sicilia et officium procurationis otiosae,[20] delectabitque si continere id intra fines suos uolueris, nec efficere imperium quod est procuratio. facturum hoc te non dubito. scio quam sis ambitioni alienus, quam familiaris otio et litteris.
>
> You are delighted with Sicily — so you write, Lucilius, excellent man — and with the duties of a procuratorship that leaves you with leisure; and that delight will continue, if you are willing to keep the duties within their limits, and not turn a procuratorship into a governorship. I have no doubt that you are. I know how disinclined to ambition you are, how at home with leisure and study.

He then advises Lucilius to keep himself away from other people as much as possible, to enjoy his own company (4a.praef.1–3), and particularly to avoid flattery (4a.praef.4–13). He offers detailed advice on resisting seductive flatterers, and then puts into Lucilius' own mouth a speech praising his own career (4a.praef.14–17). He stresses how in the reigns of Gaius and Claudius he stood by his friends: Gaius did not destroy his loyalty to Gaetulicus, nor Messallina and Narcissus his loyalty to other unnamed friends (4a.praef.15). In other words, Lucilius in the past successfully distanced himself from corrupt regimes, and he is urged to keep a distance from corrupt, flattering contemporaries who surround him in Sicily now.

Here one can, if one wishes, see an unspoken parallel to Seneca himself, who in the last years of his life was distancing himself from Nero and the Neronian court.[21] One may even wonder whether Seneca regrets that he himself had not always kept such a distance in the earlier years of Nero's reign. At any rate, these two quasi-exiles from their own society will find companionship in each other:

> 4a.praef.20 et ne solitudinem sentias, hinc tecum miscebo sermones. erimus una qua parte optimi sumus, dabimus inuicem consilia non ex uultu audientis pendentia.
>
> and so that you do not feel lonely, I shall join in conversation with you from here. We shall be together in spirit, the best part of us; we shall exchange advice that is not conditioned by the hearer's expression.

Seneca proceeds to offer Lucilius distraction from his own province Sicily with a discussion of the river Nile and its annual flooding (4a.1.1).

[17] On 5.18 see Williams, op. cit. (n. 5, 2005b), 440–6. Williams says 'It is hard to exempt Roman imperial operations from this *insania* and *dementia* (5.18.4, 6, 9) that Seneca condemns as we set sail to seek war', and 'the natural (self-)regulation of the winds stands in stark contrast to the unrestrained impetus of Roman *imperium*' (p. 445).

[18] 4a.praef.1; 'I know how disinclined to ambition you are'.

[19] cf. 4a.praef.21–2, a warning to Lucilius not to let Sicily's significance in past Roman history go to his head.

[20] *procuratio otiosa* is itself a striking phrase, confusing the boundary between public office and *otium* (and provoking Gercke to suggest *negotiosae* for *otiosae* in the apparatus of his 1907 Teubner edition). *TLL* 9.2.1168.4–5 compares Cic., *Leg.* 1.10 'Legationem aliquam nimirum ista oratio postulat aut eius modi quampiam cessationem liberam atque otiosam', but that is less paradoxical.

[21] So A. L. Motto and J. R. Clark, 'Seneca gives thanks to Nero', *SIFC* 12 (1994), 110–17, at 113 (reprinted in A. L. Motto, *Further Essays on Seneca*, Studien zur klassischen Philologie 122 (2001), 111–17, at 113).

Again a contrast with the elder Pliny is instructive. Pliny's work is dedicated to Titus, elder son of the reigning emperor Vespasian, the nearest one could get to the emperor himself. Far from expecting Titus to have plenty of leisure, at the end of the preface Pliny says that in the public interest he has provided a labour-saving list of contents for each book (*Nat.* praef.33).[22] He is confident about the usefulness of his work, but it must not interfere with Titus' or anyone else's public duties. So Pliny, by dedicating his work to Titus, places it at the centre of the imperial world, and intends it to help, but not impede, Titus and others who are in public service; but Seneca expects Lucilius to be alienated from his political environment, on the edge, at least figuratively on the edge, of the imperial world, and he offers him a work to provide distraction and consolation from his public duties, or at least from their attendant hazards of flattery.[23]

Damna aetatis male exemptae[24]

It has been suggested that Lucilius' situation in Sicily, and his earlier career as Seneca presents it, may be seen as an image of Seneca's own situation. Elsewhere, at the original opening of the work, Seneca speaks briefly about his own past life:

> 3.praef.1–2 Non praeterit me, Lucili uirorum optime, quam magnarum rerum fundamenta ponam senex, qui mundum circumire constitui et causas secretaque eius eruere atque aliis noscenda prodere. quando tam multa consequar, tam sparsa colligam, tam occulta perspiciam? (2) premit a tergo senectus et obicit annos inter uana studia consumptos. tanto magis urgeamus et damna aetatis male exemptae labor sarciat. nox ad diem accedat, occupationes recidantur, patrimonii longe a domino iacentis cura soluatur, sibi totus animus uacet, et ad contemplationem sui saltim in ipso fine respiciat.
>
> I am not unaware, Lucilius, excellent man, of how great is the enterprise whose foundations I am laying in old age, now that I have decided to travel round the universe, to unearth its causes and secrets, and to present them for others to learn about. When shall I follow up things so numerous, assemble things so scattered, examine things so inaccessible? (2) Old age is at my heels and accuses me of having used up my years in fruitless pursuits. Let us press on all the more, and let hard work repair the losses of a misspent life. Let night be added to day, let business affairs be cut back, let there be no more anxiety about property situated far from its owner, let the mind have time entirely for itself, let it turn to contemplation of itself at least at the very end.

Varro had begun his *De re rustica* with the thought that he was starting the work in old age and so needed to hurry (*R.*1.1.1),[25] but to this theme Seneca adds that old age accuses him of having wasted his years on fruitless pursuits. He is not specific about how his life has been misspent or what the fruitless pursuits were, except that he does refer to the distractions of owning distant property,[26] but, as various scholars have said, someone reading this in the early 60s A.D. would surely have thought of Seneca's public career as well. Before he wrote the *Natural Questions* he had enjoyed a long and close association with Nero, but in the early 60s relations with Nero became strained, and in A.D. 62 he sought Nero's permission to withdraw from the imperial court. He was refused it, but he

[22] On the lists of contents, see A. Doody, 'Finding facts in Pliny's encyclopaedia: the summarium of the *Natural History*', *Ramus* 30 (2001), 1–22.

[23] See also Williams, op. cit. (n. 5, 2005a), 161–2, on the differences between Seneca's and Pliny's view on public and private activities.

[24] 3.praef.2; 'the losses of a misspent life'.

[25] The parallel was noted by P. Parroni, 'Sul contributo del *Genevensis lat.* 77 al testo delle *Naturales Quaestiones* di Seneca', *RFIC* 120 (1992), 165–73, at 169.

[26] Which may refer to his property in Corduba (see M. T. Griffin, *Seneca: A Philosopher in Politics* (1976), 288 n. 6), or in Egypt, where he owned corn-growing estates (see *Ep.* 77.1–3; J. M. André, 'Sénèque et l'Égypte: esquisse d'un bilan', *REL* 81 (2003), 172–89, at 175–6).

withdrew into relative seclusion nevertheless. It is plausible to assume that Seneca began writing the *Natural Questions* after that withdrawal, though it is not impossible that he at least began planning it before the formal rift with Nero.[27] Whatever the exact date, the opening of Book 3 could certainly be read as implying that his public career had been a waste, and he must redeem the misspent time.[28]

One might connect the opening with a later section of the preface of Book 3, where Seneca launches unannounced into an attack on the writing of history:

> 3.praef.5–6 Consumpsere se quidam dum acta regum externorum componunt quaeque passi inuicem ausique sunt populi. quanto satius est sua mala extinguere quam aliena posteris tradere! quanto potius deorum opera celebrare quam Philippi aut Alexandri latrocinia, ceterorumque qui exitio gentium clari non minores fuere pestes mortalium quam inundatio qua planum omne perfusum est, quam conflagratio qua magna pars animantium exarsit! (6) quemadmodum Hannibal Alpes superiecerit scribunt, quemadmodum confirmatum Hispaniae cladibus bellum Italiae inopinatus intulerit, fractisque rebus, etiam post Carthaginem pertinax, reges pererrauerit contra Romanos ducem promittens, exercitum petens, quemadmodum non desierit omnibus angulis bellum senex quaerere: adeo sine patria pati poterat, sine hoste non poterat!
>
> Some people have worn themselves out writing down the deeds of foreign kings and the sufferings and audacities of nation against nation. How much better it is to extinguish one's own evils than to transmit the evils of others to posterity! How much more important to praise the works of the gods rather than the robberies of Philip or Alexander, and of others who were made famous by the destruction of nations, and were no lesser disasters to mortals than a flood that has swept over all the plains, or a conflagration in which a large proportion of living things has burnt! (6) They write of how Hannibal overcame the Alps, how he unexpectedly brought to Italy a war that had been strengthened by the disasters in Spain, how when his power was broken, even after Carthage, he stubbornly wandered from one king to the next offering a commander against the Romans, asking for an army, how as an old man he did not stop looking for war in every nook and cranny: he could manage without a homeland, but not without an enemy!

One might ask whether Seneca is here dismissing only foreign history; he mentions Philip, Alexander, Hannibal, but could Roman history be exempt? However, this is not plausible, for when he goes on to talk of Hannibal's crossing of the Alps, his war in Italy, and later career, we are firmly in the territory of Roman historical writing: Livy is implicitly dismissed as much as, say, the Greek historians of Hannibal, or the historians of Alexander. This is not Seneca's only attack on historical writing: he attacks the pedantry of history in *Dial.* 10.13, and the mendacity of historians comes under fire elsewhere in the *Natural Questions* and in other works.[29] Nevertheless this attack is different, for he is not just criticizing the faults of historians, he is criticizing the very enterprise of writing history at all. He ignores any argument that history also records examples of good behaviour, such as he is ready enough to cite throughout his philosophical works; and the spirit of his attack conflicts with the more generous comments he makes on individual historians elsewhere. Livy was a historian whose historical work he knew and several times refers to — and Livy had also

[27] Seneca's request and Nero's refusal: Tac., *Ann.* 14.53–6. Seneca's reference to his distant property in 3.praef.2 may be compared with the way in which Tacitus makes Seneca emphasize how much property and wealth Nero has given him. See the Appendix on the date of composition.

[28] So e.g. V. Sørensen, *Seneca. The Humanist at the Court of Nero* (Eng. trans., 1984), 218–20; Gigon, op. cit. (n. 12), 331; cf. Gauly, op. cit. (n. 3), 214–18. Gauly (p. 215) hesitates as to whether the first person here is necessarily to be identified with Seneca the author, though in the end he thinks it can be. But surely the conventions of a preface mean that the first person would inevitably be identified with the author. Of course there might be a question whether any first-person statements were biographically true of the author or not, but that is a slightly different issue.

[29] 4b.3.1, 7.16.1. On Seneca and history see F. J. Kühnen, *Seneca und die römische Geschichte*, Diss. Köln (1962), where his views on historians are discussed at 18–28, and *Nat.* 3.praef. at 18–20.

written philosophical works. Seneca's own father had written history, and in his consolation to Marcia Seneca speaks highly of the history of her father Cremutius. Furthermore, Seneca was surely aware that the Stoic Posidonius, whom he often refers to in the works of his final years, had written history.[30] Finally, Seneca elsewhere displays a lively interest in Roman history, particularly the end of the Republic and the reign of Claudius.[31]

Perhaps Seneca had changed his views on historiography towards the end of his life,[32] but whether he had or not, the position of this attack, in what was originally the preface to the whole *Natural Questions*, gives it a programmatic importance: effectively Seneca is himself rejecting historiography as a literary and intellectual pursuit in favour of philosophy. And his vehement rejection flew in the face of Roman tradition. To write history had usually been regarded as a worthy goal for a Roman man of letters or of public affairs, especially when one's political career was over. Sallust had turned to history when forced to withdraw prematurely from politics; Cicero occasionally flirted with the idea of writing history.[33] Whether Seneca himself felt the slightest inclination to write history at this late stage of his life, or whether others were suggesting he should, is unknowable, and perhaps beside the point. Certainly here, late in his career, he is setting his face against a traditional Roman occupation.

Summary

In the passages of the *Natural Questions* examined so far we find that Rome and her empire are marginalized, cut down to size, in comparison to the vastness of the cosmos, and traditional Roman pursuits, both military and historiographical, are disparaged in contrast to philosophy and its benefits. Lucilius, though he is in imperial service, is exhorted to detach himself as far as possible from the corrupt and corrupting circles in which he has to work, while Seneca disowns his past life. We can once again contrast the elder Pliny: by this date he had written his history of the German wars, and was very likely working on his continuation of Aufidius Bassus' history, which he mentions as still unpublished in the preface to his *Natural History* (Praef. 20); within ten years of Seneca's death he was prefect of the fleet at Misenum, at the hub of Roman sea power and imperial trade, and was writing his *Natural History*, an inventory and a eulogy of the wonders of Nature, but also of the Roman world.

III THE PRESENCE OF ROME

The Roman Imperial Context

The picture of Rome marginalized given in Section II is a partial picture, for at the same time the work is deeply embedded in the geography and history of the Roman world. In Book 4a, when Seneca promises to transport Lucilius away from Sicily and its marvels (4a.1.1), he does not take him up into the atmosphere, or down below the earth, but to the province of Egypt, to the Nile and its annual flood, with its crucial importance for Rome's corn supply. Egypt is particularly prominent, but a glance at the index of proper names in any modern edition will show that the work abounds in references to specific places within and beyond the boundaries of the Roman Empire: dozens of regions, provinces, peoples,

[30] Livy in Seneca: Kühnen, op. cit. (n. 29), 33–7; Livy's philosophical works: Sen., *Ep.* 100.9. Seneca's father: Sen., *De Vita Patris* fr. 98–9 Haase, F97 Vottero. Cremutius Cordus: *Dial.* 6.1.3–4. Posidonius: *FGH*87; F51–78 Edelstein-Kidd. Seneca's references to Posidonius are all in the *Natural Questions* and *Epistles*, both written in the 60s A.D.

[31] See Griffin, op. cit. (n. 26), 182–221; J. M. André, 'Sénèque et la philosophie de l'histoire', *Faventia* 17 (1995), 27–37; L. Castagna, 'Storia e storiografia nel pensiero di Seneca', in A. Setaioli (ed.), *Seneca e la cultura* (1991), 89–117.

[32] Suggested by Kühnen, op. cit. (n. 29), 23.

[33] Cicero and history: *Leg.* 1.5, *Att.* 16.13a.2 (cf. 14.14.5).

seas, rivers, mountains, cities, islands, and so on, are referred to. For the reader there is no escape from the Roman world. Given the topics covered in the work, it is not surprising that it includes a lot of detailed information about rivers, local winds and climate, specific earthquakes and volcanic eruptions, and so on. Much of this information was already in the earlier meteorological tradition, but some of it was new, and some examples of recently acquired information will be mentioned in the next section.

Not just the geography of the Roman world, but Roman history too is regularly enlisted (despite Seneca's strictures on historiography, discussed above) to illustrate both physical and moral arguments. For instance, he recalls the wind that blew in the faces of the Romans at the Battle of Cannae, or the halo that appeared round the sun when Augustus entered Rome in 44 B.C.;[34] or on the moral side, Crassus illustrates the destructiveness of greed, Hostius Quadra exemplifies the misuse of mirrors, and a dictum of Laelius displays a sound attitude to life and death.[35]

Places and people come in à propos of specific meteorological or moral themes and arguments, and there is no desire to catalogue or inventory the geography or the products of the Roman Empire, in the way that the elder Pliny does.[36] Sometimes Seneca declares that complete cataloguing is unnecessary (in the case of rivers whose level rises and falls on a regular annual cycle, 3.16.1) or impossible (in the case of local winds peculiar to every region, 5.17.5), though when he is dealing with less common meteorological phenomena there may be lists (1.14.1–2, on different kinds of fire in the sky), and he declares that cataloguing is essential in the case of phenomena as rare as comets, if any progress is to be made in understanding them (7.3.1–4.1). Sometimes there are classifications by genus and species (e.g. 2.40 on the classification of lightning according to the damage it causes), but Seneca, by drawing attention to competing classifications, displays awareness of the provisionality of such categorization (see 2.49–51 on Caecina's and Attalus' classifications of the meanings of lightning; 5.16–17 on the number of winds). So at the level of terrestrial or meteorological phenomena there is no aspiration to completeness. But there is another level at which total grasp is the goal:

> 1.praef.17 haec inspicere, haec discere, his incubare, nonne transilire est mortalitatem suam et in meliorem transcribi sortem? 'quid tibi' inquis 'ista proderunt?' si nihil aliud, hoc certe: sciam omnia angusta esse mensus deum.
>
> To look into all this, to learn about it, to brood over it, is that not to transcend one's mortality and be transferred to a higher status? 'What use will that be to you?' you say. If nothing else, at least this: I shall know that everything is puny when I have measured god.

Measuring god is a striking concept, and it is obviously not to be achieved by relentless cataloguing or calculation, only by a sweeping, total grasp of the vast scale of the universe and its god.[37]

New Knowledge

Seneca sometimes draws on new evidence that has emerged from the Roman world within his own lifetime or slightly earlier. He appeals to his own experience of growing vines for evidence of the depth to which rain penetrates the soil (3.7.1; but the generalization he bases on his observations is wrong); he mentions having seen a floating island at Cutiliae (3.25.8). In Book 4a one of the prefects of Egypt, Balbillus, is mentioned by name as the

[34] Cannae: 5.16.4; Augustus: 1.2.1; more examples below, p. 52.

[35] Crassus: 5.18.10; Hostius Quadra: 1.16; Laelius: 6.32.11.

[36] On Pliny's cataloguing see G. B. Conte, *Genres and Readers: Lucretius, Love Elegy, Pliny's Encyclopedia* (Eng. trans., 1994), 67–104; S. Carey, *Pliny's Catalogue of Culture: Art and Empire in the* Natural History (2003), 17–40.

[37] On the unitariness of Seneca's conception of the cosmos see Williams, op. cit. (n. 5, 2005a), and in this volume, pp. 124–46; and, on other aspects of Seneca's inventory of the world, pp. 138–9.

authority for an account of battles between dolphins and crocodiles, and the reckless bravery of local tribesmen (4a.2.13–15); later in the book Seneca appeals to the knowledge of those who currently sail the Atlantic coast of Africa (4a.2.24). In Book 6 he records that Nero had sent two centurions to look for the source of the Nile (6.8.3–4, discussed below). Given the loss of the second half of Book 4a on the Nile we cannot know whether this expedition had been mentioned in that book, or the news had reached Rome and Seneca after its composition. In Book 6 the recent Campanian earthquake is hot news: much is made of sensational stories of statues splitting in two, a huge flock of sheep being killed, and people being driven mad, all of which, Seneca insists, have natural explanations (6.1.3, 27–30); but the earthquake also disproved the old view that earthquakes never occurred in winter (6.1.1); and he records the observations by an unnamed man, learned and distinguished, of how mosaics and stone walls were affected by the earthquake (6.31.3). In Book 7 Seneca refers to the recent comets of A.D. 54 and 60 (7.6.1, 17.2), and describes their paths in some detail (7.21.3–4). Book 1 refers to appearances of St Elmo's fire around the time of the deaths of Augustus, Sejanus, and Germanicus (1.1.3; A.D. 14, 31, and 19 respectively), and of a halo around the sun in 44 B.C. (1.2.1); the conclusion of the book gives a long account of the depravities of Hostius Quadra in the reign of Augustus (1.16). Book 2 refers to a volcanic island that appeared in A.D. 46 (2.26.6).

Such passages do not serve merely to add some superficial Roman colouring to a text basically derived from Greek sources, as was the view of late nineteenth- and early twentieth-century scholars. They testify, rather like Pliny's *Natural History*, to the way in which the Roman world was continually extending knowledge about the natural world. But there is a difference in the quantity of such material in Seneca and Pliny, reflecting a difference between their respective subject matter. The Roman Empire did enable rich new discoveries about the geography, the people, the animals, plants, minerals, and so on, of the known world, and Pliny deals with all these aspects of nature. Seneca, however, is concerned with explanations, not just with listing facts, and his subject is meteorology, on which the Roman Empire could not yield all that much new information. Within the limitations of ancient technology,[38] there was going to be only limited progress in the subject.

New Technology

There are several attacks on luxury in the *Natural Questions*. The theme was an old one, though Seneca's targets are not luxury in general, but recent developments in luxurious living that had appeared during his lifetime or shortly before it, some of which exploited the latest technology. There was a recent fad for watching the death-throes of mullets on the dining-table before they were cooked; this benefited from the availability of glass jars large enough for one to watch the changing colours of the mullet dying inside (3.17.2, 18.4). The practice of preserving and transporting snow to cool drinks during summer may have been introduced to Rome fairly recently (4b.13).[39] During Augustus' reign Hostius Quadra lined his bedroom with magnifying mirrors, so that he could watch his own sexual activities in them (1.16). But at the same time the technology could be beneficial and could help Seneca's investigations.[40] Glass jars may be used to watch a dying mullet, but they also enable the observation that writing seen through a glass jar filled with water is magnified (1.6.5), as is fruit inside a glass jar (1.3.9, cf. 1.6.5), and an irregularly-shaped

[38] And, one should add, limitations in people's ability to imagine what could be done with technology that was available; for sometimes, with the benefit of hindsight, we can see what could have been achieved with the resources they possessed: see J. J. Hall, 'Was rapid scientific and technical progress possible in antiquity?', *Apeiron* 17 (1983), 1–13.

[39] See M. Turcan-Deleani, 'Frigus amabile', in M. Renard and R. Schilling (eds), *Hommages à Jean Bayet*, Collection Latomus 70 (1964), 691–6.

[40] For a broader discussion of how the vices castigated in the *Natural Questions* mirror or mimic the virtues and philosophical wisdom, see Berno, op. cit. (n. 5).

glass rod demonstrates refraction (1.7.1); these observations are fed into discussion of the rainbow. Mirrors may have been misused by Hostius Quadra, but reflections in a bowl of oil or pitch allow safe observation of the sun during eclipses (1.12.1, 17.2–3, cf. 1.3.6), mirrors enable us to acquire self-knowledge to guide our behaviour (1.17.4), and the condensation of breath in droplets on a mirror illustrates one stage in the formation of hail (4b.3.3). There are further appeals to technology: the water organ illustrates the tension of air (2.6.5), so does the sprinkling system in the amphitheatre (2.9.2). Seneca may have believed that the pursuit of technological innovation is no business of the philosopher (*Ep.* 90), but he is ready to draw on recent technology when it will help his argument.

Summary

There is no formal contradiction between the withdrawal from Rome explored in Section II and the anchoring within the Roman world explored in Section III, but there is a difference of perspective. On the one hand, there is the all-embracing vision of the cosmos as a whole, presented most forcibly in the preface to Book 1, where the true goal of human beings is to understand the heavens and the god who controls them — from that perspective the Roman world is insignificant. On the other hand, the subject-matter of the work is not astronomy or theology but meteorology, which is concerned with physical phenomena that occur on the earth's surface, or not far from it (in cosmic terms), and directly affect human beings living there; so in practice there is no getting away from the Roman world.

IV THE COMMUNITY OF SCHOLARS

Greek and Latin

For Seneca, as for other Latin writers, his attitude towards the Greeks is an important constituent of his self-representation as a Latin writer. Unlike Cicero in his philosophical works, Seneca never advertises or seeks to justify the fact that he is writing in Latin. But then he is writing a century later, in an age when the challenge of rivalling the great Latin writers of the late Republican and Augustan periods is as important as, or more important than, the challenge of rivalling the great writers of Greece. Inwood has argued that Seneca's use of Latin for his philosophical writing reflects the 'micro-climate' in which he grew up, 'limited in time to the generation shaped by Sextius' students and quite possibly limited to the social circles in which those students happened to move', and maybe further limited to the circle of Seneca's father.[41] Gauly, too, has emphasized the relative scarcity of earlier philosophical writing in Latin, and the fact that writing philosophy in Greek was still a live option for a Roman (witness Annaeus Cornutus or Musonius Rufus, and later Marcus Aurelius), and he has argued that Seneca chose to write in Latin in order to appeal to his desired audience, the senatorial class, with their traditional suspicion of foreign philosophy.[42] But, though these views on Seneca's context and audience may be sound, they perhaps over-emphasize the rarity of philosophical writing in Latin, for Seneca presents a different picture in *Ep.* 100.8–9, where he says that, as a writer of philosophy, Papirius Fabianus comes an honourable fourth behind Cicero, Asinius Pollio, and Livy. The argument that fourth place is an honourable position means that there were others (*Ep.* 100.9 'Vide tamen quam multos antecedat qui a tribus uincitur et tribus eloquentissimis', 'Consider how many writers are surpassed by the one who is outshone by just three, and three very eloquent ones'). The passage is a reminder of how much Latin

[41] B. Inwood, 'Seneca in his philosophical milieu', *HSCP* 97 (1995), 63–76, quotation from p. 68; reprinted in *Reading Seneca*, op. cit. (n. 16), 7–22, quotation p. 12.
[42] Gauly, op. cit. (n. 3), 38–51; doubts are aired by Limburg, op. cit. (n. 6).

philosophical writing is lost to us. Musonius had a very different career, with long spells of exile in Greek-speaking parts, and as far as we know did not write anything himself; Cornutus was avowedly writing for young pupils. Neither has a strong claim to be paradigmatic of Roman philosophical writing in Seneca's day.[43] In any case one should not focus just on the quantity of earlier Latin philosophical writing: after all, Cicero towered above the others, however few they were, and rivalry with Cicero is likely to have been a vital, though unexpressed, motive for Seneca's philosophical writing. The surge of philosophical writing in Seneca's last few years can be seen as a parallel, maybe a challenge, to the similar flood of *philosophica* produced by Cicero in 45–44 B.C.[44]

While the decision to write in Latin rather than Greek does not appear to be an issue in the *Natural Questions*, in one clearly defined area the Greek-Latin polarity is still important, when it comes to finding Latin equivalents for Greek technical terms.[45] However, here also things had moved on since the age of Lucretius and Cicero, and Seneca is not a pioneer in philosophical Latin in the same way that they were. But he still has decisions to make about particular terms, and discusses such problems from time to time in the *Natural Questions*.[46] At 1.11.2–3 he debates how to express παρήλια (*parhelia*) in Latin, and decides on the loan-word *parhelia* rather than *imagines solis* or *soles*. Similarly he prefers the loan-word *horizon* to the Latin *finitor* and *finiens* (5.17.3–4). When it comes to winds (5.16.3–6), some Greek names have no Latin equivalent (καικίας, θρᾳκίας, λευκόνοτος), other winds have separate Latin and Greek names (*subsolanus*/ἀφηλιώτης; *africus*/λίψ; *auster*/νότος), and in other cases the Greek names have become fully naturalized in Latin alongside the native names (*eurus*/*uolturnus; zephyrus*/*fauonius*), or only partially naturalized (5.16.5 '... corus ... qui apud quosdam argestes dicitur', '*corus* [native Latin]... which some people call *argestes*').[47] He once talks of a Greek word acquiring citizenship: 'sed et eurus iam ciuitate donatus est, et nostro sermoni non tamquam alienus interuenit' (5.16.4 'but *eurus* too has been granted citizenship, and has a place in our language without being like a foreigner'). He uses the metaphor of words acquiring citizenship elsewhere too (*Ep.* 120.4), and it can imply the superiority and mastery of the Latin language over the Greek, a form of intellectual imperialism.[48]

Metaphors for Debate

Debate between Seneca and those with different views is fundamental to the *Natural Questions*. The nature of the debate will be examined below (pp. 56–8); here the focus is on the terms in which it is described, for they occasionally have a distinctively Roman flavour. Sometimes the language of the Roman law courts is used, as Maurach and others

[43] Gauly attaches considerable importance to Quintilian's discussion of philosophy in *Inst.* 10.1.123–31. Quintilian, it should be noted, omits (in this context) Asinius Pollio and Livy, as well as Fabianus, which shows how different his priorities and literary tastes were from those of Seneca, his main target in the passage.

[44] The importance of Cicero for Seneca is rightly emphasized by Gigon, op. cit. (n. 12), and Limburg, op. cit. (n. 6).

[45] For general discussions of this issue see M. Puelma, 'Die Rezeption der Fachsprache griechischer Philosophie im Lateinischen', *Freiburger Zeitschrift für Philosophie und Theologie* 33 (1986), 45–69; R. G. G. Coleman, 'The formation of specialized vocabularies in philosophy, grammar, and rhetoric: winners and losers', in M. Lavency and D. Longree (eds), *Actes du Ve Colloque de Linguistique latine* (1989), 77–89. For a broader survey of Seneca's views on the Greek and Latin languages, taking his other works into account, see A. Setaioli, 'Modernità del pensiero di Seneca sul linguaggio e l'espressione', in H. W. Schmidt and P. Wülfing (eds), *Antikes Denken — Moderne Schule. Beiträge zu den antiken Grundlagen unseres Denkens*, Gymnasium 9 (1988), 236–43, and (incorporating some of the same material), Setaioli, op. cit. (n. 5), 11–46.

[46] On the occasional editorial problems of whether to use the Greek or Latin alphabet in such passages, see D. Vottero, 'La grafia dei termini d'origine greca nelle opere filosofiche di Seneca', *AAT* 108 (1974), 311–39.

[47] *argestes* is found earlier in Var. ap. Seru. auct. *Aen.* 8.710, Vitr. 1.6.10, and Ovid, *F.* 5.161.

[48] For granting a word citizenship see Suet., *gram.* 22.2 (the grammarian M. Pomponius Marcellus addressing Tiberius) 'tu enim, Caesar, ciuitatem dare potes hominibus, uerbo non potes'; cf. Dio 57.17.1–3; *OLD* s.v. *ciuitas* 5; *TLL* 3.1240.13–22. On *Nat.* 5.16–17 see Williams, op. cit. (n. 5, 2005b), 431–5.

have observed.[49] Other people are regularly 'witnesses' for particular points; sometimes Seneca is a witness himself.[50] The word *argumentum* does not necessarily suggest a law court, but the association may be specifically evoked (7.16.1 'Contra argumenta dictum est: contra testes dicendum est', 'We have spoken against the arguments; we must speak against the witnesses'). Some topics are the subject of litigation:

> 4b.5.1 Rem a nostris positam nec dicere audeo quia infirma uidetur, nec praeterire. quid enim mali est aliquid et faciliori iudici scribere? immo, si omnia argumenta ad obrussam coeperimus exigere, silentium indicetur. pauca enim admodum sunt sine aduersario, cetera, etsi uincunt, litigant.
>
> There's a point made by our people [i.e. the Stoics] that I dare not either mention, since it seems flimsy, or omit. But what harm is there in writing something for a more lenient judge too? Indeed, if we started applying strict quality control to all our arguments, silence would be in order. For few of them are unopposed, and the rest, even when they win, still contest the case.[51]

Note how here the reader is explicitly cast as a judge. Seneca can be advocate for two different sides in a dispute in turn (2.35.1 'permitte mihi illam rigidam sectam tueri eorum qui …', 'Allow me to represent that severe sect of people who …', 2.37.1 'Agere nunc causam eorum uolo qui …', 'Now I want to present the case of those who …'; the issue is whether omens can be averted by sacrifices). The word *quaestio*, 'inquiry', of the work's title can also denote a trial or a court. It is debatable how far that meaning is implicit in the title, but it certainly surfaces at 4b.4.1 'Poteram me peracta quaestione dimittere, sed bene mensum dabo, et quoniam coepi tibi molestus esse, quidquid in hoc loco quaeritur dicam …' ('I could dismiss myself, with the inquiry completed, but I shall give good measure, and since I have begun to annoy you, I shall speak about all the inquiries that people make about this topic …').[52] When asked why Jupiter strikes the innocent and spares the guilty with his thunderbolts, Seneca replies (2.46): 'in maiorem me quaestionem uocas, cui suus dies, suus locus dandus est' ('You are summoning me to a bigger inquiry, which must be given its own date, its own place'), using the terminology of granting a date for a trial.[53]

A different kind of legal terminology is found at the start of Book 5, which begins with an extended discussion of the definition of wind. At the end Seneca says, in response to an objection that a lengthy definition is unnecessary (5.1.5):

[49] G. Maurach, 'Zur Eigenart und Herkunft von Senecas Methode in den Naturales Quaestiones', *Hermes* 93 (1965), 357–69, at 363, 365–6 (reprinted in idem (ed.), *Seneca als Philosoph* (1987), 305–22, at 313, 316–17); he gives only a few examples. Cf. H. Strohm, 'Beiträge zum Verständnis der *Naturales Quaestiones* Senecas', in H. Bannert and J. Divjak (eds), *Latinität und alte Kirche. Festschrift für Rudolf Hanslik zum 70. Geburtstag*, Wiener Studien 8 (1977), 309–25, at 311, 'Seneca liebt Bilder aus dem forensischen Bereich'; M. Armisen-Marchetti, *Sapientiae facies. Étude sur les images de Sénèque* (1989), 152–3. On Seneca's application of judicial language to moral judgement see B. Inwood, 'Moral judgement in Seneca', in S. K. Strange and J. Zupko (eds), *Stoicism: Traditions and Transformations* (2004), 76–94, reprinted in *Reading Seneca*, op. cit. (n. 16), 201–23.

[50] Other people: *testis* 4a.2.24, 5.18.16, 6.23.2, 6.24.6, 7.16.1; *testari* 3.24.4; *testimonium* 4a.2.22, 24, 7.15.1. Seneca as *testis*: 4b.3.1. See also the use of *spondere* at 4b.3.1 and 7.14.4 (accepting Gertz's conjecture *spondere* for *respondere*). Witnesses are also important for one's moral behaviour, see 4a.praef.18.

[51] There can also be court cases against vices, cf. 4b.13.1.

[52] For *dimitto* of dismissing a court cf. *OLD* s.v. 2b, *TLL* 5.1.1210.12–30; for *quaestionem peragere* V. Max. 6.1.7, Quint., *Inst.* 7.3.28, *Decl.* 307.9. Maurach, op. cit. (n. 49), 365 (repr. p. 316), stresses the legal connotations of *quaestio* in the title, a view accepted by H. Zehnacker, 'La météorologie dans les *Questions Naturelles* de Sénèque', in C. Cusset (ed.), *La Météorologie dans l' Antiquité: entre science et croyance. Actes du Colloque International Interdisciplinaire de Toulouse 2–3–4 mai 2002*, Centre Jean Palerne. Mémoires XXV (2003), 379–93, at 381.

[53] cf. also 3.1.2 'et illi [sc. Nilo] suum diem dabimus', *Ep.* 94.52. For *diem dare* in a legal context cf. Plin., *Ep.* 3.9.32, 6.31.9, *Ep. Tra.* 10.81.3, Fronto, *De feriis Alsiensibus* 3.7, p. 231, 4 Van Den Hout.

> sed siue haec breuitas satis a calumnia tuta est, hac utamur, siue aliquis circumspectior est, uerbo non parcat cuius adiectio cauillationem omnem poterit excludere. nunc ad ipsam rem accedamus, quoniam satis de formula disputatum est
>
> Well, if this brief version is sufficiently protected against false accusations, let us use it, but if someone is more cautious, he should not hold back from adding a word that will be able to prevent any quibbling. Now let us move on to the real business, since we have argued enough about the form of words.

This 'form of words' is the *formula* arrived at in the first, *in iure*, stage of a civil law procedure, when the terms of the dispute were agreed by plaintiff and defendant.[54] In the context *calumnia* probably has its legal force, a false or vexatious accusation: we all know what wind is, and should not make quibbling objections to a short definition.[55]

As well as legal language, Seneca occasionally uses the language of senatorial debate. At 3.15.1 he says: 'Quaedam ex istis sunt quibus adsentire possumus, sed hoc amplius censeo: . . .' ('There are some points here that we can agree with, but I would add this to the motion: . . .').[56] He says at 6.19.1 'Metrodorum Chium, quia necesse est, audiamus quod uult sententiae loco dicentem' ('Let us hear Metrodorus of Chius — since we must — saying what he wants when it is his turn to speak'), which alludes to the right of every senator to speak when his turn came.[57] At 6.16.1 he talks of the theory 'in quod fortasse fiet discessio' ('for which we shall perhaps vote'), using the terminology of senatorial voting procedure.[58]

Some of these passages have a light-hearted tone, but nevertheless, cumulatively, describing the argument in terms of Roman legal or political debate implies that all contributors have an equal right to be heard,[59] and it presents Seneca as an impartial, objective, judge of earlier theories.[60] At the same time it can be seen as a form of appropriation of Greek philosophy into a Roman context, using Roman forms of argument, and it may be part of a strategy to make the work more appealing to a traditionally-minded Roman readership who need persuading that this sort of philosophy is important. But it could also prompt the further and very different reflection that judging and debating philosophical topics may be in reality more important and more satisfying than legal and political life itself.

Critical Doxography

The *modus operandi* of the meteorological discussions in the *Natural Questions* is critical doxography: Seneca describes and discusses the views of a series of thinkers from the past, and then gives his own view, which usually coincides with one of the earlier views he has

[54] See Armisen-Marchetti, op. cit. (n. 49), 122–3, for Seneca's use of the *formula* image.

[55] There is further legal language, of the adjournment of a trial, applied to the physical world itself at 7.10.1. Maurach, op. cit. (n. 49), 361, 363 (repr. pp. 310, 313), says that *refellam* at 1.3.9, and *contradictio* and *sententiam probare* at 1.5.11, are legal terms; but none of them is exclusively legal, nor are the legal associations evoked in the contexts.

[56] We know from another passage of Seneca that *hoc amplius censeo* is wording used in the Senate to add a rider to another senator's proposal: *Dial.* 7.3.2 'Itaque aliquem sequar, aliquem iubebo sententiam diuidere, fortasse et post omnes citatus nihil inprobabo ex iis quae priores decreuerint et dicam "hoc amplius censeo"'. The phrase is also found at Cic., *Phil.* 13.50. Sen., *Ep.* 21.9 refers explicitly to using senatorial procedure in philosophy.

[57] cf. *apoc.* 10.1; Goodyear on Tac., *Ann.* 2.33.1 'loco sententiae promere'; *TLL* 7.2.1585.69–84.

[58] See *TLL* 5.1.1310.4–26.

[59] cf. Zehnacker, op. cit. (n. 52), 388, the Greek philosophers are all 'des témoins égaux devant la loi, que l'on cite à la barre pour entendre ce qu'ils ont à dire, et sans trop savoir à l'avance comment on pourra les départager'.

[60] So Maurach, op. cit. (n. 49), 363 (repr. p. 313).

described, but occasionally may not.[61] He does the same in other works, but the *Natural Questions* is distinctive because of the sheer number of earlier views involved. It is true that he often presents the rival views anonymously, particularly in Books 3 and 5, but even then there is a strong sense of a dialogue between different theories. The format was inherited from Aristotle's *Meteorologica*, which Seneca may have known directly, or perhaps rather via Posidonius or some other intermediary.[62] He is constantly arguing, not just with voices from the past, but with the 'anonymous interlocutor', the voice that regularly pops up with a question about, or an objection to, what Seneca has just said. Inwood has stressed Seneca's ability to do primary philosophy, to think philosophically, in Latin, and he does that in the *Natural Questions* too.[63] We are meant to be impressed with the quality of Seneca's arguments and persuaded to accept his views, but at the same time the texture of argument, the interventions of the interlocutor, can be a model for the reader to read Seneca's own text critically.[64] As we shall see shortly, he tells us that in the long term his ideas will be superseded; so in the short term we may well have our own questions and objections.

Though the route of critical doxography was not new, Seneca's use of it has distinctive features. One that has often been remarked upon is Seneca's readiness to criticize fellow Stoics just as vigorously as he criticizes philosophers of other schools. He is insistent on his own intellectual independence, on his right to speak his own mind freely and to dissent even from members of his own school, whom he sometimes criticizes in mocking tones.[65] A second feature that is often highlighted is his strong sense of the progress of knowledge, and of the essential role played by everyone in the long process of discovery. Early thinkers were often crude in their ideas, but they deserve respect because they took the essential first steps, and there is a continuous tradition stretching from their early, clumsy efforts to Seneca's own day:

> 6.5.2–3 plurimum ad inueniendum contulit qui sperauit posse reperiri: (3) cum excusatione itaque ueteres audiendi sunt. nulla res consummata est dum incipit; nec in hac tantum re omnium maxima atque inuolutissima (in qua, etiam cum multum acti erit, omnis tamen aetas quod agat inueniet), sed et in omni alio negotio longe semper a perfecto fuere principia.
>
> Anyone who hoped that discovery was possible made a major contribution to the search: (3) so we should listen to the early writers indulgently. Nothing is completed while it is beginning; not just in this subject, the most important and most obscure of all (on which, even when much has been achieved, still every generation will find something to contribute), but in every other pursuit the starting point is always far from the culmination.

[61] On Seneca's method see Maurach, op. cit. (n. 49). Examples of independence: Seneca presents his views on comets as independent, even if not totally new (see below); at 6.21.2 he adds to Posidonius' two kinds of earthquake a third, with a Latin name, *tremor terrae*, 'earth tremor'; and his account of halos (1.2) may be his own, see I. G. Kidd, *Posidonius, Vol. II, The Commentary* (i) (1988), 498, though P. Steinmetz, *Die Physik des Theophrast*, Palingenesia 1 (1964), 200–1, attributes it to Theophrastus, cf. Gross, op. cit. (n. 5), 38–40; 2.53.1–2 also looks independent. Inwood, op. cit. (n. 16), 141 (repr. p. 183), suggests that Seneca's readiness to accept a variety of explanations of the same phenomenon is another indication of his 'methodological independence from his school'.

[62] On Seneca's knowledge of Aristotle see J. J. Hall, 'Seneca as a source for earlier thought (especially meteorology)', *CQ* 27 (1977), 409–36, at 410–16; Gross, op. cit. (n. 5), 323 and the cross-references there; Setaioli, op. cit. (n. 5).

[63] Inwood, op. cit. (n. 41).

[64] Cic., *Luc.* 7 says explicitly that, since he himself is ready to criticize anybody else, he cannot object to other people disagreeing with him.

[65] See 1.8.4, 2.21.1, 4b.3.1–2, 4b.5.1, 4b.6.1, 7.20.1, 7.22.1. Of course non-Stoics can be criticized just as fiercely too, cf. e.g. 3.14.1–2 on Thales; 6.19.1 on Metrodorus, quoted above, p. 56; 7.13.2, 14.1 on Artemidorus; 7.16.1–2 on the historian Ephorus; at 6.26.2 *philosophi* in general are dubbed a *credula natio* (prompting misguided attempts to emend *philosophi*); also, in milder tones, 1.1.2 on Aristotle. Gigon, op. cit. (n. 12), 318–19, suggests that Seneca's assertions of his independence are inspired by Cicero's (e.g. at *Luc.* 7–9), and notes the virtual absence of the early Stoics from the *NQ* (only Zeno is mentioned, once, at 7.19.1).

The parenthesis in the second sentence implies that the ideas of Seneca's own period, and of Seneca himself, are provisional, and that he firmly expects them to be superseded in future. His most vigorous pronouncements on how much remains to be discovered by future generations occur in Book 7 on comets. He is convinced, unlike Aristotle and the Stoics, that they are celestial bodies, not atmospheric phenomena, but it will be a long time before their courses are understood — just as the astronomical knowledge available in his own day has taken generations to acquire (7.25.4–7). He puts it pithily at 7.30.5: 'Quam multa animalia hoc primum cognouimus saeculo, quam multa [negotia] ne hoc quidem! multa uenientis aeui populus ignota nobis sciet, multa saeculis tunc futuris cum memoria nostri exoleuerit reseruantur' ('How many animals we have discovered for the first time in this generation, how many not even in this one! The people of a future age will know much that is unknown to us; much is being kept for the generations that will come after memory of us has disappeared'). As he thus positions himself in relation both to his predecessors and to his putative successors, he is implicitly claiming that his own views deserve as much attention as he gives to those of his predecessors, and that even after his own views are superseded in future, they still deserve to be recognized for their role in the development of the subject.[66]

The Virtual Academy

In effect Seneca is constructing a community of inquirers that stretches across the centuries, backwards as far as the Presocratics, and far forwards into future generations, and in this community no one is a privileged authority deserving to be treated with special respect. This intellectual community — a virtual academy, one might call it — includes not only philosophers writing on meteorology, but also astronomers like Eudoxus and Conon (7.3.2–3), and historians like Ephorus (7.16.1–2). Its past members are predominantly Greek, but it also includes Egyptians and Chaldaeans,[67] and a few Romans. Of the Romans, Papirius Fabianus, one of Seneca's teachers, is briefly cited for his views on the causes of the great flood (3.27.4). Balbillus, as we have seen, gave an account of the behaviour of dolphins and crocodiles in the Nile (4a.2.13). In Book 5 Varro is given a prominent role in mapping the wind-rose for the Romans (5.16). In Book 2 the Etruscans and their lightning-lore are discussed at length (2.32–51), and the Roman Caecina, along with Seneca's teacher Attalus, plays a major part in the analysis and exposition of the Etruscan system (2.49–51). Greek authorities may outnumber the Romans, and the Greeks may have set the standards of argument,[68] but the Romans, when they appear, are treated on equal terms.

Cicero in his philosophical dialogues with historical settings had sought to create a community of Romans of earlier generations who were conversant with philosophy, but this involved some idealization of their philosophical sophistication, and they had produced no

[66] Seneca's ideas on progress have been much discussed: see L. Edelstein, *The Idea of Progress in Classical Antiquity* (1967), 169–70; E. R. Dodds, *The Ancient Concept of Progress, and other Essays on Greek Literature and Belief* (1973), 23; Gauly, op. cit. (n. 3), 159–62, with further bibliography. Gauly is tempted to see Seneca's idea of the future progress of knowledge as devised purely for the sake of the argument in Book 7, but it is already implicit in 6.5.3, quoted above; and Book 4a on the Nile may have ended with an assertion of how much still remained to be discovered, cf. Lyd., *mens.* 4.107, p. 147, 3–6 Wuensch; Hine, op. cit. (n. 7), 189, 420–2 (cf. 7.32.4). See also *Ep.* 64.7. Williams, in this volume, p. 129 n. 26, valuably compares Seneca's stance towards earlier philosophers with Aristotle's use of the *endoxa* ('reputable opinions'). Of course Aristotle does not have Seneca's strong emphasis on future progress.

[67] Egyptians: 3.14.2, 7.3.2–3; and, to judge from Lydus, *De mensibus* 2.107, p. 146, 8–11 Wuensch (Hine, op. cit. (n. 7), 188, 398–401), the view of the Egyptians about the flooding of the Nile was given in the lost part of Book 4a. Chaldaeans: 7.4.1, 7.28.1.

[68] cf. 2.50.1 '... Attalus noster, uir egregius, qui Etruscorum disciplinam Graeca subtilitate miscuerat', '... our Attalus, an outstanding man, who had blended the Etruscans' discipline with Greek acuteness'.

Latin philosophical writings he could refer to.[69] The existence of Latin writing in each discipline was important to the Romans. Varro refers to Greek and Roman writers on agriculture (*R.* 1.1.7), though his list in 1.1.7–11 consists mainly of Greeks. Vitruvius (7.praef.14) contrasts the few Roman writers on architecture with the many Greek. Seneca, unlike Cicero, can use the books written by Romans of earlier generations, and can accept or criticize their views on a par with the views of Greek writers; and, unlike Vitruvius, he expresses no anxiety about the smaller number of Latin writers. Valerius Maximus with his separation of Roman and foreign anecdotes, and Pliny with his division of authorities into Roman and foreign in Book 1 of the *Natural History*, evince a similar pride that Rome can stand alongside the Greeks and others on equal terms. In their works the polarity between Roman and non-Roman is a structuring principle; but in Seneca there is little sign of such a polarity at all, except on the technical issues of Greek and Roman terminology, which has been discussed above. And certainly there is no trace of the anti-Greek prejudice that is so plain in Pliny.[70]

Though Seneca does not make the point himself in the *Natural Questions*, we might see in this imagined academic community some influence from the Stoic idea of the greater republic of men and gods, the world-state that transcends individual states, an idea that Seneca develops elsewhere; for one of his arguments is that we can serve the greater republic through the study of philosophy,[71] which is what he is doing in the *Natural Questions*. But it is not just when thinking about philosophy that Seneca breaks down the boundaries between Rome and other states. He generally uses *maiores nostri*, 'our ancestors', in the conventional way, to refer to the Romans of the past, but after an anecdote about the exploration of older mine workings by King Philip of Macedon he continues: 'illi maiores nostri quos celebramus laudibus, quibus dissimiles esse nos querimur, spe ducti montes ceciderunt, et supra lucrum sub ruina steterunt' (5.15.2 'Those ancestors of ours whom we are constantly praising, whom we complain that we so little resemble, were led on by optimism to hack into mountains, and stood on top of their gain, beneath their ruin'). Here *maiores nostri* means 'the ancestors of us human beings' not 'of us Romans'.[72] It is rather a striking exemplification of the unity of mankind as Seneca sees it.[73]

Summary

On the one hand, then, we find in Seneca a virtual community of scholars, beginning long before the Romans took any interest in philosophical writing, and stretching into the future too, a community in which Greeks and Romans and others are on an equal footing. On the other hand, there is the talk of granting Roman citizenship to Greek terms, and the application of specifically Roman legal and political terminology to the process of argument, which can all be seen as the trappings of Roman intellectual colonization of an

[69] On Cicero's portrayal of the elder Cato see J. G. F. Powell (ed.), *Cicero*, Cato Maior de Senectute (1988), 16–22. On embellishment of the astronomical abilities of C. Sulpicius Gallus by Cicero and others see A. C. Bowen, 'The art of the commander and the emergence of predictive astronomy', in C. J. Tuplin and T. E. Rihll (eds), *Science and Mathematics in Ancient Greek Culture* (2002), 76–111.

[70] See Inwood, op. cit. (n. 41), 72 (repr. p. 18) on the 'skin-deep' contempt for Greeks in *Ben.* 1.4.1. On Pliny and the Greeks, M. Beagon, *Roman Nature: The Thought of Pliny the Elder* (1992), 18–20, and index s.v. 'Greeks'.

[71] *Dial.* 8.4; cf. Griffin, op. cit. (n. 26), 329–30.

[72] At 6.1.1 'our ancestors' promised that earthquakes would not occur in winter: this may well include Greek philosophers as well as, or, perhaps, rather than, Roman ancestors, for the view goes back to Aristotle, *Mete.* 2.8, 366b2–7.

[73] We may see a precursor of Seneca's fusing of the Greek and Roman philosophical worlds in the way that Cicero can alternate between using 'we' and 'our people' to refer to 'we Romans' or to 'we Academic philosophers', just as Seneca can use 'we' to refer to the Stoics. In Cicero cf. e.g. *Orat.* 51 'Carneades noster', *Part. orat.* 139 'e media illa nostra Academia'. In Sen., *Nat.* 'we' = 'we Stoics' at 1.8.4, 15.4; 2.15.1; 3.29.2; 4b.5.1, 6.1; 7.20.1, 21.1, 22.1. Compare also the use of *maiores* to refer to earlier members of one's philosophical school: see *TLL* 8.146.37–43, and add Sen., *Ep.* 44.3.

originally Greek intellectual domain. But the imagery of debate may also be read as facing, Janus-like, in another direction too, if we entertain the idea that the community of scholars transcends the world of Roman law and politics not just in space and time but also in importance. Perhaps we are to see that the techniques of debate are transported from the parochial world of Roman law and politics to the more significant sphere of philosophy, to the service of the greater republic; and the reader who enters properly into the debate contained in the work can be similarly transported. In this debating chamber all really are on equal terms: 4b.3.6 'inter nullos magis quam inter philosophos esse debet aequa libertas' ('No group is more deserving of equal freedom than philosophers'). The context is humorous, at the expense of Anaxagoras and his outrageous ideas, but there can still be a serious edge to the dictum. 'Equal freedom' was a political slogan of the late Republic,[74] but Seneca finds it in philosophy rather than politics. In the *Natural Questions*, one might say, he wants to leave his mark in the wider republic of the learned,[75] not just in the contemporary world of Rome, and he implicitly invites others to follow him.

V THE CONTEMPORARY INTELLECTUAL CONTEXT

Contemporaries Mentioned in the Natural Questions

How, if at all, does this wider republic of the learned intersect with Seneca's contemporary context? There appear to be singularly few traces in the *Natural Questions* of any engagement with the intellectual environment in which he is writing, indeed singularly little acknowledgement that any such environment exists. We see glimpses of the literary world of the day in quotations from the poetry of Nero, of Lucilius the addressee, and of Vagellius, who is likely to be a contemporary.[76] Seneca also mentions two contemporary or recent figures of very different kinds, both known for their pronouncements on moral matters, Passienus Crispus (4a.praef.6) and Demetrius the Cynic philosopher (4a.praef.7). But when it comes to physical philosophy, it is harder to find references to contemporaries. Seneca can sound like a beleaguered, lonely voice as he laments the current neglect of philosophy and the demise of philosophical schools at Rome (7.31–2), and as he engages throughout the work in dialogue with thinkers of a century or more earlier.

A contemporary repeatedly named in the work is, of course, Lucilius, the dedicatee. In Letter 79 Seneca urges him to use the opportunity provided by his procuratorship in Sicily to investigate the true nature of Charybdis in the Straits of Messina, and to climb Etna to answer Seneca's questions about the volcano; and Seneca predicts that Lucilius will write about Etna in his poetry.[77] But the *Natural Questions* gives no hint that Lucilius is actively involved in exploring the kind of topics that Seneca discusses, or even particularly interested in them. Neither the preface to Book 4a, which says a lot about Lucilius' situation and career, nor anything else in the work, expressly reveals any interest in the natural world on his part. It would be quite unsafe to infer from Seneca's silence that Lucilius was really not interested in questions about nature, but he is not presented as someone with such an interest. On more than one occasion Seneca presents an interlocutor who is sceptical about the value of physical inquiry, and asks for some useful moral teaching

[74] See Ogilvie on Livy 3.31.7, C. Wirszubski, *Libertas as a Political Idea at Rome during the Late Republic and Early Principate* (1950), 9–15; *TLL* 7.2.1313.44–7.

[75] To prevent misunderstanding, it should be said that Seneca himself does not use *res publica* in this way.

[76] 3.1.1: Lucilius fr. 4 (p. 157 Buechner, p. 348–9 Courtney); 6.2.9: Vagellius fr. 1 (p. 156 Buechner, p. 347 Courtney); 3.praef.3: Seneca does not name the poet, but he has often been identified with Vagellius, fr. 2 (p. 156 Buechner, p. 347 Courtney). On Nero see p. 63 below.

[77] *Ep.* 79.1–7. See H. M. Hine, 'Seismology and vulcanology in antiquity?', in Tuplin and Rihll, op. cit. (n. 69), 56–75, at 60–5.

instead, but it is a matter of dispute how often the views of an anonymous interlocutor can be taken to be those of Lucilius.[78]

Other contemporaries are named in the work. One such is Balbillus, already mentioned, who is introduced as follows:

> 4a.2.13 Balbillus uirorum optimus, perfectusque in omni litterarum genere rarissime, auctor est, cum ipse praefectus obtineret Aegyptum, Heracleotico ostio Nili, quod est maximum ex <septem>, spectaculo sibi fuisse delphinorum a mari occurrentium et cocodrillorum a flumine aduersum agmen agentium uelut pro partibus proelium ...
>
> Balbillus, an excellent man, exceptionally refined in every branch of literature, tells of the following occurrence when he himself was prefect in charge of Egypt: in the Heracleotic mouth of the Nile, the largest of the <seven>, he saw the spectacle of, as it were, a set-piece battle between dolphins coming in from the sea and crocodiles moving against them in a column ...

Despite the description 'exceptionally refined in every branch of literature', his account of crocodiles and dolphins could still have been oral rather than written. Either way, it fits into the series of reports of natural historical information by provincial office-holders, mainly equestrians, that one finds scattered throughout the elder Pliny and elsewhere.[79] It is uncertain whether this Balbillus is to be identified with the better known Ti. Claudius Balbillus, an astrologer prominent in the Julio-Claudian period; even if not, they may have been related, and the other Balbillus is a reminder of one category of intellectual figure to be found in Rome around the date when Seneca was writing.[80]

Another candidate for being a contemporary of Seneca's is Apollonius of Myndus, whose views on comets are cited in Book 7. This book has an unusual feature: other books focus mainly on relatively well-known philosophers, but in Book 7, while a number of the familiar names do appear, on the whole their appearances are brief, and more detailed attention is paid to three virtual unknowns: Epigenes, Artemidorus, and Apollonius of Myndus. Little is heard of them outside Seneca, and their dates are uncertain.[81] According to Seneca, Epigenes and Apollonius said they studied with the Chaldaeans, i.e. they studied astrology (7.4.1), which suggests a Hellenistic date at the earliest. Prima facie, Seneca's summary of Apollonius' ideas in 7.17 makes him refer to the recent Neronian comet, as well as to comets at the death of Julius Caesar and under Claudius. The following is part of a chapter of direct speech put into Apollonius' mouth:

> 7.17.2 ceterum non est illi palam cursus: altiora mundi secat et tunc demum apparet cum in imum cursus sui uenit. nec est quod putemus eundem uisum esse sub Claudio quem sub Augusto uidimus, nec hunc, qui sub Nerone Caesare apparuit et cometis detraxit infamiam, illi similem fuisse qui post excessum diui Iulii ludis Veneris Genetricis circa undecimam horam diei emersit.

[78] Sceptical interventions: 1.praef.17, 2.59.1, 4b.13.1, 6.32.1. Berno, op. cit. (n. 5), generally takes the second person to be Lucilius; others are more cautious, including Gauly, op. cit. (n. 3), 78–80, with references to earlier discussions. L. Duret, 'Lucilius Junior, poète scientifique?', in *Filologia e forme letterarie. Studi offerti a Francesco della Corte*, 3 (1987), 373–85, argues that some of the fragments of Lucilius' poetry come from a poem on a scientific topic, but the inference is far from certain, and even if true, that does not affect the manner of Lucilius' portrayal in the *Natural Questions*.

[79] On Pliny's informants see R. Syme, 'Pliny the procurator', *HSCP* 73 (1969), 201–36, especially 219–35 (reprinted in *Roman Papers* 2 (1979), 742–73, at 758–72).

[80] See *Neue Pauly* s.v. 'Balbillus (Barbillus)', with bibliography.

[81] Epigenes: chs 4–10; Artemidorus: chs 13–15; Apollonius of Myndus: chs 17–18. On Apollonius see Gauly, op. cit. (n. 3), 147–52. Epigenes appears in Aetius 3.2.6 and several times in Plin., *Nat.*; see *Neue Pauly* s.v. 'Epigenes (5)'. Artemidorus is normally assumed to be the same as Artemidorus of Parium, cited by Seneca in 1.4.3. Apollonius of Myndus and Artemidorus are mentioned in a Byzantine astrological treatise, *CCAG* 1, 80 and 5, 204; see Gauly, op. cit. (n. 3), 149.

> Its [sc. a comet's] course is not discernible: it cuts through the higher parts of the cosmos, and only becomes visible when it reaches the lowest point of its course. We should not think that the same comet was seen in Claudius' reign as we saw in Augustus', nor that the one that appeared in Nero Caesar's reign and did away with the ill repute of comets was similar to the one that emerged after the death of the deified Julius at the games of Venus Genetrix around 5 p.m.

Here reference is made to four comets, ranging in date from the comet of 44 B.C. that appeared not long after the murder of Julius Caesar, to the recent one that appeared during Nero's reign in A.D. 60. If this truly represents what Apollonius said (granted that Seneca has, as usual, expressed it in his own words), then Apollonius must have been a contemporary of Seneca who wrote, or at least made his views known, in the early 60s, after the comet of A.D. 60 appeared but before Seneca wrote. Gauly for one accepts this as evidence that Apollonius was a contemporary.[82] However, given the fluidity of Seneca's summaries of the views of earlier writers, it is not to be ruled out that Apollonius in fact lived earlier, and that Seneca has inserted this reference to the recent comets into his account of his views. Seneca seems to do just that when he describes Epigenes' views earlier in the book:[83]

> 7.6.1 'Duo' inquit Epigenes 'cometarum genera sunt: alii ardorem undique effundunt nec locum mutant, alii in unam partem ignem uagum in morem comae porrigunt et stellas praetermeant' (quales duo nostra aetate uisi sunt). 'illi priores criniti undique et inmoti humiles fere sunt et isdem causis quibus trabes facesque conflantur, ex intemperie aëris turbidi multa secum arida umidaque terris exhalata uersantis . . .'
>
> 'There are two kinds of comets', says Epigenes; 'some spread their brightness in all directions, and do not change position; others extend their scattered fire in one direction, like hair, and move past the fixed stars' (two of this sort have appeared in our own lifetime). 'The first kind, which have hair on every side and are motionless, are usually low down, and are ignited by the same causes as beams and torches, from disorderly, turbulent air that whirls round with it many dry and moist particles that have been exhaled from the earth . . .'

Lacking modern punctuation, the original Latin text would not have indicated by its layout that 'two of this sort have appeared in our own lifetime' was a parenthesis added by Seneca, but the relative *quales* makes it easier, though not inevitable, to take it that way. Seneca may similarly have added the discussion of recent comets to his account of Apollonius, but we cannot be certain, and Apollonius may have been a contemporary — as indeed may Epigenes. Seneca usually accords his contemporaries some brief laudatory description (compare the mention of Balbillus above), and Artemidorus does not receive one, but that is hardly decisive. Equally, Reinhardt's view that the vehemence of the criticism indicates a contemporary is subjective and far from decisive; one might rather expect Seneca not to be so rude about a contemporary.[84]

Apollonius, Seneca tells us, distinguished different kinds of comet, and said that only one kind portended bloodshed (7.17.3). This would fit well into the Neronian context in the early 60s. Given that comets had a reputation for heralding the demise of rulers, the comet of A.D. 60 must have attracted considerable attention within the imperial court and outside it. Tacitus says that there was popular speculation that Rubellius Plautus would succeed Nero, so to scotch such rumours Nero encouraged him to retire to his ancestral estate in Asia (*Ann.* 14.22). Apollonius' views would have been highly relevant at that time, but equally they could fit an earlier date.

[82] Gauly, op. cit. (n. 3), 150 n. 67.
[83] cf. also 6.13.5, where it looks as though a quotation from Vergil is inserted into an account of Strato's theory.
[84] K. Reinhardt, *Poseidonios* (1921), 164, n. 1; so too Gross, op. cit. (n. 5), 299–300; Gauly, op. cit. (n. 3), 149 and n. 62.

Nero Caesar ... ueritatis in primis amantissimus[85]

Another contemporary whom we meet in the work is Nero. As it happens the *Natural Questions* is the only surviving work of Seneca that refers to Nero by name apart from the *De Clementia*, which is dedicated to the young emperor, and the *Apocolocyntosis*, the satire on Claudius, which contains a passage of panegyric of Nero. Both these works were written early in Nero's reign.[86] So why should Nero appear in the *Natural Questions* and not elsewhere? At least part of the answer must be that the subject matter invited references to the emperor, for we find only a few brief mentions of Nero that are incidental to the main argument. This is quite different from the way Nero features in the *De Clementia* and *Apocolocyntosis*. Book 7 twice describes the comet of A.D. 60 as having appeared in Nero's reign (7.17.2, quoted p. 61 above, and 7.21.3, referring to 'Nero's most fortunate principate', 'Neronis principatu laetissimo'). In Book 1, Seneca quotes a line of Nero's poetry about the iridescent colours in a pigeon's plumage, which are compared to the colours of a rainbow; Seneca says the line is written *disertissime*, 'with great skill'.[87] But the first reference (in the original book ordering) is to an expedition sent by Nero to explore the sources of the Nile. The expedition is mentioned at this point because its findings are relevant to Seneca's argument about earthquakes. The passage starts: 'ego quidem centuriones duos, quos Nero Caesar, ut aliarum uirtutum ita ueritatis in primis amantissimus, ad inuestigandum Nili caput miserat, audiui narrantes ...' (6.8.3 'I heard two centurions whom Nero Caesar, great lover of the other virtues and especially of truth, had sent to search for the source of the Nile. They told how ...'). Ostensibly Seneca presents Nero as somebody with an active, keen interest in pushing back the frontiers of geographical knowledge. The veracity of his presentation has been doubted, for Pliny and Dio mention an expedition up the Nile with a military purpose, to prepare for a war in Ethiopia; so there has been discussion of whether this is the same expedition as Seneca's or another one, whether the motives for the expedition described by Seneca were really military rather than geographical or scientific, and whether Seneca himself had any influence in the decision to search for the sources of the Nile.[88] Military and geographical motives for such reconnaissance were certainly not incompatible, for from Alexander onwards they could go hand in hand. Promoting geographical exploration was something that emperors did, so it is not surprising that Nero did too; and so there is no need to think that Seneca was the main driving force behind the enterprise.[89] Seneca's brief description may not give the whole truth about the expedition and Nero's motives, but we can accept that it gives at least part of the truth.

Each of these passages has something polite or even lavish to say in praise of Nero or his principate. At the same time, a number of scholars have argued that in some of these passages a subversive sub-text can be detected, and also that in other places where Nero is

[85] 6.8.3; 'Nero Caesar, great lover ... especially of truth'.

[86] For suspected allusions to Nero in other works, see Griffin, op. cit. (n. 26), 12, 360, 408 n. 1. E. Champlin has recently argued that the references to Nero in *Apoc.* (ch. 4) are a later addition by Seneca, in 'Nero, Apollo, and the poets', *Phoenix* 57 (2003), 276–83.

[87] 1.5.6; Nero fr. 2 (Buechner p. 163, Courtney p. 357); see G. Mazzoli, *Seneca e la poesia* (1970), 255–7.

[88] Plin., *Nat.* 6.181, 12.19; Dio 63.8.1–2. For discussion, with reference to earlier literature, see M. De Nardis, 'Seneca, Plinio e la spedizione neroniana in Etiopia', *Aegyptus* 69 (1989), 123–52; A. De Vivo, 'Nerone e la ricerca delle fonti del Nilo (Sen. *Nat.* VI 8, 3–5)', in G. Germano (ed.), *Classicità, Medioevo e Umanesimo. Studi in onore di Salvatore Monti* (1996), 171–87 (= idem, *Costruire la memoria. Ricerche sugli storici latini* (1998), 165–81); Gauly, op. cit. (n. 3), 198–201. For Seneca as the driving force behind the expedition cf. I. Lana and O. Gigon in Grimal, op. cit. (n. 12), 342–3; E. Gozalbes Cravioto, 'Séneca y la exploración de las fuentes del Nilo', in M. Rodríguez-Pantoja (ed.), *Séneca, dos mil años después. Actas del Congreso Internacional Conmemorativo del Bimilenario de su Nacimiento (Córdoba, 24 a 27 Septiembre de 1996)* (1997), 169–74. See also Williams in this volume, pp. 131–2.

[89] On imperial sponsorship of exploration, see C. Nicolet, *Space, Geography and Politics in the Early Roman Empire* (Eng. trans., 1991); De Vivo, op. cit. (n. 88), 183–4.

not named he is the implicit target of criticism.[90] For instance, passages condemning Alexander the Great, particularly the condemnation of his killing of Callisthenes, have been seen as implicit attacks on the emperor, who later in his reign modelled himself increasingly on certain aspects of Alexander. It has also been argued that the passage just quoted on Nero's Nile expedition will remind the reader of Alexander, and so criticism of the emperor is implied.[91] Then Seneca's tirade against the modern fad for cooling drinks with snow has also been seen as targeted at Nero, given that he was credited with pioneering a new way of cooling water with snow, known as the *decocta Neronis* ('Nero's decoction');[92] and other vices castigated in the *Natural Questions* are attributed to Nero in the historical tradition, creating further possibilities that the original readers would have seen implicit criticism of the emperor there too.[93] The whole question of subversive readings has been judiciously reviewed by Gauly, who recognizes the difficulty of proving (or disproving) that Seneca intended, or that his original readers perceived, such allusions. Gauly also recognizes that subversive readings can coexist with explicit praise of the emperor. I would argue on chronological and other grounds that one must be even more cautious than Gauly in detecting subversive innuendos,[94] but I shall end with some remarks on a more positive line of interpretation of Seneca's phrase 'great lover of truth'.

Seneca uses this phrase when talking of the Nile expedition. As we have seen, there is no strong reason to doubt that the Nile expedition did have geographical or scientific objectives, even if it also had military ones. The exploration of the Caspian Gates and the discovery of the amber route to the Baltic have been seen as further evidence of Nero's promotion of geographical exploration,[95] but did Nero promote scientific endeavour of other sorts? His enthusiasm for poetry and music is well documented, but we have tantalizingly little evidence of other intellectual activity fostered by him. We know that serious scientific writings were dedicated to him, at least in the field of medicine. The Methodist doctor Thessalus of Tralles addressed a letter to Nero, from which Galen quoted the

[90] Critical allusions to Nero: Sørensen, op. cit. (n. 28), 218–20, 226; De Vivo, op. cit. (n. 88), 181. Cf. Griffin, op. cit. (n. 26), 360, on things in the *Letters* 'that would irritate rather than soothe the Emperor'.

[91] Alexander: 3.praef.5, 5.18.10, 6.23.2–3 (Callisthenes). For allusion to Nero, Gauly, op. cit. (n. 3), 203–7. For 6.8.3–5 evoking Alexander, De Vivo, op. cit. (n. 88); Gauly, op. cit. (n. 3), 198–201. For exploration of the Nile as impious, see Murphy, op. cit. (n. 9), 142–4; but I would not agree with his reading of Seneca Book 4a, in which he claims that Seneca does not seriously try to discover the sources of the Nile because such knowledge is not thinkable for a private citizen. Murphy's summary of the book (p. 144) stops at 4a.2.16, just before Seneca's discussion of the causes of the Nile's flooding begins, and he does not mention the loss of the second half of the book, where the brief summaries of the missing part in John the Lydian are woefully inadequate; nor does he mention the reference to Nero's expedition to explore the Nile in 6.8.3–5. Seneca may well have concluded at the end of Book 4a that the secret of the Nile's source and flooding remained unknown, but there is nothing in the surviving text to suggest that he thought it was improper to try to discover it.

[92] Seneca's tirade: 4b.13. Nero's decoction: Plin., *Nat.* 31.40, 19.55, Suet., *Nero* 48.3, Dio 63.28.5; discussion in Berno, op. cit. (n. 5), 330–1; Gauly, op. cit. (n. 3), 109–11, 202. It should be pointed out that, strictly speaking (*pace* Berno, loc. cit.), Seneca does not refer to the *decocta Neronis*, for Seneca talks only of adding snow or ice to drinks, but, according to Pliny (31.40), the point of the *decocta* was that consumption of the snow itself was avoided: 'Neronis principis inuentum est decoquere aquam uitroque demissam in niues refrigerare; ita uoluptas frigoris contingit sine uitiis niuis'. Note also that in his earlier reference to the practice (19.55) Pliny does not link it with Nero's name.

[93] See Berno, op. cit. (n. 5), 327–35.

[94] For instance, even if we accept the fact of Nero's self-identification with Alexander in his later years, we cannot be certain whether it had started in earnest by the date of composition; and for scepticism about Nero's supposed imitation of Alexander, see E. Champlin, *Nero* (2003), 139, with further bibliography. Nor do we know when the *decocta Neronis* first became associated with Nero's name. One should also remember that Seneca had made his views on Alexander and on snow clear in earlier works, so there was no particular reason for anyone to take the repetition of those views in the *Natural Questions* as targeted specifically at Nero. (For Seneca criticizing Alexander in earlier works see e.g. *Dial.* 5.17, 5.23.1, *Ben.* 1.13, *Clem.* 1.25.1; on snow, *Dial.* 1.3.13, 4.25.4.)

[95] Caspian Gates: Suet., *Nero* 19.2. Amber route: Plin., *Nat.* 37.45.

opening sentence, which boastfully declared his superiority to earlier doctors.[96] The doctor Andromachus dedicated to Nero a poem of over 170 lines of elegiacs on the antidote he had devised, a poem preserved in its entirety by Galen.[97] Galen describes Andromachus as Nero's doctor; whether Thessalus had any personal connection with Nero is not recorded, but if he did not, the letter could have been making a bid for one. These works addressed to Nero belong in a long-established tradition of publishing medical works dedicated to rulers, and not just medical works, but other works of a scientific or technical nature too.[98] Such dedications presumably did not necessarily imply prior encouragement from the emperor.

The Greek and Roman historians were generally not interested in giving an objective picture of the intellectual life of the emperor and his court, but our sources for Nero's reign offer a couple of hostile anecdotes from which a little may be gleaned. Tacitus says (under the year A.D. 59) that Nero used to enjoy listening to the arguments of philosophers:

> *Ann.* 14.16.2 etiam sapientiae doctoribus tempus impertiebat post epulas, utque contraria adseverantium discordia frueretur. nec deerant qui ore uultuque tristi inter oblectamenta regia spectari cuperent.
>
> He also used to spend time with teachers of philosophy after dinner, so that he could enjoy the quarrelsomeness of their contradictory assertions. There was no shortage of people who wanted to be seen with glum faces and expressions amid the pleasures of the court.

Here the historian is more concerned to show all the participants, emperor and philosophers alike, in a bad light, than to tell us whether the imperial Neronian court really was a focus and stimulus for philosophical activity. But the modern reader may take Nero's philosophical discussions more seriously. It is possible that Annaeus Cornutus and Musonius Rufus received encouragement from Nero, at least before they were both exiled.[99] Dio (62.28.3) has a story that Nero asked a philosophically-educated friend for his opinion about his marriage to Sporus (in A.D. 66 or 67), so, if we can believe the story, the emperor still had philosophical contacts late in his reign.

Then there is the story about Nero and the water organ.[100] Towards the end of his reign, after the revolt of Vindex was reported to him, Nero did nothing for days on end, until he suddenly called a Senate meeting, at which, instead of discussing the military situation, he explained and demonstrated the latest improvements to the sound of the water organ. Our sources want to show how crazy his behaviour was in his final days, but the modern reader

[96] Galen, *De methodo medendi* 1.ii, pp. 7–8 K, fr. 156 in M. Tecusan, *The Fragments of the Methodists, Vol. 1, Methodism outside Soranus*, Studies in Ancient Medicine 24 (2004). I am grateful to Vivian Nutton for the reference to Thessalus.

[97] The poem is quoted by Galen, *De antid.* 1.6, and *De theriaca ad Pisonem* 6; edition by E. Heitsch, *Die griechischen Dichterfragmente der römischen Kaiserzeit*, Abh. Akad. Göttingen, phil.-hist. Kl. 3.58 (1964), 2.7–15.

[98] Of medical works, cf. V. Nutton, *Ancient Medicine* (2004), 375 n. 4: 'The tradition of publishing one's advice to a monarch goes back at least to Hellenistic times, and is represented today by a whole series of almost certainly pseudonymous tracts directed to such figures as King Antigonus of Macedon, Ptolemy and Maecenas.' At Rome, C. Valgius' book on plant remedies was dedicated to Augustus (Plin., *Nat.* 25.4). On other topics there was Vitruvius' surviving *De Architectura*, dedicated to Augustus, and Manilius' *Astronomica*, dedicated to Caesar (whether Augustus or Tiberius, or both, is disputed); and works could be dedicated to members of the emperor's family, such as Juba's account of Arabia, for the young C. Caesar, Augustus' adopted son (Plin., *Nat.* 6.141, 12.56, 32.10).

[99] cf. P. Grimal, *Seneca. Macht und Ohnmacht des Geistes* (1978), 140–1; M. Griffin, *Nero: The End of a Dynasty* (1984), 41, 154. On Cornutus, and his relationship to Neronian ideology, see G. W. Most, 'Cornutus and Stoic allegoresis: a preliminary report', *ANRW* 2.36.3 (1989), 2014–65; Champlin, op. cit. (n. 94), 132–3.

[100] Suet., *Nero* 41.2; Dio 63.26.4.

may long to know what the improvements were, and whether the emperor was a serious sponsor of technological progress in this area, and maybe others as well.[101]

Another intellectual who is known to have had contact with Nero was Chaeremon, a Stoic philosopher, who, according to the Suda, was a teacher of Nero, along with Alexander of Aegae, a Peripatetic.[102] Chaeremon barely registers in classical Latin sources — in fact only in a mocking epigram of Martial written in A.D. 96 (Mart. 11.56) — and is known mainly through later Platonist and Christian writers. Much is uncertain about his career: thus some have conjectured that he was appointed Nero's teacher before Seneca was recalled from exile in A.D. 49, while others have suggested that Seneca himself could have been instrumental in the appointment. If he is correctly identified with the Chaeremon who was part of an Alexandrian embassy that came to Claudius at the start of his reign, there is no need to think Seneca was involved, for Chaeremon's antiquarian historical interests could in any case have appealed to the emperor, but the identification is not certain. He shared interests with Seneca, who had lived in Egypt and had written a lost work on the geography and religion of Egypt.[103] Besides the other topics mentioned above, Chaeremon also wrote about comets, on which Origen summarized his views as follows:

> At great events and the greatest changes in affairs on earth it has been observed that stars of this sort [comets] appear, indicating either changes of ruler or wars or whatever can occur among men that can upset affairs on earth. We have read in the work of Chaeremon the Stoic on comets that sometimes comets have appeared even when good events are about to happen, and he gives an account of these.[104]

Perhaps he wrote on comets in response to the comet of A.D. 54 or of 60, but an earlier or later date is not impossible.[105]

Whether or not Chaeremon wrote in response to the comet of A.D. 60, whether or not he was still in Italy at that date (for he had returned to Alexandria probably no later than the early 70s), the view he represented may well have been in the air after the comet appeared in A.D. 60. While he and Seneca would have agreed that the comet was not a portent of the end of Nero's reign, they argued on different grounds. Chaeremon did not deny that comets could be ominous, but, with his collection of comets that portended good events, said they could be omens of good or bad alike. Seneca, on the other hand, denies that comets are sent as omens of anything: they are part of the regular, though as yet little understood, workings of nature, not *ad hoc* or *ad hominem* signs.[106] Apollonius' view, that only certain comets are portents of disastrous events (7.17.3), is compatible with Chaeremon's, so far as our evidence goes. But how far there was any intellectual interaction between Seneca and Chaeremon we just do not know; Seneca certainly never mentions him, and we have seen that Chaeremon may have returned to Alexandria by the 60s A.D. Apollonius, even if he was a contemporary, was not necessarily living and writing in Rome or Italy either.

[101] Another story, about Tiberius and the unbreakable glass, on the surface shows the irrationality of an emperor, but when read between the lines, shows that an emperor was expected to be interested in technological innovations (Petr. 50.7–51.6, Plin., *Nat.* 36.195 (who is dismissive about the story), Dio 57.21.7). When a man demonstrated this invention, Tiberius established that no one else knew how to make the glass, and then either had the workshop closed down, or in another version had the man executed, on the grounds that gold and silver would lose their value if this unbreakable glass became available. For technical discussion, see G. Eggert, 'Vitrum flexile als Rheinischer Bodenfund?', *KJ* 24 (1991), 287–96.

[102] Suda s.v. 'Alexandros Aigaios'. On Chaeremon see P. W. Van Der Horst, *Chaeremon, Egyptian Priest and Stoic Philosopher. The Fragments Collected and Translated with Explanatory Notes*, EPRO 101 (1984); M. Frede, 'Chaeremon der Stoiker', *ANRW* 2.36.3 (1989), 2067–103.

[103] *De situ et sacris Aegyptiorum*, fr. 12 Haase, T19 Vottero. Egyptian matters appear not only in *Nat.* 4a on the Nile, but there is a curious and rather intrusive excursus on the Egyptian doctrine of the elements in 3.14.2.

[104] Chaeremon fr. 3 Van Der Horst (Origen, *C. Cels.* 1.59).

[105] See Van Der Horst, op. cit. (n. 102), 53; Frede, op. cit. (n. 102), 2079–82; Gauly, op. cit. (n. 3), 152.

[106] cf. 1.1.4, 2.46.

There remains one other person attested as having advised Nero on comets: Suetonius reports that Balbillus, whom we have already encountered, gave Nero more sinister advice on how to handle comets, telling him that rulers normally expiated their appearance with the murder of some distinguished person; so Nero resolved to do likewise to all the most eminent men in Rome.[107] Since Suetonius mentions only one comet, and goes on to talk of the conspiracies of Piso and Vindex, the anecdote may refer to the later comet of A.D. 64; but if Balbillus was making such views known in the early 60s, Seneca must obviously have disagreed with his approach, though he is not mentioned in Book 7. So we know of two contemporaries who had opinions about comets, Balbillus and Chaeremon, and they are not mentioned by Seneca in Book 7. On the other hand, it is not certain that the Apollonius who is mentioned was a contemporary. These tantalizing fragments of information clearly do not add up to very strong grounds for talking of a Neronian intellectual coterie debating the significance of comets, but they are enough to arouse suspicions of something of the sort.

Seneca, Chaeremon, and perhaps Apollonius, if he is contemporary, fit well into Andrew Wallace-Hadrill's model of cultural revolution, conceived as a transfer of authority in Roman society, as new systems of knowledge, and new, expert holders of that knowledge, replaced the traditional systems of knowledge and their élite guardians.[108] Confronted with the appearance of comets, with their traditional ominous associations, these men offered not traditional religious measures, but insights based on philosophical or astronomical or astrological theory. (Balbillus, by contrast, accepted a more traditional line, according to the Suetonian anecdote.) This model can apply to much else in Seneca's *Natural Questions*, not just to Book 7 on comets; for earthquakes, lightning strikes on public buildings, meteorite showers, and other unfamiliar lights in the sky, as well as comets, had all traditionally been treated by the Senate as prodigies requiring expiation by religious means; and thunder and lightning was treated as a sign of the gods' favour or disfavour both in the Roman augural system and in the lore of the Etruscan haruspices. Seneca offers a rational rather than a traditional religious approach to these features of the natural world on which Roman religion focused much attention.[109]

Another element of Wallace-Hadrill's model is that the new experts gain their authority from the emperor's reliance on them. In the case of Nero we have only fragments of a possible picture of this happening. How much attention Nero really paid to the various people who might have advised him on the comets of A.D. 60 or 64, and how far he actively took an interest in or supported doctors, philosophers, or manufacturers of water-organs, probably cannot now be known. But Seneca's account of the expedition sent to explore the Nile, and his description of the emperor as a great lover of truth, should tentatively be added to the meagre evidence of some, perhaps modest, imperial commitment to furthering knowledge of the natural world. At the very least we may read the passage as holding up to the emperor, in the manner of ancient panegyric, an image of what Seneca hoped, however faintly, that the emperor would become.

VI CONCLUSION

The *Natural Questions* is 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

[107] Suet., *Nero* 36.1. On similarities between the interests of Balbillus and Chaeremon see Frede, op. cit. (n. 102), 2076–7.

[108] A. Wallace-Hadrill, '*Mutatio morum*: the idea of a cultural revolution', in T. Habinek and A. Schiesaro (eds), *The Roman Cultural Revolution* (1997), 3–22.

[109] Hence I would differ from the view of Inwood, op. cit. (n. 16), 156–7 (repr. pp. 199–200), that the primary reason why Seneca chose meteorology as his subject was literary. Literary motives were doubtless important too, but they were not the only important ones. On the relationship of the *Natural Questions* to prodigies reported around the time of composition, see Gauly, op. cit. (n. 3), 218–35.

atmosphere. Gareth Williams has recently made the illuminating suggestion that we should see the *Natural Questions* operating at these three levels in epistemological terms as well. There is a contrast between the partial, fragmented, earth-bound vision of those like Hostius Quadra (in 1.16) who are preoccupied with what they can see with their eyes and experience with their bodies, and the philosophical, holistic vision of those who see with the eyes of the mind and the tools of reason the true nature of the human mind, of the universe, and of god. In between come the phenomena of meteorology, which physically mediate between the earth and the heavens, and epistemologically require both observation of the material world and rational speculation that goes beyond the material.[110]

One might say that the presentation of the Roman world in the *Natural Questions* is complex partly because it also is viewed from different levels. At ground level, as it were, the work is very much a product of its place and its time, because it deals with physical events that are part of human history — infrequent ones like earthquakes and comets, along with regular ones like rainfall or the annual flooding of the Nile — events sometimes charged with political significance, whether because of their ominous implications or because of the fear and damage they could cause. At ground level, also, the Roman Empire inherited written information about such events from the many Greek and fewer Latin writers of the past, and provided unrivalled, though patchily exploited, opportunities for the continuing acquisition and communication of such information, with the emperor himself sometimes providing encouragement. But on the other hand, from the perspective of the soul's ultimate goal, and of a holistic view of the cosmos and its divine order, such as is most strikingly presented in the preface to Book 1, the Roman Empire and the Roman political world shrink to insignificance. This journey from ground level to the heavens is partially mirrored in the structure of the work which (assuming Book 3 was originally the first) starts with rivers and ends high in the atmosphere with thunder and lightning;[111] it is also replicated in Seneca's own career, as portrayed in the preface to Book 3, where he represents himself as turning from the wasted activities of the past, from the possibility of writing history, to the higher calling of philosophy; and it is mirrored in the contrast between Seneca's gloomy portrayal of the current state of philosophy and the philosophical schools at Rome (7.31–2), and the suggestion of meteorological enquiry as a collaborative enterprise that is greater than the Roman world, one that has not only been going on for centuries already but will also continue far into the future, and one in which the modes of debate of Roman public life can be used in the service of more important issues. But for all that the work seeks to turn its back on and transcend the world of Rome and face towards the heavens, it cannot escape its rootedness in the Roman context. One might say of the *Natural Questions* what Seneca says of the atmosphere, positioned between the earth and the heavens: 'ima ac summa sic separat ut tamen iungat' (2.4.1, 'it separates the lowest and highest levels and yet joins them').

APPENDIX: THE DATE OF COMPOSITION OF THE *NATURAL QUESTIONS*

Book 7 was written between A.D. 60 and 64, for it refers to the appearance of a comet in A.D. 60 (7.17.2, 7.21.3, cited above, pp. 61, 63), but does not mention another that appeared in A.D. 64 (recorded in Tac., *Ann.* 15.47.1). Book 6 refers to a recent major earthquake in Campania. Seneca's text (quoted below) dates this to 5 February 63, but Tacitus (*Ann.* 15.22.2) places the earthquake in A.D. 62, and the discrepancy has provoked a long-running debate. Recently many scholars have accepted the argument that Tacitus' date is correct and the consular date in

[110] Williams, op. cit. (n. 5, 2005a).
[111] cf. Williams in this volume, p. 127 and n. 19.

Seneca's text is interpolated, but a recent paper by Andrew Wallace-Hadrill has re-opened the question and advanced the discussion.[112]

The crucial passage of Seneca occurs a few lines into Book 6. The text, with principal manuscript variants, is as follows:[113]

> 6.1.2 Nonis Februariis hic fuit motus Regulo et Verginio consulibus qui Campaniam, numquam securam huius mali, indemnem tamen et totiens defunctam metu, totam magna strage uastauit.
>
> hic fuit motus regulo et uerginio consulibus Ψ: regulo et uerginio rufo consulibus hic fuit motus Z: hic fuit motus ST securam huius mali Ψ: h– m– s– Z totam *Chauvin*: toto Z: *om.* Ψ
>
> Campania had always been nervous of this peril, but had remained unharmed, and had many times got over its fears, but this earthquake, occurring on 5 February in the consulship of Regulus and Verginius, devastated all of the region and caused great destruction.

F. J. Jonas was the first to suggest that the phrase with the consuls' names, *Regulo et Verginio consulibus*, was interpolated.[114] The principal arguments, reviewed by Wallace-Hadrill, are as follows — I start with two of what he calls supporting arguments:

(i) Seneca stresses several times that the earthquake, which took place in February, was recent. It has been argued that it would have been superfluous for Seneca, writing probably within the same consular year, to give the names of the consuls. But Wallace-Hadrill fairly responds that Seneca could write with an eye to future readers, and the 'mention of the consuls is proper because it conveys not only precision but solemnity to an early notice of an event truly worthy of the annals' (p. 183).

(ii) Sometimes archaeological evidence has been adduced, in the form of a dossier of wax tablets from Pompeii, from the house of the banker Caecilius Iucundus. The last dated tablet is 11 January A.D. 62, which fits well with a date of 5 February of the same year for the earthquake. Another dossier, of the Sulpicii, ends in A.D. 61, which is also consistent with that date. Wallace-Hadrill (pp. 183–7) has convincingly disposed of this argument by examining the chronological distribution of the documents in question. He shows that both archives peak in the 50s A.D., and tail off markedly by the early 60s, when the total number of documents is so tiny that they provide no significant evidence for the earthquake occurring in A.D. 62 rather than 63.

(iii) As Wallace-Hadrill says, 'the critical argument has always been (and remains) about an internal contradiction in Seneca's own text' (p. 180), deriving from the relative dates he gives for the Campanian earthquake and other events. 6.1.13 says that in the previous year (*anno priore*) Achaea and Macedonia suffered an earthquake too:

> Tyros aliquando infamis ruinis fuit; Asia duodecim urbes simul perdidit; anno priore in Achaiam et Macedoniam quaecumque est ista uis mali [quae] incurrit, nunc Campaniam laesit.[115]
>
> Tyre was once notorious for earthquake damage; Asia lost twelve cities simultaneously; last year this evil force, whatever it is, attacked Achaea and Macedonia, now it has damaged Campania.

Seneca here gives no date for the Achaean/Macedonian earthquake, but another passage seems to date it within a year of the comet of A.D. 60:

[112] A. Wallace-Hadrill, 'Seneca and the Pompeian earthquake', in A. De Vivo and E. Lo Cascio (eds), *Seneca uomo politico e l'età di Claudio e di Nerone: Atti del Convegno internazionale (Capri 25–27 marzo 1999)* (2003), 177–91, with earlier bibliography (see also Williams in this volume, p. 125 n. 3). The date of A.D. 62 has most recently been defended by Gauly, op. cit. (n. 3), 22–4; Wallace-Hadrill's article presumably appeared too late for Gauly to use it.

[113] The variants in the spelling of *Verginio* are omitted.

[114] F. J. Jonas, *De ordine librorum L. Annaei Senecae philosophi*, Diss. Berlin (1870), 53–4.

[115] The text is uncertain, but the chronological issue is not affected: see H. M. Hine, *Studies in the Text of Seneca's* Naturales Quaestiones, Beiträge zur Altertumskunde 72 (1996), 93–4, for discussion of the various conjectures.

> 7.28.1–3 Aristoteles ait cometas significare tempestatem et uentorum intemperantiam atque imbrium … (2) hoc ut scias ita esse, non statim cometes ortus uentos et pluuias minatur, ut Aristoteles ait, sed annum totum suspectum facit; … (3) fecit hic cometes qui Paterculo et Vopisco consulibus apparuit quae ab Aristotele Theophrastoque praedicta <sunt>; fuerunt enim maximae et continuae tempestates ubique, at in Achaia Macedoniaque urbes terrarum motibus prorutae sunt.
>
> Aristotle[116] says that comets indicate stormy weather, with severe winds and rain … (2) To show you that this is so, a comet does not threaten wind and rain as soon as it appears, as Aristotle says, but it makes the whole year suspect; … (3) The comet that appeared in the consulship of Paterculus and Vopiscus did what was predicted by Aristotle and Theophrastus; for there were violent, continual storms everywhere, while in Achaea and Macedonia cities were destroyed by earthquakes.

Paterculus and Vopiscus were consuls in A.D. 60.[117] As Wallace-Hadrill puts it, '[t]he nub of the chronological problem is this: if Paterculus and Vopiscus held office in the second half of AD 60, the earthquakes in Achaea and Macedonia should be no later than the second half of 61' (p. 181). So, the standard argument goes, if the earthquakes in Achaea and Macedonia were in A.D. 61, and they occurred *anno priore* relative to the Campanian earthquake, then it must have been in A.D. 62 and not 63; Tacitus' date is vindicated and the consular date in *Nat.* 6.1.2 must be wrong.

However, Wallace-Hadrill does not find the inference totally compelling, for 'it is open to question whether "anno priore" from a viewpoint of February 63 really excludes an earthquake dated to what may well be the second half of 61' (p. 182). However, this is open to question only if *anno priore* can mean 'a year earlier', in the sense of 'twelve months or so earlier'; but normally *anno priore* means 'in the preceding (consular) year', whereas the usual Latin for 'a year earlier' is *ante annum*.[118] It needs to be shown that *anno priore* can have the latter sense. In any case, *anno priore* in 6.1.13 is naturally reckoned not from the date of the earthquake in February, but from the date when Seneca is writing, which is likely to be a few months later; even with Wallace-Hadrill's interpretation of *anno priore*, it is harder to suppose that Seneca, writing, say, near the middle of A.D. 63, could refer in that way to an event of late 61. A more promising approach to rescuing Seneca's chronological coherence is that adopted by Abel: the comet of A.D. 60 appeared in late summer[119] and, according to Seneca, remained visible for six months (7.21.3), i.e. quite possibly until early in A.D. 61.[120] In that case the Achaean earthquake can be placed early in A.D. 62 and still within a year of the disappearance of the comet, and *anno priore* in relation to Seneca writing in A.D. 63. It may reasonably be objected that in 7.28.2 Seneca seems to make the initial appearance of the comet the starting-point for the year of disturbances (note *cometes ortus*), but this point is not absolutely decisive. It may also be pointed out that according to the Chinese evidence the comet had disappeared from view by the

[116] *Meteorologica* 1.6, 343b1–4, 1.7, 344b18–20.
[117] See Wallace-Hadrill, op. cit. (n. 112), 181, for the arguments.
[118] *anno priore*: a few examples in *TLL* 10.2.1326.32–5; unsurprisingly, it is extremely common in Livy (80 occurrences), in cross-references between annalistic years. *ante annum*: see *TLL* 2.133.41–6; this exact phrase with singular *annum* is not found very often; *ante annos* with a numeral is commoner.
[119] According to Chinese records the comet appeared on 9 August; see n. 121 below.
[120] K.-H. Abel, *Bauformen in Senecas Dialogen: Fünf Strukturanalysen: dial. 6, 11, 12, 1 und 2* (1967), 166 n. 43; cf. Griffin, op. cit. (n. 26), 400.

end of A.D. 60;[121] but one might reply that error can presumably creep into figures in Chinese texts, so one should not regard this as decisive either. So it is possible to reconcile Seneca's various chronological statements, though it begins to smack of special pleading.

(iv) Wallace-Hadrill deploys an important new argument, about Seneca's circumstances around the time of composition: 'The *NQ* ought to be conceived and composed after Seneca's preliminary withdrawal from politics in AD 62' (p. 188). This is a widely accepted view, but Wallace-Hadrill points out its chronological implications. Burrus, the praetorian prefect, died in A.D. 62, apparently early in the year (Tac., *Ann.* 14.51). Subsequently Seneca sought Nero's permission to retire from the court. Nero refused, but Seneca nevertheless went into semi-retirement, rarely appearing in the city (Tac., *Ann.* 14.52–6). Even supposing that this all took place in January, Wallace-Hadrill argues, if Seneca then begins the *Natural Questions* and reaches Book 6 (which is not the first book on any account of the original order) while memories of an earthquake of February A.D. 62 are still vivid, that is quite a tight timetable. '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' (p. 190). Wallace-Hadrill candidly admits that the argument, like the others, is not compelling, but he thinks the balance of probability is in its favour.

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.[122] One might further argue that we do not know how long Burrus' illness lasted, but presumably even before his death Seneca could have foreseen that his own situation would become more difficult, and he could already have been planning the *Natural Questions*. One can also make a crude estimate of the speed at which Seneca was writing in his final years. We know that the *Natural Questions* plus the *Moral Letters* contained at least thirty books (i.e. papyrus rolls) between them.[123] Seneca died in April 65, so if we assume, for the sake of argument, that he started writing in January 62, he had just under forty months to write those thirty books, i.e. he wrote at an average rate of a book every one and one third months;[124] or if he started later, the rate must have been faster. This is is a very crude calculation, of course, not just because it assumes that he wrote at an even rate, but also because it ignores the possibility of other literary activity in the same period. Still, with the original book order assumed above, Book 6 was originally the fifth book, so if Seneca started writing the *Natural Questions* at any time in the first six months of A.D. 62, at this sort of average rate he could start Book 6 before the end of the year, and could still plausibly refer to an earthquake of February 62 as recent. On the other hand if the earthquake referred to was in February 63,

[121] According to Chinese records the comet appeared on 9 August, and remained visible for 135 days; this takes us up until 21 December. There is some confusion about the dates in the modern literature. R. S. Rogers, 'The Neronian comets', *TAPA* 84 (1953), 237–49, at 240, gives the end date as 9 December, which is presumably a miscalculation; this date is repeated by P. J. Bicknell, 'Neronian comets and novae', *Latomus* 28 (1969), 1074–5. J. Williams, *Observations of Comets from B.C. 611 to A.D. 1640 Extracted from the Chinese Annals* (1871), 11, gave the period of visibility as 185 days (which incidentally is very close to Seneca's six months), implying an end date of 9 February 61; but the correctness of the period of 135 days is confirmed by the independent statement of Ho Peng Yoke, 'Ancient and mediaeval observations of comets and novae in Chinese sources', *Vistas in Astronomy* 5 (1962), 127–225, at 149. The discrepancy between the 135 days of the Chinese records and Seneca's six months is noted and discussed by Rogers, op. cit., 241 n. 16: 'Had western observers really noticed this comet *so long* before the Chinese? ... It hardly seems likely. Has Seneca given a *very* "round figure"? Has he even, conceivably, transferred to the comet's visibility the duration of the suffect consuls' term?' It is possible that the comet was observed earlier in the West, as Rogers says, but it is less likely that Western observers could still see the comet for long after the Chinese records say it disappeared. Seneca probably is giving a very round figure, for in Latin as in English six months was a conventional round figure (as its use by Plautus and Terence shows). With the Chinese dating, the comet was visible during part or all of five Roman calendar months, so Seneca's six months is not too unreasonable.

[122] See Griffin, op. cit. (n. 99), 84–5, for weaknesses in Tacitus' presentation of A.D. 62 as a crucial turning point.

[123] The manuscripts of the *Epistulae morales* contain just twenty books, but Gell. 12.2.3 cites a letter from a lost Book 22.

[124] We may note that this is a very modest rate of composition compared to what Cicero achieved at the end of his life, when he wrote nearly thirty philosophical books in less than two years.

then either the *Natural Questions* was begun later in 62, even in early 63, or, if it was started earlier in 62, the rate of composition was a good deal slower. Both hypotheses seem viable, and I see no very strong arguments for choosing between them. True, Seneca stresses the need for haste in 3.praef.1, but that does not necessarily mean he achieved it.

(v) There is another argument, which Wallace-Hadrill does not mention, based on the manuscript variants given above. The crucial phrase with the consular date, *Regulo et Verginio consulibus*, occurs in a different position in the two branches of the manuscript tradition, one represented by a single manuscript, Z, the other by all the other manuscripts, whose archetype is denoted by Ψ. Furthermore, Z adds Verginius' cognomen *rufo*. The variation in word order is economically explained as the result of a marginal gloss in the archetype being inserted into the text at different points in the two branches. But another explanation is possible, that the words were written by Seneca, then were omitted by parablepsy from *motus* to *consulibus*, but the missing words were added in the margin, and later reinserted in the text in different places. The latter explanation is more complicated, but not to be ruled out.[125]

(vi) Wallace-Hadrill says that the 'hypothesis of "interpolation" is a last resort to which we should only turn if there is a compelling reason' (pp. 190–1). This would be a fair comment if the only evidence for interpolation were internal to Seneca, but the conflict between Seneca and Tacitus must not be forgotten. One might equally say that we should only suppose that Tacitus' date is erroneous as a last resort if there is a compelling reason. The text of Seneca and the Tacitean date can scarcely both be right, and we need to choose between them.[126] We may decide that there are insufficient grounds to make a choice, but I do not think that is the case. Aside from the conflict between the two authors, no one has offered reasons to suspect that Tacitus is mistaken. On the other hand, in Seneca there are grounds for suspicion, in the textual variants affecting the crucial phrase, and in the awkwardness of explaining the cross-references between the comet of A.D. 60, the Achaean and Macedonian earthquake, and a Campanian earthquake of A.D. 63. Neither is a compelling argument on its own, but given the conflict with Tacitus, to my mind they make it more probable that the source of the problem is interpolation in Seneca.

University of St Andrews
hmh@st-andrews.ac.uk

[125] Another complication: the word order given by Z is more natural, since it puts the consular date adjacent to the calendar date, and the relative *qui* next to its antecedent *motus*. But omission by parablepsy was easy only with Ψ's order, with *motus* coming earlier than *consulibus*. (Note that the late manuscripts ST omit the consular names, presumably by accident.)

[126] M. Henry, 'L'apparition d'une île. Sénèque et Philostrate, un même témoignage', *AC* 51 (1982), 174–92, argued that there could have been two earthquakes, one in A.D. 62 and one in 63; against this see H. M. Hine, 'The date of the Campanian earthquake: A.D. 62 or A.D. 63, or both?', *AC* 53 (1984), 266–9. P. Parroni, in his recent edition (Seneca, *Ricerche sulla natura*, a cura di P. Parroni (2002)), thinks that A.D. 62 is the more likely date (p. xiii n. 1), but that an interpolation in 6.1.2 is hard to explain, so we perhaps have an 'incongruenza' of Seneca's (p. 573). But it seems improbable that Seneca, writing in A.D. 63, would have been confused about the date of an event of the previous year.