

Popper and Xenophanes

ROBIN ATTFIELD

Abstract

Karl Popper identified Xenophanes of Colophon (570–478 BCE) as the originator of the method of conjectures and refutations. This essay explores this claim, and the methods of both philosophers (section 1). Disparagement (ancient and modern) of Xenophanes has been misguided (section 2). Xenophanes, a critical rationalist and realist, pioneered philosophy of religion (section 3) and epistemology (section 4), but his method was not confined to falsificationism, and appears compatible with inductivism and abductionism (section 5). The method employed by Popper in interpreting Herodotus in support of his conjectures about Xenophanes is typical of the multiple-strand reasoning characteristic of the humanities, and is as much inductivist or abductionist as refutationist (section 6). Popper's theories about Xenophanes are convincing; but even if Popperians would claim that Popper's refutationism largely fits the natural sciences, his application of it to history is implausible, and conflicts with own practice (section 7). An appendix reflects on Popper's interest in cultured refugees.

1. Introduction

The late and great Sir Karl Popper (1902–1994) famously presented as the model of scientific method and of other forms of Enlightenment research the method of Conjectures and Refutations, a phrase which was also the title of a book of his, published in his prime in 1963. This method of critical rationalism and critical realism, which he claimed to have devised as long back as 1919–20, presented an account of knowledge based on falsification in the case of scientific statements, and of criticisability more generally in the case of non-scientific statements. Generally, according to Popper, only falsifiable statements are strictly speaking scientific (where science includes the natural sciences, the social sciences and what he calls 'the historical sciences'), although epistemological space is also found for such metaphysical and irrefutable stances as realism, atomism and indeterminism (see below for the realism of Popper and of Xenophanes); and since almost any claim could well be falsified or criticised in future, we should largely cease to aim at the illusory goal of what he called 'certain knowledge', and instead treat conjectures that have so far withstood all efforts to falsify or to

criticise them as ‘knowledge’, in a more provisional but much more fruitful and rewarding sense. Certainly we cannot attain knowledge by induction, for (according to Popper) ‘Induction, i.e. inferences based on many observations, is a myth’.¹

By the same token, Popper rejected the claims to knowledge on the part of Hegel, Marx, Freud and Adler, and probably of most of those who worked in the traditions to which they belonged, as either unfalsifiable or falsified already,² although Marx, Freud and Adler are not mentioned in the essay on Xenophanes that I am mainly discussing here. At the same time, he rejected inductivism, or the attempt to build, construct or to supplement knowledge through accumulations of observed or experienced instances, as a deep-seated illusion. Relatedly, he also rejected verificationism, both as a theory of meaning and (more importantly) as either a potential theory of knowledge or a criterion of demarcation between science and non-science. For the true path of Enlightenment consisted in nothing but conjectures and refutations, along which scientific statements are subjected to attempted falsification, and non-scientific statements to rigorous criticism (see below for some examples from Homeric theology).

What is less well known is that already in 1963 Popper claimed to have discovered this method in use not only by Kepler and Galileo at the outset of the European Enlightenment, but also at the outset of the ancient Greek Enlightenment (for this is his phrase for the intellectual movement that began in Ionia and culminated in the work and methods of Socrates), most particularly in the thought and the writings of Xenophanes of Colophon.³ Many have doubted that Xenophanes was a philosopher at all, but Popper was later to explain the long history of disparagement to which Xenophanes’ reputation has been subjected as the outcome of ancient errors and misunderstandings, echoed though it has been in modern times. Freed of disparagement, Xenophanes’ surviving fragmentary writings exhibit the very same critical, realist and rationalist

¹ Popper, Karl R., *Conjectures and Refutations: The Growth of Scientific Knowledge* (London: Routledge & Kegan Paul, 1963), 53. For Popper’s understanding of realism and its basis, see Karl R. Popper, *Objective Knowledge: An Evolutionary Approach* (Oxford: Clarendon Press, 1972), 37–44.

² Popper, *Conjectures*, 34–39, 69; Karl R. Popper, *The Poverty of Historicism* (London: Routledge & Kegan Paul, 1957, 71–93).

³ Popper, *Conjectures*, 117, 136–53, 187–8.

epistemology, methodology and metaphysics that Popper was himself to teach, or so Popper went on to claim.

These further claims, together with his intricate case for making them, can be found in Popper's posthumous book of 1998, *The World of Parmenides: Essays on the Presocratic Enlightenment*, in the essay 'The Unknown Xenophanes'.⁴ Part of that essay was composed by Popper himself, and the rest was reconstructed by the editors, Arne F. Petersen and Jørgen Meyer, from notes left in Popper's *Nachlass*.

Xenophanes was born at the Greek city of Colophon, near Ephesus in Asia Minor, in 570 BCE, and like Popper lived to be 92, which places his death in 478 (or shortly thereafter). He spent his later years at Elea, a Greek city on the Italian coast south of Naples, having made a long and perilous journey from the eastern to the western Mediterranean, probably soon after the Persian invasion of the coastal cities of Asia Minor of 545 BCE.⁵ (Popper has more to say about how he came to settle in Elea, and I will come to that later.) The fragments of his writings are in hexameters, just like those of that famous son of Elea, Parmenides, with whom his life considerably overlapped; and both Plato and Aristotle represented him as the founder of the Eleatic school, of which Parmenides was the most prominent member. While Xenophanes' fragments suggest that his teachings were quite different from those of Parmenides, both about knowledge and about the nature of god, these and other later writers may well have modified their accounts of his views to align them with those of Parmenides, so that they could both be classified together as members of the same school,⁶ a tendency of ancient historiography which we should probably resist.

As will emerge when some of the surviving fragments are quoted shortly, Xenophanes produced some highly original arguments and held deeply distinctive views in fields such as epistemology, cosmology and theology. Whether his views, or Popper's study of his life and works, tally with Popper's account of research methodology is another matter, as I hope to show. Yet Popper's account of his general stance and of his significance is convincing, and requires a considerable revision of what is frequently taught and transmitted

⁴ Popper, 'The Unknown Xenophanes', in *The World of Parmenides: Essays on the Presocratic Enlightenment* (hereafter, *WP*), ed. Arne F. Petersen with the assistance of Jørgen Mejer (London and New York: Routledge, 1998), 33–67.

⁵ Popper, *WP*, 54.

⁶ Popper, *WP*, 40–42.

in the modern world about the presocratic philosophers, as I hope will also emerge. First, though, it is necessary to show that Xenophanes was a philosopher, whose reputation has been unjustly calumnified, and not a mere itinerant entertainer with absurd beliefs about cosmology, for until this is done the topics of his contribution to philosophy and of Popper's reconstruction of it may not appear worth attention.

2. Disparagement and Vindication of Xenophanes

Ancient disparagement of Xenophanes begins, as far as we can tell, with Heraclitus, one fragment of whom brackets Xenophanes together with prominent know-alls, including also Hesiod, Pythagoras and the genealogist and geographer Hecataeus, as basically ignorant.⁷ But this throw-away passage merely discloses that Xenophanes was prominent enough by the fifth century BCE to be compared with writers and thinkers renowned across the Greek world. Heraclitus basically held that everyone else was ignorant, and failed to appreciate the 'logos' that he regarded as self-evident, but few since his lifetime have been convinced by these claims.

Much more seriously damaging was the claim that Aristotle⁸ seems to have found in a passage of Empedocles (no longer extant) that Xenophanes held that the earth is infinite in extent.⁹ This claim seems to have generated reports that Xenophanes held that because the earth is infinite the sun never sets, and has to be created anew each day. As Popper remarks, try telling that to someone who sails the oceans, and watches the sun set, as Xenophanes must often have done himself.¹⁰ There is no evidence for any of these views in the surviving fragments, except for one contested interpretation of fragment B28. (The notation of the celebrated collection of Diels and Kranz, *Die Fragmente der Vorsokratiker* (1956) is used throughout this essay for pre-Socratic fragments.) To this fragment I will shortly return.

In the modern world, Harold F. Cherniss, an accomplished historian of an ancient philosophy, wrote that 'Xenophanes ... has become a

⁷ Popper, *WP*, 33–34; Heraclitus, B40. (Like Popper, I am using the notation and numbering of pre-Socratic fragments employed in H. Diels and W. Kranz (eds), *Die Fragmente der Vorsokratiker* (Berlin: Weidmannsche Verlagsbuchhandlung, 1956)).

⁸ Aristotle, *De Caelo*, 294a21.

⁹ Popper, *WP*, 40.

¹⁰ Popper, *WP*, 41.

figure in the history of Greek philosophy by mistake'.¹¹ Another of his detractors was the famous scholar of classical Greek, Hermann Fränkel;¹² while Anthony Gottlieb, the recent author of an otherwise accomplished text on pre-modern philosophy, *The Dream of Reason*, introduces Xenophanes as a 'wandering poet and theologian' rather than a philosopher.¹³

However, Xenophanes had his champions in the ancient world. As Popper relates, the sixth-century CE philosopher Simplicius, in his commentary on Aristotle's *De Caelo*, expresses doubt that Aristotle was correct in ascribing to Xenophanes belief in an infinitely deep Earth.¹⁴ Earlier, Galen (in the second century CE) wrote that 'In a malicious and slanderous way some commentators on Xenophanes have lied about him', and this suggests that he still had access to Xenophanes' writings *On Nature*, largely now lost, and was able to recognise that he did not hold the preposterous views ascribed to him by Empedocles, Aristotle and others.¹⁵ Besides, Cicero, in the first century BCE, held that of all the Greek philosophers of his generation who believed in the gods, Xenophanes was the only one who repudiated the practice of divining the future.¹⁶

Some of Xenophanes' detractors have labelled him 'a mere rhapsode', that is, a poet and minstrel. Undoubtedly he was both a poet and a minstrel. Indeed he describes how his life-history was best recounted by a fireside in a winter's evening.¹⁷ But his use of hexameters should not be counted against him, or used to represent him as not a philosopher. For two of the recognised figures of pre-Socratic philosophy also composed their works entirely in hexameters, Parmenides and Empedocles, and this is never held against them. Nor is it held against Lucretius, who later chose to imitate them and compose his six-volume exposition of Epicureanism entirely in hexameters. The issue of Xenophanes' reputation, then, turns not on his choice of metre or medium, but on the substance of his teaching on topics such as cosmology and epistemology.

¹¹ Popper, *WP*, 33; H.F. Cherniss, 'The Characteristics and Effects of Presocratic Philosophy', *Journal of the History of Ideas*, vol. 12, 1951, 319–45; reprinted in D.J. Furley and R.E. Allen (eds) (1970), *Studies in Presocratic Philosophy* (London & New York, vol. 1, 1–28); see 18.

¹² Popper, *WP*, 47; H. Fränkel, 'Xenophanesstudien I und II', *Hermes*, vol. 60, 1925, 174–92.

¹³ A. Gottlieb, *The Dream of Reason* (London: Penguin, 2000), 53.

¹⁴ Popper, *WP*, 42.

¹⁵ Popper, *WP*, 42.

¹⁶ Popper, *WP*, 34.

¹⁷ Popper, *WP*, 54.

As I have mentioned, the only reason to credit the interpretation of Empedocles and Aristotle is fragment B28, and fortunately what is at stake is one single phrase of this couplet, as Popper explains.¹⁸ This fragment is clearly a rejection of the theory of Xenophanes' fellow Ionian cosmologist Anaximenes that the Earth, the Sun, the Moon and the stars float in air, held by Anaximenes to be the basic element of nature. Most of the couplet is unambiguous, and can be translated as a whole as follows: At our feet we can see how the Earth with her uppermost limit borders on air; with her lowest, she reaches down to *Apeiron*. This is Popper's translation,¹⁹ which leaves the contested term untranslated.

The standard translation of 'apeiron' is 'infinity', and this is what gave rise to the belief that Xenophanes held that the Earth has infinite extension, because it supposedly 'reaches down to infinity'. But another meaning is both possible and appropriate, in view of the fact that Anaximenes' Ionian predecessor Anaximander held that the origin of all things is 'the apeiron', or the unbounded, or, as it is usually translated, 'the indeterminate'. So Xenophanes' couplet could well be saying that the lower side of the Earth stretches down to this all-encompassing but unfathomed substance, 'the apeiron', the unknown fluid put forward by the predecessor of his predecessor and the teacher of his teacher, Anaximander.

As Popper says, Anaximander's theory is more impressive than that of Anaximenes, who merely selected one of the familiar elements and gave it a cosmic role; and Xenophanes could here be rejecting the theory of Anaximenes expressly in favour of a version of that of Anaximander.²⁰ He could be saying not that the Earth is infinite, but that it reaches down to 'the Apeiron' of Anaximander, an ether-like fluid which according to Xenophanes surrounds both the Earth and the air above it. This would be an intelligent conjecture, carrying on the tradition of non-deferential criticism of one's mentor, already shown towards Thales by Anaximander and towards Anaximander by Anaximenes.²¹ The misinterpretation will have arisen when Xenophanes' couplet was studied in isolation from its Ionian context, by people who had forgotten what 'Apeiron' meant to the intellectual heirs of Anaximander, but who had been encouraged to reflect on infinity by later intellectual exercises and arguments such as the paradoxes of Zeno.

¹⁸ Popper, *WP*, 37.

¹⁹ Popper, *WP*, 37.

²⁰ Popper, *WP*, 37–9.

²¹ Popper, *WP*, 36.

Popper's interpretation seems convincing, and if it is right, then no reason whatever remains to credit the Empedoclean and Aristotelian interpretation of Xenophanes. We are thus freed to retrieve the views and arguments so admired by Cicero and probably Galen of the philosopher Xenophanes, who could be considered, alongside his other contributions, to deserve a place in the lineage of the Ionian sequence of philosophers from Thales, through Anaximander to Anaximenes and (if Popper is right) on to Heraclitus,²² despite that philosopher's low view of Xenophanes, mentioned already. As we shall see, Xenophanes was also the founder of the philosophy of religion and of epistemology, and therewith a pioneering advocate of belief in gradual intellectual progress.

3. Xenophanes on the Gods and on Progress

Perhaps the most famous fragment of Xenophanes embodies his attack on anthropomorphism. Popper's translation of B16 runs as follows:

The Ethiopians say that their gods are flat-nosed and black,
While the Thracians say that theirs have blue eyes and red hair.
Yet if cattle or horses or lions had hands and could draw
And could sculpture like men, then the horses would draw their
gods
Like horses, and the cattle like cattle, and each would then shape
Bodies of gods in the likeness, each kind, of its own.²³

As we shall see, this was not a rejection of all theological beliefs. Rather, Xenophanes held that God is quite different from human beings and, for that matter, from animals. Similarly these lines were not intended as an exercise in relativism, despite their relativising of particular ethnic theological beliefs. The mistake lies rather in leaping to conclusions on the basis of limited local experience.

It is now time to rehearse Xenophanes' own account of the gods, as in fragments B23 to B26. (Popper's translation here is into English hexameters.)

One God alone among gods and alone among men is the greatest.
Neither in mind nor in body does he resemble the mortals.
Always in one place he remains, without ever moving.

²² Popper, *WP*, 39.

²³ Popper, *WP*, 44.

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Nor is it fitting for him to wander now hereto, now thereto.
Effortless over the All he reigns by mere thought and intention.
All of him is sight; all is knowledge; and all is hearing.²⁴

As Popper remarks, this passage too embodies a rejection of anthropomorphism, an adoption of monotheism and the insight that god is qualitatively unlike man. And as he later adds, it could reflect a revelation, to a singer brought up to revere the gods of Homer, that the whims and favouritism of the Olympian gods were incredible, and that divinity must be devoid of bodily and spatial limitations, and of localised preferences and perspectives too. Indeed Popper further hints that this discovery could have been what gave Xenophanes his insight that there is often a gulf between truth and opinion.²⁵

Yet Xenophanes believed that there is a truth to be known, independent of human beliefs and perceptions (the stance that Popper calls 'realism'), and that it is known to god, and originally to god alone. (Another way of putting this is that, for him, reality or the truth is what the gods know.) Human beings, by contrast, have to struggle to find it. Here, then, is his celebrated fragment (B18) on revelation, non-revelation and progress.

The gods did not reveal, from the beginning,
All things to the mortals; but in the course of time,
Through seeking they may get to know things better.²⁶

Some of the implications of this passage can be set on one side for the time being. But it at least bears out Xenophanes' realism (his belief that truth is independent of human beliefs and perceptions), and also that Xenophanes can be bracketed with a small number of ancient writers (with Sophocles, Lucretius and Seneca, but few others) as a believer in intellectual progress across time, or what, when it is harnessed to a spirit of critical inquiry, Popper calls 'Enlightenment'.²⁷

4. Xenophanes as the Founder of Epistemology

It is now time to introduce the fragment which leads Popper to call Xenophanes 'the founder of epistemology'. This is not

²⁴ Popper, *WP*, 44.

²⁵ Popper, *WP*, 43–5, 50.

²⁶ Popper, *WP*, 48.

²⁷ Robert Nisbet, *History of the Idea of Progress* (London: Heinemann, 1980), 20, 37–46; Popper, *WP*, 33–35.

Xenophanes' only fragment in this field, but discussion of another, introduced by Popper at WP, 44–45, will be postponed to the next section. It would have been misleading to introduce the key passage without first ventilating Xenophanes' views about truth, the gods, and human intellectual progress, but I can now present Popper's six-line translation of four lines of hexameters of Xenophanes, which are known as B34.

But as for certain truth, no man has known it,
Nor will he know it; neither of the gods
Nor yet of all the things of which I speak.
And even if by chance he were to utter
The perfect truth, he would himself not know it;
For all is but a woven web of guesses.²⁸

The word for guesses (*δόκος*) has been translated by others as 'seeming', and, as Popper remarks, it could also be translated as 'conjectures', his own favourite phrase which also figures in the title of his book *Conjectures and Refutations*.

It is next appropriate to summarise Popper's commentary on this fragment. As he remarks, this passage goes beyond asserting the conjectural character of human knowledge, and presents a theory of objective knowledge, for which, even if you or I may say something true, neither you nor I nor anyone will know that it is true. Truth is objective in the sense of being independent of claims and beliefs, and 'depends only upon the facts'.²⁹

At the same time, claims Popper, these lines hint at a difference between objective truth and subjective certainty. However certain we may be about our beliefs, says Popper, 'we can never, or hardly ever, be really sure we are not mistaken; our reasons are never fully sufficient'.³⁰ Popper's insertion of 'hardly ever' would allow in certain possible exceptions, such as maybe knowledge of the more accessible of necessary truths, and possibly knowledge of one's own intentions. But his summary of Xenophanes is a reasonable one, and even if Xenophanes had envisaged such exceptions as these, he can hardly have been expected to specify them when composing Greek hexameters for public recitation.

But since it might seem reasonable to read philosophical scepticism into this fragment, Popper hastens to add that Xenophanes was not a philosophical pessimist. For Xenophanes believed that in the course

²⁸ Popper, *WP*, 46.

²⁹ Popper, *WP*, 48.

³⁰ Popper, *WP*, 48.

of time our attempts at knowledge can improve or get better (something that the philosophical sceptics of the later centuries of the ancient world would have denied).³¹ And it is in this connection that Popper cites the progress fragment, which should now be repeated:

The gods did not reveal, from the beginning,
All things to the mortals; but in the course of time,
Through seeking they may get to know things better.

Popper also adds that Xenophanes ‘explains what he means by “to know things better”’; he means the approximation to objective truth: closeness to truth, affinity with truth’,³² although, as we shall see, this concept raises problems for Popper’s own falsificationism. In support of this remark, Popper cites fragment B35, where Xenophanes says:

Let us conjecture that these things are like the truth.

where ‘these things’ probably refers to some of his own teachings. That in itself seems plausible, even if Popper’s suggestion that ‘these things’ alludes to his monotheistic theory of deity³³ is itself too conjectural to be reliable, consistent with his other fragments as it would be.

Popper now presents a list of eight claims that he finds in Xenophanes. Because some of them would entangle us in modern controversies and a terminology which does not belong to Xenophanes, it is best to omit some of these claims and focus on just the central ones. One is that truth is objective, as mentioned already. Here are some of the others:

4. Even when we express the most perfect truth, we cannot know this – that is we cannot know it with certainty. We can never have sufficient reasons.³⁴

(Fortunately the questionable pairing of knowledge and certainty is clarified in the next claim. Observations on Popper’s commentary, such as this one, appear in parentheses.)

5. Since ‘knowledge’ in the usual sense of the word is ‘certain knowledge’, there can be no knowledge. There can only be *conjectural knowledge*: ‘For all is but a woven web of guesses’.³⁵

³¹ Popper, *WP*, 48.

³² Popper, *WP*, 48.

³³ Popper, *WP*, 48.

³⁴ Popper, *WP*, 48.

³⁵ Popper, *WP*, 48–49.

(Now we might call into question the claim that in the usual sense of the word, ‘knowledge’ really does mean ‘certain knowledge’. For example, ‘knowledge how’ would not seem to involve this, and factual knowledge held when the holder is unaware of having it can hardly be regarded as involving claims to certainty. However, Popper is not really claiming that there can be no knowledge at all, either on his own behalf or on that of Xenophanes, as emerges if we move on to claims 6 and 7.)

6. But in our conjectural knowledge there can be progress to something better.

7. Better knowledge is a better approximation to the truth.

(Here Popper would perhaps have been better advised to write of ‘Better theory’ rather than ‘Better knowledge’. Popper now proceeds to cap his list of claims with a reaffirmation about the conjectural nature of such knowledge.)

8. But it always remains conjectural knowledge – a web of guesses.³⁶

(Here someone might object that wherever there is reason to believe that one theory is a better approximation to the truth than another, the former no longer has the status of a guess, whether or not it is knowledge. I am inclined to agree, although Popper would have rejected the very language of ‘reasons to believe’ as objectionable inductivist talk.³⁷ Indeed Popper is probably too partial to rhetorical phrases like ‘guesswork’. But we can still discern how the tenets of Xenophanes can be held to some degree to anticipate Popper’s own epistemology of conjectures and attempted falsification.)

Elsewhere Popper finds some comparable themes in fragments of Heraclitus, Democritus and Socrates.³⁸ But as Xenophanes predates all three, a good claim can be made on his behalf to be the father of epistemology, and also an ancestor of the practice of Enlightenment critique. Whether Xenophanes would have endorsed Popper’s methodology, and whether Popper observes this methodology himself, are separate issues to be returned to later.

5. Was Xenophanes a Popperian?

Let us consider whether Xenophanes was really committed to the methodology of conjectures and refutations of which Popper

³⁶ For Popper’s sixth, seventh and eighth claims, see *WP*, 49.

³⁷ See Karl P. Popper, *Objective Knowledge*, 13–21, 25–26, 29–30.

³⁸ For Heraclitus, see *WP*, 35; for Socrates and Democritus, see *WP*, 50–51. See also *WP*, 50, on Xenophanes.

represents him as the founder. Popper's ascription to Xenophanes of realism appears well founded,³⁹ and of critical realism at that, if Popper's well-argued interpretation of Xenophanes' criticism of Anaximenes is accepted. But can we be sure that Xenophanes was a rationalist, and would have shared Popper's antipathy to Baconian and Millian inductivism? Parmenides, of whom Xenophanes may well have been a teacher, was certainly a rationalist, but, as Popper emphasises, we cannot and should not extrapolate from the stances of Parmenides to those of Xenophanes.⁴⁰

Much turns on what Xenophanes would have counted as 'getting to know things better' in the progress fragment, the one that runs:

The gods did not reveal, from the beginning,
All things to the mortals; but in the course of time,
Through seeking they may get to know things better.

On the one hand he could have intended an accumulation of conjectures, refined by ever more sophisticated adjustments when the initial conjectures were refuted or proved inconsistent. But he may not have restricted himself to such a strictly Popperian approach, and could have held that 'getting to know things better' can sometimes be achieved through inductions based on experience. Such an approach would supply a clearer basis for the claim that at least sometimes our theories really are better, because, for example, they cohere better with repeated experience.

What little evidence we have suggests that Xenophanes was prepared to compare some human experiences with others in point of accuracy, and conclude that some give us a better basis for belief than others. Thus in another fragment (B38) he wrote:

If God never had chosen to make the light-yellow honey,
Many a man would think of figs as being much sweeter.⁴¹

As Popper comments, we have to interpret 'much sweeter' as 'much sweeter than figs appear to him now, because the comparison with honey reduces the impact of the sweetness of figs'.⁴² He adds that Xenophanes is teaching us not to be content with first impressions, since subsequent experience often corrects them. Here Popper actually ascribes to Xenophanes a stance of 'critical

³⁹ Popper, *WP*, 47–49.

⁴⁰ Popper, *WP*, 45.

⁴¹ Popper, *WP*, 45.

⁴² Popper, *WP*, 46.

empiricism',⁴³ but seems to soft-pedal this interpretation subsequently. Now it should be admitted that Xenophanes would have resisted claims to knowledge based on induction (as when Isaac Newton wrote of 'true inductions', based on nature), in view of the possibility that any theory whatever may need to be revised. Yet he probably did hold that theories based on broader experience are better, in the sense of more reliable, than ones based on limited experience, and that an example of this is to be found in the beliefs about sweetness of people who have experienced both figs and honey. And if so, his methodology will have favoured not only conjectures and refutations, but inductions based on accumulations of experience. In addition, he would have insisted on the power of negative instances, as when the theory that nothing is sweeter than figs is overturned through experience of honey; but then, this is one of the claims of that pioneer of induction, Francis Bacon.⁴⁴

We can still understand how the thought of Xenophanes could have triggered Popper's adoption of a methodology of conjectures and refutations. But some of the roots of inductivism can also be found in Xenophanes' thought. Even if he inspired Popper to be a Popperian, his methodology anticipated the Early Modern Enlightenment not only through anticipating critical rationalism but also, at least to some small degree, through anticipating critical empiricism of a Baconian and Millian kind.

Besides, if Xenophanes had come across that further method known as 'abduction', involving, as it does, inferences to the best explanation, it is unlikely that he would have rejected such a methodology either. For his own reasoning about the gods appears to instantiate such a methodology. What is to explain the way that the gods seem to have chosen to create in a wide range of lands entities such as figs and honey? Not the partiality ascribed to them in the Homeric poems, but plausibly a kind of omnipresent impartiality combined with a desire that humanity should make discoveries for itself. This too, he would have admitted, was a conjecture, but it was better than the Homeric theology, and comprised (he could well have held) the best available explanation. Thus, as well as being sympathetic to the approach of inductivists, he could well have been

⁴³ Popper, *WP*, 46.

⁴⁴ Francis Bacon, *The New Organon*, I: XLVI; in Fulton H. Anderson (ed.), *The New Organon* (Indianapolis and New York: Bobbs-Merrill, 1960), 51.

sympathetic to abductionists such as C.S. Peirce,⁴⁵ at least if born into a world where he could have had experience of them.

6. Is Popper's Study of Xenophanes Strictly Popperian?

I now want to argue that Popper's own study of Xenophanes far transcends his own method of conjectures and refutations. But before I can do so, I need to introduce his reconstruction of key events of Xenophanes' life. This will take us into the fields of ancient geo-politics, colonisation and historiography, together with some of Popper's boldest conjectures. All this turns out, or so I will be arguing, to have a philosophical pay-off. But it is also intrinsically interesting, showing as it may well do how philosophy first travelled from Asia to the West. More specific questions addressed by Popper include how Xenophanes managed to travel well over a thousand miles from Asia Minor to southern Italy, how the Greek colony of Elea came to be founded there, and thus how the philosophical school of the Eleatics (in other words the school of Parmenides and Zeno) originated. In his efforts to answer these questions, Popper adduces a passage of the *Histories* of the fifth century historian Herodotus, which tells of the adventures of the people of the coastal Greek Asian city of Phocaea (not far from Colophon, the home-town of Xenophanes), who were displaced from their home-town by the Persian invasion, led by the general Harpagus, in 545 BCE.⁴⁶

The fall of the kingdom of Lydia to the Persians prepared the way for a Persian occupation of cities that had previously been left to themselves, and the sea-faring Phocaeans, after being refused permission by the people of the island of Chios to settle on an uninhabited island there, sailed off past mainland Greece and the toe of Italy towards the western Mediterranean, where some of their compatriots had already (a few decades earlier) founded Massilia (the modern Marseilles). The wandering Phocaeans attempted to settle at a small existing Phocaeon colony on the isle of Corsica at Alalia, but were discouraged when they fought and only narrowly defeated fleets of the regional powers, the Carthaginians and the Etruscans. And so the survivors sailed away again to Rhegium on the toe of

⁴⁵ See C.S. Peirce, *Collected Papers of Charles Sanders Peirce* (8 vols; vols 1–6 edited by C. Hartshorne and P. Weiss), (Cambridge, MA: Harvard University Press, 1935).

⁴⁶ Herodotus I: 163–167; Popper, *WP*, 55.

Italy, and then had better success as colonisers in an area of Greek colonisation just south of the Greek city of Neapolis (the modern Naples), thus founding the small town of Elea (also known as Hyele). As Popper remarks, we know that these events were recounted in a long epic poem of Xenophanes.⁴⁷

One of Popper's conjectures is that Xenophanes sailed with them, from Asia to Corsica and then to Italy; this conjecture was first made by Theodor Gomperz.⁴⁸ This at least supplies an explanation of how he managed to survive the perilous journey from East to West, and arrive at Elea. (Pythagoras made a similar journey a few years later, in around 531 BCE, from the off-shore island of Samos, when it too fell to the Persians, to the instep of Italy, but he moved to the well-established city of Croton.⁴⁹) Popper further conjectures that Herodotus had a source for this detailed passage about events of a hundred years before he wrote, and that that source was none other than Xenophanes, who certainly composed works of autobiography and of history as well as works of philosophy. Gomperz does not as much as mention Herodotus in this connection, and so this conjecture is original to Popper.⁵⁰ Some fragments of Xenophanes' autobiographical work survive, which is how we know that his travels began at the age of 25, and that he spent a further 67 years travelling 'to and fro through the regions of Greece'.⁵¹ So he was born in 570, and lived on until at least 478 BCE. As Popper adds, the story of the Phocaeen migration is a moving one, not least because only one sixth of the original citizens ever reached Elea. Half returned to Phocaea, despite the Persian conquest, and the remaining third perished during their far-flung travels.⁵²

While the story of the Phocaeen migration and the foundation of Elea is a fascinating one, what is more relevant here is the method or methods of Popper's argument for his theories. Popper presents (in small Roman numbering) three kinds of evidence in support of his hypothesis.

⁴⁷ Herodotus I: 163–167; Popper, *WP*, 55.

⁴⁸ Popper, *WP*, 55.

⁴⁹ 'Pythagoras', in M. Cary, J.D. Denniston, J. Wight Duff, A.D. Nock, W.D. Ross and H.H. Scullard (eds), *Oxford Classical Dictionary* (Oxford: Clarendon Press, 1949), 751.

⁵⁰ For Popper's further conjecture, see Popper, *WP*, 56; on Gomperz, see *WP*, 60, note 32 (a note added by Popper's editors).

⁵¹ Xenophanes, B8; translated by Popper at *WP*, 54.

⁵² Popper, *WP*, 55–56.

The first is rather like the dog not barking. Herodotus, he remarks, does *not* say that he knows the story of the Phocaeans from hearsay. But that is what he sometimes does say, and what he says in a nearby passage on a different topic.⁵³ Popper says no more about his reasoning from this evidence, but clearly suggests that it is evidence that Herodotus had a source. His thinking is set out in greater detail in his note 33, of which the first sentence runs as follows: The story told by Herodotus was too old to be told with such detail without a source, and too recent to have just been invented.⁵⁴

This kind of reasoning is often termed '*a priori*' reflection, but it is also reasoning of an inductive nature from antecedent probabilities, themselves based on inductive generalisations. Popper here is arguing inductively (despite himself) about the relation between historians, their public and their sources.

The second kind of evidence concerns the style of Herodotus' passage. The main interest of Herodotus' context is the story of Ionia, or of the Greek settlements of the central part of the West coast of Asia Minor. Popper asserts that *Histories* I, 162–4 fits this 'plan'. By contrast, I, 165–7 represents a deviation, recounting as it does the tragic story of the Phocaeans refugees. Here Popper claims that this passage 'is sketchy and written as if Herodotus were explaining certain points only because later passages demanded their insertion'.⁵⁵ (And certainly the previous passage has a much greater relevance to his central theme of the Persian Wars and their antecedents than this one does.) Popper now stresses the length and unwieldiness of the first sentence of I, 165, with the founding of Alalia being squeezed in towards the end, and the squeezed-in appearance of the next sentence, which explains why the Phocaeans did not get any help from Arganthonius, their ally who ruled Tartessus in Spain, a remote character far removed from Herodotus' main narrative. Popper's comment is that 'All this suggests that a long poem is being cut and exploited, and not too well: corrections have to be made later to insert omissions somehow and somewhere because otherwise ... later ... passages would be incoherent'.⁵⁶ And now a separate argument is adduced: Herodotus' use of the phrase about those 'who had come first' of the Phocaeans who were already in Alalia before the refugees arrived suggests that the story presented here 'is

⁵³ Popper, *WP*, 55.

⁵⁴ Popper, *WP*, 60, note 33 (one of Popper's original notes).

⁵⁵ Popper, *WP*, 55–56.

⁵⁶ Popper, *WP*, 55–56.

in fact a personal report by one who sailed not with those Phocaeans who arrived first, but with a later wave of immigrants'.⁵⁷

These are perceptive and insightful arguments, but they are importantly based on probabilities relating to style, rather like the kind of form-criticism that is so important in New Testament studies. *Histories* I, 165–7 can indeed be read like an adaptation of a pre-existing document, and as if that document had quite probably been written by one of the refugees. But this is once again inductive reasoning, this time with a hint of abduction about it, for it is reasoning to the best explanation of certain untypical aspects of Herodotus' normally fluent prose. (Remember how a story from Herodotus is told beside a fire at night in the film *The English Patient*.) Admittedly Popper is advancing and refining conjectures, but the conjectures are ones to which he reasons through methods both inductive and abductive. Xenophanes could have approved, for these are paradigm methods for 'getting to know better', little as there is place for such methods within purist falsificationism.

The third kind of evidence to which Popper appeals turns on considerations about written sources available to Herodotus. Granted that he 'would undoubtedly have tried to get some written source', it is highly unlikely that any other source existed besides Xenophanes' poem; for there were few writers of history a hundred years before Herodotus, often called 'the Father of History', set pen to papyrus, and so Xenophanes is likely to have been the author of that source.⁵⁸ (Even if, we might add, there were other such sources, it would have been extremely difficult, millennia before the rise of publishing and a few years before the beginnings of a market for written books in the mid-fifth century BCE, for Herodotus to come by them. Xenophanes' epic could however, have travelled from the West, because there were still rhapsodes singing epic poetry for entertainment, and poems about the travels and travails of Ionian Greeks might well have been popular among fellow-Ionians both at Athens and in the Ionian islands. But let us not rely on this additional reasoning, and focus instead on that of Popper.)

This reasoning too is inductive. It is reasoning from Herodotus' likely intentions, and from what is known about the availability of writings, and writings of history in particular, across the period from 545 to 450 BCE. Here it is appropriate to quote the rest of Popper's note 33, a passage intended to cap the reasoning just

⁵⁷ Popper, *WP*, 56.

⁵⁸ Popper, *WP*, 56.

presented. Referring to Herodotus' story about the Phocaeans, Popper asserts that:

The correctness of the story was never questioned, and a reason for this could be that those of Herodotus' contemporaries who might have questioned its authority knew about Xenophanes' epic poem.⁵⁹

This is particularly vulnerable reasoning, since there were few channels through which protests about accuracy could be made, and because ancient conventions about historical objectivity were different from modern ones, and were barely in place when the Father of History was writing. However, to the extent that the absence of protest needs an explanation, Popper's is quite a good one, once again of an abductive kind. Nevertheless it adds little to the credibility of his theory, for even if people in Athens knew of Xenophanes' historical poem, it does not follow that Herodotus actually used it as his source.

Popper also argues that the evaluations in the text of I, 165–7 are consonant with what he calls Xenophanes' human moralism.⁶⁰ But this argument adds little. There are touches of community spirit in Xenophanes' writings, but they supply hardly enough of a basis for an ethic to be detected there, and the humanity of the evaluations of Herodotus' text, while consistent with the theory that Xenophanes' poem was their source, are also consistent with Herodotus having a source of different authorship.

However, taken jointly, the multiple strands of Popper's reasoning, some strong and some more tenuous, lend considerable overall support to his theories about Xenophanes. This, I suggest, is characteristic of reasoning in the humanities, where clues and hints of multiple kinds, such as style, innuendos and significant silences, are quite often the basis of theories of textual, linguistic or archaeological origins. Basil Mitchell, in his book *The Justification of Religious Belief*, supplies several examples, from fields such as archaeology, on the way to maintaining that the grounds for belief in God also function in such a cumulative way.⁶¹ This is not the occasion to pursue Mitchell's reasoning. But his title suggests something that is relevant here; for Popper's strands of evidence all (or nearly all) contribute to the justification of his theories about Xenophanes. These theories are not mere conjectures differentiated from others through not having yet been falsified or refuted, but hypotheses

⁵⁹ Popper, *WP*, 56.

⁶⁰ Popper, *WP*, 51–54.

⁶¹ Basil Mitchell, *The Justification of Religious Belief* (London: Macmillan, 1973).

that have some degree of positive epistemological support, often of an inductive or abductive kind.

7. Conclusions

Overall, I find Popper's theories about Xenophanes persuasive, and here I am including not only his hypothesis that Xenophanes' historical poem was Herodotus' source for his passage about the Phocaeans, but also his theory about Xenophanes endorsing the cosmology of Anaximander, and not adhering to belief in an infinite earth (based on a rational interpretation of the key fragment, and of apparently misguided passages of Aristotle), and his account of Xenophanes' epistemology, philosophy of discovery, and theology. All this is, in my view, a magnificent reconstruction of the stance and standing of an unjustly disregarded philosopher. But I want to conclude at the same time, *pace* Popper, that Xenophanes was not distinctively committed to Popper's method of conjectures and refutations, being potentially able to sympathise with inductivism and abductivism as well, as his own practice shows, and that Popper himself does not stick to that method when reasoning imaginatively and on multiple fronts about Xenophanes.

Possibly this is because his essay about Xenophanes is a contribution both to historiography and to the history of philosophy, disciplines which call for the kind of wide-ranging reasoning about human intentions, tendencies and meanings characteristic of the humanities. Popper himself, in *The Poverty of Historicism*, distinguished between the study of natural phenomena, which admits of laws of nature, and that of human beings, which admits of trends but not laws⁶²; and yet Popper apparently continued to advocate the method of conjectures and refutations in connection with both of these fields,⁶³ without qualifying it to cover reasoning about intentions and meanings, except for the proviso that when the object of study is human beings, they can exercise choice and thus falsify any predictions made about them. Thus he continued to reject the theories of Hegel, Marx, Freud and Adler insofar as they failed to be falsifiable or were already falsified (leaving open the possibility that they might be revised so as to overcome this failure), and seems to have continued to expect historical explanations, including his own, to be falsifiable themselves,⁶⁴ as in

⁶² See Popper, *The Poverty of Historicism* (London: Routledge, 1957), 120–130.

⁶³ See Popper, *Historicism*, 135–9 and 143–4.

⁶⁴ Popper, *Historicism*, 143–4.

principle they are. Possibly an investigation into issues of natural science would, or at least could, comprehensively comply with the method of conjectures and refutations, since there is no need for such a proviso about its subjects of study, or so someone who agreed with everything I have argued here could still suggest. Yet I am inclined to doubt it, in view of the place in scientific reasoning for considerations of coherence and of elegance, alongside ones of empirical evidence and of the sifting of hypotheses. But that would have to be the theme of a different essay, or rather, because I am not the person to write it, for an essay by a different author.

Appendix on Cultured Refugees

Popper adds to his theory about Herodotus' use of Xenophanes' epic the comment that this interpretation well fits the account of 'how Western science and philosophy originated in the Greek colonies in Asia Minor and the Ionian islands and how it was transported to the mainland of Greece and Graecia Magna by highly learned and educated refugees'. He proceeds to list the most significant ones: 'Among the most important of these emigrants we may count Pythagoras of Samos, Xenophanes of Colophon, Anaxagoras of Klazomenai, and Herodotus of Halicarnassus'.⁶⁵ His chapter finishes with the remark that 'I need hardly say that I consider it a most fortunate unintended consequence of the tragic events, about which Xenophanes sang for his fellow-citizens, that the unique cultural development of these great scientists and scholars was brought to bear upon our Western civilisation.'⁶⁶

Popper was in a good position to empathize with these cultured refugees, because he was one himself. In 1937 he left Austria and travelled to New Zealand, where he taught philosophy at the University of New Zealand until 1945, and then moved on to London in 1946.⁶⁷ Without mentioning in his text his own flight from the foreseeable rise of Nazism, he gives the attentive reader opportunities to remark the personal significance of becoming a cultured refugee through his references to other such refugees like his friend Sir Ernst Gombrich,⁶⁸ as well as through his more frequent references to Sigmund Freud and, as a practitioner of the method of conjectures

⁶⁵ Popper, *WP*, 56.

⁶⁶ Popper, *WP*, 56–57.

⁶⁷ See Bryan Magee, *Popper*, London: Fontana, 1973.

⁶⁸ Popper, *WP*, 59 and 93.

and refutations, to Albert Einstein (without ever mentioning the refugee status of any of them).⁶⁹

If Popper has been compiling a list of cultured refugees not from the Persian Empire but from Nazism, there are many others whom he could have further included: for example, among historians and social scientists, Eric Hobsbawm, Nicolaus Pevsner and Ralph Milliband, and among philosophers, Stefan Körner, Ernest Gellner and Ludwig Wittgenstein. The arrival in the West of all these people, and of Popper himself, warrants his own (perhaps unintentionally symbolic) accolade: 'a most fortunate unintended consequence of ... tragic events', events far exceeding in their tragic character those of which Xenophanes sang.⁷⁰

ROBIN ATTFIELD (attfieldr@cf.ac.uk) taught philosophy at Cardiff University from 1968 until recently, and is the author of *God and The Secular* (1978 and 1993), *The Ethics of Environmental Concern* (1983 and 1991), *A Theory of Value and Obligation* (1987), *Environmental Philosophy: Principles and Prospects* (1994), *Value, Obligation and Meta-Ethics* (1995), *The Ethics of the Global Environment* (1999), *Environmental Ethics* (2003; a textbook about this rising field), and *Creation, Evolution and Meaning* (2006). His latest book is a comprehensive textbook for undergraduates on ethics, *Ethics: An Overview* (London and New York: Continuum/Bloomsbury, 2012); a preview is available at: <http://tinyurl.com/7eauglx>, and a companion website at: <http://philosophy.attfield.continuumbooks.com>.

⁶⁹ For Popper's somewhat disparaging references to Freud, see Popper, *WP*, 124, 204 and 239. There are more than twenty references in *WP* to Einstein; Popper compares him to Xenophanes at 50.

⁷⁰ I would like to thank for their encouragement and comments on earlier drafts of this paper my former colleagues Michael Durrant, Richard Gray and Nick Shackel; my brother David Attfield; and the members of the Philosophy Seminar of Trinity St. David's University, Lampeter, to which an earlier version was presented in March 2013. I am also grateful to Anthony O'Hear for valuable suggestions which have significantly enhanced this essay.