SEXTUS EMPIRICUS

Sextus Empiricus' *Against the Physicists* examines numerous topics central to ancient Greek enquiries into the nature of the physical world, covering subjects such as god, cause and effect, whole and part, bodies, place, motion, time, number, and coming into being and perishing, and is the most extensive surviving treatment of these topics by an ancient Greek sceptic. Sextus scrutinizes the theories of non-sceptical thinkers, and generates suspension of judgement through the assembly of equally powerful opposing arguments. Richard Bett's edition provides crucial background information about the text and elucidation of difficult passages. His accurate and readable translation is supported by substantial interpretative aids, including a glossary and a list of parallel passages relating *Against the Physicists* to other works by Sextus. This is an indispensable edition for advanced students and scholars studying this important work by an influential philosopher.

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SEXTUS EMPIRICUS

Against the Physicists

RICHARD BETT



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Abbreviations

DK	H. Diels and W. Kranz, Die Fragmente der Vorsokratiker (6th
	edn, Berlin: Weidmann, 1951)
IG	B. Inwood and L. Gerson, Hellenistic Philosophy: Introductory
	Readings (2nd edn, Indianapolis/Cambridge: Hackett Publishing
	Company, 1997)
LS	A.A. Long and D.N. Sedley, The Hellenistic Philosophers
	(Cambridge University Press, 1987)
М	Sextus Empiricus, Adversus Mathematicos (see Introduction,
	section I)
OCD	S. Hornblower and A. Spawforth (eds.), The Oxford Classical
	Dictionary (3rd edn, Oxford University Press, 1996)
OED	The Compact Edition of the Oxford English Dictionary (Oxford
	University Press, 1971)
PH	Sextus Empiricus, Outlines of Pyrrhonism (see Introduction,
	section I)
SVF	H. von Arnim, Stoicorum Veterum Fragmenta, 3 vols. (Leipzig:
	Teubner, 1903–5)
TLG	Thesaurus Linguae Graecae (searchable online corpus of all
	ancient Greek texts)

Introduction

I LIFE AND WORKS

Sextus Empiricus stands near the end of a lengthy tradition of philosophers who called themselves, among other things, "sceptics" (*skeptikoi*, literally "inquirers") and "Pyrrhonists" (after Pyrrho of Elis, from whom they claimed inspiration). For us, he is by far the most important member of that tradition, because he is the only one from whom we have substantial surviving writings. Given the extent of these writings, it is extraordinary how little we know about him as a person. Neither he nor anyone else tells us where he was born, or where he lived and worked. He is usually placed in the second century CE, but even this is far from certain, and attempts to pin down his dates more precisely have not found general acceptance.² Aside from frequent references to himself and unnamed others as "we sceptics," the only thing he clearly tells us about himself is that he was a medical practitioner (*PH* 2.238, *M* 1.260, *M* 11.47). It would seem from his title that he was a member of the Empiricist school of medicine, and Diogenes Laertius (9.116) confirms that this was so, calling him "Sextus the Empiricist"; we know the names of other Pyrrhonists who were also medical Empiricists, so this would not be particularly unusual. But here too, there is room for some doubt. Sextus actually talks about the relation between Pyrrhonist scepticism and medical Empiricism (PH 1.236-41), and seems to say that they are not as closely connected as some have claimed; indeed, he singles out another school, the Methodists, as being closer to scepticism than the Empiricists. Or at least, to some Empiricists; the passage can

¹ Some of this section borrows material from the opening section of the Introduction to Bett 2005; the basic facts that need to be told are the same in each case.

² The classic article on this subject, establishing the minuscule extent of our knowledge of Sextus the man, is House 1980. See also Floridi 2002, ch. 1.1, "Life"; despite warning (at 1) that House is "exceedingly skeptical" on this subject, Floridi's account is in fact no more optimistic about achieving definite answers.

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perhaps be read as criticizing one variety of Empiricism rather than the entire school. But he does not expand on the point, here or anywhere else in his surviving works,³ and a definitive resolution of the puzzles raised by this passage is not likely.⁴

References in antiquity to Sextus individually, as opposed to the Pyrrhonist tradition in general, are in fact very scarce; not only his life, but also his writings seem to have gone largely unnoticed in intellectual circles. Diogenes Laertius (9.116) mentions a student of Sextus called Saturninus; but he is otherwise unknown, and there are no clear signs of a continuous Pyrrhonist tradition beyond that point. Moreover, Sextus' writings seem strangely detached from his own time. Though his exact dates are unknown, he must have lived no earlier than the middle of the first century CE, since he refers to the emperor Tiberius (in the past tense, apparently implying that he is dead, PH 1.84); and yet the philosophers he speaks of by name are entirely from the Hellenistic period and earlier, none of them being later than the early first century BCE.⁵ In particular, he seems completely unaware of Platonism and Aristotelianism as live forms of philosophy in his own day (as they were, on any tenable view of his dates). So the ignorance of Sextus on the part of his contemporaries seems to be matched by his own ignorance of them. It was not until the revival of interest in antiquity in the Renaissance and early modern periods that his writings attracted a wide readership; by the 1560s Latin translations of all his surviving works had been published.6

Three of Sextus' works survive wholly or partly.⁷ The best known, and in many ways the most accessible, is *Outlines of Pyrrhonism* (abbreviated *PH*, the initials of the Greek title in transliteration), consisting of three books; the first is a general introduction to Pyrrhonist scepticism, while the second and third address the central issues in each of the three broad areas of philosophy recognized in the period after Aristotle, namely, logic, physics and ethics. The two books *Against the Physicists* are part of a second work

³ Sextus also refers to his *Medical Treatises* (*M*7.202), and to his *Empiric Treatises* (*M*1.61), which may be the same work or a part of it. One may well suspect that, somewhere in this material, he discussed his own relation to Empiricism in more detail; however, none of it has survived.

⁴ An excellent recent discussion of these issues is Allen 2010.

⁵ A possible exception is the Stoic Basilides, mentioned at *M* 8.258; a Stoic of this name is attested as a teacher of Marcus Aurelius. However, a philosopher of this name also appears in a list of Stoics, apparently chronologically ordered, in a cluster belonging to the second century BCE; see Rose 1866: 370–I. There is no way to know for sure which of these Sextus is referring to; but it would certainly conform better to his general pattern if it was the earlier Basilides.

⁶ See Floridi 2010.

⁷ He also refers to a work *On the Soul (M* 10.284, cf. *M* 6.55), which does not seem to be identifiable with anything in his surviving oeuvre, as well as to one or more medical works (cf. note 3 above).

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that, in its surviving portions, covers roughly the same ground as PH 2 and 3, but at far greater length; Against the Physicists is preceded by two books Against the Logicians and followed by one book Against the Ethicists. But it seems clear that these five books were originally preceded by an additional book or books; the first sentence of Against the Logicians refers back to a justcompleted general account of Pyrrhonism, which would seem to be a lost portion corresponding to PH 1.8 Sextus himself seems to refer to this complete work by the title *Skeptika Hupomnêmata* (*Sceptical Treatises*); he uses this title in several places to point to what look like passages of Against the Logicians and Against the Physicists (M 1.29 [26], 2.106, 6.52). There is circumstantial evidence for thinking that the lost, general portion was five books long;⁹ the manuscripts call the two books *Against the Physicists* and the single book Against the Ethicists the eighth, ninth and tenth books, respectively, of Sextus' Skeptika or of his Hupomnêmata,¹⁰ and Diogenes Laertius (9.116) refers to Sextus' Skeptika in ten books. If this is correct, unless the five general books were very short, the complete work was of massive proportions.

The third surviving work, Pros mathêmatikous (Against the Learned, standardly abbreviated by M is on a number of specialized sciences: specifically, the six books in order are Against the Grammarians, Against the Rhetoricians, Against the Geometers, Against the Arithmeticians, Against the Astrologers and Against the Musicians. As we shall see, there is some overlap between Against the Physicists and parts of this work, especially parts of the mathematical books. But in most respects this third work pursues a different agenda and deals with a different kind of subject-matter from either of the other two. Despite this, at some point the five surviving books of Skeptika Hupomnêmata came to be viewed as the continuation of the six-book work on the specialized sciences, and so Against the Logicians is standardly referred to as M 7-8, Against the Physicists as M 9–10, and Against the Ethicists as M 11. This really makes no sense; even aside from the difference of subject-matter, the first and last sentences of M I–6 make clear that it is a complete and self-sufficient work, while Against the Logicians begins, as already noted, with a backreference to a general treatment of Pyrrhonism. But the loss of this general

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⁸ See Janáček 1963. I say more about Janáček in section IVC below. ⁹ See Blomqvist 1974.

¹⁰ The titles *Against the Logicians, Against the Physicists* and *Against the Ethicists* are not, then, Sextus' own, with the possible exception of the first; at the top of some manuscripts of the first of these five books is the heading "The first of Sextus' two books against the logicians." It is modern editors who have extrapolated from this opening wording to create the titles by which the various surviving portions of the work are regularly known today. In cross-references Sextus sometimes speaks of his arguments against the logicians, the physicists or the ethicists, but there is no particular reason to think that he means these as titles of the books in question.

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treatment no doubt contributed to making such a misunderstanding possible. Although the difference between the two works is now universally recognized, the conventional abbreviations have remained in common usage; it is not realistic to expect this usage to disappear, but it is important to remember that, despite what may once have been thought (which is embodied in the abbreviations), M I–6 and M 7–II are two quite distinct works.^{II}

II THE CHARACTER OF SEXTUS' SCEPTICISM

As noted earlier, Pyrrhonism took its inspiration from Pyrrho, a thinker from the fourth and early third centuries BCE. His thought is difficult to reconstruct, and there is considerable controversy about the extent to which he anticipated the later movement named after him. Since Sextus rarely mentions him, and never in Against the Physicists, we need not concern ourselves with this issue here.¹² Pyrrho seems not to have excited much interest beyond his immediate followers, until in the early first century BCE another little-known figure, Aenesidemus of Cnossos, started a new form of philosophy claiming to be following in Pyrrho's path; and this was the start of the tradition to which Sextus later belonged. Sextus mentions Aenesidemus somewhat more often, including five times in Against the Physicists (1.218, 337, 2.38, 216, 233). But it is often hard - and the passages of Against the Physicists are no exception to this - to detect any distinctively sceptical outlook in the views of Aenesidemus that Sextus reports. The most important piece of evidence for Aenesidemus as the founding member of the later Pyrrhonist tradition is a summary of his Purrôneioi Logoi (Pyrrhonist Discourses) in the Bibliotheca (Library) of Photius, a ninthcentury Patriarch of Constantinople (169b18–17ob35 = LS 71C + 72L). Arguably, the position expressed by, or ascribed to, Aenesidemus in this text, though certainly sceptical in some recognizable sense, is substantially different from the one that we find in most of Sextus' writings, including

¹¹ While conceding its entrenched character, I try in this volume to do a little to subvert this usage. For the sake of brevity I conform to it in this Introduction, and in the list of parallel passages at the back of the volume, to the extent of referring to passages from *Against the Logicians* and *Against the Ethicists* by *M* 7/8 or *M* II respectively (plus the section numbers after the period – this is standard in all scholarly references to Sextus). In the notes to the translation, however, these books are referred to as *Against the Ethicists* (with "(Book) 1" or "(Book) 2" to designate the different books of *Against the Logicians*). Passages of *Against the Physicists* itself are referred to throughout by "(Book) 1" or "(Book) 2" plus section numbers.

¹² There is, however, a mention of his disciple and biographer Timon of Phlius (Book 2.197). See the footnote to that section for a possible difference between Pyrrho and Timon; for a general orientation to both thinkers, and references to further reading, see Bett 2010b and Bett 2010c.

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Against the Physicists; but the matter remains controversial. I say a little more about this below (section IVC).

The best place to start, in explaining the version of Pyrrhonism standard in Sextus himself, is a single sentence near the beginning of the first book of PH: "The sceptical ability is one that produces oppositions among things that appear and things that are thought in any way whatsoever, one from which, because of the equal strength in the opposing objects and accounts, we come first to suspension of judgement, and after that to tranquility" (PH 1.8). One starts, then, by assembling sets of opposing arguments and impressions on any given topic. And the juxtaposition of these opposing arguments and impressions is then said to lead to suspension of judgement on that topic, because of their "equal strength" (isostheneia). That is, one finds oneself unable to decide in favor of any one argument or impression on the topic over the others; each one seems equally persuasive, and so one has no choice but to suspend judgement. "Equal strength" is thus a psychological rather than a logical notion; the focus is on the effect of these arguments and impressions on the reader or listener rather than on their evidential or logical merits. One might, of course, wonder why Sextus is so confident that all the arguments and impressions on some topic will be found equally strong (in this sense). The answer is that the sceptic's "ability" (dunamis) consists precisely in designing the set of arguments and impressions, in any given case, so that they will in fact have this effect. This suggests, among other things, that the arguments and impressions need to be tailored to the audience; a set of arguments and impressions that was of "equal strength" for one audience might not be so for another. And Sextus is quite explicit that this is the case (PH 3.280–1).

Pyrrhonist scepticism, then, is importantly different from scepticism as understood in contemporary philosophy. First of all, it is not centered specially around knowledge, as are most forms of scepticism discussed today. The potential subjects of the sceptical procedure just sketched are quite unlimited; one can produce a situation of "equal strength" about any topic one likes. It is a difficult question, and an important one in recent scholarship, whether this scepticism applies only to the intellectual positions of philosophers and other theorists, or whether it also applies to the everyday beliefs of ordinary people; at least at first sight, Sextus' work seems to give conflicting answers to this question. But either way, there is no limitation to what we would call epistemology, or to any particular subjectmatter; one applies the sceptical procedure to a whole range of subjects, and the titles of Sextus' own works, as indicated in the previous section, bear this out. (This is not to deny that questions about the justification for certain

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positions play an important role in some of Sextus' discussion; frequently this is one of his techniques for subverting confidence in some theory. The point is that this is a means to an end, not the centerpiece of his scepticism.)

Mention of the sceptic's "procedure" brings out a second key contrast with scepticism as normally understood today. The Pyrrhonist sceptic is not someone who accepts some theory, doctrine or conclusion, or someone who denies the truth of others' theories, doctrines or conclusions. Rather, scepticism is a certain type of *activity* – or, to bring it closer to Sextus' own term "ability," expertise in a certain type of activity: namely, the production of suspension of judgement as broadly as possible. And it is clear that this is an ongoing activity; suspension of judgement is not something to be reached once and for all (as the conclusion of an argument might be, unless one found reason to change one's mind), but something that has to be maintained (whether in oneself or in others) by the repeated assembly of "oppositions."

What is the payoff, from the sceptic's point of view, of engaging in this activity? Here we come to the final element in the once-sentence summary in PH 1.8. A further effect of suspending judgement, according to Sextus, is tranquility or freedom from turmoil (ataraxia). As he explains elsewhere (PH 1.25-30, M 11.141-4), he has in mind here specifically ataraxia in matters of opinion. He acknowledges that we are all subject to pain, hunger and other physical disturbances (though even here, for reasons we need not get into, he claims the sceptic is better off than other people). But there are also, he thinks, kinds of disturbance associated with the holding of opinions (this being understood as the opposite of suspension of judgement) and from these the sceptic, because he holds no opinions, is free; on the other hand, the non-sceptical philosopher, who does hold opinions - in Sextus' terminology, the "dogmatist" - is full of such disturbances. Life as a sceptic, then, is preferable to life as a dogmatist - and perhaps also to life as an ordinary person, although here again, Sextus gives conflicting signals on whether scepticism and ordinary common sense are at odds. Or at least (since to speak of a life as "preferable" might itself qualify as an opinion) Sextus makes clear that *he* prefers life as a sceptic, and invites us to consider whether we might not prefer it too. Sextus does not seem to tell an entirely clear story about *what* the disturbances are to which the holder of opinions is subject. Whenever he explicitly addresses the issue, it is opinions specifically concerning certain things being good or bad by nature that are said to cause turmoil. But his description in PH 1.8 of ataraxia as the outcome of suspension of judgement seems unrestricted as to subject-matter, and this is echoed in some other passages (PH 1.12, 31); here it sounds as if any serious

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attempt to discover the truth, no matter what the subject-matter, brings turmoil, and the sceptic achieves *ataraxia* by having given up on that search.¹³ Certainly Sextus is just as enthusiastic about discussing non-ethical subjects as ethical ones, and so one would expect him to regard the practical payoff as applying across the board.

Here, then, is a further pair of contrasts with scepticism as discussed today. First, scepticism is usually thought of today as something worrying, something that needs to be somehow put to rest, whether through refutation, demonstration of its incoherence, or in some other fashion. But for the Pyrrhonist, scepticism is to be embraced as an improvement on one's previous state of mind. And second, scepticism is a *way of life*, something to be put into practice, rather than a purely intellectual posture. Not surprisingly, however, the practical payoff of scepticism is actually discussed only in the ethical sections of Sextus' work and in the general introduction to Pyrrhonism in *PH* I. In the other parts, including in *Against the Physicists*, the focus is simply on the production of suspension of judgement in the areas in question.

III THE CHARACTER OF AGAINST THE PHYSICISTS

Against the Physicists applies the method just outlined to a number of central topics in "physics," that is, the study of nature understood in the broadest terms. In order, the topics treated are god, causing and being affected, whole and part, body, place, motion, time, number, and coming into being and perishing. These are described at the outset as "principles" or "starting-points" (*archai*) of the subject (I.I–3), and Sextus justifies his decision to concentrate on these by saying that this is much more economical and effective than a piecemeal examination of specific topics; disruption of the foundations of the subject (the analogy of the foundations of a wall is explicitly invoked, I.2) will automatically put into doubt theories about the specific topics, whereas the raising of doubts about specific topics will not generally have consequences beyond those topics themselves. The Academics are criticized for following the latter method.

Now, the Academy, the school founded by Plato, engaged for some two centuries in a form of thinking that is today generally characterized as sceptical, and that was widely considered in the ancient world to be importantly similar to Pyrrhonism; this "sceptical Academy" was begun by Arcesilaus (316/5–241/0 BCE), the fifth head of the Academy after Plato,

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¹³ I have discussed this in a little more detail in Bett 2010a: esp. 189–90.

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reached its zenith with Carneades (214–129/8 BCE), and continued for a few decades after his death under his pupil Clitomachus (singled out for particular criticism by Sextus in the passage just mentioned) and a few others. Sextus' criticism seems to suggest that he sees himself as having common ground with them; he does better than they do, because of his concentration on first principles, but they are in some sense pursuing the same goals as he is. One would not have expected this from other remarks of his about the Academics; elsewhere he talks as if they are not just inferior practitioners in the same enterprise as his own, but engaged in a quite different enterprise.¹⁴ However, the matter of Sextus' relation to, and treatment of, the Academics is a very complicated one; since *Against the Physicists* drops the issue immediately, and barely even mentions any Academic in the rest of the work,¹⁵ it would not be appropriate to pursue it here.

What is interesting, though, regardless of its relation to Academic thinking, is Sextus' description of his project at the opening of Against the *Physicists* as that of developing "a counter-argument against everything" (*kata pantôn . . . antirrêsin*, 1.3). "Against everything" reflects his focus on foundations; he can cover the whole subject, given that he is engaging with it at a sufficiently basic or general level. But his intention to produce a "counter-argument" sounds, at least on the surface, somewhat different from the approach that I sketched in the previous section; arguing against the prevailing theories is not the same as inducing suspension of judgement about them. Of course, the former may be an essential stage in progress towards the latter (more on this in a moment), and perhaps this is what Sextus has in mind. However, it is at least a little surprising that, at the outset of the entire discussion, he would characterize his goal in this way; and one may wonder whether this remark possibly reflects a different understanding of what Pyrrhonism is (one in which negative arguments play a central role) from the standard one that we have considered so far. I return to this point in section IVC below.

Be that as it may, the standard understanding is clearly the one in play in most of *Against the Physicists*. Although in most cases (the section on god is

¹⁴ He discusses them in some detail in *PH* and *Against the Logicians*. The issue has been extensively examined in Ioppolo 2009; for a brief summary of this book in English, see Bett 2012.

¹⁵ Besides the opening of Book 1, the only other passage where an Academic is referred to is the set of arguments in Book 1 against the existence of god. It actually looks as if Sextus makes extensive use of Academic material in this section; there is very considerable common ground between Sextus' arguments against the existence of god and those of the Academic Cotta in Book 3 of Cicero's *De natura deorum*. On this point see Long 1990. Still, despite his apparent debt to the Academics, Sextus only refers in passing to Carneades at 1.140 and only acknowledges borrowing from him at 1.182–90.

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in this respect an exception) far more space is devoted to negative arguments than to positive ones, ¹⁶ Sextus makes clear numerous times that suspension of judgement is the intended outcome (1.59, 137, 191, 192, 194, 2.168). And the greater attention to the negative arguments is easily explained by the fact that the positive position – that is, the view that motion, time, or whatever the object of the discussion may be, exists and has a certain nature – has already been argued for by the dogmatists; Sextus' own greater attention to negative arguments can therefore be seen as aimed at redressing the balance. Sometimes, too, ordinary common sense is enlisted on the positive side (1.50, 61–74, 2.45, 168), which again suggests why Sextus sees a greater need (if equal persuasiveness on either side is the goal) to develop arguments on the negative side. Sextus actually says in *Against the Logicians* (M 7.443) that his goal demands that he devote his main attention to arguments that run counter to everyday conceptions of things, and it is fair to see the same motivation in play in *Against the Physicists*.

The prevalence of negative arguments does not, however, prevent Against the Physicists from being a valuable source of information about earlier Greek philosophers' views on physical topics. Sometimes he explains some philosopher's view on a certain topic in the course of criticizing it; at other times he lines up earlier philosophers' views on the positive side of the ledger in order to create a balance with the negative views that generally occupy more space in his text. In either case, Sextus often tells us things about the history of Greek philosophy that we would not otherwise know. He is not by intention a "doxographer," that is, a recorder of the opinions of philosophers, of which there were many in later antiquity; rather, as we have seen, he has a clear philosophical agenda of his own. But it suits that agenda for him to include a great deal of information that for us (deprived as we are of a huge proportion of the original philosophical works that he or his sources were able to consult) is often just as useful as what we can derive, directly or indirectly, from the doxographers. Against the Physicists is not, of course, alone among Sextus' works in this respect. But it is probably true that, from this point of view, Against the Physicists and the larger work to which it belongs are especially useful. Not only is this work much longer, but its character is much more rambling and discursive than PH; for both reasons, Sextus tends to go into much more detail about other people's views on the topics he is discussing.

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¹⁶ For a detailed accounting of this, see the Outline of Argument that immediately precedes the translation (and is inserted into it as section headings).

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A great deal could be said about the individual sections of *Against the Physicists* and how they conform to the general picture just sketched. Some details, intended to be helpful in following the twists and turns of Sextus' discussion, are provided in the notes to the translation. Another very helpful resource is the just-published collection of essays originating from the 2007 Symposium Hellenisticum, the subject of which was *Against the Physicists*.¹⁷ Since each author was assigned a section of the text to discuss, these essays collectively form a book-length commentary on the work; each essay also includes a detailed breakdown of the argument in its section of the text (more detailed than the Outline of Argument in this volume).¹⁸

IV AGAINST THE PHYSICISTS IN RELATION TO SEXTUS' OTHER WORKS AND TO EARLIER SOURCES

As we have seen, *Against the Physicists* is sandwiched between *Against the Logicians* and *Against the Ethicists*, the whole sequence forming the surviving portion of an originally still more extensive work. Occasional short passages of *Against the Physicists* have close parallels in one of the other parts of the work, and occasionally there are cross-references among the various parts; the parallels are noted in the list of parallel passages at the end of the volume, and the cross-references are indicated in the notes to the translation. These links among the various parts of the work are, however, incidental; the three parts each deal with their own distinct sets of topics and, with these occasional brief exceptions, proceed independently of one another.

A Against the Physicists and M 1-6

The relations between *Against the Physicists* and Sextus' other two surviving works are rather more interesting. I begin with *Against the Learned* (M I–6). Here too there are occasional parallels of a brief and incidental character. Some sections of the discussions of subtraction and addition, and of whole and part, in Book I of *Against the Physicists* (I.277–329, 33I–58) have relatively close parallels in *Against the Grammarians, Against the Geometers* and *Against the Arithmeticians*; and one stretch of the discussion of time in Book 2 of *Against the Physicists* is paralleled by a passage in *Against the*

¹⁷ Algra and Ierodiakonou (2013).

¹⁸ In constructing my own Outline of Argument, I have learned especially from the analyses of their respective sections by R.J. Hankinson (motion), Susanne Bobzien (time) and Tad Brennan (number).

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Musicians.¹⁹ But the parallels with the mathematical books of Against the Learned go considerably further. A large proportion of the discussion of body at the end of Book 1 of Against the Physicists (1.366-439) has close parallels with passages from Against the Geometers, and a significant segment of the discussion of number in Book 2 of Against the Physicists, where the Pythagorean position on numbers is criticized (2.284-309), is paralleled much of the time by passages in Against the Arithmeticians.

An interconnection between mathematics and physics would not surprise anyone today. But ancient Greek physics and what is now called physics are so different that some explanation of this overlap is in order. The main reason for it is that Against the Geometers and Against the Arithmeticians are both directed, in different ways, at uses of their respective subjects in physics. The ancient Greeks certainly had a conception of pure mathematics, but that is not what Sextus is concentrating on here. It is thus no accident that the parallels with Against the Geometers are in the section of Against the Physicists on body; it has recently been well said that Sextus' target in Against the Geometers is "geometry as a means of modeling the physical world," and that his purpose is "ruining the support geometry was intended to bring to the physical part of dogmatic philosophy."20 As for number, Sextus' entire discussion of this subject in Against the Physicists is about the Pythagorean view that numbers are in some sense the principles of the cosmos. This explains why number should figure as a topic in a treatise on physics; the Pythagoreans understood their ideas about numbers as (at least in part) a contribution to cosmology. But Against the Arithmeticians is centered around the same issue, and it has recently been claimed that the title itself (Pros Arithmêtikous) "would better be rendered by Against those who teach that numbers are principles."21 The presence of these extended parallels between Against the Physicists and the mathematical books of Against the Learned therefore has more to do with the distinctive orientation of the latter than with features peculiar to Against the Physicists itself.

The parallels are close enough that it is clearly the same material being reused in some fashion - but how? Is Sextus simply drawing on one of his own works while writing another, altering the wording and other details to

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¹⁹ For the details of these and other parallels, I refer the reader to the list of parallel passages at the back of the volume. ²⁰ Dye and Vitrac 2009; the quotation is taken from the opening abstract in English.

²¹ Again I draw from an English abstract of a French article; see Brisson 2006. The amount of recent interest in this work by Francophone scholars is due at least in part to the appearance of a fine new collaborative French translation of M 1-6 (with facing Greek text, introduction and notes); see Pellegrin 2002.

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varying degrees? In the case of *Against the Geometers* and *Against the Physicists*' discussion of body, where long stretches of the two texts proceed in parallel, it seems plausible enough that the earlier text served as a model for the later one;²² and perhaps the same is true of the shorter parallel between *Against the Arithmeticians* and part of *Against the Physicists*' discussion of number. But in most cases the parallels with M I–6 are much more short-lived and, seemingly, more haphazard than this. And even in the case of *Against the Geometers*, the parallels do not always proceed in the same order in both works; in addition, there are short pieces of *Against the Geometers* that have no counterpart in *Against the Physicists*, and vice versa.²³ All of this points to the possibility of another explanation of the parallels, one that raises issues of broader significance for the understanding of Sextus.

B Sextus' use of earlier sources

It has long been understood that Sextus draws to a very considerable extent on earlier sources in the Pyrrhonist tradition and probably elsewhere.²⁴ As noted earlier, there are no other Pyrrhonists besides Sextus whose work has survived intact. But there are correspondences between passages of Sextus and passages of Diogenes Laertius' summary of Pyrrhonism (9.74–108) that are too close for coincidence; they extend beyond similarities of subjectmatter to parallels in argumentative structure, and even detailed correspondences in vocabulary and sentence-structure. They also occur at numerous different places in Sextus' work, as opposed to being confined to a single book. (There are occasional parallels between Sextus and other authors as well, but I shall ignore these; the parallels with Diogenes are by far the most wide-ranging.) Since, as we saw, Diogenes mentions Sextus, and also Sextus' pupil Saturninus, he is clearly the later of the two, and one might suppose that he is simply copying his material from Sextus. But there are also sufficiently many differences between the two authors to make this highly unlikely. In addition to some stylistic differences, Diogenes very often treats material in a different order from Sextus, and some of his

²² Against the Learned seems to be the later of the two; as we saw, it seems to contain some backreferences to Against the Logicians and Against the Physicists.

²³ This latter point also applies to the parallel between *Against the Arithmeticians* and the treatment of number in *Against the Physicists*. For all the details, see again the list of parallel passages at the end of the book.

²⁴ This paragraph is lifted almost verbatim from the Introduction to Bett 2005, as are parts of the two paragraphs after the next one.

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material does not correspond to anything in Sextus (but this is interspersed with material that does). Diogenes is quite explicit about using earlier sources, and he could hardly have made up this non-corresponding material. The conclusion therefore seems inevitable that Sextus and Diogenes are both drawing on the same earlier (but now lost) source or sources, either directly or at one or more removes.²⁵

Now, if Sextus characteristically works by borrowing from earlier sources, we may assume that he is using different sources when composing Against the Geometers and Against the Arithmeticians from the ones he used when composing Against the Physicists; the differences of subject-matter and the amount of material unique to each book more or less guarantee this. And so, when we find material common to the two works, we need not conclude that he is borrowing from one work of his own in composing the other, though this may well be true in some cases; we may instead suppose that he is simply drawing on his different main sources for the two works, but that these sources themselves reproduced closely related versions of material that was common property in the Pyrrhonist tradition, and that had been reworked (and in some cases reordered) by several different people, whose identities are unknown to us, over a century or two. That some of the same arguments would have appeared in these different sources when there happened (for reasons that we have seen) to be an overlap of subjectmatter would be no surprise, given that both (or all) of these sources were generated by what appears to have been a relatively small and homogeneous group of thinkers.

It is an interesting question how closely Sextus stuck to his sources. Given the frequent verbal parallels with Diogenes Laertius, the answer is clearly sometimes "very closely." But this is compatible with his often having reworded or rearranged what he found in his sources, brought together material from two or more different sources, and sometimes written stretches of text without relying on any earlier source. He has often been regarded as a "copyist" (as Diogenes surely was) rather than an original writer or thinker, but there is in fact no good reason for assuming this; his undoubted use (and even verbatim copying) of previous material does not exclude his also having reshaped or added to it, so as to become the author of his own works rather a mere conduit for the writings of others. Indeed, it is my sense (if I may offer a purely personal impression) that Sextus' writing has a consistent authorial personality, a voice that is distinctively his own; in all his works there is the same dry wit, the same energetic but low-key

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²⁵ For further discussion of this topic, see Barnes 1992.

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approach to laying out the arguments on either side, and the same occasional delight at skewering the dogmatists' positions. Sextus the historical person may be an almost complete enigma, but Sextus the author is (or so I feel) someone we know. This would hardly be the case if he was nothing more than a passive copyist of other people's work.

C Against the Physicists and PH

I come now to the comparison between Against the Physicists (and the larger work to which it belongs) and PH. This is where we can find the best case for attributing to Sextus authorial intentions of his own. As noted earlier, Against the Logicians, Against the Physicists and Against the Ethicists cover roughly the same ground as PH 2–3. Here again there are a great many parallel passages in the two works, and in some of these cases, too, there is a very close similarity of thought and language. Clearly one of these works is a revised version of the other; either Sextus wrote PH first and then expanded it into the work of which M_{7-11} is the surviving portion, or he wrote the latter work first and then condensed it into PH. But either way, it must be allowed that (at least in the later work, whichever that is) Sextus shows some initiative in the way he organizes and reworks his material. For despite the many close parallels, there are also significant differences; entire topics are treated in one work and ignored in the other, and the language and approach do sometimes differ considerably. In some cases this probably involves the use of distinct sources in one work as opposed to the other. The entire long section on god in Against the Physicists (1.13-194), for example, follows a quite different road map from the (much shorter) section on God in PH 3 (2–12), and summarizes a large number of arguments from others (including, as we saw, Carneades); conversely, PH 3 includes a whole chapter on Mixture (krasis, 56-62) that has no counterpart in Against the *Physicists*. But again, since the nature and extent of the overlap makes clear that one of these works is a revision of the other, we may fairly conclude that the decisions on what to put in and what to leave out are Sextus' own. Or (to repeat) at least in the revised version; but then, if he did so in the revised version, it is not unreasonable to suppose that this was his habitual method.

So which is the original and which is the revised version? It was traditionally assumed that *PH* was written first and that Sextus then expanded it into the larger work that includes *Against the Physicists*. As I mentioned earlier, *Against the Logicians* begins with a back-reference to a general treatment of Pyrrhonism, and at one time this was thought to be a backreference to *PH*. But since only *PH* I is a general treatment (the other two

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books deal with particular topics, just like the surviving portion of the larger work itself) this cannot be right; and so, as the Czech scholar Karel Janáček showed in a seminal article,²⁶ the reference must be to a lost general portion of the longer work. Nevertheless, Janáček continued to believe that *PH* was the earlier work, but now on purely stylistic grounds.²⁷ His studies of the differences in style and vocabulary among Sextus' works were for a time thought to settle the question. But, despite their undoubted interest, *all* these studies establish is that the works have stylistic differences; they do nothing whatever to show the order of the works.²⁸ So the question needs to be decided, if it can be decided, on other grounds.

If one work is a revised version of another, one would generally expect that the later one would be more polished than the earlier. I have argued elsewhere that in terms of organization, argumentative effectiveness and overall control of his material, Sextus quite clearly does a better job in PH than in any of Against the Logicians, Against the Physicists or Against the Ethicists.²⁹ Here I confine myself to Against the Physicists, and to just a couple of examples. These two books have a number of structural oddities that make it much harder to grasp the shape of the whole work, and what exactly Sextus is doing at any given time, than in the case of the physical section of PH_3 (I-167).³⁰ The section on god (I.13–194) begins with a discussion of how human beings obtained a conception of god, and then offers arguments for and against god's existence; it is not at all clear what the relevance of the first part is to the second. Again, the structure of the section on Time (2.169–247) is distinctly odd; it is very hard to see how the various major sections are supposed to relate to one another.³¹ Other cases are signaled in the notes to the translation. The corresponding sections of PH 3 do not suffer from comparable difficulties. I have tried to make the structure of Against the Physicists as clear as possible by means of the

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²⁶ Janáček 1963.

 ²⁷ Janáček's major works in this area are Janáček 1948 and Janáček 1972; his many smaller pieces have recently been collected in Janáček 2008.
 ²⁸ I have argued for this in Bett 1997: Appendix C. It is still possible to find the assertion that Janáček's

²⁸ I have argued for this in Bett 1997: Appendix C. It is still possible to find the assertion that Janáček's stylistic studies point to a particular chronology; see, e.g., Spinelli 2010. But the assertion needs support, and it is not clear what this might be.

See Bett 2005: introduction; Bett 1997: introduction and commentary; and Bett (2013). It is worth emphasizing that these criteria are independent of the clear differences between the two works, especially the fact that *PH* is an "outline" and the other work is not; this surely accounts for the fact that the longer work is much more leisurely and discursive, but it does not account for the false starts, odd or obscure transitions, and other such anomalies that this work exhibits in much greater measure than *PH*.

³⁰ I have given specifics in Bett (2013). ³¹ See especially the note to the translation at Book 2.189.

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Outline of Argument. But at times, I fear, this Outline will only confirm the difficulty of seeing how the work hangs together. Generally, the less detail is offered in the Outline, the clearer the argumentative structure; the arguments for the existence of god (1.60–136) are (at least until the end) an example of a clear structure needing relatively few analytical headings. Unfortunately, much else in *Against the Physicists* fails to meet that standard.

Here, then, is one consideration favoring the view that Against the *Physicists* belongs to the earlier of the two works. Another has to do with the possibility of traces of a variety of Pyrrhonism earlier than the one to which Sextus (officially, or most of the time) subscribes. I mentioned before that at one point in his opening remarks (Against the Physicists 1.3), he seemed to speak in such a way as to suggest that his purpose was simply to undermine the dogmatists' positions - rather than to create a situation of suspension of judgement among all the available positions on some subject, dogmatic or not. There are a few other places that give the same impression. At the end of the section on place, for example, he speaks of having "done away with" place (anêirêkamen, 2.36), which seems to mean "shown that there is no such thing." I have pointed to some other possible examples in the notes on the translation. Now, it may be that in all these places, we can argue that his wording is in fact consistent with his own standard variety of Pyrrhonism – or if not, that he is merely being careless in his language. However, the periodic appearance of language that at least seems to imply an intention to argue that the dogmatists are wrong, rather than to put their views into suspension of judgement (with each other, or with counterarguments against them), may also reflect an earlier phase of Pyrrhonism in which that was precisely the intention.

As I mentioned at the start of section II, a case can be made that the position of Aenesidemus, as recorded in the summary of his book by Photius, was somewhat different from that which we see in most of Sextus' work. Specifically, according to this reading, Aenesidemus' position included a willingness to deny the existence of various things posited by the dogmatists; Photius seems to attribute to Aenesidemus conclusions to the effect that there are no such things as signs (that is, reliable means for inferring from the observed to the unobserved), causes or ethical ends (*Bibliotheca* 170a12–14, 17–20, 30–35). Moreover, the same kind of generalized negative conclusion appears in a book of Sextus himself, namely *Against the Ethicists*. Rather than leading us to suspend judgement about whether anything is (by nature, or in reality) good or bad, Sextus here argues for the conclusion that *nothing* is by nature good or bad (*M* 11.68–95), and presents the sceptic's *ataraxia* as resulting directly from the *acceptance* of that

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conclusion – not from suspension of judgement about it (M II.130, I40).³² If Photius' evidence on Aenesidemus is read in the way I suggested, then Sextus' procedure in Against the Ethicists would represent a survival of a form of Pyrrhonism derived from Aenesidemus and distinct from the Pyrrhonism he offers in PH, as well as in Against the Physicists and Against the Logicians. Now, if we accept the existence of this earlier form of Pyrrhonism, then the occasional appearance in Against the Physicists of what sounds like the goal of establishing negative conclusions can be understood not just as a misleading distraction from Sextus' real project in the book (though it certainly is that), but also as reflecting the fact that material originally at home in this earlier Pyrrhonism has had to be adapted to fit the later variety, and that the adaptation is not always complete or perfectly executed. But if Against the Physicists shows these occasional signs of the earlier view, whereas the corresponding physical section of PH 3 seems to be free of them (as it does), then this too suggests that Against the *Physicists* is the earlier of the two; revisions would be expected to eliminate the unwanted traces of an earlier view, not to reintroduce them.

Once again, the line of thought I have just rehearsed, positing an earlier form of Pyrrhonism associated with Aenesidemus, is by no means universally accepted.³³ And even if we do accept it, the earlier form of Pyrrhonism is not more than a fleeting memory in *Against the Physicists* (unlike *Against the Ethicists*, where it takes center stage).³⁴ The Pyrrhonism that Sextus

³² I have argued for this in detail in Bett 1997: commentary. There is also, both in Photius and in Against the Ethicists, an apparent willingness to make relativized assertions (e.g., "For me, at this time – though not in the nature of things – X is to be chosen", M II.II4). This too is inconsistent with Sextus' usual assumptions, although traces of it can be found elsewhere in his works; however, since Against the Physicists does not exhibit this feature, I say no more about it here.

³³ For interpretations of Aenesidemus that make his position much closer to the later Pyrrhonism of Sextus, see Schofield 2007; Hankinson 2010. Both are also to varying degrees skeptical of my view of the distinctness of *Against the Ethicists*; on this see also Machuca 2011. In addition, it is sometimes suggested that the very idea of a substantial change of view within a single Pyrrhonist tradition is inherently incredible; see, e.g., Castagnoli 2011: esp. 53. But such transformations are absolutely normal; just think of all the people who have considered themselves followers of Plato, starting with Speusippus and Xenocrates. I see no problem here at all.

³⁴ This, of course, raises the curious point that, if I am right, different portions of the *same* work (*Against the Ethicists* versus *Against the Physicists* and *Against the Logicians*) give us different varieties of Pyrrhonism. In the past I have tried to explain this philosophically; see Bett 1997: introduction, section V. But now I am not so sure that one should worry about it. Perhaps Sextus, or some predecessor of his, had adapted earlier arguments in logic and physics so as to bring them in line with the later form of Pyrrhonism, but never got around to doing so for the arguments in ethics; Sextus did, of course, eventually do so in *PH* 3, but perhaps by that time it was not worth going back and adapting the material that we find in *Against the Ethicists*. We know far too little about the circumstances of composition of these works to be able to rule out this or many other hypotheses that would explain the inconsistency.

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intends to present here, and mostly succeeds in presenting, is the one explained earlier, which receives its clearest expression in PH; my notes to the translation attempt to do justice to this central fact, in addition to pointing to some possible exceptions to the rule. But now, the phenomena that I have pointed to in the last few paragraphs may be relevant to the question of the order of the two works whether or not we are right to see them as reflecting an earlier form of Pyrrhonism. Quite apart from that question, the fact remains that in Against the Physicists Sextus sometimes seems to speak in a way that goes against his actual approach in these books; in the physical portion of PH_3 no such tension is apparent. Whether or not this tells us anything about the history of Pyrrhonism, it tells us that Sextus is more competent in presenting his material in PH than in Against the *Physicists*. And so, whether or not this constitutes a second line of argument for the priority of Against the Physicists, it gives us one more instance of my first line of argument for the same conclusion: PH is likely to be the later work because PH does a better job.

It may seem strange, in the introduction to a work, to make a point of arguing that another work is in numerous respects better. In compensation, of course, *Against the Physicists* is a much fuller and richer treatment of its material; *PH* is, as the title says and as Sextus repeatedly reminds us, an outline account, whereas *Against the Physicists* allows a lot more space for the arguments to develop.³⁵ But in any case, flaws do not necessarily make a work less interesting. *PH* is worth studying, but so is *Against the Physicists* and the larger work to which it belongs – both on their own terms.

³⁵ Cf. note 29 above.

Note on the text and translation

The translation follows the text of H. Mutschmann, Sexti Empirici Opera, vol. II (Leipzig: Teubner, 1914), except where the notes indicate a departure from that text. In such cases the alternative text I adopt is often that proposed by some other scholar, and this too is indicated in the notes explaining the changes. In most cases the details of these scholars' textual proposals are to be found in Mutschmann's apparatus criticus; exceptions are (a) the proposals of Werner Heintz; most of the changes of his that I follow (or mention, but do not follow) come from his Studien zu Sextus Empiricus (Halle: Max Niemeyer Verlag, 1932); (b) those of Jerker Blomqvist, whose 1968 article on textual questions in Sextus is listed in the bibliography and cited in my notes by the relevant page numbers; and (c) those of other translators, on whom more below. Diagonal brackets < > inserted in the translation indicate a lacuna; that is, a gap in the Greek text, where the sense is incomplete and some words must be missing. If no words appear inside the brackets, this is because it is not clear enough what the missing words were; if words do appear inside the brackets, this indicates my acceptance of some scholarly conjecture as to the missing words. Obviously this is a matter of judgement (including, sometimes, whether we even need to posit a lacuna in the first place), and so in all these cases I offer a note with some explanation; in the notes I sometimes offer translations of other attempts to fill the lacuna (or, in the cases where I leave the lacuna blank in the main text, of attempts that are worth considering but not secure enough to accept with confidence). I do not mark lacunae in cases where Mutschmann's supplements to the Greek text seem unproblematic, except if they raise some point of particular interest.

Centered headings in large capitals in the translation are the chapter titles in the manuscripts (generally thought to derive from Sextus himself); the other headings follow the schema in my Outline of Argument, immediately preceding the translation. The numbers inserted in the translation are the section numbers that have been standard for centuries in editions of Sextus. Cross-references in the notes to other passages of *Against the Physicists* use section numbers alone if the reference is clearly to another passage in the CAMBRIDGE

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same book, and section numbers preceded by book number (I or 2) if the reference is to a passage in the other book (or if it would not otherwise be clear which book was being referred to).

Like most translators, I have learned from other translations of the same text. The only other currently available translation of the whole of Against the Physicists into English is that of R.G. Bury, in vol. III of his complete translation of Sextus in the Loeb Classical Library series (Cambridge, MA: Harvard University Press, 1936). This now sounds somewhat archaic; it is also at times philosophically insensitive to the nuances of what Sextus is saying. But this does not negate the fact that in a great many cases it captures the sense in a way that is hard to improve on. I have also benefited from consulting the translations in LS and IG; these collections of texts in Hellenistic philosophy include a number of important passages from Against the Physicists. Finally, in cases where Sextus' exact meaning was either unclear or difficult to reproduce, I often profited from the German translation of Hansueli Flückiger (Sextus Empiricus Gegen die Dogmatiker: Adversus Mathematicos Libri 7–11 (Sankt Augustin: Academia Verlag, 1998)) and occasionally from the 1718 Latin translation of Johann Albert Fabricius, itself a revised version of the 1569 translation by Gentianus Hervetus, as well as Fabricius' notes on the text (Leipzig: Kuehniana, republished 1840).

Following a common practice among translators today, I have translated philosophically important Greek terms as much as possible by the same English terms throughout. However, this is not always possible if one wants an English version that sounds more or less natural. Now, I have not always been greatly concerned about naturalness; it seems to me that an author whose time and place was very different from our own *should* sound a little odd to us, even in translation. But I have been concerned to produce a version that, while as faithful as possible to the original Greek, is at least readable and readily intelligible in English, and this has sometimes required deviations from my standard renderings of certain terms. In a few cases the attempt to find even rough uniformity consistent with readability was a failure. Thus *hupokeimai* is translated by "exist" (1.78) and "underlie" (1.201), but also "reside" (1.241), "be there" (1.438) and several other alternatives, including even "imagine" (2.56, 81) (for the third-person imperative hupokeisthô, literally "let there exist", introducing some hypothetical scenario). But mostly I have stuck, with occasional exceptions, to one or at most two standard English equivalents. The most significant of these are listed in the Glossary, which also notes some differences from the English terms used by Julia Annas and Jonathan Barnes in their translation of PH (Annas and Barnes 1994/2000).

Outline of argument

Note: This outline does not refer directly to the chapter headings in the manuscripts (which are centered and printed in large capitals in the text), but it does largely track them; these headings, though a little haphazard in places, are more helpful in *Against the Physicists* than in some other parts of Sextus.

Another valuable resource for grasping the structure of the argument is provided in Algra and Ierodiakonou (2013). Each chapter of this volume is devoted to a section of the text, and includes a structural overview of that section; these do not follow a uniform template, but they are generally more detailed than the one included here.

ΒΟΟΚ Ι

A. Introduction to the entire work (I–I2)

- 1. Focus on principles (1–3)
- 2. General distinction between active and material principles (4–12)

B. God (13–194)

- 1. Introduction (13)
- 2. On the origins of our conception of god (14–48)
 - a. Dogmatic philosophers' views on the subject (14-28)
 - b. Objections to these views (29-47)
- c. Conclusion and transition to the question of the gods' existence (48)
- 3. On the existence or non-existence of gods (49–193)
 - a. Introduction (49)
 - b. Survey of opposing positions: positive, negative and suspensive (50-9)
 - c. Transition to arguments for the positive and negative positions (59)
 - d. Arguments for the existence of gods (60-136)

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- i. Introduction (60)
- ii. Arguments "from the agreement among all humans" (61-74)
- iii. Transition to the next argument (74-5)
- iv. Arguments from design (75–122)
- v. Transition to the next argument (122–3)
- vi. Arguments "from the absurdities that follow for those who do away with the divine" (123–32)
- vii. Argument fitting the description of the fourth and last type introduced in 60 "from the refutation of opposing arguments" but not announced as such (133–6)
- e. Transition to arguments against the existence of gods (137)
- f. Arguments against the existence of gods (138–90)
 - i. Arguments based on the Stoic supposition that god is a live organism (138-47)
 - ii. Arguments from the impossibility of either of two mutually exclusive and jointly exhaustive alternatives (148–51)
 - iii. Arguments based on the supposition that god is entirely virtuous (152–70)
 - iv. Further conundrums surrounding god's virtue or lack of it (171–7)
 - v. Further arguments of type (ii) above (178–81)
 - vi. Sorites arguments from Carneades (182–90)
- g. Conclusion to arguments for and against the existence of god (191)
- h. The sceptical outcome (191–3)
- 4. Conclusion to the section on god and transition to the section on cause (194)

C. Cause and what is affected (195–330)

- 1. Introduction to the subject of cause (195-6)
- 2. Arguments for the existence of cause (196–206)
- 3. Arguments against the existence of cause (207–57)
 - a. Argument from the relativity of cause (207–9)
 - b. Arguments from the impossibility of causation involving any combination of bodily or incorporeal items (210–26)
 - c. Further arguments from the impossibility of any member of various sets of mutually exclusive and jointly exhaustive alternatives (227–48)
 - i. Causation among things at rest or in motion (227-31)
 - ii. Causation among simultaneous, earlier or later things (232-6)

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- iii. Causation as operating self-sufficiently or with the aid of the affected matter (237–45)
- iv. Causes as having one active power or many (246-8)
- d. Dogmatic objection and Sextus' reply (249-51)
- e. Further argument of type (c): causes as separate from or together with the affected matter (252–7)
- 4. Arguments jointly against the existence of anything either active or affected, based on the impossibility of touch (258–66)
- 5. Further argument specifically against the existence of anything affected (267–76)
- 6. Introduction to the subject of subtraction and addition (and change), and its relevance to the question whether anything is affected (277–80)
- 7. Arguments against subtraction (280–320)
 - a. Argument from the impossibility of subtraction involving any combination of bodily or incorporeal items (280–307)
 - b. Argument from the impossibility of subtraction involving any combination of whole or part (308–20)
- 8. Arguments against addition (321-7)
- 9. Conclusion on subtraction and addition (plus change, understood in terms of them), and reminder of their relevance to whether anything is affected (328–9)
- 10. Transition to the section on whole and part (330)

D. Whole and part (331–58)

- 1. Preliminary issues about different philosophers' conceptions of whole and part (331-8)
- 2. Argument that the whole cannot be either distinct from its parts or identical with the totality of them (338–51)
- 3. Dogmatic objections, and responses to them (352-7)
- 4. Conclusion and transition (358)

E. Distinction between believers in corporeal and incorporeal elements; proposal to tackle them one by one (359–66)

F. Body (366–439)

I. Arguments against body stemming from its conception (366–436)
a. A conception of body that is vulnerable to earlier arguments (366)

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Outline of argument

- b. Mathematicians' conception of body, and some initial impasses to which they lead (367–75)
- c. Arguments for the non-existence of length (or breadth or depth), in terms of which body is conceived (375–429)
 - i. Introduction (375)
 - ii. Argument from the non-existence of a "partless sign," i.e., point (376–9)
 - iii. Argument from the impossibility of generating a line out of one or more partless signs (380–9)
 - iv. Arguments from the inconceivability of the line as a "breadthless length" (390–402)
 - v. Objections and responses to them (403-13)
 - vi. Further argument against conceiving of the line as a breadthless length, if it is also the limit of a surface (414–17)
 - vii. Transition to arguments based on the geometers' own views (418–19)
 - viii. Further arguments against conceiving of the line as a breadthless length, based on the idea of the line as describing a circle when rotated (419–28)
 - ix. Related arguments, based on the geometers' claims about other geometrical figures (428–9)
- d. Argument against body based on the concept of a surface as the limit of a body (430–6)
- 2. Argument against body on the basis that it can be neither perceptible nor intelligible (437–9)

G. Transition to the subject of incorporeals (440)

BOOK 2

A. Place (1–36)

- 1. Concepts of place and their relation to neighboring concepts (1-5)
- 2. Transition to the opposing arguments (6)
- 3. Arguments in favor of the existence of place (7–12)
- 4. Initial argument for their inconclusiveness (13–19)
- 5. Arguments against the existence of place (20-9)
- 6. An Aristotelian objection, and response to it (30-6)
- 7. Transition to the subject of motion (36)