Notes on contributors

Hugh H. Benson is Associate Professor of Philosophy at the University of Oklahoma. He is the author of articles on Socrates, Plato and Aristotle, and editor of Essays on the Philosophy of Socrates (1992).


Edward Hussey is Lecturer in Ancient Philosophy at the University of Oxford and a Fellow of All Souls College. He is the author of The Presocratics (1972) and Aristotle Physics III and IV (1985).

G.B. Kerferd is Emeritus Professor of Greek at the University of Manchester. He is the author of The Sophistic Movement (1981), and editor of The Sophists and Their Legacy (1981). He was the editor of Phronesis from 1973 to 1979. He is the author of many reviews and articles on the history of Greek philosophy.

Ian Mueller is Professor of Philosophy at the University of Chicago and a member of the Academie internationale d’histoire des sciences. He is the author of Philosophy of Mathematics and Deductive Structure in Euclid’s Elements (1981), and editor of PERI TON MATHEMATON: Essays on Greek Mathematics and its Later Development (1991).

Catherine Osborne is Lecturer in Philosophy at the University of Wales, Swansea. She is the author of Rethinking Early Greek Philosophy (1987) and Eros Unveiled (1994).

Robin Osborne is Professor of Ancient History in the University of Oxford and a Fellow of Corpus Christi College. He is the author of Demos: The Discovery of Classical Attika (1985), Classical Landscape with Figures: The Ancient Greek City and its Countryside (1987), and Greece under Construction: from the Dark Ages to the Persian War, 200–479 BC (1996).


M.R. Wright is Professor of Classics at the University of Wales, Lampeter. Her publications include *Empedocles: The Extant Fragments* (1981, revised edn. 1995), *Cicero, On Stoic Good and Evil* (1991), and *Cosmology in Antiquity* (1995).
We have comparatively few precise and reliable dates for the biography of individuals (including birth, death and composition of individual works). In some cases approximate dates can be given, but in others all that can be said is that the person was active during a certain period, e.g. in the first third or half of a particular century. Dramatic works are dated by the year of their performance at one of the Athenian dramatic festivals, of which official records were preserved.

All dates are BC. Dates of the form 462/1 designate years of the official Athenian calendar, in which the year began in June. (Hence 462/1 is the year from June 462 BC to June 461 BC.) Dates of the form 750–700 designate periods of several years.

<table>
<thead>
<tr>
<th>Politics and religion</th>
<th>The arts</th>
</tr>
</thead>
<tbody>
<tr>
<td>776</td>
<td>800</td>
</tr>
<tr>
<td>First Olympiad</td>
<td>Geometric pottery produced throughout Greece</td>
</tr>
<tr>
<td>c.750–c.700</td>
<td>c. mid-cent.</td>
</tr>
<tr>
<td>Foundation of Greek colonies in S. Italy and Sicily</td>
<td>Earliest Greek alphabetic inscriptions</td>
</tr>
<tr>
<td>2nd half of cent.</td>
<td>Figurative decoration developed on Late Geometric pottery Composition of Homeric poems</td>
</tr>
<tr>
<td>c.700</td>
<td>c.700</td>
</tr>
<tr>
<td>Hesiod active</td>
<td>Earliest certain scenes of myths on Greek pottery</td>
</tr>
</tbody>
</table>
mix up the cosmic deities with fairy-tale figures such as giants, Titans and monsters without distinction, and have no explanatory resources beyond the sexual and other psychological motivations of these beings, the Ionians eliminate the purely personal element, seeking to explain the world in terms of a minimum number of basic stuffs (e.g. water, air) and processes (e.g. condensation and rarefaction), and subjecting these accounts to the control both of primitive observation (as in Aristotle’s account of Thales’ reasons for identifying his principle with water) and of a priori reasoning (e.g. in Anaximander’s treatment of the problem of the stability of the earth). Their speculations were thus subjected to norms of rationality, as those of their mythologizing predecessors were not, and in satisfying those norms they pioneered the crucial concepts of a theoretical entity (Anaximander’s *apeiron*) and of a world organized in accordance with natural law (in the single fragment of Anaximander). (For a fuller discussion see Hussey [2.36].)

The Ionian cosmological tradition was an active element in the development of philosophy throughout the period covered by this volume and beyond. But other strands soon become discernible in the fabric. The fragments of the poet Xenophanes, an Ionian writing later in the sixth century and probably well into the fifth, contain, in addition to some cosmological material, a number of criticisms of traditional theology. One element in this criticism is the rejection, on moral grounds, of the traditional tales of quarrels, adultery and other misdeeds on the part of the gods; the demand for a conception of the divine which represents it as a paradigm of moral perfection is from Xenophanes onwards a recurrent theme in Greek thought, particularly important in Plato, and is one of the elements which was taken over in the Christianization of Greek philosophy. More radical was Xenophanes’ ridicule of anthropomorphic representations of gods, which looks forward to the cultural relativism of the fifth century and thereby to an important aspect of the thought of the sophists. But Xenophanes’ contribution to theological speculation was not wholly negative; the fragments also provide evidence of belief in a non-anthropomorphic, perhaps incorporeal deity, which undertakes no physical activity, but controls everything by the power of thought. While there is disagreement among scholars as to whether Xenophanes was a monotheist, and whether he identified the deity with the cosmos, there can be no doubt that he is a pioneer of a theological tradition whose influence can be discerned in thinkers as diverse as Anaxagoras, Aristotle and the Stoics. He is also the earliest thinker who provides evidence of engagement with epistemological problems, initiate a tradition which was developed in different ways by the Eleatics, Plato and the Hellenistic schools.

The Ionian tradition was further diversified in the later sixth century by Pythagoreanism and by Heraclitus. The former movement, which had at least as much of the character of an esoteric religion as of a philosophical or scientific system, might appear altogether remote from the Ionians, but Aristotle’s evidence suggests that the early Pythagoreans thought of themselves rather as offering alternative answers to the same fundamental questions about the
CHAPTER 1

The polis and its culture

Robin Osborne

INTRODUCTION

‘We love wisdom without becoming soft’, Thucydides says. The Athenian politician Pericles claim, using the verb philosophein. Claims to, and respect for, wisdom in archaic Greece were by no means restricted to those whom the western tradition, building on Aristotle’s review of past thinkers in *Metaphysics* Book 1, has effectively canonized as ‘philosophers’. This chapter has two functions: to give something of the social, economic and political conditions of the world in which Greek philosophy, as we define it, was created; and to indicate some of the ways in which issues which we would classify as ‘philosophical’, or which have clear philosophical implications, were raised and discussed by those whose work is nowadays classed as ‘literature’ or ‘art’ rather than ‘philosophy’, and thus to put *philosophia* back into the wider context of *sophia*—‘wisdom’.

Discussions of the background to early Greek philosophy frequently stress the intimate link between philosophical and political developments. Part of my aim in this chapter is to make the case for the importance of other factors, and to stress the extent to which self-conscious articulation of ethical, political, epistemological and indeed metaphysical questions precedes the development of large-scale political participation in practice. It is for this reason, as well as because of their subsequent importance as texts universally familiar throughout the Greek world, that the longest section of this chapter is devoted to a detailed discussion of certain themes in the works of Homer and Hesiod. Greek philosophy as we define it is, I argue, simply one remarkable fruit of a cultural sophistication which is the product of the rich contacts between Greece and the world of the eastern Mediterranean and of the somewhat precarious conditions of human life within Greece itself, conditions which demanded both determined independence and access to, and relations with, others.

The Greece of the archaic and classical polis belonged to, and was intimately linked with, a wider eastern and central Mediterranean world. The Minoan and Mycenaean palaces of the late Bronze Age had had strong links with Cyprus and...
period seems to have been easy: the poet Hesiod tells us that his father moved back from the ‘new’ Greek world of Asia Minor to mainland Boiotia, craftsmen migrated, temporarily or permanently, from Athens to Corinth, from Corinth to Etruria, and so on. Economic opportunities were one factor causing men to move, local crises, as frequently of a political as of an economic nature, were another. Underpopulation was at least as common a worry for cities as was overpopulation and newcomers were often welcome. Intermarriage with non-Greeks was frequent: the philosopher Thales is said by Herodotus to have had Phoenician ancestry; Pherecydes’ father seems to have come from southern Anatolia; the historian Herodotus himself came from Halikarnassos, a mixed Greek and Carian community within the Persian empire; the historian Thucydides’ father’s line came from Thrace. Sparta, perhaps already in the archaic period, and Athens, from the mid fifth century, were unusual in the way in which they prevented men or women from other Greek cities from acquiring the same rights as, or even marrying, existing members of the community.

HESIOD AND HOMER
Greek literature starts with a bang with the monumental *Theogony* and *Works and Days* of Hesiod and the *Iliad* and *Odyssey* ascribed to ‘Homer’. All four works are the products of oral traditions with long histories of which traces remain, but the nature of the oral traditions behind the works of Hesiod is rather less clear than that behind ‘Homer’, and Hesiod may owe his unique position in part to being able to plug in to both mainland, and, perhaps through his father, Aeolian traditions. That it is these poems that survive to represent the oral traditions may be connected not just to their high quality but to the way in which they gave a pan-Hellenic appeal to what had previously been local traditions, at the moment when the Greek world was significantly expanding its horizons. Hesiod’s works are not epic adventure stories but didactic poems aiming directly to teach: morality and practical wisdom in the case of the *Works and Days*, and the structure of the world of the gods in the case of the *Theogony*. Neither of Hesiod’s poems has any real successor extant in the corpus of Greek literature or any obvious impact on the imagination of visual artists, but comments and complaints in later writers, both philosophers and others, make it clear that knowledge of his works was widespread and that public views of the gods owed much to them. Herodotus (II.53.1–2) wrote that,

It was only the day before yesterday, so to speak, that the Greeks came to understand where the gods originated from, whether they all existed always, and what they were like in their visible forms. For Hesiod and Homer, I think, lived not more than four hundred years ago. These are they who composed a theogony for the Greeks, gave epithets to the gods, distinguished their spheres of influence and of activity, and indicated their visible forms.
Hesiod’s influence on poets is clearest not in the immediately succeeding period but in Hellenistic times.

The *Works and Days* belongs to the genre of wisdom literature familiar from Near Eastern examples and well represented in the Old Testament. The end of the poem consists of a succession of maxims about what to do, or not do, and when (‘Don’t piss standing and facing the sun’; ‘On the eighth of the month geld the boar and loud-bellowing bull, but hard-working mules on the twelfth’). But the beginning of the poem structures its advice on how to live around a more specific situation, a dispute, whether real or invented, between Hesiod and his brother Perses over sharing out the land inherited from their father. Not only does this introduce us to Hesiod’s expectations about dispute settlement—it is clear that local rulers, ‘bribe-devouring princes’, decide such matters—and about agricultural life, but it gives scope for a mythological explanation of the need for labour in terms of two separate myths, the myth of the ‘five ages’ and that of Prometheus and Pandora. Through these myths Hesiod ties issues of agricultural life with theological issues, and attempts to make the arbitrary features of the natural world, so manifest in the collection of maxims with which this poem ends, comprehensible within a systematic structure. In doing so Hesiod actually takes over the function of the king as authority who by his judgement determines what is and what is not right, implicitly raising the issue of how, and by whom, political decisions should be made.

The myth of the five ages (*Works and Days*, lines 109–201) explains both the current state of the world and also the existence of beings between humans and gods. It tells how once the gods made a race of gold, who lived in happiness, plenty and leisure, but when this generation died it was replaced by a race of silver who respected neither each other nor the gods, to whom they did not sacrifice as they should, and were short-lived; these two generations have become two orders of *daimones*. The third generation was a strong race of bronze, smitten with war and destroyed by their own hands, which was replaced by a more just, godlike, race of heroes, including the heroes who fought at Troy, demigods who were taken to dwell in the isles of the blest. After the heroes came the current generation, the race of iron, marked by the disappearance of youth and destined itself for destruction after lives marked by injustice. The interest of this myth lies in the way in which it is not simply a story of decline from a golden age: Hesiod’s picture of the race of silver is extremely negative, that of the race of heroes rather more positive. What is more, the neat sequence of metals in order of value is upset by the introduction of the generation of heroes. Hesiod exploits the structures offered by the ageing processes of the natural world and the value-system of exchange of metal to provide a model for a hierarchy of powers between humanity and gods, but at the same time he introduces systematic contrasts between just and unjust behaviour, between good competition and evil strife, which tie this myth into the overall concerns of his poem. He is doing ethics as well as theology.
MYTHOLOGY: INVENTION, MANIPULATION

The world of sympotic poetry is largely the present world of everyday experience; the world of epic and of temple sculpture is a world of the mythological past; archaic painted pottery shares in each of these worlds, and also in the timeless world of the fantastic. The observed world of shipwrecks, of political struggles, and of wolves surrounded by hunting dogs, and the fabulous world inhabited by centaurs and the heroes of epic tales, are taken up by writers and artists of the archaic age as equally good to think with. Solon finds an image for his own political stance in the battlefield: ‘I threw a strong shield around both parties and did not allow either unjustly to get the upper hand’ (fr. 5 West); Sappho finds an image for the power of desire in Helen’s desertion of Menelaus (fr. 27 Diehl);40 Pindar repeatedly invokes the world of myth to promote thinking about the glorious achievements of the athletes whom his victory odes celebrate. What is notable is that the immediate past, what we would call ‘history’, had little or no exemplary role in archaic Greek art or literature.

The distinction between ‘myth’ and ‘history’ with which we operate is not a distinction made by any Greek writer before the late fifth century.41 The terms which come, in the hands of Thucydides, Plato and others, to stand for the opposing poles of ‘myth’ and ‘reason’, muthos and logos, are used virtually interchangeably by earlier writers. Even Herodotus, ‘the father of history’, writing in the 430s or 420s BC happily regards Homer, Hesiod, and the Trojan War as having the same status. This is important not because it shows how ‘unsophisticated’ even fifth-century Greeks continued to be, but because it reveals that despite the possibilities of written records, the past had not yet become something fixed. Pindar’s First Olympian Ode, with its explicit rejection of one version of the story of Pelops for another less gruesome one, shows that different ‘versions’ of the ‘same’ myth coexisted; and so too different versions of the past. Herodotus’ Histories are distinguished from most later histories in the ancient world (as well as from what most modern historians write) by their willingness to give more than one version of a past event—we have the Theran and the Cyrenaean version of the colonization of Cyrene from Thera—and by Herodotus’ declared indifference to the truth of the versions he relates: ‘It is my duty to record what is said, but not my duty to give it complete credence’ (VII. 152.3). Aristotle calls Herodotus a ‘mythologist’, a teller of exemplary tales (On the Generation of Animals 756b6).

Many subsequent readers of Herodotus have found his apparent indifference to the truth of the stories which he repeats incomprehensible or even scandalous. In doing so they have followed the lead given by Thucydides who points to the lack of muthos in his account of the war between Athens and Sparta, which dominated the last thirty years of the fifth century, and claims that his carefully researched account of what actually happened will be a surer guide to the future than the ‘easier listening’ which traditional story-telling produced.42 The invention of ‘mythology’ and the invention of ‘history’ went together, together
with each other but also together with the invention of the category of metaphor and the scientific and philosophical revolution which that entailed. They also went together with a new attitude towards stories detectable in both art and literature: in art, where previously it had been the general story that had been evoked, particular texts are now illustrated; in literature, explorations of the dilemmas of myth characteristic of tragedy go out of fashion and in Hellenistic poetry (very little poetry survives from between 390 and 330) myths are now told in ways which draw attention to the art of the teller and play with a reader who is assumed to be learned enough to detect and respond to copious allusions to earlier literature.

The separation of ‘myth’ from ‘history’ and the insistence that ‘metaphor’ has a distinct status can both be seen as part of a move to be more precise about the status of comparisons by directing attention at the effect of context. The issues of truth and falsehood, already explored in the *Odyssey* and enthusiastically taken up by the sophists as part of their interest in rhetoric, are now relentlessly pursued in the course of an attempt to find the undeceptive ‘truth’, and not merely to be aware of the ever deceptive nature of words and images. But it is tempting to see the creation of mythology as political, too.

Herodotus begins his work by stating that his aim is to ensure that past events do not grow faint, to record the great achievements of Greek and barbarian, and in particular to explain how they came to be with each other. Herodotus treats the conflict between Greeks and Persians broadly, not concentrating simply on the actual battles of 490 and 480–79 BC, but taking every opportunity to delve back into the past history of the Greek cities. He ends his work, however, at the end of the Persian invasion of the Greek mainland, at a point when armed conflict between Greeks and Persians to remove the Persians from the Aegean and Asia Minor had many years still to run, years during which he himself had been alive and with whose story he must himself have been particularly familiar. By ending in 479 BC Herodotus limited himself to that part of the conflict between Greece and Persia when Greece could be presented as pursuing a broadly united course of action; from the point at which he stops the Athenians took over the leadership of the campaign, to increasingly divided reactions among other cities, and, within relatively few years, turned the pan-Hellenic ‘crusade’ into what was, they admitted, blatant imperial rule.

The Persian wars, and the imperialism which they brought in their wake, changed history. This is most graphically illustrated by the contrasting role which stories of the past play in Herodotus and Thucydides. Characters in Herodotus do, from time to time at least, invoke examples from the past in order to influence present action, but they do so in a way which is only in the broadest sense political. So, Socrates the Corinthian tries to discourage the Spartans from restoring tyranny to Athens by telling of the increasingly terrifying rule of the Cypselids at Corinth (Herodotus V.92): any story will do, it is the aptness of the analogy that matters, not the particular example chosen. When characters in Thucydides invoke the past it is in order to justify a present claim or excuse a
for it to be unreasonable to press doubts about the truth of the picture they convey. These two thinkers were evidently fascinated with measurement, and with the idea of putting to nature—and more especially the heavens—questions which instruments could be employed to answer.\textsuperscript{3}

One other scientific puzzle (as we might now term it) which Thales is reported to have tried to solve is the behaviour of the magnet. Here his style of enquiry was very different. He claimed that magnets have soul: they have the power of moving other bodies without themselves being moved by anything—but that is a characteristic only of things that have soul, i.e. are alive. Heady speculation, not ingenious observation, is now the order of the day. Perhaps the phenomenon of magnetism was presented as one piece of evidence for the more general thesis, ‘All things are full of gods’, which Aristotle at any rate is inclined to interpret in terms of the proposition that there is soul in the universe (i.e. not just in animals).\textsuperscript{4}

In cosmological speculation Thales is presented by Aristotle as a champion of the primacy of water as an explanatory principle. Aristotle writes as though Thales meant by this that water was the material substrate of everything that exists. But the authority on whom he relies for his information, the sophist Hippias of Elis, seems to have mentioned Thales’ view in the context of a survey of opinions about the origin of things. With one exception, to be discussed at length shortly, Aristotle knows nothing else about the water principle. He contents himself with the guess that Thales opted for it because warmth, sperm, nutriment and the life they foster or represent are all functions of moisture.\textsuperscript{5}

The most definite claim Aristotle makes in this connection appears in \textit{On the Heavens} (II. 13, 294a28–32 [KRS 84]).

Others say that the earth rests on water. For this is the most ancient account we have received, which they say was given by Thales the Milesian, that it stays put through floating like a log or some other such thing.

To come to terms with this unappealing version of flat-earthism we need to consider two pieces of information relating to Thales’ intellectual grandchild Anaximenes, pupil of Anaximander, both also of Miletus:

Anaximenes and Anaxagoras and Democritus say that its [the earth’s] flatness is responsible for it staying put: for it does not cut the air beneath but covers it like a lid, which is evidently what those bodies characterized by flatness do.

\textit{(Aristotle On the Heavens} II.13, 294b13ff. [KRS 150])

The earth is flat, riding upon air; and similarly also sun, moon and the other stars, although they are all fiery, ride upon air on account of their flatness.
the sixth century BC. The Greek is very likely corrupt, too. It looks as if ‘pneuma’, as ‘breath’, should be substituted for ‘air’ in the first clause and omitted in the second. Most important of all, a more probable translation of the sentence (so emended) would run:

For example (hoion), it is as breath, he says, that our soul controls us, and (kai) air encloses the whole world.

The only expressions here which can be inferred to be authentically Anaximenes’ are the two Aetius specifically mentions: ‘air’ and ‘breath’, although there is no reason to doubt that he talked of ‘soul’ in this context.37

What on this alternative reading was Aetius’ point in making the remark? It will have been to furnish two independent grounds for believing that Anaximenes did indeed, as he has just contended, make air the principle. The clause about the cosmos will then not express the conclusion of any inference, but simply express a version of that fundamental Anaximenian thesis: the apeiron (as what encloses the world) is air. The first clause is more interesting. Even though it no longer launches an argument from analogy, it may still suggest that Anaximenes, in so far as he appealed to the physiological role of pneuma as evidence that air is the principle, certainly the claim about human physiology would then parallel some evidence, again from the phenomenon of breath, which he is said to have adduced for the connected idea that thinnings and thickenings of air are what cause the appearance of other properties or things:

He says that matter which is compressed and condensed is cold, while that which is thin and ‘relaxed’ (he used this very word) is hot. This is why it is not unreasonable to say that a person releases both hot and cold from the mouth. The breath is chilled when it is pressed and condensed by the lips, but when the mouth is loosened it escapes and becomes hot because of its thinness. This opinion Aristotle puts down to the man’s ignorance.

(Plutarch The Primary Cold 947F [KRS 143])38

What is most interesting in these texts is the attempt to use familiar features of human existence to think about the cosmos at large. Anaximander had had a penchant for analogy and discussed the origins of man, but there is no sign that his theorizing accorded any similar primacy to consideration of things human for this purpose. It seems unlikely, however, that Anaximenes got close to formulating a conception of man as microcosm. It is just as doubtful how far his cosmology was vitalist. There is some evidence, unfortunately rather vague and of doubtful authority, that Anaximenes laid more stress on the divinity of the apeiron than Anaximander did. Hippolytus, for instance, says that from air were generated inter alia ‘gods and things divine’ (Refutation I.7.1 [KRS 141]). Is this a recrudescence of Thales’ notion that ‘all things are full of gods’? Or is it an
also recited his own poems. He is said to have held contrary opinions to Thales and Pythagoras, and to have rebuked Epimenides too.

(Diogenes Laertius IX.18 [KRS 161])

This account corresponds pretty much with the surviving fragments. Many of them are indeed clearly satirical, and the poems from which these are taken—in all three metres mentioned by Diogenes—were known in antiquity as *silloi*: ‘squints’ or lampoons. It has been conjectured that even fragments dealing with physical phenomena belonged not to a philosophical poem on nature like Empedocles’ (as is implied in some unconvincing very late sources), but to his critique of the traditional theology of Homer and Hesiod, which is well represented among the fragments in any case. Among the other butts of his wit Pythagoras is the certain target of some surviving verses:

On the subject of reincarnation Xenophanes bears witness in a *tragedy* which begins: ‘Now I will turn to another tale and show another way’. What he says about Pythagoras runs thus: ‘Once they say that he was passing by when a puppy was being whipped, and he took pity and said: “Stop, do not beat it; for it is the soul of a friend that I recognised when I heard it giving tongue.”’

(Diogenes Laertius VIII.36: fr. 7 [KRS 260])

But it may also be that Xenophanes’ attack on Thales was the original home of the following snippet:

Of the earth this is the upper limit, seen by our feet neighbouring the air.
But its underneath reaches on indefinitely.

(Achilles *Introduction 4* : fr. 28 [KRS 180])

Aristotle refers to this passage in his chapter on the different explanations theorists have given for the stability of the earth. He accuses Xenophanes of not trying hard enough. We may think his revulsion from speculation on this question gives him the better of the argument with Thales.

Diogenes seems to suggest that the lampoons, in the fashion of lampoons, mostly had their effect by being circulated and repeated by others. By contrast Xenophanes himself performed his own non-satirical poems, evidently as a travelling entertainer at festivals and other aristocratic gatherings. We are told that after exile from his native city of Colophon he emigrated to Sicily. The ‘exile’ is generally associated by scholars with the capture of the city by the Persians in 546/5 BC, an event to which he himself refers in some verses where he speaks of the coming of the Mede (fr. 22). This probably occurred when he was 25 years of age, if we may so interpret some further verses which boast of an extraordinarily long life, and which incidentally indicate a career pursued all over Greece:
Thus the moon is a compressed (‘felted’) cloud that is on fire. But it ‘does no work in the boat’, i.e. unlike the sun it does not sustain life. Comets, shooting stars and meteors are groups or movements of burning clouds. St Elmo’s fire occurs when cloudlets glimmer owing to a particular sort of movement, and lightning is very similar. A fragment survives which explains that,

What they call Iris, this too is cloud: purple and red and yellow to behold.

(Scholium bT on the *Iliad* XI.27: fr. 32 [KRS 178])

Here Xenophanes is undoubtedly attempting to demystify and demythologize the rainbow. Iris is no goddess, nor is it a ‘marvel to behold’ (*thauma idesthai*, in Homeric language), merely a variety of colours ‘to behold’ (*idesthai*).

The most intriguing of Xenophanes’ astronomical explanations are those he gives for the stars and the sun. Here the basic identification as burning cloud is reiterated. But much more detail is given by the doxography. The stars are quenched each morning but flicker again at night like coals. The sun is generated anew each day by the collection of widely scattered flaming particles. This extraordinary idea was probably supported with the claim that the phenomenon can actually be observed at dawn from the heights of Mount Ida above Homer’s Troy, when rays originally separate are seen to re-merge into a single ball. It would seem to follow that the process of coalescence must happen again and again every day at different longitudes. Xenophanes was not afraid to draw the logical and undignified conclusion:

Xenophanes says that there are many suns and moons according to regions, sections and zones of the earth, and that at a particular moment the disc is banished into some section of the earth not inhabited by us—and so, tumbling into a hole, as it were, produces the phenomenon of an eclipse. He also says that the sun goes onward indefinitely, but is thought to move in a circle because of the distance.

(Aetius II.24.9 [KRS 179])

We have specific reason to think that Xenophanes’ account of the sun occurred in the same poem as fragment 30: it is quoted by a doxographer who explains that the vapour from the sea which turns eventually into clouds, showers and winds is drawn up by the action of the sun (Aetius III.4.4 [DK 21 A 46]).

What epistemological status did Xenophanes accord to these speculations? A famous and much discussed quatrain gives us his answer, which sounds as though it might have served as a prologue to one of the physical poems:

No man knows, or ever will know, the clear truth about the gods and about all the things I speak of. For even if someone happened to say something exactly so, he himself none the less does not know it, but opinion is what is the outcome [lit. ‘is constructed’] in all cases.
observing for example the fossil record we can find out what it is reasonable to regard as the truth of the matter.\textsuperscript{60} The first words of an injunction of Xenophanes (unfortunately truncated) ran:

Let these be accepted, certainly, as like the realities…

(Plutarch \textit{Symposium} 746B: fr. 35 [KRS 187])

This might be interpreted as saying: you are justified in your belief that this is what reality is like (…even if you cannot know it).

For Heraclitus Xenophanes was one of those thinkers whose farflung learning had not brought them understanding. Yet Heraclitus’ own ideas about god and knowledge and the heavenly bodies seem to owe much to Xenophanes’. Nor were Plato and Aristotle wrong to perceive his influence on Parmenides, even if he was no Eleatic monist. Without our evidence relating to Xenophanes it would in fact be difficult to understand how philosophy made the transition from the Milesian cosmology to the metaphysical and epistemological tradition shared by Heraclitus and Parmenides. Some of his speculations look naïve beyond belief. But he had witty and subtle things to say on all manner of topics. He cherished a healthy regard for evidence: the naïveté was in part the consequence of his rigidly refusing to go much beyond it. And so far as western thought is concerned, he invented both monotheism and critical theology.

\section*{NOTES}

1 A good general account of Thales: KRS ch. 2. For a more ambitious view of what we may reasonably conjecture about his cosmology see West [2.59].

2 Cf. Herodotus I.74–5, 170 [KRS 74, 66, 65]. Solar eclipse: best discussion still Heath [2.33], ch. 3; also \textit{e.g.} Panchenko [2.53]. That any eclipse Thales predicted was visible in Asia Minor must have been due to luck. Probably it is largely on account of this feat that he came to be credited with views on the causes of eclipses, the nature of the heavenly bodies, and the zones of the heavens [DK 11 A 13c, 17, 17a and b].

3 Texts and discussion: KRS, pp. 81–6, 100–5. On the map see Kahn [2.49], 82–4; on early Greek astronomical knowledge Dicks [2.47]; Kahn [2.50]; Burkert [2.25], ch. 4, sect. 1.

4 See Aristotle \textit{On the Soul} 405a19–21, 411a7–8, Diogenes Laertius I.24, with discussion in KRS pp. 95–8.


6 On the physics of flat-earthism see Furley [2.32], chs 1, 2, 18.

7 The doxographical evidence is confused. One source ([Plutarch] \textit{Miscellanies} 3 [KRS 148]) states explicitly that the sun is earth; and Hippolytus’ evidence that it is flat and rides on air makes sense only on that assumption (KRS 150, quoted above). However the doxography seems generally to have understood ‘fiery’ as ‘composed of fire’ (cf. Runia [2.67]); and one suspect passage (Hippolytus
A selection of relevant texts (with discussion) at KRS, pp. 154–8. Anaximenes seems to have suggested a fresh simile to recommend the Anaximandrian account of thunder and lightning: the flashing of oars cleaving the water (Aetius III.3.2 [KRS 158]).


Attribution of the notion to Anaximenes is generally accepted, but denied by Stokes [2.42], 43–8. For an elegant logical articulation of it and defence of its Anaximenian credentials see Barnes [2.8], 38–44.

A sound and useful edition with translation—of the doxography as well as the fragments—and commentary: Lesher [2.60].

Heraclitus: fr.40 [KRS 255]; Plato: Sophist 242c–d [KRS 163]; Aristotle: Metaphysics 986b18–12 [KRS 164, 174]; Theophrastus: Simplicius Physics 22.26–31 [KRS 165]; Timon: Sextus Empiricus Outlines of Pyrrhonism I.223–4 [DK 21 A 35]. According to Diogenes Laertius (IX.111), he had a function in Timon’s Siloi analogous to Virgil’s in Dante’s Divine Comedy. For the later episodes of the story see e.g. Mansfeld [2.40], chs 6–8.

So Burnet [2.11], 115–16, in what remains a sparkling treatment of Xenophanes’ work. A more recent statement of the same view: Steinmetz [2.69], 54–73.

A good discussion of Xenophanes’ attitude to Thales in Lesher [2.60], 120–4.

On Xenophanes’ chronology: Steinmetz [2.69], 3–16.

For further discussion see Lesher [2.60], 192–4.

Monotheist: e.g. Barnes [2.8], 82–99; polytheist: e.g. Stokes [2.42], ch. 3.

For Aristotle’s view see Metaphysics 986b24–5 [KRS 174] (but his meaning is disputed); Theophrastus’ view is preserved at Simplicius Physics 22.26–31 [KRS 165].

The key modern study of the Xenophanes doxography and its relation to Theophrastus and On Melissus, Xenophanes and Gorgias (MXG) is Mansfeld [2.40], ch. 6. It has often been supposed that because Hippolytus (Refutation I.14.2) says that Xenophanes’ god is spherical, it can be inferred that this was Theophrastus’ view too (e.g. Burnet [2.11], 125, n.1). But the supposition is incompatible with evidence that Xenophanes did not in his opinion make god limited or unlimited (Simplicius Physics 22.26–9 [KRS 165]) unless it is supposed that he is reflecting contradictory remarks by Xenophanes made presumably in different places (so Steinmetz [2.69], 48–54). The date of MXG itself is uncertain, although the presentation of Xenophanes it contains—on which see the excellent brief discussion by Lesher [2.60], 192–4—may go back to the early third century BC. Some scholars continue to defend the credibility of the MXG version of Xenophanes: e.g. Barnes [2.8], 84–94; Finkelberg [2.62]. See also Cassin [2.61].

It is sometimes suggested (e.g. Steinmetz [2.69], 35–40) that e.g. homoioe, ‘like’, is an authentically Xenophanean divine attribute, on the strength of Timon, fr.59 (preserved in Sextus Empiricus Outlines of Pyrrhonism I.223 [DK 21 A 35]). But Timon already reads Xenophanes in the fashion of Aristotle and Theophrastus as an Eleatic monist. It seems likelier that he is in fact drawing on a version of the MXG account of Xenophanes’ theology.

See [Plutarch] Miscellanies 4 [DK 21 A 32]; Hippolytus Refutation I.14 [DK 21 A 33]. No cosmogony: one fragment reads ‘All things are from earth and to earth all

**Xenophanes**

**Text**


**Studies**

Therefore one should follow what is \textit{xunos}—that is, what is common, for \textit{xunos} means ‘common’—but although the \textit{logos} is \textit{xunos} most people live as though they had their own wisdom.

Custom and established practice is a shared feature of the life of mortals, and with language (\textit{logos}) it contains the key to understanding the rationale (\textit{logos}) of everything, according to Heraclitus. There is no reason to suppose that customary religious practice is excluded from the shared customs to which people should owe allegiance and for which they should fight as a city fights for its defending wall. It seems highly unlikely that Heraclitus is suggesting any kind of rejection of the customary beliefs and practices; it is far more in keeping with his ideas to suggest that we should look at those practices in a new light and see for ourselves how they illustrate the universal principle: that what is fundamentally the same acquires significance in a variety of contexts.

For all human customs are nourished by one custom, the divine one...

Human practices and customs may vary from city to city, but that again will be simply a feature of the unity in diversity, the context-dependent significance of human practices. It need not mean that they do not cohere with a single underlying rationale that accounts for the significance of everything, however apparently diverse. The ‘divine custom’ here seems to be that universal rationale, and, as was suggested in the identification of Hades and Dionysus, so here too, in B114, it is said to be one. This point precisely coheres with the sense of B67 which claims that God is ‘day, night, winter, summer, war, peace, satiety, hunger…all the opposites…and it changes like when [something] is combined with spices and is named according to the savour of each’. There may be one god, but we give the one god a name according to the context we encounter it in—a context which is not in any way illusory or mistaken, but which quite properly transforms the significance we find in it and the name we consequently apply to that god. Heraclitus shares with Xenophanes an interest in the varieties of ritual representations of the gods. Perhaps he is not far from Xenophanes when he wants to say that what are named as two are ultimately just one god; but he does not think that recognizing this truth will involve rejecting the variety of religious practices, although people may sometimes mistake their significance.

Thus adherence to shared practices and forms of life, whether religious, linguistic or any other kind of human custom, need not, in Heraclitus’ view, be
society. It is not a fact given independently of the value judgements of social convention, but is itself wholly bound up with those forms of significance. Hence it seems that there is no independent set of self-identical entities. Identity, similarity, difference, opposition are all determined by the significance acquired in context.

The doctors, Heraclitus says, while cutting, and burning, and torturing sick people badly in every way, demand a fee from the sick, unworthy though they be of anything, engaging in the very same practice—both good things and diseases.

(B58) In so far as we can grasp the general gist of this saying, it appears that the activities of the surgeons and doctors, carried out in the sick-room for the cure of diseases, are regarded as a benefit and merit a fee from the victim; whereas the same practices carried out in the torture room or in any other day-to-day context, would certainly not be worth paying for. Indeed we should disapprove all the more if the deeds were inflicted upon a weak or sickly individual. In these circumstances the surgeon’s techniques would actually produce a misery, not a cure one. Thus just as ritual purification makes sense only within the ritual context, so the action of the doctor is worthy only within a sick-room. The same actions cannot be judged out of their proper context. What they are, and what they achieve, depends entirely on that acquired significance.

What counts as good and worthwhile depends upon who we are: donkeys prefer rubbish to gold (B9); pigs wash in mud; farmyard birds wash in dust (B37); cows are most happy with vetch (B4). Something similar may lie behind the curious observation that corpses are more to be discarded than dung. Whether dung is worth saving depends on what you need it for; most of us have good uses for it. But we are less likely to put our dead bodies to good use, so why do we treat them with such respect? Transferred out of context the value placed on dead bodies looks inappropriate; but they do have a place in our ritual lives. We see here the same kind of analysis of ritual practice as we identified in fragment B5: an attempt to show the significance of the ritual context by pointing to the incongruity of the practice if viewed in the context of the ordinary secular or human ethos.

For cases of natural change Heraclitus uses the language of living and dying to express the transformation that brings an end to one stuff and introduces another. We have seen that that must mark a total material discontinuity, with the constant factor lying in the measure of exchange governed by logos. Does the same apply in the case of the human individual? If we are right in suggesting that the important continuity is not material identity, we shall not expect Heraclitus to mention a material soul. What interests him more is the changing significance attached to an individual in the course of life and death:
THE ERRORS OF OTHER PEOPLE

Much of the material that we have considered so far has included disparaging remarks about the inability of ordinary mortals to comprehend what is before their eyes. In fragment B1 the word for ‘out of touch’ (axunetoi), describing those who fail to comprehend the logos, appears to pun with the texts that stress the importance of what is ‘common’ (xunos). The word also occurs in B34:

Those who are out of touch [axunetoi], having heard, are just like deaf people; it is to them that the saying testifies that though present they are absent.90

What the ordinary observer is out of touch with is that which is common, on which those who speak with sense (xun noōi) rely absolutely (B114).91 As in the case of those who blindly use their eyes and fail to grasp what is really important, so those who listen but fail to hear are like the deaf. It is possible, indeed usual, according to Heraclitus, to use the senses but to fail by lack of contact with what is common, to go through life asleep and to be out of touch with what one has heard.

How, then, can one improve or gain understanding? Not, it appears, by means of learning from other supposedly wise people, for it is not only Homer who fails to live up to his reputation for wisdom, but also Hesiod:

Hesiod is the teacher of a great many; they understand that he knew a great many things, though he did not recognize day and night. For they are one.

(B57)92

and all the other well-respected authorities:

Quantity of learning does not teach sense, otherwise it would have taught Hesiod and Pythagoras, and again Xenophanes and Hecataeus.

(B40)93

Pythagoras, son of Mnesarchus, was the most assiduous researcher of all mankind, and by excerpting from these writings he made his own wisdom: quantity of learning, bad practice.

(B129)94

A consistent theme in these criticisms of the teachers respected by most is the notion that the quantity of things known is no guarantee of wisdom. Yet Heraclitus also seems to have said that ‘philosophical men have to be researchers of a very great quantity of things’ (B35).95 If the ‘philosopher’ here is a man of true wisdom there seems to be some conflict with the claim that the quantity of things known is no guide in the attainment of sense. An alternative way of taking
Refutation tries to demonstrate that the heretic Noetus, like Heraclitus, confuses things of opposed significance. See Osborne [3.31], ch. 4.


21 Preserved by Stobaeus Anthology IV.40.23, Plutarch Quaestiones Platonicæ 999, and Alexander of Aphrodisias On Fate 6. The fragment is peculiarly difficult to interpret; the interpretation offered by Alexander appears to cohere with that offered here, which, however, brings out a quite different sense from that normally put upon the text by recent scholars (‘a person’s character is his fate (divinity)’, Robinson [3.9], 69), but makes the most of the typically Heraclitean style with its ambiguous placing of anthrōpōi. The alternative readings with a genitive (anthrōpou or anthrōpōn), given by Plutarch and Alexander respectively (the former adopted by Bollack-Wismann [3.5]) retain the same sense.

22 From a summary of the quotations given by Celsus from Heraclitus on the subject of the difference between divine and human wisdom, included by Origen Against Celsus, 6.12.

23 See below ‘The Logos’.

24 See below ‘Custom and Shared Practice’.

25 Both parts of B15 (see further below) are quoted in close connection by Clement of Alexandria Protrepticus II. 34.5.

26 This quotation is listed as the second part of B15. The Lenaia was a particular festival of Dionysus associated with ritual madness on the part of women. See Seaford [3.22], 239, 322. Heraclitus uses a rare verb (‘to Lenaia-ize’) to speak of the performance of these ritual activities.

27 See below ‘The Unity of Opposites’.

28 B60; see n. 19.

29 B57, ‘Hesiod is the teacher of a great many; they understand that he knew a great many things, though he did not recognize day and night. For they are one.’ The text is preserved by Hippolytus [3.13], Refutation IX. 10 (see n. 18).

30 B103. The text is preserved by Porphyry Quaestiones Homericæ ad Iliadem XIV. 200.

31 Heraclitus probably thought the earth was flat, though the evidence is unclear (Diogenes Laertius [3.12], Lives IX. 11) but he may have been aware that the length of day varies from north to south, and he recognized that the hours of day and night are not absolute but determined by the presence or absence of the sun (B99 and cf. B57).

32 See below ‘Harmony and the Recognition of What is Obscure’.

33 anaïdestata, ‘un-Hades-like’ as well as ‘shameless’ if we adopt the widespread view that there is significant word-play here (Kahn [3.7], 336 n. 390 with further references). See below ‘Heraclitus’ Style’.

34 The identification of Hades and Dionysus does not seem to be a peculiar doctrine of Heraclitus, nor does it commit him to monotheism. The evidence for a cult connection between the two is quite extensive, particularly in south Italy, and the dionysiac mysteries are associated with death rituals. See Seaford [3.22], 319–26; C. Sourvinou Inwood ‘Persephone and Aphrodite at Locri: a model for personality definitions in Greek Religion’, Journal of Hellenic Studies 98 (1978): 101–21, 109, repr. in Sourvinou Inwood ‘Reading’ Greek Culture, Oxford, 1991; Rohde [3.21],
of odd and even numbers; and so on.) But from here the thought emerges, first, that mathematics is not just a useful practical device; that it reveals an abstract structure in things; and secondly that this abstract structure may be the key to the essential nature of things. It is through these ideas that Pythagoras became the midwife of pure mathematics, which began to develop from now on; and indeed the founder of the whole mathematical side of scientific theory.

PARMENIDES

The Poem of Parmenides

Parmenides was a citizen of the Greek city of Elea in southern Italy. His philosophical activity belongs to the first half of the fifth century. He expounded his thoughts in a poem, using Homeric hexameter verses. Verse for public recitation was then still a natural medium for diffusing ideas; yet the ‘natural philosophers’ of the sixth century had chosen prose, to show their rejection of the authority of the poets, and their closeness to ordinary experience. Parmenides’ choice of hexameter verse may imply in its turn a rejection of the natural philosophers.

The poem begins with a first-person narrative of a journey. Accompanied by the daughters of the Sun, the narrator rides in a chariot into remote regions, to reach ‘the gate of the paths of night and day’. Passing through, he is welcomed by a goddess, who promises that he is to ‘find out everything’. She goes on to fulfil the promise, in an exposition which constitutes the whole of the rest of the poem.

Over one hundred verses of the poem survive, including all of the introductory narration and probably almost all of the first and fundamental part of the goddess’s exposition. Together with comments of Plato, Aristotle and others, this is a fine corpus of first-rate evidence, the survival of which is due principally to Simplicius, the sixth-century Neoplatonist commentator on Aristotle. Yet controversy dogs almost every part of Parmenides’ thinking, for a conjunction of reasons. First, there are gaps in our information at certain crucial points. Next, Parmenides’ language is often obscure, in spite of his evident striving for maximal clarity. The constraints imposed, by the metre and vocabulary of epic verse, on the exposition of a subject-matter for which they were never designed, are bad enough. Then there is the problem of supplying whatever, in the course of his exposition, Parmenides left to be understood. Finally, his thought is itself novel and complex.

Any translation, therefore, and any overall reconstruction of Parmenides, including the one now to be outlined, cannot but be highly controversial at many points.
Is reality spatial or temporal or both?

First, the question of spatial and temporal properties. Parmenides shows no hesitation in applying to reality words which would normally imply spatial and temporal properties. It is ‘staying in the same thing’ and it ‘stays fixed there’; and ‘what is comes close to what is’. The word ‘limit’ (peiras) by itself implies nothing about space or time; but it is also said that this limit ‘fences it about’ and is ‘outermost’. The simile of the ball might not be meant spatially, but what of the statement that reality is ‘in equipoise every way from the middle’?

Recall that reality has been interpreted to be a state of affairs. Such a thing, though it may persist or not through time, can hardly itself have a spatial location or extension. This point chimes with another: if one supposes that reality is spatially extended, its spherical symmetry is problematic. The ‘limit’ cannot possibly be meant as a spatial boundary, since for reality to be bounded in space would be for it to be incomplete. It must be right, then, to take the spatial terms metaphorically. They must be aids to grasping how reality inhabits a kind of ‘logical space’. This works out smoothly. The ‘spherical symmetry’ must express metaphorically the point that reality is exactly the same, however it is viewed by the mind: it presents no different ‘aspects’. The ‘middle’, about which it is symmetrical, can be identified with the ‘heart of well-rounded reality’ mentioned earlier and with some kind of logical core (more on this later). Likewise the undividedness and coherence of reality mean that it is unified, not logically plural, not self-contradictory. ‘What is lies close to what is’, in the sense that any internal variation between parts does not constitute an essential difference. ‘Staying the same in the same and by itself makes the point that reality does not exist in relation to anything other than itself, and so not in relation to any external temporal or spatial framework; it is unique, and provides its own frame of reference. The metaphorical understanding of these terms is supported, above all, by the nature of the proofs. As has been seen, these make no appeal at all to properties of the space and time of experience.

With respect to time, though, the situation is different. It is at least possible to conceive of a state of affairs as being in, and lasting through, time. Parmenides argues against any change in reality; but this is still consistent with the view that reality is something which persists, without change, through time. Did he wish to go further? There are good reasons for thinking so.

First, the point made in connection with space, that reality exists ‘by itself’, without relation to anything other than itself, means that, if reality exists in and through time, time must itself be seen as an aspect of reality. The basic temporal phenomenon must be the temporal extension of reality. This already goes some way beyond the simple notion of a persisting reality.

Second, the argument (section (c) above) to the conclusion that reality is changeless and ‘by itself’ seems powerful enough to rule out, not merely change, but even mere time-lapse in relation to reality.
Third, the initial list of conclusions states: ‘nor was it ever, nor will it be, since it is all together now.’ If one cannot even say that ‘it was’ and ‘it will be’, then one cannot say that it persists. Nor is it necessary to understand ‘now’ as a ‘now’ which implies a ‘time when’. It is much more plausibly a metaphorical ‘now’, indicating a single timeless state, in which there is no longer any distinction of before and after, and therefore no meaning in tensed statements.

The metaphorical interpretation of these spatial and temporal terms, as applied to reality, does not, of course, imply that for Parmenides the spatial and temporal properties of ordinary objects are illusory. It still remains to be seen (in the next section) how Parmenides deals with the world of ordinary experience.17

In what sense is reality one?

There is no doubt that Parmenides was a monist of some kind; the comments of Plato and Aristotle alone would prove it, even if the fragments were lacking. The relevant proofs are those given under (b) and (c) in the preceding section. While argument (b) shows that reality is internally one ('not divided'), argument (c) shows inter alia that there is nothing other than reality (it is 'unique' or 'by itself'). Together these yield a monistic thesis: reality is 'one', and so there is but one thing.

Just what this monism amounts to may be seen by seeing what it excludes. The minimum that it must exclude is the error made by mortals when (in a passage to be discussed below) they decide to ‘name two forms, one of which ought not [to be named]; this is where they have gone astray’ (B 8.53–4). The fundamental error of the ‘mortals’ of the cosmology is to allow there to be two different subjects of (apparent) discourse, rather than just one.

Parmenides is then committed at least to a logical monism: there is one and only one subject about which anything is true. This seems also to be the maximum that needs to be claimed, and the maximum that is imputed by Aristotle’s remark that ‘[Parmenides] seems to be getting at that which is one in definition’ (Metaphysics I.5, 986b18–19). The argument for unity (section (b)) demands nothing more. In particular it does not exclude internal variation, nor does it impose qualitative homogeneity. Reality consists of a set of facts true of it. It is not excluded that reality might be constituted by more than one such fact; and after all many statements about reality are made by the goddess herself in the course of the argument; it would be absurd to suppose that they are meant to be seen as identical. Even though one may talk (as even the goddess sometimes does) in a misleading conventional way, this ‘plurality’ of facts must not be understood as a genuine plurality: what we are really dealing with here is different aspects of reality. Even when different parts of reality are distinguished, the correct formulation does not admit them as subjects in their own right, but speaks only of ‘what is’: ‘what is comes close to what is’; ‘what is cannot be here more or here less than what is’.

132 PYTHAGOREANS AND ELEATICS

Third, the initial list of conclusions states: ‘nor was it ever, nor will it be, since it is all together now.’ If one cannot even say that ‘it was’ and ‘it will be’, then one cannot say that it persists. Nor is it necessary to understand ‘now’ as a ‘now’ which implies a ‘time when’. It is much more plausibly a metaphorical ‘now’, indicating a single timeless state, in which there is no longer any distinction of before and after, and therefore no meaning in tensed statements.

The metaphorical interpretation of these spatial and temporal terms, as applied to reality, does not, of course, imply that for Parmenides the spatial and temporal properties of ordinary objects are illusory. It still remains to be seen (in the next section) how Parmenides deals with the world of ordinary experience.17

In what sense is reality one?

There is no doubt that Parmenides was a monist of some kind; the comments of Plato and Aristotle alone would prove it, even if the fragments were lacking. The relevant proofs are those given under (b) and (c) in the preceding section. While argument (b) shows that reality is internally one ('not divided'), argument (c) shows inter alia that there is nothing other than reality (it is 'unique' or 'by itself'). Together these yield a monistic thesis: reality is 'one', and so there is but one thing.

Just what this monism amounts to may be seen by seeing what it excludes. The minimum that it must exclude is the error made by mortals when (in a passage to be discussed below) they decide to ‘name two forms, one of which ought not [to be named]; this is where they have gone astray’ (B 8.53–4). The fundamental error of the ‘mortals’ of the cosmology is to allow there to be two different subjects of (apparent) discourse, rather than just one.

Parmenides is then committed at least to a logical monism: there is one and only one subject about which anything is true. This seems also to be the maximum that needs to be claimed, and the maximum that is imputed by Aristotle’s remark that ‘[Parmenides] seems to be getting at that which is one in definition’ (Metaphysics I.5, 986b18–19). The argument for unity (section (b)) demands nothing more. In particular it does not exclude internal variation, nor does it impose qualitative homogeneity. Reality consists of a set of facts true of it. It is not excluded that reality might be constituted by more than one such fact; and after all many statements about reality are made by the goddess herself in the course of the argument; it would be absurd to suppose that they are meant to be seen as identical. Even though one may talk (as even the goddess sometimes does) in a misleading conventional way, this ‘plurality’ of facts must not be understood as a genuine plurality: what we are really dealing with here is different aspects of reality. Even when different parts of reality are distinguished, the correct formulation does not admit them as subjects in their own right, but speaks only of ‘what is’: ‘what is comes close to what is’; ‘what is cannot be here more or here less than what is’.

132 PYTHAGOREANS AND ELEATICS

Third, the initial list of conclusions states: ‘nor was it ever, nor will it be, since it is all together now.’ If one cannot even say that ‘it was’ and ‘it will be’, then one cannot say that it persists. Nor is it necessary to understand ‘now’ as a ‘now’ which implies a ‘time when’. It is much more plausibly a metaphorical ‘now’, indicating a single timeless state, in which there is no longer any distinction of before and after, and therefore no meaning in tensed statements.

The metaphorical interpretation of these spatial and temporal terms, as applied to reality, does not, of course, imply that for Parmenides the spatial and temporal properties of ordinary objects are illusory. It still remains to be seen (in the next section) how Parmenides deals with the world of ordinary experience.17

In what sense is reality one?

There is no doubt that Parmenides was a monist of some kind; the comments of Plato and Aristotle alone would prove it, even if the fragments were lacking. The relevant proofs are those given under (b) and (c) in the preceding section. While argument (b) shows that reality is internally one ('not divided'), argument (c) shows inter alia that there is nothing other than reality (it is 'unique' or 'by itself'). Together these yield a monistic thesis: reality is 'one', and so there is but one thing.

Just what this monism amounts to may be seen by seeing what it excludes. The minimum that it must exclude is the error made by mortals when (in a passage to be discussed below) they decide to ‘name two forms, one of which ought not [to be named]; this is where they have gone astray’ (B 8.53–4). The fundamental error of the ‘mortals’ of the cosmology is to allow there to be two different subjects of (apparent) discourse, rather than just one.

Parmenides is then committed at least to a logical monism: there is one and only one subject about which anything is true. This seems also to be the maximum that needs to be claimed, and the maximum that is imputed by Aristotle’s remark that ‘[Parmenides] seems to be getting at that which is one in definition’ (Metaphysics I.5, 986b18–19). The argument for unity (section (b)) demands nothing more. In particular it does not exclude internal variation, nor does it impose qualitative homogeneity. Reality consists of a set of facts true of it. It is not excluded that reality might be constituted by more than one such fact; and after all many statements about reality are made by the goddess herself in the course of the argument; it would be absurd to suppose that they are meant to be seen as identical. Even though one may talk (as even the goddess sometimes does) in a misleading conventional way, this ‘plurality’ of facts must not be understood as a genuine plurality: what we are really dealing with here is different aspects of reality. Even when different parts of reality are distinguished, the correct formulation does not admit them as subjects in their own right, but speaks only of ‘what is’: ‘what is comes close to what is’; ‘what is cannot be here more or here less than what is’.
The denunciation of ‘mortals’ does not exclude the substantial reality of the ordinary world of experience—provided a construction is put upon that world which is radically different from the usual one, on the two key points of plurality and change. The temporal dimension may be kept, so long as it is in effect spatialized, with becoming and change ruled out as an illusion. The multiplicity of things in both spatial and temporal dimensions may be kept, so long as it is seen as non-essential qualitative variation within a single logical subject.

Finally, if this is right, it yields a satisfactory sense for the mentions of the ‘unmoving heart’ of reality and of its ‘middle’, a core implying a periphery. The ‘heart’ or ‘middle’ is constituted by the necessary truths discovered by reasoning, which alone are objects of knowledge. The outside is ‘what meets the eye’: the contingent snippets of reality as perceived by the senses. Sense-perception, even when in fact veridical, presumably does not yield knowledge because of the possibility of deception.20 What it reveals, not being part of the core of reality, is non-essential and not demonstrable by reasoning.

The Nature and Structure of Empirical Science: Cosmology as ‘Opinions of Mortals’

Parmenides’ stringently exclusive conception of knowledge does not entail the uselessness of all other cognitive states—far from it. He recognizes both the possibility and the practical value of ‘opinions’ about the cosmos, when organized into a plausible and reliable system. Here, building on the ideas of Xenophanes, he turns out to be the first recognizable philosopher of science.21

This is why the conclusion of the investigation of reality does not mark the end of the poem. There still remains the second half of the promise of the goddess, which must now be recalled:

It is necessary that you find out everything: both the unmoving heart of well-rounded reality \([\alpha\ell\varepsilon\theta\iota\iota\epsilon\iota]\), and the opinions of mortals, in which there is no real guarantee of truth—but still, these things too you shall learn, how [or: since] it had to be that opinions should reputedly be, all of them going through everything.

(DK 28 B 1.28–32)

This promise of an exposition of ‘mortal opinions’ is taken up at the end of the exploration of reality:

At this point I cease for you my trusty tale and thought concerning reality; from now on, learn the opinions of mortals, hearing the deceptive ordering of my words… This world-ordering I reveal to you, plausible in all its parts, so that surely no judgement of mortals shall ever overtake you.

(DK 28 B 8.50–1 and 60–1)
are leads to a definite result. But a definite result implies finitely many things: if there were infinitely many, counting them would lead to no result at all.

The second limb invokes the relation ‘between’ (*metaxu*). Any two distinct things are spatially separate (the converse of Parmenides’ argument for the oneness of reality from its undividedness). But what separates them must itself be something that is, and distinct from either. From this principle, an infinite progression of new entities is constructed.

Though this involves an appeal to spatial properties, it might easily be rephrased in terms of logical ones. The principle would be: for any two distinct things, there must be some third thing different from either which distinguishes them from one another; and so on.

\[ (e) \]

The argument by ‘sizeless’ and ‘of infinite size’

Again Simplicius is our source. He quotes two chunks of the text, and enough information to recover the rest in outline.

The first limb claimed that ‘if there are many things, they are so small as to have no size’. The argument proceeded, according to Simplicius, ‘from the fact that each of the many things is the same as itself and one’ (*Physics* 139, 18–19). It is not difficult to make a plausible reconstruction here. First, to speak of a ‘many’ implies, as in (d), a correct way of counting. The many must be made up of securely unified ones. Then consider each of these units. The line may have been (compare Melissus DK B 9): what has size has parts; what has parts is not one. Hence each of the units must be without size.

The second limb contradicted this in successively stronger ways. First, it claimed to show that, in a plurality, what is must have size. Suppose something does not have size, then it cannot be:

\[ \text{(DK 29 B 2, Simplicius Physics 139.11–15)} \]

This argument in terms of adding and taking away obviously makes essential use of the assumption ‘there are many things’; it could not, therefore, have been turned against Parmenides. It also needs some principle such as ‘to be is to be (something having) a quantity’: not a ‘commonsense’ axiom, but one likely to be held by most mathematizing theorists of the time.35

The next and final step proceeds from size to infinite size:
But if each [of the many things] is, then it is necessary that it has some size and bulk, and that one part of it is at a distance from another. The same account applies to the part in front: for that too will have size and a part of it will be in front. Now, it is alike to say this once and to keep saying it all the time: for no such part of it will be the endmost, nor will it be that [any such part] is not one part next to another. Thus if there are many things, it must be that they are both small and large: so small as to have no size, so large as to be infinite.

(DK 29 B 1, Simplicius Physics 141.2–8)

One axiom used is that anything having size contains at least two parts themselves having size. This clearly generates an unending series of parts having size. Less clear is the final step from ‘having infinitely many parts with size’ to ‘infinite (in size)’, which apparently was taken with no further argument. There is some analogy with the ‘Stadium’ and ‘Achilles’ (see (c) below): just as the runner’s supposedly finite track turns out to contain an infinite series of substretches, each of positive length, so here the object with supposedly finite size turns out to contain an infinite series of parts, each having size. If we try to recompose the original thing out of the parts, we shall not be able to do so: we shall always be adding to its size, just as Zeno might plausibly claim, is just what is meant when we say something is infinite in size.

(f)

Methods and assumptions

In the light of the arguments themselves as preserved, the question of their aims and methods can be taken up again.

It is evident that some of the assumptions used by Zeno in these arguments are not due to simple ‘common sense’. Common sense does not make postulates about the divisibility ad infinitum of things having size; nor suppose that ‘to be is to be something having a quantity’; nor insist on a single correct way of counting things. Hence Zeno’s arguments are not directed against unreflecting ‘common sense’. In fact, these are the kind of assumptions that are naturally and plausibly made, when one sets about theorizing, in an abstract and mathematical spirit, about the physical world.

The methods and the style of proof are also mathematical. Note-worthy are the constructions of progressions ad infinitum, and the remark when one is constructed: ‘it is alike to say this once and to keep saying it all the time’. However many times the operation is repeated, that is, it will always turn out possible to make precisely the same step yet again.
against a very slow one. The slow runner is given a start. The stretch covered by
the faster runner is divided up in such a way that it appears the faster can never
catch the slower within any finite time. This drives home the point that speed is
irrelevant. No limit of speed is prescribed or needed by the argument; the speed
of the fast runner could increase without limit without removing the problem.

(c)
The ‘Arrow’

Another way of looking at things supposedly in motion throughout a time-stretch
is to select any one moment during that stretch. Say an arrow is in flight.

1 At any one moment the arrow must be ‘in one place’. No part of it can be in
two places at once; so it must occupy ‘a space equal to itself (i.e. of the same
shape and size).

2 The arrow must be at rest at this moment. There is no distance through
which it moves, in a moment; hence it does not move at a moment, so it
must be at rest at that moment.

3 But the moment chosen was an arbitrary moment during the flight of the
arrow. It follows that the arrow must be at rest at all moments during its
flight.

4 Hence, since the arrow during its flight is never not at a moment of its flight,
the arrow is always at rest during its flight; so it never moves during its flight.

The above argument cannot claim to be more than a plausible filling-out of
Aristotle’s abbreviated report (Physics VI 9, 239b5–9 and 30–3). Aristotle
himself is interested only in step (4), where he thinks to find the fallacy; he gives
the only briefest sketch of (1), (2) and (3).

(d)

The ‘Moving Rows’

Aristotle (Physics VI 9, 239b33–240a18) reports this argument in terms of
unspecified ‘masses’ on a racecourse; to make it easier for a modern reader, the
masses may be thought of as railway trains.

Consider three railway trains of the same length, on three parallel tracks. One
of the trains is moving in the ‘up’ direction, another is moving at the same speed
in the ‘down’ direction, and the third is stationary. As may be easily verified,
either of the moving trains takes twice as long to pass the stationary train as it
does to pass the other moving train.

Just how Zeno derived a contradiction from this fact, is uncertain. According
to Aristotle, Zeno simply assumed that the passing-times must be equal, since the
speeds are equal and the two masses passed are equal in length. Then it follows
that the time is equal to twice itself. The assumption, though, has often been
55 It is not safe, though, to read back the mind-body dualism of Plato’s middle period into Pythagoras.

BIBLIOGRAPHY

Pythagoras and the Early Pythagoreans

Texts

No authentic writings survive. Collections of early Pythagorean akousmata and sumbola, and other later testimony about Pythagoras and the early Pythagoreans, are in DK [2.2]: I, 446–80. On the surviving fragments of ‘Orphic’ writings, see West [4.5].

General studies

4.1 Burkert [2–25].
4.3 Burkert [1.43], 290-304.
4.4 Dodds [2.28], ch. 5.
4.6 Parker, R. ‘Early Orphism’, in A.Powell (see [2.36]): 483–510.

Early Greek mathematics and science

4.7 Lloyd [1.7]. See also [2.27], [2.34], [2.38], [2.41].

Parmenides

Texts with translation and commentary


**General studies and collections of essays**


**The proem**


*Alētheiē* in early Greek and in Parmenides:


The ‘Platonic problem’ of not-being


Cosmology (including psychology)


Miscellaneous


Zeno

Texts with translation and commentary

4.60 Untersteiner, M. Zenone: testimonianze e frammenti, Florence, La Nuova Italia Editrice, 1963. Translations of the relevant parts of Plato Parmenides can be found in Cornford [4.19]. The testimony of Aristotle in the Physics is translated in:
At their first appearance the four were given divine names, since they had now taken the place of the traditional gods as the true immortals, but Empedocles’ vocabulary was not consistent. As well as the names of gods and goddesses, he also listed them by the common terms of fire, air, earth and water, or by their most obvious manifestations as sun, sky, earth, sea or rain. He posited just these four, no more and no less, eternally existing, ever the same, equal in privilege and power, but capable, as they mingle, separate and reassemble, of producing a variety of phenomena. The evidence for their individual characteristics, as for their very existence, was to be found in their appearance as conglomerates in the natural world:

sun with its radiant appearance and pervading warmth, heavenly bodies bathed in heat and shining light, rain everywhere dark and chill, and earth the basis of firmly rooted solids.

Such qualitative differences as hot and cold, wet and dry, light and dark, remain whether the four are separated out in perceived stretches of bright sky, misty land and sea, or brought together in compounds, in which the characteristics of the predominating elements may be apparent, but others imperceptible because of the smallness of the component particles.

Empedocles therefore considered the four roots or elements to be basic and permanent corporeal entities, forming temporary arrangements as their parts were brought into compounds of different shapes, although they themselves were not subject to alteration of any kind. He constantly rammed the point home:

these are the only real things, but as they run through each other they become different objects at different times, yet they are throughout forever the same.

Birth and death, generation and destruction have to be accepted as illusory, the consequence merely of the mingling and separating of parts of the elements in various proportions, which give to the different structures their apparent individuality. The context in fragment 21 explains further:

From them (the four ‘roots’) comes all that was and is and will be hereafter —trees have sprung from them, and men and women, and animals and birds and water-nourished fish, and long-lived gods too, highest in honour. For these are the only real things, and as they run through each other they assume different shapes, for the mixing interchanges them.

(fr. 21.9–14)
The continual modifications here of incoming and outgoing thoughts are taken to correspond both to fluctuations in the outside world and to alterations in the inner condition.

The less intelligent (including in particular those who infer erroneous general conclusions too quickly from inadequate evidence) quite literally have inadequate means of ‘grasping’ the truth, whereas a wealth of appropriate thoughts results in proper understanding (frs 2, 3, 132). Although the medical terminology of heart and lungs (phrenes), midriff (prapides) and intestines (splangchna) even in the Homeric poems was losing its literal meaning, Empedocles’ constant use of it points to a consistent theory of a physical basis for rational activity. In this way he can envisage a struggle in the phrēn between deceit and persuasion (fr. 23), introduce evidence to strengthen feeble conviction (fr. 35), speak of thoughts entering the phrontis of the Muse (fr. 131), and describe a wise man, perhaps Pythagoras, stretching his prapides when he remembers generations that are past and makes prophecies for the future (fr. 129).

Similarly Empedocles sees the instruction of his student as a literal transfer via speech from one to the other. This is shown when he asks that a ‘pure stream’ of thoughts in the form of words might pass from his lips to his pupil (fr. 3), and he advises Pausanias that his sense-organs are in their different ways receptive to the transfer of truth:

> do not keep back trust from seeing, hearing, taste or any other channel for thinking, but think each thing in the way in which it is clear.

When Pausanias has taken in the account the argument is to be divided into its component parts and almost literally digested like food in the stomach area (fr. 4. 3). And Empedocles gives a final exhortation:

> If you put the words I say firmly into your crowded thoughts, and contemplate them with clear and constant attention, assuredly they will all be with you through life, and you will gain much else from them, for of themselves they will cause each [new thought] to grow into your character, according to its nature. But if you should reach out for things of a different kind, for the countless trivialities that dull human meditation, straightaway they will leave you as the time comes round…

The meaning here would seem to be that the mixture of the bodily components reflects or represents whatever is thought about in the external world, while the continual physical changes in the structure of the body alter that mixture, with corresponding shifts in the nature and range of the thinking. The resulting
their mother, and having deprived them of life devour the flesh of those they love.

(fr. 137)

The citizens of Acragas are urged to give up such practices, which further the work of strife, and instead to honour the power of love, personified as Kypris, in the old way:

with holy images and painted animal figures, with perfumes of subtle fragrance...and libations of golden honey.

(fr. 128.5–7)

Empedocles apparently extended the injury to the common bond of life displayed in animal sacrifice even to plants, for Plutarch, in the context of fragment 140: ‘keep completely from leaves of laurel’, reports a prohibition against taking of leaves because of the injury to the parent tree. He also links the themes once more in another fragment, which gives a ranking of the highest types of plants and animals in a scale of an exchange of lives:

Among animals they are listed as lions that make their lair in the hills and bed on the ground, and among fair-leaved trees as laurels.

(fr. 127)

And finally the highest human lives are listed, as the last stage before becoming a god:

And at the end as prophets, minstrels, healers and princes they come among men on earth; and from these they arise as gods, highest in honour.

(fr. 128)

The ways in which the subject-matter of these fragments bears on those already discussed as from the Physics may now be explored. Any interpretation should be based on the direct quotations as far as possible, for there is very little reliable external evidence, and the comments of ancient authors, even when giving a quotation, have to be used with caution, and stripped as far as possible of their own particular bias.

It is appropriate to start with the four elements. A daimōn is the term given in the Katharmoi to an individual divinity, the enhanced form of life that is superior to a human but still a temporary compound of the true immortals, the four elements. When, in fragment 115 quoted above, it is said that the air drives the daimōn into sea, sea casts him on to earth, earth into sun, and sun back to the swirling air, these areas of banishment refer explicitly to the masses of the four elements described and explained in the Physics. The language of ‘a changing of the paths’ for the combining of living creatures from elemental parts, the
Someone who is wise in such matters would not surmise in his mind that people are, and meet with good and ill, for as long as they live, for a lifetime as they call it, and that before they were formed, and after they have disintegrated, they do not exist at all.

(fr. 15)

One more connecting topic that is present in the two aspects of Empedocles’ work deals with the elemental structure of blood, and its significance for life and intelligence. In fragment 105 Empedocles said that, 'Tor humans, blood around the heart is thought [noēma].’ This is explained by Theophrastus, in his history of previous views on sensation, as meaning that the elements in the structure of the blood and tissues of the heart are mingled in a better proportion (that is, closer to the ratio of one to one of the minimal parts) than elsewhere in the body. Here therefore is the cognitive principle; it is analogous in its composition to the physical structure of the sphere under Love, in the state that was described as ‘sane mind’ and ‘most happy god’. The combination of elements, as one could nearest in this world of increasing Strife to such an optimum condition is said to be found in the blood around the heart, so the complete prohibition against bloodshed can be seen to have a place in the overall scheme. There are three reasons: first, the shedding of blood is given as a cause of the exile of the daimōn from a happier state; second the earlier age of Kypris/Aphrodite was characterized by the absence of animal sacrifice; and third the continuing shedding of blood in war, and in the name of religion, is given as grounds for the continuing misery of human life.

The themes of Physics and Katharmoi are not therefore diametrically opposed, but connect on several issues. The theory of four elements helps to explain the exchange of lives of the daimōn in earth, sea, air and sun, and the account of the cosmic activity of Love and Strife is necessary to show how one can come under these powers, and the inevitable consequences. The frontiers of birth and death no longer hold, and traditional theology has to be revised. Plants, animals, men and gods have a common origin and nature, and there are no fixed boundaries marking off the kinds of life. And the principle of thought, based on a materialistic structure, has features common to the individual and the cosmos as a whole.

Throughout Empedocles’ work there is emphasis on an alternation between god and human, mortal and immortal. The elements united under Love are a cosmic god; when held apart by Strife they are separate but still immortal; and in the intervening times they take on mortal forms. The god-like daimones are born as mortals, and in turn ‘many-times dying men’ become immortal gods. But in the Katharmoi the alternation of the states ‘mortal’ and ‘immortal’ takes on a vividly personal tone. Notions of wrongdoing, banishment and return to happiness give individual histories to gods and mortals, which at first sight appears incompatible with a theory that explains particular forms of life as a temporary arrangement of elemental parts.
A solution to this difficulty can be found in an appreciation of the different contexts in which the underlying ideas are set. Before the present state of the world all things were said to have been united under Love; this was an ideal state, and the present one a degeneration from it. In physical terms the elements were exactly mixed and held fast in harmony, with Neikos, the principle of enmity and separation, having no control. The interpretation of this for publication to the people of Acragas was in terms of a previous ‘golden age’ comparable to the era of general happiness and universal friendship traditionally ascribed to Kronos in the Isles of the Blessed. Then, at a fixed time, there came an end to the ideal state. Strife entered the cosmic sphere, causing tremors that resulted in elements separating out from the mixture; it was as a consequence of this further disturbance that the conditions arose that were appropriate for the emergence of varied forms of life. In the language of the Katharmoi Strife gained control of some of the daimones and separated them from their fellows, causing them to take on ‘an unfamiliar garment’ of skin and tissues (fr. 126); that is, the elements were reconstituted as forms of lives in different elements. That these same process viewed in two ways is confirmed by the mention of the oath at the appropriate moment in each case: the time for the end of the age of harmony, for the rise of Strife and the consequent generation of mortal lives, is held secure by the ‘broad oath of necessity’, a striking way of indicating the inevitability of universal law.

Empedocles sees himself involved in cosmic events. The elements of which each individual is composed have, in this present phase of the cosmic cycle, been pulled apart from their original unity and plunged into rounds of so-called births and deaths. Life on earth is therefore to be viewed as an exile from an earlier true home. In terms of human law exile is the standard penalty for blood-shedding and perjury, and so these are given as the acts committed by the daimôn, who consequently takes on a series of mortal forms, and lives in one element after another. Although the daimôn has come under the power of Strife and so is said to have acted ‘wrongly’, this does not imply wrong intention or opportunity for choice on the part of the daimôn, for it was ‘according to necessity’ that Strife would gain control. And when Empedocles says that he has been born as boy, girl, plant, bird and fish, no personal remembrance of such states is involved, but it is an inference from the universal law ordaining that the daimôns be born in different elements as different kinds of mortal life.

There would however seem to be some constant factor to justify Empedocles’ use of ego (‘I’ as first person) at each stage of his history, which would be incompatible with the theory of the complete dispersal at death of the elemental parts that make up the individual. Now in the Physics, as has been shown, the elements, eternal and unchanging, are called gods, which, when the time comes round, adopt the form of mortal things. The supreme cosmic god (theos eudaimonestatos, where the adjective has connotations of a good and happy daimonic status) is the union of the whole under Love, resulting in holy mind (phrên hierê), until attacked and broken into separated parts by Strife. The daimones of the Katharmoi similarly were united under Love, then forced to
use of teleology, remaining content, like his predecessors, with purely
mechanistic explanations.

The evidence of the fragments of Anaxagoras’ views on Mind is consistent
with this passage. The most important piece of evidence is fragment 12, which
contains a number of theses about the nature and activity of Mind, as follows:

<table>
<thead>
<tr>
<th>Nature Mind is</th>
<th>Activity Mind</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) unlimited</td>
<td>(f) takes thought for everything and has the greatest power</td>
</tr>
<tr>
<td>(b) self-directing</td>
<td></td>
</tr>
<tr>
<td>(c) separate from everything else</td>
<td>(g) controls everything which has a soul</td>
</tr>
<tr>
<td>(d) the finest and purest of all things</td>
<td>(h) directed the entire cosmic rotation, initiated it and continued it</td>
</tr>
<tr>
<td>(e) all alike, the greater and the less</td>
<td>(i) not all the mixtures or separations of everything</td>
</tr>
<tr>
<td></td>
<td>(j) organized whatever was, is and will be.</td>
</tr>
</tbody>
</table>

The first problem is, what is the reference of Anaxagoras’ term Nous? Is it mind
in general, instanced in different individual minds (as in ‘the concept of mind’),
or a single cosmic mind? The answer is that it is probably both. The specification
of mind given by (a)–(e) seems to be an attempt to differentiate mind as a
constituent of the universe from all other constituents. Mind is the finest and
purest of all things, it is self-directing (as opposed to other things, which
(according to (f), (g) and (j) are directed by mind), and it (alone) is separate from
everything else, whereas everything else contains a portion of everything else.
(Compare fr. 11, ‘In everything there is a portion of everything except mind, but
there are also some things which contain mind.’) But the account of mind’s
activity, most especially (h), strongly suggests the activity of a single supreme
mind, which organizes the cosmos as a whole. It is clear, too, that that is how Plato
represents Socrates as understanding Anaxagoras, especially Phaedo 97c: ‘Mind
is what organizes and is the cause of everything…the mind which organizes
everything will organize and arrange each thing as is best’. The characteristics
listed in (a)–(e) are characteristics of all minds, both ‘the greater and the less’
(i.e. presumably the supreme cosmic mind and subordinate minds, including but
not necessarily restricted to human minds), which are explicitly stated in (e) all
to be alike. The activities listed in (f)–(j) are activities of the cosmic mind,
chanced”). On this view necessity governs, but is local to, a world order, which itself arises by chance from a pre-cosmic state where there is no necessity.

The recognition of pure chance is, however, inconsistent with the Principle of Sufficient Reason, which we know the atomists accepted. It therefore seems preferable to look for some interpretation of the evidence which is consistent with that principle. That interpretation is provided by the first reading of the Aetius passage cited above, namely that the ascription of events to chance is a confession of ignorance of their causes, not a denial that they have causes. Some features of the evidence support this suggestion. Diogenes’ summary of the cosmology of Leucippus (IX.30–3, DK 67 A 1) concludes with the sentence, ‘Just like the coming into being of worlds, so do their growth, decay, and destruction occur according to a certain necessity, the nature of which he does not explain.’ In line with his famous dictum, then, Leucippus held that all events including the formation of worlds happen according to necessity, but was unable to say what it is that necessitates cosmic events. It is then plausible that either himself or Democritus said that such events may be said to occur by chance, in the sense that we are (whether merely in fact or in principle is indeterminate) ignorant of their causes. Simplicius’ evidence suggests just that: in Physics 327.24–6 his attribution to Democritus of the view that the cosmic swirl arises by chance is avowedly his own inference from the fact that Democritus did not say how or why it occurs. In Physics 330.14–20 he says that although Democritus appeared (edokei) to have made use of chance in his account of the formation of worlds, in his more detailed discussions (en tois merikóterois) he says that chance is not the cause of anything. That suggests that he merely seemed to ascribe cosmogony to chance (perhaps by speaking of it as a chance occurrence in the sense of an occurrence whose cause is unknown). Explanations of specific kinds of events and of particular events were governed by the principle that there are no chance events, but no attempt was made to offer explanations of the fundamental cosmic processes themselves. That need not imply that they are literally uncaused, but that they might as well be treated as such, since their actual causes are of a degree of complexity outstripping the powers of the human mind to discover.

For the atomists, then, everything happens of necessity; the identification of necessity with the mechanical forces of impact and motion may have been due to Democritus. But what exactly was his view on this? Aetius (I.26.2, DK 68 A 66) reports him as identifying necessity with ‘impact and motion and a blow of matter’. Are impact and motion given equal status in this identification, or is it taken for granted that motion is always caused by prior impact? On the former construal some motion may be either uncaused, or attributable to a cause other than impact. In favour of the first alternative is Aristotle’s evidence (Physics 252a32–b2, DK 68 A 65) that Democritus held that one should not ask for a cause of what is always the case. He might then have said that the atoms are simply always in motion. But while that principle allows him to exclude the question, ‘What causes the atoms to be in motion?’, the Principle of Sufficient
Hence we are doubly distanced from reality; not only phenomenologically, in that things appear differently from how they are, but also causally, in that we perceive atomic aggregates via the physical intervention of other aggregates (namely the atomic films) and the action of those latter on our sense organs. A number of fragments stress the cognitive gulf which separates us from reality: (fr. 6) ‘By this principle man must know that he is removed from reality’; (fr. 8) ‘Yet it will be clear that to know how each thing is in reality is impossible’; (fr. 10) ‘That in reality we do not how each thing is or is not has been shown many times’ and (fr. 117) ‘In reality we know nothing, for truth is in the depths.’

This evidence immediately presents a major problem of interpretation. On the one hand fragment 9 and associated reports stress the gulf between appearance and reality, claiming that the senses are unreliable in that they misrepresent reality. That dogmatic claim presupposes that we have some form of access to reality, which enables us to find the sensory picture unfaithful to how things are in fact. On the other hand, fragments 6, 8, 10 and 117 make the much more radical claim that reality is totally inaccessible, thereby undercutting the thesis that there is a gulf between appearance and reality. Fragment 7, ‘This argument too shows that in reality we know nothing about anything, but each person’s opinion is something which flows in’ and the second half of fragment 9, ‘In fact we know nothing firm, but what changes according to the condition of our body and of the things that enter it and come up against it’ attempt uneasily to straddle the two positions, since they draw the radically sceptical conclusion from a premiss about the mechanism of perception which presupposes access to the truth about that mechanism. We might conclude that Democritus simply failed to distinguish the dogmatic claim that the senses misrepresent reality from the sceptical claim that we can know nothing whatever about reality. An alternative strategy is to look for a way of interpreting the evidence which will tend to bring the two claims nearer to consonance with one another.

We can bring the two claims closer to one another if the ‘sceptical’ fragments are interpreted as referring, not to cognitive states generally, but specifically to states of sensory cognition. These fragments will then simply reiterate the thesis that we know nothing about the nature of reality through the senses, a thesis which is consistent with the slogan stated in the first half of fragment 9 and which dissolves the apparent tension internal to fragment 7 and the second half of fragment 9. Support for that suggestion comes from consideration of the context in which Sextus quotes fragments 6–10, namely that of Democritus’ critique of the senses; of this Sextus observes, ‘In these passages he more or less abolishes every kind of apprehension, even if the senses are the only ones which he attacks specifically.’ It thus appears that Sextus understands Democritus as referring in these fragments to the senses only, though in his (i.e. Sextus’) view the critique there directed against the senses in fact applies to all forms of apprehension. This is confirmed by the distinction which Sextus immediately (Adversus Mathematicos VII.135–9) attributes to Democritus between the ‘bastard’ knowledge provided by the senses and the ‘genuine’ knowledge
At this point we should consider in what sense the theory of atomism takes the data of the senses as its starting-point, and whether that role is in fact threatened by the appearance—reality gap insisted on in fragment 9. According to Aristotle (On Generation and Corruption 315b6–15, DK 67 A 9; 325b24–6, DK 67 A 7) the theory started from sensory data in the sense that its role was to save the appearances, i.e. to explain all sensory data as appearances of an objective world. Both Aristotle (On Generation and Corruption) and Philoponus (his commentary, 23.1–16 (not in DK)) mention conflicting appearances as among the data to be saved; the theory has to explain both the honey’s tasting sweet to the healthy and its tasting bitter to the sick, and neither appearance has any pretensions to represent more faithfully than the other how things are in reality. All appearances make an equal contribution to the theory. That is a position which atomism shares with Protagoras, but the latter assures the equal status of appearances by abandoning objectivity; in the Protagorean world there is nothing more to reality than the totality of equipollent appearances. For Democritus, by contrast, the reconciliation of the equipollence of appearances with the objectivity of the physical world requires the gap between appearance and reality. Without the gap a world of equipollent appearances is inconsistent and hence not objective. But there is no equality by denying equipollence; qua appearance, every appearance is as good as every other. Hence the task of theory is to arrive at the best description of an objective world which will satisfy the requirement of showing how all the conflicting appearances come about.

So far from threatening the foundations of the theory, then, the appearance-reality gap is essential to the theory. But in that case what is the point of the complaint of the senses in fragment 125? Surely that text provides conclusive evidence that Democritus believed that the gap threatened the theory, and hence (assuming that he understood his own theory) conclusive evidence against the interpretation which I am advancing. I do not think that the text does provide such evidence, for the simple reason that we lack the context from which the quotation comes. The point of the complaint need not (and given the nature of Democritus’ theory certainly should not) be the admission that the theory is self-refuting. It is at least as likely to be a warning against misunderstanding the account of the appearance-reality gap as requiring the abandonment of sensory evidence. We may imagine an anti-empiricist opponent (Plato, say) appealing to the gap to support the claim that the senses are altogether unreliable, and should therefore be abandoned (as is perhaps indicated by Phaedo 65–6). In reply Democritus points out that the attack on the senses itself relies on sensory evidence. Sextus does indeed align Democritus with Plato in this regard (Adversus Mathematicos VIII.56). It is my contention, however, that when we put the Aristotelian evidence of the atomists’ acceptance of the appearances as the starting-point of their theory together with all the other evidence, including the fragments, we have to conclude that the picture of Democritus as a failed Platonist is a misunderstanding. The atomists’ distinction between appearance and reality does not involve ‘doing away with sensible things’; on the contrary,
The Atomists

Texts

6.20 DK [2.2] II, sect. 67 (Leucippus), 68 (Democritus).

Collections of articles


Studies

6.24 Barnes [2.8], ch. 17, 19(b), 20, 23(a), 24(e).
6.32 ——[2.31], ch. 9–11.
of language. This, perhaps rather surprisingly, included a doctrine of the correct
forms of linguistic expression. He seems to have made an analysis of sentences
into narrative, questions, answers, commands, reported narrative, wishes and
summonses. Aristotle tells us that he set out to correct ordinary Greek genders to
bring usage into accord with the supposed ‘real’ gender of things and concepts.
One may conjecture that this could be justified, while still keeping the basis of
Protagoras’ relativism, which was that it is better and more expedient for the
genders of words to express the perceived genders of things around us. The
whole question of the relation between words and things was of fundamental
importance for all of the sophists, as far as we know, and it gives us the key to an
understanding of the next figure to be considered here, namely Gorgias.

GORGIAS

Gorgias came from Leontinoi (modern Lentini), an Ionian colony in Sicily. He was
born probably between 490 and 485 BC and he outlived Socrates, who died in
399 BC. The most famous single event in his life was his visit to Athens in 427
BC when he came as leader of a group of envoys from his native city in order to
seek Athenian support for Leontinoi in its war with Syracuse. The requested
alliance was secured after Gorgias had amazed an Athenian assembly by his
rhetorical skill (DK 82 A 4). He also went on to, after his Athenian visit, travelled
extensively throughout the Greek world; he is recorded as speaking at Olympia,
Argos, Delphi, and in Thessaly and Boeotia. But above all he taught pupils at
Athens, for which teaching he received considerable sums of money. After his
death he was honoured by the setting up of a golden statue of himself both at
Delphi and at Olympia, for the latter of which it may be that the base survives to
the present day.

In Sicily Gorgias had been a disciple of Empedocles, and his own doctrine of
perception was clearly derived from that to be found in his master’s poem. Plato
developed a whole dialogue, the Gorgias, to a discussion of his views on rhetoric,
and Aristotle is recorded as having written an attack on Gorgias’ doctrines,
unfortunately no longer extant. We have the titles of some eleven writings
attributed to Gorgias. Two speeches survive, apparently complete, and we have
two detailed summaries of his treatise On Nature. It is on this work that his claims
to a significant place in the history of philosophy must depend. One summary of
it is preserved in some four (printed) pages of Greek in Sextus Empiricus,
Adversus Mathematicos (VII.65–87). A second summary, with some significant
differences from Sextus, is found in the third section of a piece of writing
wrongly attributed to Aristotle, and so included in the Aristotelian corpus, under
the title On Melissus, Xenophanes and Gorgias (MXG for short). Both the
reconstruction of the argument in Gorgias’ treatise and its interpretation are
difficult and controversial. Scholarly discussion has essentially passed through
three stages. First and for a very long period it was held that the work was simply
not meant to be taken seriously. On this view Gorgias had written an extended
parody or joke against philosophers. If it had any serious purpose it was to be seen as a purely rhetorical exercise in a method of argument which philosophers were supposed to have used and which simply made them ridiculous.\(^5\) A second stage in the interpretation of Gorgias’ treatise was reached by those who were prepared to take it seriously, and who took it as an elaborate attack on the philosophic doctrines of the Eleatics, and to a lesser extent the doctrines of certain physical philosophers among the pre-Socratics.\(^6\) On this view the verb ‘to be’ in Gorgias’ treatise has the meaning ‘to exist’. The treatise itself is divided into three parts. The first part maintains that nothing exists, and this is established by arguing that ‘not-being’ does not exist, nor does ‘being’ exist. This is directed against the contention of Parmenides that only being exists. Gorgias by his arguments thus achieves a position of philosophic nihilism. Parmenides had destroyed the manifold world of appearances, but he kept the unitary world of true being. Gorgias completed the negative process begun by Parmenides by denying also the world of being, so that we are left simply with nothing.

This second stage in the interpretation of Gorgias’ treatise had at least one advantage; it took the treatise seriously and did assign to Gorgias a place in the history of philosophy, albeit one that was negative and destructive. The second part of Gorgias’ treatise on this view tried to ram home the argument by contending that even if something does exist it cannot be known by human beings. In the third part it is argued that even if something exists and is knowable, no knowledge or understanding of it can be communicated to another person.

But if this second approach is an improvement over the first, it now begins to seem that perhaps it does not go far enough. What is happening is that we are now beginning to have a certain reassessment of the uses of the verb ‘to be’ in ancient Greek in the light of certain modern doctrines. It is now common to make a clear distinction between ‘is’ as a copula followed by a predicate, as in ‘\(X\) is \(Y\)’, and an existential sense where the verb has the meaning ‘exists’ as in ‘\(X\) exists’. But we can understand the claim that anything which exists must necessarily be something. From this it could follow that the existential use of the verb ‘to be’ is always to be understood as implying one or more predicates. This in turn has the effect of reducing the existential use to a special case of its use as a copula, namely one in which predicates are necessarily involved, but are not actually expressed. We are now also familiar with the view that in order to understand the function of language it is necessary to pay attention to two distinguishable things, namely what is the meaning of words and phrases, and to what if anything they refer. It is now beginning to seem to be the case that Gorgias may have been attempting to make use of just this distinction. On this view it is the relation between words and things with which he is concerned.\(^7\) This, it can be argued, emerges in the second and third parts of his treatise, where he is arguing that it is not possible for a thing to be known by human beings because we are only indirectly in contact with objective things, either by perception or by the use of words to describe them. Likewise no knowledge or understanding of things can be conveyed from one person to another, since the
on *Ecclesiastes* which attributes to Prodicus the doctrine that it is not possible to contradict. The reason for this paradoxical contention is stated to be because only the person who speaks the truth makes a meaningful statement. The person who appears to contradict him is not in fact saying anything at all, and so in effect is not actually speaking. What this implies is that meaningful statements necessarily refer to something which is the case, while statements which appear to contradict such meaningful statements by denying that they are true, are themselves without meaning since they have nothing to which they can refer. This should probably be related to the doctrine ascribed to Prodicus by Alexander of Aphrodisias (DK 84 A 19), that in proper linguistic usage each word or phrase should be related to one thing only and to no other. In modern terms this amounts to the attribution to Prodicus of a referential theory of meaning.

Prodicus was famous also for his rationalizing account of the origins of religious beliefs. The details of exactly how he did this are unfortunately not clear, but he seems to have supposed that human beings began by personifying physical objects that were of use to them, so bread becomes Demeter and wine becomes Dionysus. Finally it may be stressed that the pseudo-Platonic dialogue *Eryxias* credits Prodicus with a doctrine of the relativism of values, which I have argued elsewhere may actually be true for the historical Prodicus.

**HIPPIAS**

Hippias of Elis was a younger contemporary of Protagoras and he is depicted by Plato in the *Protagoras* as present along with other sophists at the house of Callias. The dramatic date for this is about 433 BC. He was apparently still alive at the death of Socrates in 399 BC. He travelled extensively as a professional sophist, making a famous visit to Sicily, and made a great deal of money. He claimed to be at home in all the learning of his day, and was credited with a large number of writings, both in prose and in verse in the forms of epics, dithyrambs and tragedies. His polymathy was no doubt aided by certain exceptional powers of memory. It appears that these were developed by special techniques which he also taught to others, and he was said to have been able to remember fifty names after a single hearing. In addition to his epideictic displays he was known to have been ready to teach astronomy, mathematics and geometry, genealogy, mythology and history, painting and sculpture, the functions of letters, syllables, rhythms and musical scales. Of particular importance for the history of Greek thought must have been his *synagôgê* which, it appears, was a collection of passages, stories and pieces of information from earlier writers both Greek and non-Greek. It thus stands at the beginnings of the doxographic approach to Greek thought, above all to the preSocratics, and it probably underlay to some extent both Plato’s and Aristotle’s schematized views of their predecessors. Another work of great importance was his list of victors at the Olympic games based on local written records, which provided a foundation for subsequent Greek
historical chronology. The collection of Plato’s writings includes two dialogues directly concerned with Hippias, the *Hippias Major* and the *Hippias Minor*. The authenticity of each of these dialogues has been questioned by modern scholars, probably wrongly at least in the case of the *Hippias Major*. But in either case, they provide evidence which there is good reason for us to accept. Hippias is presented throughout as incapable of standing up to the questioning of Socrates. It has been suggested that Hippias came close to personifying the type Plato most abhorred as a generic sophist. None the less his intellectual versatility is clearly represented, even though it is always dismissed as accompanied by superficiality.

When we turn to consider the philosophic doctrines associated with Hippias we are confronted with an initial difficulty. We do not know for certain whether Hippias held any overall or unifying basis for his polymathy. But there is some evidence for an overall philosophical position given in the *Hippias Major* (301b–e) where reference is made to a ‘continuous theory of being’. This is primarily based on the view that there is something continuous that is carried through classes as well as through the physical bodies of things without interruption, and this is wrongly divided or cut up by the use of words. The implication here is that language cannot represent the true nature of the external world.

That he did have a doctrine of some kind about nature is supported by what we are told about him in Plato’s *Protagoras*. He contrasted law and nature; he favoured nature against law, which acts as a tyrant and compels human beings to do or submit to many things which are contrary to nature. He further argued that like is akin to like by nature, and called for men to draw the logical consequences from this. One of these consequences is that some or even all men are alike by nature, and as a result we should recognize as friends and kinsmen those men who are alike by nature. Unfortunately the context in Plato (*Protagoras* 337d-e) does not make it clear exactly what he supposed was the range of the likeness to be found in men. If, as is possible, he held the view that it is all men who are alike by nature he would then be seen as an advocate of the doctrine of the unity of mankind. But other scholars have supposed that he may have been confining his remarks to Greeks only, and so to have been preaching simply pan-Hellenism. An even more restricted interpretation is possible. What, according to Plato, Hippias is actually saying is that he considers those whom he is addressing, namely ‘you’, as kinsmen and intimates and fellow citizens by nature, not by law, on the basis that like is akin to like by nature. We who are the wisest of the Greeks, no doubt meaning by this sophists, should accordingly refrain from quarrelling with each other like the basest of men. This suggests that he is advocating a recognition of the unity of wise men or scholars, as distinct from ordinary people. The people to whom he is speaking are those who ‘know the nature of things’ and are the wisest people among the Greeks. In that case what he is advocating is the unity of Greek scholars rather than the unity of mankind as a whole, or perhaps even only the unity of sophists within the Sophistic Movement.
unaltered from an otherwise unknown piece of writing of the fifth or fourth centuries BC. Attempts to assign it to one of the known sophists of the period are now generally regarded as unsuccessful. But the sophistic origin of the material is not in question. It provides a manual of how to succeed in life. This is dependent on the achievement of *aretē* or virtue, which requires both natural qualities and efforts maintained over a period of years. When achieved, human *aretē* is found to have involved acting in accordance with law and justice in order to benefit as many persons as possible. Respect for law brings with it good government, which benefits all greatly, and removes the danger of tyranny. The treatise thus provides a kind of complementary antithesis to the perhaps more famous sophistic doctrine which would place the claims of nature above those of human laws. In fact, according to the *Anonymus* it is not the man who scorns vulgar justice who is going to succeed, it is rather the man who exercises control over himself and co-operates with the society in which he lives.

By way of conclusion mention may be made of a further series of anonymous works which various modern scholars have supposed should be attributed to sophistic writers, but for the content of which we have only rather slight information. These may be listed as *On Music* published from a Tutshib papyrus in 1906; a work entitled *Nomima Barbarika* concerned with the contrasting customs of different peoples; *On Laws*, consisting of materials extracted in 1924 from Demosthenes, *Oratio XXV; On Art* which actually survives among the works attributed to Herodes Atticus in the second century AD, and a supposed treatise *On Magnificence* (as a quality of persons), which may have some relationship with the *Dissoi Logoi*. Sophistic doctrines and materials are to be found in many places in the Hippocratic corpus, particularly in the treatises *On Art, On Ancient Medicine, On Breathing* and *De Locis in Homine*. To these may be added the pseudo-Xenophontine *Constitution of the Athenians*, which cannot have been written by Xenophon, and seems to have been put together partly under the influence of the doctrine of opposing arguments developed by Protagoras.

NOTES

1 Kerferd [7.15], 16.
2 Kerferd [7.15], ch. 6.
3 For this view of the sophists see the description by H. Sidgwick, *Journal of Philology* 4 (1872): 289.
5 So, for example, Gomperz [7.13], 1–38.
7 See [7.28].


*Individual Sophists*

**Protagoras**


**Gorgias**

7.23 Cassin [2.61].


7.26 Kahn [4.32].

7.27 Kerferd, G.B. ‘Gorgias on nature or that which is not’, *Phronesis* 1 (1955–6): 3–25.


The last associate of Plato mentioned by Proclus is a Philip of Mende, standardly assumed to be Philip of Opus. Proclus concludes his history when he introduces Euclid:

Those who have written histories bring the development of the science up to this point. Euclid is not much younger than these people; he brought the elements together, and he gave an order to many propositions of Eudoxus and perfected many of Theaetetus’s; moreover, he gave irrefutable proofs to propositions which had been demonstrated rather loosely by his predecessors.

([8.74], 66.8–68.10)

The chronology of Archytas, Theaetetus and Eudoxus is very obscure, but a certain consensus has emerged, based importantly on assumptions about the relationships among their mathematical achievements. Theaetetus is thought to have died in 369 before he was fifty. Eudoxus is said to have lived 53 years; his death year is now generally put around the time of Plato’s (348–7) or shortly thereafter. Archytas is thought to be an approximate contemporary of Plato, and so born in the 420s. The importance of this is not the exact dates, but the assumed intellectual ordering: Archytas, Theaetetus, Eudoxus.

PART ONE:
THE FOURTH CENTURY

(I)

The Contents of Euclid’s Elements

The oldest Greek scientific text relevant to arithmetic, geometry, and solid geometry is Euclid’s Elements. I give a brief description of its contents. Although the proofs of Books I and II make use of the possibility of drawing a circle with a given radius, the propositions are all concerned with straight lines and rectilineal angles and figures. The focus of Book III is the circle and its properties, and in Book IV Euclid treats rectilineal figures inscribed in or circumscribed about circles. In Books I–IV no use is made of the concept of proportionality (x:y ∷ z:w) and in consequence none—or virtually none—is made of similarity. It seems clear that Euclid chose to postpone the introduction of proportion, even at the cost of making proofs more complicated than they need to have been. Indeed, he sometimes proves essentially equivalent propositions, first independently of the concept of proportion and then —after he has introduced the concept—using it. Moreover, sometimes the proportion-free proof looks like a reworked version of the proof using proportion.

Book V is a logical tour de force in which Euclid gives a highly abstract definition of proportionality for what he calls magnitudes (megethē) and
Commenting on this passage, Alexander of Aphrodisias says ([8.20], 545.15–17) that Aristotle calls *anthuphairesis antananairesis* and that early mathematicians called magnitudes proportional if they have the same *anthuphairesis*. In terms of Figure 8.3 Aristotle’s example of a proposition difficult to prove presumably says something like:

Parallelogram ABED is to parallelogram BCFE as AB is to BC. In the *Elements* Euclid proves a similar result as VI.1. using the Book V definition of proportionality.

Neither *anthuphairesis* nor *antanairesis* occurs with a mathematical sense in an ancient text outside the *Topics* passage and Alexander’s comment on it, but the verb *anthuphairesthai* is used by Euclid in the *Elements*, where Heath [8.32] translates it by ‘continually subtracted’ or ‘be continually subtracted in turn’. Two propositions in which this verb occurs are:

- VII.1. Two unequal numbers being set out and the less being continually subtracted in turn from the greater, if the number which is left never measures the one before it until a unit is left, the original numbers will be prime to one another.
- X.2. If, when the lesser of two unequal magnitudes is continually subtracted in turn from the greater, that which is left never measures the one before it, the magnitudes will be incommensurable.

And the verb turns up in the proof of VII.2, which shows how to find the greatest common measure of two numbers, and in that of X.3, which shows how to find the greatest common measure of two commensurable magnitudes. The method used to find a common measure is what Alexander means by *anthuphairesis*. I illustrate its use to find the greatest common measure or divisor, 2, of 58 and 18:
Hippasus is thought to have flourished in the earlier fifth century. In an important sense he is our only clear example of a Pythagorean mathematical scientist before Archytas. But the stories about his relations to the Pythagoreans and the division of the school into akousmatikoi and mathēmatikoi surround him in a mysterious fog which is not fully penetrable.28

In section 4 I described the close relation of the doctrine of means with harmonics, and quoted the passage in which Archytas describes the three basic means. Proclus ([8.74], 67.5–6) indicates that Eudoxus added other means to the basic three. Nicomachus ([8.55], II.21) says that all the ancients, Pythagoras, Plato and Aristotle, agreed on the arithmetic, geometric and harmonic means. Iamblichus ([8.54], 100.22–4) says that Hippasus and Archytas introduced the name ‘harmonic’ in place of ‘subcontrary’, and in two passages ([8.54], 113.16–17, 116.1–4) he associates the introduction of additional means with Hippasus and Archytas. Whether or not the additional means can be ascribed to Hippasus, it seems plausible to suppose that he did work with ratios and at least the first three means in the earlier fifth century. His doing so certainly implies some level of mathematical abstraction and manipulation, but presumably the level might be fairly low.

We do not gain much clarification in this matter when we turn to the other main allegedly fifth-century treatment of mathematical harmonics, which is ascribed to Philolaus. In the second part of DK 44 B 6 (put together from two versions, Stobaeus ([8.86] I.21.7d) and Nicomachus ([8.57], 9)), Philolaus constructs an octave with seven tones, the first four of which quite clearly form a tetrachord in the standard diatonic system (see note 21). In his own vocabulary he mentions the ratios for the three fundamental concordant intervals, and asserts the following:

\[
\begin{align*}
\text{fifth} & : \text{fourth} = 9 : 8; \\
\text{octave} & = \text{five} 9 : 8 \text{ intervals} + \text{two ‘dieses’}; \\
\text{fifth} & = \text{three} 9 : 8 \text{ intervals} + \text{one ‘diesis’}; \\
\text{fourth} & = \text{two} 9 : 8 \text{ intervals} + \text{one ‘diesis’}.
\end{align*}
\]

Boethius ([8.28] III.8, DK 44 B 6) tells us that for Philolaus the ‘diesis’ or smaller semitone is the interval by which 4:3 is greater than two tones, so that there is no reason to doubt that Philolaus has the mathematics of the standard diatonic scale. However Boethius goes on to say that the ‘comma’ is the interval by which 9:8 is greater than two ‘dieses’, and that the ‘schisma’ is half of a ‘comma’, and the ‘diaskisma’ half of a ‘diesis’. The ‘diesis’ should be 256:243 and the ‘comma’ 531441:524288. Neither of these intervals can be divided in half in the sense of the Sectio Canonis. Since Philolaus seems clearly to recognize that the tone cannot be divided in half, it is rather surprising that he apparently takes for granted—what is false in terms of the Sectio—that there are half ‘dieses’ and half ‘commas’.
It is clear that the triangular numbers form an infinite sequence and that the
nth triangular number is the sum of the first n numbers.\footnote{I shall call these arrays of
dots figurate numbers. In succeeding chapters Nicomachus describes square
numbers, pentagonal numbers, and so on up to octagonals. In his commentary
on Nicomachus’s presentation of triangular numbers Iamblichus says (I.8.54, 58.19–
25; cf. Aristotle, \textit{Categories} 14.15a29–33) that the number added to the mth n-
agonal number to get the m+1th is called the \textit{gnomon}, the thing which preserves
the shape of a thing when added to it. He explains that the term was taken from
gometry, where it was applied to the excess by which one square exceeds
another. Figure 8.6 shows what he means. For the gnomon functions in the
generation of square numbers.\footnote{It makes quite clear that the nth square number
is the sum of the first n odd numbers, one example of the way in which relatively
simple manipulation of figurate numbers can establish mathematically interesting
results independently of anything resembling a stylized Euclidean deduction.}

But the difference between such deduction with its definitions, technical
vocabulary, diagrams and formalistic descriptions, on the one hand, and informal
manipulation designed to bring out general truths about numbers or rules for
producing them is not great. Nor are the moves from the sacred \textit{tetraktus} to
triangular numbers to generalizations about them and other polygonal numbers.
Our evidence for figurate numbers is late, Theon of Smyrna, Nicomachus, and
Iamblichus being the principal sources. There is no trace of figurate numbers in
Euclid. Nevertheless, most scholars take the material in Theon, Nicomachus and
Iamblichus to be early. In his \textit{History} Heath discusses this material under the
rubric ‘Pythagorean arithmetic’ before he discusses Thales. I do not wish to
suggest that his doing so is illegitimate, but only to insist that once one admits an
interest, even a numeromystico-theological interest, in accumulating general
numerical laws and rules on the basis of the manipulation of configurations of dots,
one has the fundamentals of a scientific arithmetic, although not, of course, an
arithmetic in which one advances ‘by means of demonstration from theorem to
theorem’, to use van der Waerden’s description of the geometry of Thales.\footnote{As an example of the power of the manipulation of figurate numbers, I want to
consider the so-called Pythagorean theorem (\textit{Elements} I.47). It is now a
commonplace of mathematical history that the theorem is not the discovery of}
Pythagoras, but was known by the Babylonians centuries before he was born. One need not, however, suppose that Greek knowledge of the theorem came ultimately from Babylonia. The primary Greek account of Pythagoras’s discovery of the theorem caused even his later admirers difficulty because in it the allegedly vegetarian Pythagoras was said to have celebrated his discovery by sacrificing an ox. For example, Proclus ([8.74], 426.5–9) says:

If we listen to those who like to give an account of old things, one will find them attributing this theorem to Pythagoras and saying that he sacrificed an ox on its discovery.

Proclus then immediately turns to praise for Euclid for generalizing the theorem from squares to similar figures (Elements VI.31). Proclus also attributes to Pythagoras a procedure for generating numbers satisfying the theorem; the procedure starts with an odd number m and takes

\[ m^2 + 1 \quad \text{and} \quad m^2 + 1 + n \]

Heath ([8.7]: 80) shows how this rule could be related to a generation of the square numbers through the addition of gnomons. It is clear from Figure 8.6 that the square number \((n+1)^2\) is generated from a square number \(n^2\) by the addition of the gnomon 2n+1; but if 2n+1 = m^2, n = \( \frac{m^2 + 1}{2} \).

Becker [895] pointed out an odd feature of the last sixteen propositions (IX.21–36) of the arithmetic books of the Elements. In IX.20 Euclid proves one of the old chestnuts of arithmetic, the infinity of the prime numbers. In IX.21 Euclid proves on the basis of definitions only that the sum of any number of even numbers is even; and there follows a string of other relatively elementary propositions. However, the string culminates in another old chestnut of arithmetic (IX.36), that if \( p = 2^0 + 2^1 + 2^2 + \ldots + 2^n \) and is prime, \( p \cdot 2^n \) is perfect, i.e. equal to the sum of its factors other than itself. Euclid’s proof of this result uses propositions proved before IX.21 and none from IX.21–34. IX.21–34 are, with the exception of 32, a self-contained deductive sequence dependent only on definitions. Becker argued that the propositions in the sequence could all be proved on the basis of figurate numbers if one understood the product of two numbers to be a rectangle with the numbers as ‘sides’ (see Figure 8.7, which represents the product of 3.5), and understood even and odd in the way they are defined in the Elements, where an even number is said to be one which is divisible into two equal parts and an odd to be one which is not even or which differs from an even number by 1 (VII, defs 6 and 7). Becker also showed that 36 could be incorporated into the sequence and proved on the same basis, eliminating the need for IX.35, which Euclid proves as a lemma for 36. Becker’s claim that he had reconstructed a piece of early Pythagorean deductive arithmetic has won considerable, although not universal, acceptance among historians of Greek mathematics.

Subsequently Becker ([8.1], 41, [8.2], 51–2) offered a proof of the same kind for what he called the irrationality of 2, but which we can think of as the claim that there is no square number which added to itself produces a square number.
In I.44 the given area \( b \) is ‘applied’ to the straight line \( AB \). In VI.28 (VI.29) Euclid shows how, given a rectilineal figure \( b \) (\( b' \)) and a parallelogram \( EFGH \), to apply to a straight line \( AB \) a parallelogram \( AB'C'D \) (\( AB''C''D \)) which is equal to \( b \) (\( b' \)) and ‘deficient’ (‘excessive’) by a parallelogram \( BB'C'C \) (\( BB''C'C \)) similar to \( EFGH \) (See Figure 8.10).\(^{40}\)

In his headnote to Book II of the Elements Heath ([8.32] 1:372) writes:

We have already seen how the Pythagoreans and later Greek mathematicians exhibited different kinds of numbers as forming different geometrical figures. Thus, says Theon of Smyrna (p. 36, 6–11), ‘plane numbers, triangular, square and solid numbers, and the rest are not so called independently…but in virtue of their similarity to the areas which they measure; for 4, since it measures a square area, is called square by adaptation from it, and 6 is called oblong for the same reason’. A ‘plane number’ is similarly described as a number obtained by multiplying the two numbers together, which two numbers are sometimes spoken of as ‘sides’, sometimes as the ‘length’ and ‘breadth’ respectively of the number which is their product.

The product of two numbers was thus represented geometrically by the rectangle contained by the straight lines representing the two numbers respectively. It needed only the discovery of incommensurable or irrational straight lines in order to represent geometrically by a rectangle the product of any two quantities whatever, rational or irrational; and it was possible to advance from a geometrical arithmetic to a geometrical algebra, which indeed by Euclid’s time (and probably long before) had reached such a stage of development that it could solve the same problems as our algebra
Von Fritz [8.46] ascribed the discovery of incommensurability to the Pythagorean Hippasus of Metapontum on the basis of two texts of Iamblichus printed under DK 18.4. The first says:

About Hippasus they say that he died at sea for impiety because he published and described the sphere composed of twelve pentagons [i.e the dodecahedron] and allowed himself to be credited with the discovery, but all these things were the discoveries of ‘that man’ (for this is the way they refer to Pythagoras and not by his name). Mathematics advanced because of these things, and two people were most of all considered the first mathematicians of the time, Theodoras of Cyrene and Hippocrates of Chios.

(Iamblichus [8.53] 78.27–36)

In the other text Iamblichus ([8.51] 132.11–23) does not mention Hippasus but says that the divine destroyed at sea the person who revealed the construction of the dodecahedron. Iamblichus adds that ‘some people say it was the person who spoke out about irrationality and incommensurability who suffered this’. Von Fritz claimed that Hippasus discovered irrationality in connection with the regular pentagon (the face of the dodecahedron) and the star or pentagram, a Pythagorean symbol formed by connecting alternating vertices of the pentagon. I sketch, with reference to Figure 8.11, the reasoning von Fritz ascribed to Hippasus.

Suppose one tries to find the greatest common measure of the side AE and the diagonal AD. It is clear that \( AE \approx AE' \), so that \( AD - AE \approx E'D \). But \( E'D < AE \) and \( E'D \approx A'A' \). Hence when \( E'D \) measures \( AE' \) it leaves \( A'E' \) as a remainder. But now \( E'D < D'D \approx A'D \), so performing \( antithuphairesis \) on \( A'E' \) and \( E'D \) is the same as performing it on \( A'E' \) and \( A'D' \), i.e. on the side and diagonal of the regular pentagon \( A'B'C'D'E' \). Clearly, the initial situation repeats itself and will repeat itself infinitely often as \( antithuphairesis \) is continued. Hence diagonal and side have no common measure.

A Euclidean version of this argument would, of course, require justifications of the equalities and inequalities educed. One might assume that Hippasus could and would give such justifications. But, like Beeker’s arguments with the number configurations, Hippasus’s alleged argument could be a verbalization of something which is ‘seen’ to be true from the figure. However, the Hippasus argument, like the proof using the expression of ratios in least terms, presupposes the use of \( antithuphairesis \) to find a common measure, and hence—using the correlation between commensurability and having the ratio of a number to a number—the desire to express quantitative relations numerically. This desire is a primary mathematical component of numerous scholarly representations according to which the early Pythagoreans were committed to a view that ‘everything is number’, sought to find numerical expressions for all kinds of relationships, and were thrown into a crisis by the discovery of
it how to make the weaker argument the stronger and who denied the existence of the gods of common opinion. According to Xenophon, Socrates was an unexciting didactician, who was quick to give advice concerning the most common matters and who was a paragon of common morality and religious practice. And according to Plato, Socrates was a non-dogmatic, perhaps even sceptical, moral philosopher, who examined and exposed others’ pretenses to wisdom, denied that he taught anything, and espoused such non-traditional, in some cases even paradoxical, theses as ‘no one ever does wrong willingly’, ‘it is wrong to harm one’s enemies’, and ‘knowledge is necessary and sufficient for virtue’. The problem, then, is to decide which of these three portraits accurately represents the actual historical Socrates who walked the streets and frequented the gymnasia of fifth-century Athens.

Perhaps the clearest and currently most widely accepted solution to this problem\(^9\) can be found in Gregory Vlastos’s last book Socrates: Ironist and Moral Philosopher [9.93].\(^10\) According to Vlastos, our three principal sources are Plato, Xenophon and Aristotle. He dismisses the Aristophanes portrait as the comic caricature that it is,\(^11\) and then goes on to maintain that the Platonic portrait is more equivocal than I have let on. Vlastos argues that there are at least two distinct portraits of Socrates in the Platonic dialogues, one to be found in the early dialogues and another to be found in the middle and late dialogues.\(^12\) The argument proceeds by detailing ten theses, each consisting of two parts. One part contains a feature or view attributable to Socrates in the early dialogues; the other part contains a feature or view at odds with that of the first part and attributable to Socrates in the middle dialogues. For example, according to Vlastos, the Socrates of Plato’s early dialogues is exclusively a moral philosopher, while the Socrates of Plato’s middle dialogues is a ‘moral philosopher and metaphysician and epistemologist and philosopher of science and philosopher of language and philosopher of religion and philosopher of education and philosopher of art’.\(^13\) Vlastos concludes from this that in the Platonic dialogues Socrates maintains two philosophical views ‘so different that they could not have been depicted as cohabiting the same brain throughout unless it had been the brain of a schizophrenic. They are so diverse in content and method that they contrast as sharply with one another as with any third philosophy you care to mention.’\(^14\) Next, Vlastos argues on the basis of the testimony of our other two sources—Aristotle and Xenophon—that the philosophical view maintained by Socrates in the early dialogues is the philosophical view of the historical Socrates. For example, Vlastos argues that the Socrates of the middle dialogues advances a theory of separated Forms, while the Socrates of the early dialogues does not, and then points to Metaphysics 1078b30–2 where Aristotle distinguishes between Plato and Socrates precisely on the grounds that the former did, while the latter did not, separate the Forms.\(^15\) Finally, Vlastos maintains that Plato’s overriding concern in composing his dialogues—the early ones as well as the middle and late ones—is always philosophy. Consequently,
position here at the end of the *Protagoras* is a difficult question, but however else we take it we can no longer rest secure in the thought that Socrates accepts the view he attributes to the many at 319b-d.

Second, outside the *Protagoras* there are other passages in which Socrates testifies to his rejection of the folk view. In the dialogue named for him, Crito urges Socrates to escape from prison in part on the grounds that the many apparently believe that it is the proper thing to do. Socrates responds by asking whether one should pay attention to the views of everyone or rather only to the views of the wise (*tōn phronimōn*). For example, Socrates asks, in the case of physical training should one pay attention to the views of anyone and everyone or to the views of the expert—the doctor (*iatros*) or the physical trainer (*paidotribēs*)—the instructor and one who knows (*tōi epistatēi kai epaiontai*)? When Crito replies that it is the advice of the expert that ought to be heeded in this case, just as the Athenians in the *Protagoras* would maintain, Socrates continues that the same point holds in other cases, but especially in the case of matters concerning justice or injustice, the shameful and the good; the good and the bad, that is, matters of the sort they are presently considering (47a-d). According to Socrates in this passage in the *Crito*, it is not the advice and opinion of the many that ought to be heeded in facing the decision whether to escape, but rather the advice and opinion of the one—if there is one—who knows. Thus, if Socrates does not explicitly say that when faced with decisions concerning (and so requiring) virtue, one should not consider the views of just anyone, but only the views of the expert, he does say that in these circumstances one should only pay attention to the one who knows and the analogy with the doctor and physical trainer suggests that the knowledge involved is expertise.

In another passage Socrates’ rejection of the folk view that virtue is not an expertise is more explicit. The *Laches* begins with two fathers soliciting the advice of two Athenian generals—Laches and Nicias—concerning the proper education of their sons. In particular, they want to know whether they should enrol their sons in a particular form of military training. When the two generals offer incompatible advice, Laches recommending against the training, Nicias recommending in its favour, one of the fathers turns to Socrates for his vote to decide the issue. Socrates responds that this is no way to reach a decision. Again he points to the example of physical training and maintains that in this case we would not heed the advice of the majority, but rather the advice of the one who had been trained under a good physical trainer (*paidotribēi*)—again, just as the Athenians in the *Protagoras* would maintain. As Socrates puts it, ‘for I think that it is necessary to judge by knowledge but not by number if one intends to judge well’ (*Laches* 184e8–9). Thus, Socrates continues, the proper way to decide the issue that faces the fathers is to heed the advice of the expert (*tecknikos*) concerning that thing about which they are currently seeking advice. After determining that the thing concerning which they are now seeking advice is the proper care of the soul, Socrates concludes that in order to decide whose advice
Then if I do not think he is, I come to the assistance of the god and show him that he is not wise.

(Apology 23a5–b7; trans. Grube.)

Here then Socrates once again contrasts his own view with that of the average Athenian citizen. The average Athenian citizen—be he a politician, a poet, a manual expert, or anyone else—thinks himself wise about the great things, but is not. Such wisdom or expertise is not as easy to come by as they suppose. Socrates lacks this wisdom as well, but he also lacks the false conceit that he has it. Herein lies Socratic wisdom: recognition of his ignorance concerning the great things—recognition, that is, of his lack of moral knowledge or expertise. Unlike the average Athenian, Socrates does not take himself to be in the position to give advice concerning decisions that require virtue. This is the role of a moral expert, something that Socrates, unlike the average Athenian, realizes he is not.

But this is not the end of the story. Socrates has found in his investigation of the oracle a mission—the elenctic mission I referred to above: Socrates does not merely test an individual’s claim to moral wisdom and when he finds it lacking abandon him. Rather, as the passage quoted above indicates, when Socrates discovers that the individual lacks the knowledge he thinks he has, Socrates attempts to show him that he lacks it. But why? Socrates assumes that such moral wisdom is desirable. All of us—average Athenian and everyone—desire to possess it. Indeed, Socrates believes that such expertise is so desirable, that to encourage us to possess it, all Socrates needs to do is show us that we lack it.

Consider how Socrates redescribes his elenctic mission following the jury’s hypothetical order to cease philosophizing:

Gentlemen of the jury, I am grateful and I am your friend, but I will obey the god rather than you, and as long as I draw breath and am able, I shall not cease to practice philosophy, to exhort you and in my usual way to point out to any one of you whom I happen to meet: ‘Good Sir, you are an Athenian, a citizen of the greatest city with the greatest reputation for both wisdom and power; are you not ashamed of your eagerness to possess as much wealth, reputation and honours as possible, while you do not care for (epimelēi) nor give thought to wisdom or truth, or the best possible state of your soul (phronēseōs de kai aletheias kai tēs psychēs hopōs hōs beltistē)?’ Then, if one of you disputes this and says he does care (epimeleisthai), I shall not let him go at once or leave him, but I shall question him, examine him and test him, and if I do not think that he has attained the goodness (aretēn) that he says he has, I shall reproach him because he attaches little importance to the most important things and greater importance to the inferior things. I shall treat in this way anyone I happen to meet, young or old, citizen or stranger, and more so the citizens because you are more kindred to me. Be sure that this is what the god orders me to do, and I think there is no greater blessing for the city than my
tough skin, thick hair) on the irrational creatures, leaving humans quite unprovided for (321b6–c1). Prometheus, thereupon, stole the practical wisdom (sophian) of Hephaestus and Athena—Hephaestus’ expertise (technēn) in working with fire and Athena’s other expertise—and gave them to humanity. In this way, according to the story, humans acquired their practical wisdom, but not yet their political expertise (politikēn). This latter was reserved for Zeus to supply, who seeing that humans were able to obtain food and shelter, but were unable to fight against the beasts and to come together in cities, sent Hermes to distribute to all of humanity conscience and justice (aidō te kai dikēn) —the political expertise (tēn politikēn technēn). According to this story, then, once Epimetheus had doled out to the irrational creatures all of the powers fitting and necessary for survival, other powers or capacities had to be obtained for humans. Thus, Prometheus gave to them the power of practical wisdom, while Zeus gave to them the power of political wisdom. In both cases, wisdom or expertise is presumed to be a power or capacity.

Indeed, the idea that political wisdom or expertise, i.e. a virtue, is a power or capacity is further supported by the question with which the remainder of the Protagoras is preoccupied: whether or not the virtues are one. Following Protagoras’ Great Speech, of which the Prometheus story is a part, Socrates asks the question which will resolve the one ‘small’ remaining difficulty: are justice, temperance, wisdom, piety and courage—distinct parts of virtue or are they all different names for one and the same thing (Protagoras 329c6–d1)? Protagoras responds that this is an easy question to answer: virtue is one thing and justice, temperance, piety, etc. are its parts. Socrates appeals to the analogies of the parts of gold and the parts of a face (Protagoras 329d4–8) and asks his question again.

And does each of them [i.e. the parts of virtue] have its own separate power [dunamin]? When we consider the face, the eye is not like the ear, nor is its power [dunamis] the same, nor any other part like another in power [dunamin] or in other ways. Is it the same with the parts of virtue, that none is like any other, either in itself or in its power [dunamis]? Surely, it must be, if it corresponds to our example.

(Protagoras 330a4–b2; adapted from Taylor [7.22])

Socrates’ question, then, is—at least in part—whether, according to Protagoras, political expertise is one power or more.

It may be objected, however, that this last passage especially indicates not that virtue or political expertise is a power or capacity but that it is that in virtue of which one has a power or capacity. The suggestion is that an eye stands to its power just as courage—one of the virtues and so an expertise—stands to its power. An eye is not the power to see. Rather, it is that in virtue of which an individual has the power to see. The eye and its power are ontologically distinct. If we take the analogy to the virtues and expertise strictly, then, we must take the
the agent’s own good and that is associated with those activities that promote the agent’s own good, whatever they happen to be, Socrates must believe that some or most of those activities typically associated with traditional morality promote the agent’s good. But where is the defence of this view?

There are various passages in which Socrates compares the good of the body to the good of the soul and maintains that virtuous actions promote the health of the soul and vicious actions make it sick. But as a defence of traditional morality these passages are rather slight. Either Socrates is not referring necessarily to traditionally virtuous behaviour or if he is the passages appear to be merely stipulative. For while a defence of the position maintained in these passages can be derived from the account of Socratic virtue I have been proposing no part of that defence requires that the actions that promote the health of the soul are traditionally virtuous activities. On the other hand, there appears to be no independent defence in these passages for the claim that traditionally virtuous activities promote the health of the soul.

Perhaps a more plausible defence can be derived from the longer passages in which Socrates is arguing against the immoralism of Callicles in the Gorgias and of Thrasymachus in the first book of the Republic. Certainly the arguments against Callicles, for example, purport to defend the claim that virtuous actions are always more beneficial for the agent than vicious actions against Callicles’ claim that unbridled pleasure-seeking is most beneficial for the agent. Whatever else Socrates is attempting to do in this passage he appears to be arguing that at least one sort of traditionally vicious behaviour harms the soul. While both of these arguments against immoralism deserve serious further study, there remains something unsatisfactory about them, a lack of satisfaction that Plato explicitly notes at the beginning of the second book of the Republic. But it is in these passages, if anywhere, that Socrates’ defence of traditional morality is to be found.

CONCLUSION

Let us return briefly to the Ciceronian tradition with which this essay began. According to this tradition moral philosophy in some sense begins with Socrates. We have seen a sense in which such a tradition is justified. Socrates is unique, at least among the average Athenian citizen and the sophists, in maintaining that morality or virtue is a knowledge or expertise of the good. Against the folk view, he maintains that morality or virtue is an expertise that is not possessed by everyone, but which everyone should make it their business to obtain. It is not easily obtainable, but it is obtainable none the less, and few of us are in the position to give advice concerning it. Against the sophists, Socrates maintains that it is not an expertise reducible to others. It is not rhetoric or antilogic or even polymathy. It is its own unique branch of knowledge. It is knowledge or expertise of the good. Nevertheless, in saying this Socrates has really only supplied what might be called the formal features of morality or virtue. Socrates’
21 See 322b5–C3, where Protagoras appears to identify the political expertise (politikēn teamēn) with conscience and justice (aidō te kai dikēn) which Zeus distributes among all the members of the community.

22 See Seeskin ([9.79], 121) who takes this passage as evidence that for Socrates virtue is not an expertise.

23 Note the apparent interchangeability of expertise (technē), wisdom (sophia), and knowledge (epistēmē) in these passages. At 319b3–328d2, Socrates had indicated that virtue was not an expertise (technē), while Protagoras had indicated that it was. At 361a5–c2, however, Socrates describes his earlier view as the view that virtue is not knowledge (epistēmē), and Protagoras’ as the view that virtue is knowledge (epistēmē). Again, the argument from 349d2–360e5 has the conclusion that courage is wisdom (sophia), which Socrates describes at 361a5–c2 as leading to the view that virtue is knowledge (epistēmē). Protagoras uses knowledge and expertise interchangeably at 360e–351a and Socrates uses them interchangeably at 357b.

24 Taylor ([7.22], 213–14) and Vlastos ([9.93], 124) apparently take the expression of inconsistency to be insincere or illusory. The argument that has intervened between 319 and 360 is taken to suffice to reject the folk view. Brickhouse and Smith ([9.17], 99), however, apparently take this to be a description of a genuine failure or inconsistency in Socrates’ position. Seeskin ([9.79], 143) and Lauter ([9.16], 114 n. 1) would seem to agree. See also Irwin [9.39] and Santas [9.78].

25 For the debate concerning the translation of this passage see Vlastos ([9.93], 237), Annas ([9.2], 44) and Woodruff ([9.96], 62 n. 3).

26 For the connection between knowledge or wisdom of the great things and moral wisdom or expertise see Brickhouse and Smith [9.17], 34. For a similar interpretation of Socratic wisdom see Irwin [9.39], 27–8.

27 On how Socrates derives a mission from this oracular pronouncement see Reeve [9.73], 24–28 and Brickhouse and Smith [9.12] and [19.15], 87–100.

28 The method that Socrates practices in carrying out this mission is the elenchos (which can be roughly translated as ‘refutation’, ‘test’, or ‘cross-examination’). Its general form is the following: First, Socrates gets the interlocutor (the individual whose claim to knowledge or expertise is being tested) to express some belief, \( p \), usually, but not always, concerning the definition of some moral concept. Next, Socrates gets the interlocutor to express some other beliefs, \( q \), \( r \) and \( s \). Third, Socrates goes on to show that these premises entail the negation of the original belief, i.e. the apparent refutand, \( p \). Thus, the conjunction \( p \) and \( q \) and \( r \) and \( s \) is false. Considerable debate, sparked in part by Vlastos’ classic ‘The Socratic Elenchus’, concerns what Socrates concludes from such elenctic episodes. Some take Socrates to conclude that \( p \) or one of the other premises is false; see Gulley [9.31], Nakhnikian [9.61], Vlastos [9.88], Kraut [9.50], Polansky [9.72], and McPherran [9.55]. Others take Socrates merely to conclude that the interlocutor’s beliefs are inconsistent; see Stokes [9.81], Benson [9.3] and [9.8], and perhaps
Even if sensible objects sustain the same features for some time, they eventually perish and so could not be what eternal truths are about. If the triangle is a three-sided plane figure even after a particular sensible triangle perishes, the general truth cannot be reporting any fact about it. After its demise, no state of affairs involving the particular triangle exists, so no such state of affairs can be the reality represented by the general truth.

So, I take Plato to have reasoned, (2) is about a Form, an eternal and changeless entity, and that is why (2) is an eternal and changeless truth. Similarly, there will be a Form of Virtue underlying a true definition such as (1), thereby justifying Plato’s belief in an objective moral reality which is as independent of human capacities and interests as mathematical reality.

A related and absolutely fundamental point for understanding why Plato believed in the Forms lies in their role as objects of thought. Its importance is stressed at the end of the criticism of the Theory of Forms in the Parmenides when, in face of all the alleged problems for the theory, Plato comes to a to-the-bedrock argument that furnishes unanswerable proof for the existence of Forms:

If one does not allow Forms of things to tidy up all the present difficulties and others like them, and be able to distinguish something stable in each case, one will have nothing on which to fix one's thought, since one is not allowing that in each case there is a thing that is always the same, and so one will utterly remove the possibility of discourse.

(135b–c)

Plato sees thought as involving an awareness of entities external to the thinker where these entities furnish the contents of the thought. For, first of all, when I think of triangularity I am thinking about something, my thought has a content. So, Plato (fallaciously) reasons, what I am thinking of exists. Therefore triangularity is a being that I am aware of when thinking of triangularity. And second, to think of triangularity is not to be aware of some thought inside my own mind. Thought is directed toward a content other than itself—a Form (Parmenides 132b–c).

So thought, like perception, mentally connects us with a reality outside ourselves, and Plato regularly speaks of thinking as a kind of mental vision. By thinking of triangularity I stand in a relation to a being which is the content of the thought. And since I can think of triangularity when no particular triangles exist, particular triangles could not be the reality I am then related to and aware of in thinking of triangularity. For what is thought when I think of triangularity does not vary with the shifting population of particular triangles. So at no time could the object of thought be identified with sensible objects.3

For Plato, this shows not merely that the object of thought—the Form of triangularity—differs from particular triangles, it proves the Form’s complete independence of them. Hence, Forms are not only eternal and changeless, they exist independently of what happens in the sensible world.
As the goal of a passionate longing, the Forms are objects of desire, and to ‘acquire’ them by knowing them is a mystical experience of divine beings. All people, most unconsciously, yearn to recapture the vision of the Forms which they enjoyed before birth. This alone did give them and would give them complete satisfaction and happiness.

All this makes some sense only if the Forms are perfect paradigms. Because of their greater reality ‘possession’ of the Forms gives true satisfaction in a way in which possession of sensibles does not. And part of that greater reality consists in the Forms being perfectly what sensible objects are only deficiently or in appearance.

Similarly, Forms are more real because of their greater ‘cognitive visibility’ in comparison with sensible objects. If we want to learn what a property F is, the observation of a sensible F will typically prove of little use since the property will be bound up with its opposite, and so the observation will provide a confused idea of what F-ness is. However, if we could attain a clear view of the Form we would immediately know what F-ness is because it is a ‘pure’ and perfect example of F uncontaminated by its opposite (cf. *Philebus* 44d–45a). Here again, the greater reality of the Forms depends on their being paradigms.

Self-predication, then, is fundamental for Plato’s philosophy. However, it is a mistake, arising, in part, from confusions that helped to make it seem entirely natural.

1 Plato does not distinguish different uses of ‘to be.’ His single Form of Being merges these different uses with the features of true being noted before. So the existential use is run together with the identifying use, the existential use is conflated with the predicative use, and the predicative use is confused with the identifying use. Given the last confusion, since, plainly, Beauty is Beauty, it may also seem self-evident that Beauty is beautiful.

2 Pre-Socratic philosophers did not always properly distinguish between objects and properties. Thus, Anaxagoras spoke of ‘the hot’ and ‘the cold’ on a par with ‘earth’ as elements from which things come to be. If Plato too was not clear on this point, then it would have been natural for him to think of Beauty as a beautiful object.

The point is not that Plato did not distinguish attributes and objects but that he did not adequately distinguish the kinds of thing which they are.

3 Greek uses expressions formed from the definite article and an adjective such as ‘the beautiful’ to name properties. Occasionally Plato will even use the adjective on its own as the subject of a sentence to refer to a Form. Such expressions lend themselves to being understood as operating in the same manner in which they do operate when applied to sensible individuals, namely as describing the object named. And this danger is especially serious in Plato’s case for (*Cratylus* 384d–385c) he does not adequately distinguish naming and describing. So he could easily understand terms designating the
Whereas Plato maintains that only one Form exists for any attribute, he appears committed to infinitely many Forms for each attribute.

For suppose that sensibles

(1) a, b and c are large.

Then by (OM)

(2) there exists a Form of Largeness: Largeness1.

By (SP) it follows that

(3) Largeness1 is large.

So now we have a new set of large things:

(4) a, b, c and Largeness, are large.

By (OM), applied to this new set of large objects,

(5) there exists a Form of Largeness: Largeness2.

And given (NI), Largeness2 differs from Largeness1: since Largeness1 is large by virtue of participating in Largeness2, it cannot be Largeness2. When endlessly repeated, these steps produce an infinite number of Forms of Largeness.

Since Plato nowhere explains his attitude toward this argument, we will never know what he thought of it. The question must be addressed on the basis of indirect evidence.

Attention has focused on self-predication since that is in fact a mistake. As we saw, self-predication is essential to Plato’s earlier Theory of Forms, so the TMA’s presumption of self-predication does not render it irrelevant to Plato’s position.36

The belief that the argument’s point is to prove the unacceptability of self-predication runs into the problem that self-predication is present in what is now generally agreed to be a dialogue later than the Parmenides, namely the Timaeus.37 There, despite Parmenides 133a’s rejection of resemblance, sensibles participate in paradigmatic Forms by resembling and imitating them. Resemblance brings along self-predication.

That the target is not self-predication is also indicated by a peculiar argument separating the two versions of the Third Man Argument. Socrates proposes that Forms might be thoughts, to which Parmenides objects that then everything is a thought, and hence either everything thinks or else, while being a thought, does not think.
of Forms is the same relation as his earlier notion of participation—in the sense that for a Form S to participate in a Form F is for S to possess F as a property, just as for an individual S to participate in a Form F is for it to have F as a property. Consequently, self-predication is a feature of the *Sophist’s Kinds* since the ontological analysis of the fact that *the Triangle is a figure* is: the Kind Triangularity participates in the Kind Figure, and hence *is a figure* in the same way as particular triangles are. Given that the Kinds are also ‘divine’ (254b), they must be the same Forms which we find in the middle period dialogues.

Divinity also characterizes the ‘Henads’ of the *Philebus* (62a), a very late dialogue mainly concerned with ethical problems but containing important and notoriously obscure passages on metaphysics with Pythagorean overtones absent from earlier works. The obscurity is probably due, in part, to the metaphysics of the *Philebus* being grounded in Plato’s ‘unwritten doctrines,’ about which our knowledge is very thin.

Plato divides ‘all beings’ into the categories of (1) Limit, (2) the Unlimited, (3) the mixture of Limit and the Unlimited, (4) the cause of this mixture. (4) is relatively clear, being identified with intellect, but the rest of the scheme resists interpretation because of the shifting usage of the notions of Limit and Unlimited, and the bizarre diversity of examples from the mixed class.

The Limit-Unlimited contrast is associated with the contrast between one ‘Henad’ with a specific number of species, and its indefinitely large range of generable and destructible instances (16c-d). But Limit is later explained in terms of the notion of a numerical ratio or measure (25a), and still later connected to the ideas of moderation and a balanced and good proportion (26a). Correspondingly, the Unlimited is not only associated with the idea of an indefinite range of particular instances but is explained in terms of scales of qualities referred to with pairs of comparative adjectives: hotter-colder, higher-lower, etc., which are generally characterized as admitting the more and the less, and as in themselves admitting no definite quantity. Further, the Unlimited also includes pleasure and the *life* of pleasure. The difficulties are further compounded by Plato’s identification of these different notions of Limit and Unlimited (23c) and by the disparate nature of the examples from the mixed class: it includes a moderate amount of pleasure, the life which combines pleasure and intellect, the art of music, fair weather, health and virtue of character. As these last examples show, Plato’s scheme cannot be interpreted in terms of Aristotle’s notions of form (Limit), matter (Unlimited) and composite (mixture). Nevertheless, it appears that Plato is analysing entities into what can be loosely called ‘formal’ and ‘material’ elements.

How do the Forms fit into this classification? If the One of the One-Many problem raised at 13e–15c corresponds to a (perhaps ‘mathemazicized’) Form from earlier dialogues, then since the One-Many problem arises for all items in classes (1)–(3) (23e, 24e, 26d), Forms do not fall under any one of these classes but rather there are Forms for all the beings in (1)–(3). So, for instance, the
1 I cannot enquire into something of which I am completely ignorant.
2 I could not know if I came across what I was enquiring into because I could not recognize it as what I was searching for.

The recollection theory can answer (2). The slave boy, for example, has latent knowledge of $p$ which, when revived by Socrates’ cross-examination, enables him to ‘recognize’ $p$.

But the recollection theory does not and is not meant to answer (1). To set up $X$ as an object of enquiry I must actively ‘know’ $X$, and latent knowledge cannot by itself explain such awareness of $X$. Once we distinguish between propositions and facts, the solution to (1) is straightforward: I can know what is said by ‘$p$’ without knowing whether it is the case that $p$. So I can enquire whether it is the case that $p$ without knowing whether it is the case that $p$. But with this solution unavailable to him, Plato’s responds to (1) not with an explanation of how enquire is possible but by arguing that as a matter of fact enquiry can lead to knowledge and so we ought to persist in enquiring into things we do not know.

For inasmuch as all nature is akin, and the soul has learned all things, when a man has recalled one piece of knowledge… nothing prevents him from finding out all the other things.

(Meno 81c-d)

If I learn A, which is similar to B, then I may recollect B. And if B is similar to C then I may recall C, and so on. It is this sort of stepwise enquiry which Socrates conducts here (Meno 82e 12–13).

Dialectic

That stepwise procedure of recollection is an example of Plato’s dialectical method. This developed from the negative and destructive Socratic elenchus—the procedure of refutation portrayed in early dialogues—into a method for achieving positive knowledge. The Phaedo contrasts it with empirical investigation which leads to the difficulties mentioned previously, and emphasizes that enquiry should proceed by reason alone. The Forms can only be apprehended by reason, and it will be by thinking about them, by having them in our mental view, that we will acquire knowledge of them, not by turning to the sensibles that only confusingly reflect the natures we wish to know.

‘Dialectic’ is from dialegesthai (‘to converse’) and dialectic is a conversation proceeding by question and answer. The questioner leads the enquiry and begins by asking his interlocutor (possibly himself) a question, typically about how to define some concept. An initial hypothesis is proposed which the questioner attacks by getting his respondent to answer a further series of questions where the answers lead to some difficulty or absurdity. They then go back and, taking this result into account, another answer is proposed. And so on. In early
merely sensible phenomena, will ultimately be explained by reference to the Form of the Good (Republic 509b).

Later, the Timaeus identifies the contrast between ideological and mechanical explanations of features of the sensible world with a contrast between Reason and Necessity, and now some things are explained by one factor, some by the other, and some by both. Reason has priority over Necessity, acts to produce what is best and is solely responsible for anything that is intrinsically good such as order and proportion. At the cosmic level it is represented by the ‘Demiurge,’ the creator who looks to the Forms and tries to embody them in disorderly matter. Necessity is responsible for randomness, disorder and evil in the material world, but also acts in subordination to Reason to explain features which are necessary conditions for and concomitant causes of certain instrumental goods, much like Socrates’ bones and sinews in the Phaedo (99a).57

In later dialogues dialectic involves less argumentation and greater interest in classification. The Republic’s conception of a master science establishing the starting-points of subordinate disciplines disappears, as was apparently not required for understanding an area of enquiry. Plato explicitly says distinct disciplines are now autonomous. The procedure called ‘collection and division’ does not provisionally posit a hypothesis and then subject it to critical scrutiny. Rather, it systematically begins when undefined species are unified under a defined genus. This genus is divided into species, which are in turn divided into subspecies, etc., until indivisible species are reached. Conjoining the divisions thus passed through yields definitions of the items at the end of the chains. Dichotomy—the division of a genus into two species—may be followed when the aim is to define a particular Form, since the remaining species will then be irrelevant. But when we want clarification of a genus the number of divisions made at any stage should match the natural, objective divisions in the subject-matter.

However, collection and division does not exhaust the content of Plato’s later ‘dialectic’. It comprises (Sophist 253b–d):

1 dividing things according to Kinds;
2 producing definitions of Forms;
3 not identifying distinct Forms or distinguishing identical Forms;
4 knowing what Forms can and cannot combine.

(1) often aims at (2), and the misidentification of distinct Forms (violating (3)) may result from failure to properly divide a genus (cf. Politicus 285a). But that is not how misidentification of the Greatest Kinds is avoided in the Sophist (254b–257a), nor is it obvious how (4) is connected with division. Sophist 254b.f. aims for (3) and (4) but uses arguments characteristic of the earlier dialectical method, and makes no use of the sorts of divisions which occur at the beginning of the dialogue. Perhaps Plato thought that when, unlike with many of his own
examples, philosophically important Forms were investigated, then the sort of argumentation found in the *Sophist* passage might be required.59

*The Theaetetus and the Sophist*

The *Theaetetus* represents Plato’s most sustained investigation into the nature of knowledge. Structured around an attempt to define knowledge, it, like the early dialogues, ends in frustration. But scholars have been quick to find positive lessons which we are meant to draw from the discussion.60

The dialogue divides into three sections which consider proposals to define knowledge as (1) perception, (2) true judgement, and (3) true judgement with an account. (3) resembles contemporary definitions of knowledge in terms of justified true belief, but one difference is that all three suggestions define knowledge not as a disposition but as a mental *event*: perception or judgement where judgement occurs when the soul says something to itself (180e–190a, *Sophist* 265e–264a).

(1) Because knowledge is infallible and of what is, if knowledge is perception then perception is infallible and of what is. Since χ may (e.g.) appear warm to A and cold to B, (1) entails a Protagorean relativism validating (1) in perceptions: what A perceives is for A and what B perceives is for B. The object is not warm or cold in itself: no objective reality independent of the perceptions exists that could falsify them.

Less straightforwardly, Plato connects (1) to a Heraclitean doctrine of constant flux. If what a sensible object χ is for A is nothing more than how χ appears to A, then χ lacks an intrinsic nature—it is nothing in itself—and hence, in the strong sense of ‘being’, χ is nothing. Given the connection between ‘being’ and permanence, χ also lacks stability and constantly changes. For sensible objects are continuously changing place so as to present different appearances to different perceivers.

The refutation of (1) initially attacks the relativism and flux doctrines which it is said to imply. Of several objections raised against Protagoras, the main difficulty is that his position is self-refuting. Protagoras’ ‘Man is the measure’ doctrine was not that it appears to Protagoras that what appears to any person A is for A, but that, absolutely, what appears to A is for A. But most people reject this, that is, for most people it appears that it is not the case that what appears to A is for A. So if what appears to them is for them, Protagoras’ doctrine does not hold for them. Protagoras’ absolute claim is false.

As for the flux doctrine, if everything continuously changes in every respect, no object can be accurately called anything since ‘it is always slipping away while one is speaking’. So nothing we might call ‘perception’ is any more perception than not perception, and therefore, on the proposed definition of knowledge, nothing is any more knowledge than not knowledge.61

Finally, Plato attacks the definition directly by arguing that no perception can ever be an instance of knowledge. The argument has aroused much interest...


Bibliographies


Concordances


Chronology


General surveys of Plato


10.89 Pelletier [4.50].
10.97 Vlastos [10.58], vol. 1.
10.98 ——[9.87].

*Epistemology*

10.103 McDowell, J. ‘Falsehood and not-being in Plato’s *Sophist*’, in Schofield and Nussbaum [see 3.43], pp. 115–54.
10.105 Robinson [9.74].
10.108 Vlastos [9.93].
Plato followed his teacher Socrates into ethics by way of a question that remained central in Greek thought: what is the relation between the virtues (aretae) of character, and happiness (eudaimonia)? Both concepts were vague but inescapable, and inescapably linked: happiness is the final end of action, and constitutes success in life (cf. Symposium 205a2–3); so virtue, for which we commend agents and actions, needed to be recommended by reference to happiness. The happiness that gives reason for action is primarily the agent’s; all Greek moralists hoped to grant the egocentricity without licensing egoism. At least examples of moral virtues were generally agreed: justice, piety, courage, temperance and the like. Happiness was more elusive, and its paradigms more debatable. Herodotus has Croesus and Solon disagree about whether the greatest happiness consists in enjoying the greatest riches, or in living simply and dying well (I.30–2). The demands of the virtues needed to be defined, and their status as virtues justified by a conception of what it is for a human being to be happy. Otherwise, there could be no telling whether it was pious of Euthyphro to prosecute his own father for murder (Euthyphro 3e4–4e3), nor whether Thrasymachus might be correct to claim injustice as a virtue (Republic 1.348b8–64). Plato’s central treatment of these matters is in the Republic, the masterpiece of his so-called ‘middle’ period. I shall also pay attention to four works that consensus places as follows: the Symposium, before the Republic, the Phaedrus, after the Republic, the Politicus (or Statesman), after the Phaedrus; and finally (but perfunctorily) the Laws, the long labour of his old age. An initial question was properly abstract: what is the appropriate kind of way in which to define a virtue? He poses this question in the Republic through presenting variants on an approach that is not his own.

Perhaps moral virtue relates to action as follows: a virtue is a practice of acting, or a disposition to act, in a determinate way definable by a rule. Thus, in the case of justice, Socrates—who, in tribute to the historical Socrates, appears as protagonist in most of the dialogues I shall be considering, but as a quasi-
recognized as a quality of actions, and the contract introduced justice as a practice. But how in a state of nature was justice to be understood, and its extension grasped as a unity? Perhaps Glaucon offers an implicit gloss that defines justice outside the law: to remain just is to abstain from what belongs to others (360b5–6). Socrates will not disagree: justice is neither having what belongs to others, nor being deprived of one’s own (IV.433e6–11). Yet such remarks rather move within a moral circle than reduce the moral to the natural: it is equally apposite to say that what is my own is that of which it would be unjust to deprive me. We should rather suppose that it is retrospectively that the contract is motivated by fear of injustice as such: what existed before the contract was not resentment of injustice, but fear of a multitude of unwelcome actions some of which became unjust, or were deemed to be unjust, by being penalized—a selection presumably sensitive to practicalities. So the contract may be described after the event (as it is by Glaucon) as an escape from injustice, but it has to be explained as an escape from something else, or many other things: one who has been penalized presumably such cases of losing one’s life or being deceived by one’s partner as it was thought good to penalize, after the invention of law and morality, as murder or adultery.

This view is a positive transformation of Thrasymachus that defines laws not to be imposed by rulers on subjects, but to be adopted by free contractors. The structure of attack or apology remains the same: it is indirect and instrumental. Glaucon is recommending justice as the practice of acting in accordance with laws that human agents need to respect in order to reduce the risk of their being treated in ways to which they are by nature averse. For all its pretensions, morality is revealed as an under-servant of felicity.

Plato has two grounds for rejecting this approach. First, it does not work: the content of a virtue cannot be explicated by concrete rules of conduct. This is first intimated within the Republic when Socrates objects to Cephalus that it is wrong to identify being just with telling the truth and returning what one has borrowed, for these acts are not always just (as when a borrower is asked to return some weapons by a lender who has gone mad, I.331c1–d3). A more resilient participant than Cephalus might suppose that one has only to try again, but the objection falls within a pattern to which Socrates later alludes when he describes how the young can be corrupted by counter-examples to attempts to define the just or the fine by appeal to general laws or maxims (VII.538c6–e4). This pattern of objection was already familiar from early Platonic dialogues (cf. [11.5], 43–6): on the same ground, temperance cannot be identified with a quiet or gentle manner (Charmides 159b1–160d3), nor with shame (160e3–161b2), nor courage with endurance (Laches 192b9–d9)). Unlike quietness, shame and endurance, a virtue is always good (Charmides 161a6–b2). We need to add that the endurance is wise, but how is wisdom to be defined (Laches 192d10–193a2)? One way out is by a special kind of vagueness: perhaps justice is giving all men their due (Republic I.331e1–4), and temperance is doing one’s own (Charmides 161b3–6). But such paraphrases either invite the same objection, or move around the moral
injustice with impunity. As Socrates will calculate with half-comical precision, the tyrant is 729 times unhappier than the philosopher-king (IX.587d12–e4).

III

Socrates elaborates his defence of justice with some felicity. And yet it raises two related questions:

(1) Is it coherent? Socrates is using two models to relate justice in society and soul (cf. [11.5], 331 n. 29). The first is of group-member dependency. Any quality of a city derives from the citizens who possess it (Republic IV.435e1–6) and from their displaying it within the city; thus guardians make it wise in exercising their wisdom on behalf of the city as a whole (428c11–d6), while auxiliaries make it brave in exercising their courage on its behalf (429b1–3). The other model is of macrocosm-microcosm: justice is identical in city and in citizen (II.368e2–369a3, IV.434d3–5). According to the first model the same-of-a-citizen is external, but according to the second it is internal and is in explicitly that the justice of an individual consists in his doing his own business not externally, but within his soul and in respect of its parts (443c9–c2). A just city is one whose citizens are just in exercising justice within it; yet just citizens are those who are just in exercising justice within themselves. Which seems not to cohere.

(2) Is it to the point (cf. [11.16])? When Thrasymachus and Glaucon questioned the value of justice, their starting-points were concrete and external: justice is not committing murder, or adultery. They were asking a general question about conduct of certain kinds. Socrates had already indicated a doubt as to whether justice can be defined in such terms, but he needs to connect his definition to their initial conceptions. Otherwise, he risks having quietly changed the subject from justice commonly conceived as respect for others to justice idiosyncratically reconceived as mental health. The analogy between soul and city may have confirmed that it is good for a city to be just, just as it is good for a soul to be at peace. But the question was not that, but whether it benefits each citizen to be just towards others.

Both difficulties will be resolved if internal and external justice are related so closely that operating well within oneself is an exercise of the same disposition as acting justly towards others. Then internal justice will be an aspect of the same disposition or practice as external justice; to attempt to evaluate them separately would be false and artificial. This Socrates tries to make out. He confirms his own definition by applying a ‘vulgar’ test: the internally just man will be the last person to commit externally unjust acts such as theft and adultery (442d10–443b3). The connection also runs the other way: he evidently assumes that it will not alter the extension of the terms ‘just’ and ‘unjust’ if one calls that action just which ‘preserves and helps to produce’ internal justice, and that action unjust which tends to dissolve it (443e5–444a1). (The same reciprocity should apply within popular virtue, once this has been distinguished: the outer will
how it is part of our freedom to be able to enter imaginatively into a higher view of our potentialities, and a lower view of our actualities, than we can take quite seriously.

NOTES

1 The traditional and inevitable translation of *eudaimonia* by ‘happiness’ is defended by Vlastos ([9.93], 201–3) with a qualification: he notes that *eudaimonia* has two features, ‘a subjective (pleasurable contentment or satisfaction) and an objective one (attainment of good, well-being),’ and concedes that the second looms larger within *eudaimonia* than within happiness.

2 As I shall use the terms, I am ‘disposed’ to act in a certain way in certain circumstances if I am such as to act so in those circumstances (if and when they arise), while I have a ‘practice’ of acting in a certain way in certain circumstances if I do act so in those circumstances (if and when they arise). Hence disposition and practice are logically equivalent, and both hypothetical in content. It is not an issue whether the disposition has intrinsic value, or only instrumental value derivable from the value of the practice. This usage fits some easy transitions in the *Republic* between state and activity (e.g. at *Republic* II.357d3–358b7, where Glaucon, proposing that justice is to be assigned intrinsic as well as instrumental value, first speaks of it as something to be practised, and then as an internal state of the soul).

3 E.g. Sachs ([11.16], 144–7 (=10.58 II, 38–41), Reeve ([11.15], 24–33), Irwin ([9–39], 189–91).

4 This thought suffices to show that it is indeed of justice, and not, more broadly, of righteousness or, indeed, being moral, that Plato is offering an account; cf. Vlastos ([11.18] sect. 1).

5 It may still be objected that Socrates is really assigning external justice only derivative value as a cause and a symptom of internal justice, and so disappointing Glaucon. I take his reply to be that internal and external are aspects of the same disposition-cum-practice, of which the internal is naturally the focus of intrinsic value egocentrically conceived. One might compare dressing well, a single practice that involves both looking good to others, and looking good to oneself in the mirror. A better reply might be that, *pace Republic* IV.443c9–d1, psychic harmony is equally manifested in internal acts of mind and external actions. The just man treats others in ways that do not merely evidence and reinforce, but embody, his state of soul. He finds equal pleasure in internal and external activity, for it is in both that his psychic harmony becomes for him an object of experience.

6 I owe this example to Mark Rowe. It would need a speculative psychopathology to dissolve the objection on Plato’s behalf.

7 The double process of externalization (from soul to society) and internalization (from society to soul) is illumined by Lear [11.10].

8 Whether in reaction to the frequent infelicity of Popper [11.13], or out of a distaste for moral commonplaces and a penchant for thought-experiments, modern writing on the *Republic* tends to be neutral or even sympathetic (e.g. Price [11.14], 179–93). But ominous parallels to Plato can readily be found in Kolnai [11.9], George Orwell’s 1984, and Quotations from Chairman Mao Tse-Tung. Thus Orwell nicely


11.19 ——‘The individual as object of love in Plato’, in Vlastos [9.87], 3–42.

11.20 Vlastos [9.93].

sexual union, being satisfied by another, ‘being with’ Beauty, such a scenario is—as I have already argued—incompatible with Platonic tripartition, and it is equally incompatible with any other conception of the soul which is represented in the dialogues (in the Symposium itself Socrates says nothing about what the soul is, or is like, just as he says nothing about its mortality or immortality). In terms of tripartition, the model for the soul adopted by that other dialogue on love, the Phaedrus, the ‘ascent of love’ would rather be a matter of the disguised substitution of the fulfilment of one sort of desire for the fulfilment of another.37 But so remarkable will the experience of the philosopher’s ‘erotic’ initiation be, on Socrates’ account, that he will never miss what he once left behind.

The idea of reason as itself desiring and passionate also not only fits, but is demanded by, the sort of view of the soul which we found Plato favouring in the Phaedo, and to which he returns at the end of the Republic, even after having argued at length for tripartition.38 If soul is in its essence rational and unitary, and capable of floating free through the universe, and perhaps especially if it activates and animates bodies, it cannot be pure rationality; thinking about things, even including doing them, by itself moves nothing. That is, without desire, a unitary rational soul does not look like a self-mover or source of movement for other things; it would, as we might put it, just lack a motive for doing anything.

Of course, the more reason appears as a separate agent, the greater the problems for the tripartite model. Similarly also in the case of the other parts: it will not be particularly helpful to analyse the soul, as a spring of action, into three more.39 Perhaps that should encourage us to take seriously Plato’s hint at the end of the Republic, and to suppose that he ultimately prefers a Phaedo-type view. But this is a less than completely satisfactory solution. The prominence of the idea of the tripartite soul, both in the Republic and elsewhere, reflects Plato’s interest in the fact of internal conflict which it purports to explain, and makes it hard either for us or for him to set it aside. A better conclusion might be just that he finds the arguments for the two conceptions of soul equally balanced, and veers between the two as the context demands, just as he does between the different conceptions of humanity which they imply.

**LITERATURE AND ART**

Plato returns repeatedly to the subject of literature, particularly poetry, and his treatment of the poets is always hostile. One important passage which is often taken as an exception, and as marking a softening in his attitude, in fact includes some of the main themes of his attacks elsewhere. The passage is the one in the Phaedrus briefly referred to earlier, where Socrates is introducing the idea of erotic madness, and comparing it to other forms of madness. Third among these is ‘possession and madness from the Muses’, which issues in ‘lyric and the rest of poetry’, and ‘by adorning countless achievements of past generations educates those who come after’ (245a). Socrates contrasts this inspired poetry with poetry
produced by someone not affected by the Muses’ madness, who ‘has been persuaded that after all skill will make him a good enough poet’; the poems of the mad leave those of the sane nowhere.

We should not be misled by the fact that Socrates here claims to be supporting the proposition that ‘the greatest of good things come to us through madness, provided that it comes by the gift of the gods’ (244a). There are clear signs of playfulness in the context as a whole, and the structure of the passage about the poets echoes the central argument of the little dialogue Ion, whose polemical intentions are not in doubt. The poets claim to educate people, which implies that they have something to teach: they know something. But in fact—Socrates argues against Ion—those who are any good are out of their minds, and their poetry has its real source not in them, but in the Muses. In Republic X, Socrates reports an ancient quarrel between philosophy and poetry, on the basis (or so it seems) of what the poets have said about people who claim to be wiser than them (607b-c); in Plato’s hands, philosophy gives as good as it gets.

The attack on the wisdom of the poets is carried out nowhere more extensively than in the Republic itself. Large parts of three of its ten books (II–III, and X itself) are written against poetry, arguing for the conclusion that the poets should be expelled from the ideal city as corrupting influences on the citizens, young or old. So the charge is even stronger: not only do they themselves lack wisdom, but so do their products. Now if the products of the Muses, then (since on Plato’s view the gods are good and without jealousy or malice) we should expect them to contain the wisdom that the poets, according to the Ion and the Phaedrus, themselves lack. But in fact, it seems, the argument there is an opportunistic one, whose point is just about the poets’ ignorance, and therefore their lack of qualification for a teaching role. ‘If, as you say, your poems are inspired,’ Socrates asks, in effect, ‘won’t that mean that they come to you from outside?’ To which they would presumably reply that they mean nothing of the sort, only that their poetry either is or seems to be a joint product of skill and something else which they cannot explain; in other words they would simply reject Socrates’ simplistic assumption that ‘inspiration’ excludes human skill.

However there is a serious point behind the strategy of the Ion. This is about the way in which poetry works on its audience, and, as it happens, on those who perform it: Ion is a ‘rhapsode’, a professional performer specializing in Homer, who also lectures about him. Socrates uses the image of a chain of iron rings suspended from a magnet. Each successive ring holds the next, and is held by the previous one, not through any contribution of its own, but in virtue of the force emanating from the original source. Similarly (Socrates claims) poet, performer and audience are simply carried away by the poetry of the Muses; it is in each case a passive process, and an irrational one, which none of them can therefore explain. What gives the simile much of its purchase is that Socrates and Ion agree that the experience, for performer and audience alike, depends on the emotions: the rhapsode feels sorrow and fear with and for the Homeric heroes, and is able to make his listeners do the same.
mimēsis, sneak past our reasoning selves undetected. The rulers of a good city will take advantage of this powerful instrument, and turn it to good. But this would involve a major reform of poetry. Existing poetry is powerful and dangerous.

This explains the space which is devoted to the criticism of literature in the Republic, and specifically the way in which Socrates returns to it in the last part of this mammoth work: it is a subject of vital importance. Book X begins with a direct reference back to Books II–III: ‘we were absolutely correct in the way we proposed to found our city, and I say this not least with the subject of poetry in mind’ (595a). More precisely, Socrates means ‘our complete refusal to allow in all that part of it which is mimetic’. This is somewhat puzzling, since that was not what was proposed (some ‘mimetic’ elements were to be allowed), and it rapidly becomes clear that the target is going to be all existing poets. Thus a little later we find him saying ‘So shall we lay it down that all poets [or “experts in the poetic art”, poiētikoi], beginning from Homer, are mimētai of images of virtue and the other things they write about, and don’t grasp the truth?’

The sentence, however, suggests a solution to the puzzle: Socrates is now attacking poets in so far as they are involved in ‘imaginative recreation’, but at the same time he is treating them as if that were the whole of poetry. The point that poetry could, ideally, contribute to the good life, even sometimes actually does contribute to it, is now set aside in favour of an all-out attack. The attack in large takes its start from a negative reassessment of the whole idea of mimēsis: it is not now a neutral process, taking its colour from what is represented (or represented), but is itself something to be suspected and deplored. It is as if the stress had shifted from ‘recreation’ to ‘imaginative’. At any rate, the mimētai, the poets, deal in images (eidōla), by which is clearly meant insubstantial and false images; and these images, Socrates suggests, they present to one of the inferior elements in us. That this is the basis of his argument in Book X receives confirmation from the continuation of the opening exchange, referred to above. We were absolutely correct in refusing to allow poetry into the city; ‘and that we mustn’t allow it in seems to me even more evident now that we have divided the soul into its categories’. The complex argument that Socrates now mounts has the sole purpose of relating the effects of poetry to the lower part or parts of the soul, and marking them as bad for that reason. (The usual view is that there are several different arguments involved; but the signs are that Socrates himself regards it as one long argument including a number of subsidiary ones.) We begin from the question about what mimēsis in general is. To find an answer to the question, Socrates takes the case of the painter, and contrasts his productions with those of the carpenter, and the Forms which (for the sake of the argument at least) are supposed to be in the carpenter’s mind when he makes his bed or his table: the Bed Itself, the Table Itself. These are said to be ‘in nature’, and if anyone made them, it would have to be a god; by comparison with them, there is something counterfeit even about the carpenter’s beds and tables, let alone those that the painter reproduces in his paintings. By Greek counting, this puts the painter’s products at third remove from the real thing, and the same will go for all other cases
BIBLIOGRAPHY

Editions


Studies

12.15 Penner, T. ‘Socrates on virtue and motivation’, in Lee, Mourelatos and Rorty (see [3.43]): 133–51.
12.16 Price [11.14].
aristocracy: (lit. ‘rule by the best’) rule by an elite, as opposed to
democracy (‘rule by the people’).

Aristotelian: pertaining to Aristotle, the fourth-century BC
philosopher.

atom: a necessarily indivisible physical particle.

atomism: the theory which maintains that atoms are the basic
constituents of the physical universe.

atomist: an adherent of atomism.

capacity, Socratic: the translation of dunamis in Plato’s early dialogues.
A capacity or power, according to Socrates, is
associated with a particular type of activity and a
unique object or subject-matter. E.g. the capacity or
power of sight is associated with the activity of seeing
and its unique object is colour.

collection and division, method of: a method of classification, expounded in some of
Plato’s later dialogues, in which a general kind or
class concept is defined by systematically dividing it into
its constituent sub-concepts, into which the particulars
falling under the kind or concept are grouped or
‘collected’.

commensurable (summetros): having a common measure, as 24 and 16 have the
common measure 8, applied mainly to geometrical
magnitudes. See also ‘dunamis’.

concord (sumphōnia): harmonious musical interval, the most important
being the fourth, fifth and octave.

cosmogony: an account of or theory about the origin or creation of
the world order (cosmos).

cultural relativism: the awareness that values and conventional practices
may be specific to a particular society.

Cynic: pertaining to the Cynic sect, a school of philosophers
originating in the fourth century BC, characterized by
austerity of life and extreme rejection of conventional
social norms. An adherent of that sect.

definitional knowledge: see ““What is F-ness?” question”.

dialectic: from its original meaning ‘discussion’ the term
‘dialectic’ (dialektikē) acquired technical senses as
follows: (1) (Pre-Platonic) a method of refutation by
opposition of contrary theses, also called
‘antilogic’ (see ch. 7); (2) (Platonic) the preferred
method for acquiring knowledge of the Forms (q.v.).
In the dialogues of Plato’s middle period it is a method
of critical argument operating independently of the
senses, involving question and answer. When a
proposal is found that resists criticism, one may try to
further confirm it by deducing it from a ‘higher’ hypothesis. In the Republic the process is somehow grounded in the Form of the Good, but this is not clearly explained. In later dialogues ‘dialectic’ refers to the method of collection and division (q.v.), but also to argumentation exploring the interrelations between the most general kinds or concepts, such as Being and Difference.

doxygraphy, doxographer:
a second-hand compilation of répons about the views of a number of philosophers on some topic or topics. An author of such a compilation.

dunamis:
(lit. ‘power, capacity, potentiality’) as a mathematical term, translated both ‘square’ and (with some anachronism) ‘square root’. Euclid uses the word only adverbially in the dative, speaking of straight lines as being commensurable in *dunamis* (*dunamh*), literally ‘in potentiality’) when the squares on the lines are commensurable.

eidółon:
(lit. ‘image’) (1) a technical term of atomism (q.v.) denoting a film of atoms emitted from the surface of, and reproducing the appearance of, a physical object. The impact of streams of *eidóła* on the sense-organs and on the atoms constituting the mind was responsible for perception and thought. (2) (Platonic) an insubstantial image or ‘phantom’, especially what is produced by inexpert, ignorant *mimētai* (q.v.).

Eleatic:
pertaining to the fifth-century BC philosophers Parmenides and Zeno of Elea in South Italy, and to their followers. An adherent of Eleatic doctrine.

elenchus (elenchos):
(lit. ‘refutation, test, cross-examination’) a method of argumentation characteristic of Socrates, in which the beliefs of an interlocutor are shown to contain an inconsistency. It is debated whether Socrates is represented as attempting to show by this method that some particular belief of the interlocutor’s is false, or merely that the set of his beliefs is inconsistent.

elenctic mission:
Socrates’ mission, which he appears to have believed to have been divinely inspired, to show by elenchus that his contemporaries lacked the moral wisdom which they claimed.

Epicurean:
pertaining to a philosophical school founded by Epicurus at Athens at the end of the fourth century BC, which developed and popularized the doctrines of atomism (q.v.). An adherent of that school.