

ATLAS AND AXIS*

maximus Atlas
axem umero torquet stellis ardentibus aptum
Aen. 4. 481 f. (= 6. 796 f.)

Pease *ad loc.*:¹ 'Roman writers often use *axis*... in a figurative sense... for the *caelum* as a whole, and in our passage, while the force is applied by Atlas to the axis of the sphere, yet the whole sphere is apparently in mind, as the phrase *stellis ardentibus aptum* indicates.' It is lexicographical commonplace that *axis* is used, especially in the poets, as a synonym for the sky, yet the oddity of the synecdoche by which a scientific, or pseudoscientific, term for the axis of the universe is transferred to mean the heavens in general has been little commented on;² unanalytic recognition of the semantic fact is the norm (e.g. 'aus einem bestimmten mathematischen Begriffe eine... allgemeine, unbestimmte Vorstellung').³ I believe that a more precise account of this transference can be given, and in particular I will argue that Virgilian usage in the *Aeneid* is central to the history of this process.

Pease's account of the lines quoted above has a ring of plausibility, but it will not bear too close scrutiny. In what sense can it be said that 'the force is applied by Atlas to the axis of the sphere' with his shoulder? If 'the whole sphere... is in mind', then, however we picture Atlas, it must be as applying the whole force directly to the surface of the sphere, and only indirectly to the axis; in which case why does Virgil allude to the axis at all (if *axis* does mean more here than simply 'sky')? Furthermore, in what tradition is Atlas represented as 'turning' the heavens (*torquet*)? Simple support is his usual function. One detects a typically Virgilian penumbra of sense here, a penumbra which Henry also attempts to characterize:⁴ '*caeli axem*... the rolling heavens... the heavens regarded as turning on a pivot... or axis'. It is not usually in the nature of such Virgilian usage to yield fully to logical analysis, but in this case I think that the articulation of the concept and its linguistic expression can be more precisely delineated.

I preface my discussion of the word *axis* with a consideration of the other passages in the *Aeneid* in which Virgil describes Atlas holding up the heavens:

- (1) Atlas...caeli qui sidera tollit (8. 141)

The simplest account, requiring no comment.

- (2) Atlantis duri caelum qui vertice fulcit (4. 247)

Here the man-mountain is, again simply, envisaged as propping up the sky on its peak or head⁵ (playing on the ambiguity of *vertex*).

* I am grateful to Professor R. G. M. Nisbet for reading through and commenting on an earlier draft of this paper.

¹ *Publi Vergili Maronis Aeneidos Liber Quartus* (1935), p. 392. I have not seen Braumüller, *Ueber Tropen und Figuren in Vergils Aeneis I* (1877), cited there.

² A partial analogy is provided by the extension of *axis* in the sense 'axle' to mean the whole 'chariot, wagon, etc.' (*TLL* s.v. *axis*, II. 1636. 66), but the synecdoche here is far more natural.

³ Kaufmann art. s.v. *axis*, ἀξων, *RE* 2. 2632. The ancients are not more informative: Serv. Dan. ad *Aen.* 4. 482, *axem*: nunc pro caelo; non enim in axe sunt stellae.

⁴ *Aeneidea* III (1881), 417.

⁵ Virgil obviously selects the *head* as the support to maintain naturalism, but he has the sanction of one of the earliest of the descriptions of Atlas, Hes. *Theog.* 746 f. (head and hands).

- (3) maximus Atlas
...aetherios umero qui sustinet orbis (8. 136 f.)

Conington *ad loc.*:⁶ ‘*aetherios orbis* of the heavenly bodies, like *astris aetheriis* 5. 514 etc.’ (and one might add the analogy of 8. 141, *caeli qui sidera tollit*). The English reader is perhaps misled here by memories of Lorenzo’s ‘There’s not the smallest orb...’; although *orbis* is used frequently enough in Latin poetry to refer to the discs of the sun and the moon,⁷ it is not used to refer to other celestial bodies before Manilius (a scientific description of one variety of comet),⁸ and it is not applied to the stars before Seneca the Younger (again in a passage of scientific description, and not as a self-evident synonym for stars).⁹ To suppose that Virgil means by *orbis* ‘the sun and the moon’ would be to define too narrowly the burden of Atlas, and there are no grounds for believing that *orbis* could be taken, by extension, to include ‘sun, moon, and stars’. There is however an astronomical meaning of *orbis*, current by the time of Virgil, that would fit, namely ‘sphere (of heaven)’, or, in the plural, the set of concentric spheres that, in some ancient world-constructions, constitute the universe.¹⁰ The primitive mythological picture of Atlas holding up the load of the heavens is thus combined with a scientific picture of the universe,¹¹ yielding a poetically effective, but logically and visually hard to realize, image of the giant. The closest visual image available is the type of Atlas, represented most famously by the Farnese fragment, in which he kneels on one knee, groaning under the weight of the celestial sphere, which he bears on his shoulders. This Hellenistic and Roman type is probably the way in which Virgil and his contemporary reader would most readily visualize Atlas *caelifer*,¹² but it does not (and cannot) attempt to represent the concentric spheres.

- (4) 4. 481 f. (= 6. 796 f.)

I will argue that these lines, too, are deliberately ambiguous, incorporating a conflation of several images, mythological and scientific, of Atlas, in much the same way as in (3).

The ground is best prepared by an examination of the linguistic models for *Aen.* 4. 482 (= 6. 797). Two fragments of earlier Latin poetry are particularly relevant:¹³

- (i) Enn. *ann.* 29V
qui caelum versat stellis fulgentibus aptum¹⁴

⁶ Conington–Nettleship, *P. Vergili Maronis Opera* III² (1875), 96.

⁷ *TLL* s.v. *orbis*, IX (2), 913. 52 ff.

⁸ 1. 844.

⁹ *QNat.* 7. 1. 6.

¹⁰ *TLL* IX (2), 914. 23, ‘de sphaeris mundi’: note esp. Cic. *Rep.* 6. 17, *novem tibi orbibus vel potius globis conexas sunt omnia*; Varr. *At. carm.* fr. 14. 1 f. Morel, *vidit et aetherio mundum torquerier axe | et septem aeternis sonitum dare vocibus orbes*. The use of *orbis* in poetry to mean *caelum* is as early as Cicero (*TLL* *ibid.* 913. 83), but there is no example (apart possibly from *Aen.* 8. 137) where the plural might be taken in this way. It is worth noting one other Ciceronian example of the poetic use of *orbes* in an astronomical context, referring not to the spheres, but to the *circuli* (ecliptic, tropics, etc.) projected on to the sphere of the universe: *Arat.* 296 f. *hos [orbes] aequo spatio devinctos sustinet axis, | per medios summo caeli de vertice tranans*. The language of line 296 is similar to that of *Aen.* 8. 137, but the concept is not as picturesque as that of the spheres, which, for that reason, should be understood in the Virgilian passage.

¹¹ It may be relevant that in a euhemerist interpretation of Atlas he is regarded as the inventor of the σφαιρικός λόγος (Diod. Sic. 3. 60. 2).

¹² On the Farnese Atlas: G. Thiele, *Antike Himmelsbilder* (1898), pp. 19 ff. Boll, *S.-Ber. Akad. München* (1899), pp. 120 ff., dates the group to the Augustan period. On the introduction of the *sphere* of the heavens in representations of Atlas: Roscher i. 710; the Farnese Atlas in the Pergamene tradition: Wernicke, *RE* 2. 2132.

¹³ For earlier and later parallels see Pease *ad loc.*

¹⁴ Cited by Macrobius *Sat.* 6. 1. 9 as a parallel to *Aen.* 4. 482, 6. 797, but without any indication as to the context of the Ennian line.

The Virgilian line is very close. There are alternative choices of synonym (*versat/torquet*; *fulgentibus/ardentibus*); more significantly Virgil adds the word *umero* and substitutes *axem* for the general *caelum*. Vahlen took the line to refer to Atlas, supposing that he would have appeared in a context of the ancestry of Aeneas (on the analogy of *Aen.* 8. 126 ff.). Others have taken the line as a description of the power of Jupiter. I would incline to the latter view, on the ground that parallels show that this is a common function of a supreme god, but not of Atlas.¹⁵

(ii) Varr. *At. carm.* fr. 14. 1 Morel

vidit et aetherio mundum torquerier axe¹⁶

This is a scientific description of the universe turned on its axis. Common to this line and *Aen.* 4. 482 are the words *torqueo* and *axis* used to describe, in different ways and with different grammar, the rotation of the universe.

Ennius' line expounds religious or mythological belief, Varro's a scientific model of the universe. Virgil combines these two approaches, and I now, somewhat artificially, consider separately the elements of his picture.

1. The traditional picture of *the giant Atlas bearing the weight of the heavens on his back or shoulders*. This is suggested above all by the word *umero*, and by the phrase *axem...stellis ardentibus aptum*, understood as a periphrasis for 'the starry sky'. Virgil is not explicit as to the way in which we are to envisage the sky as resting on the shoulder of Atlas, but *torquet* may give a hint. It is very difficult, on any naturalistic interpretation, to see in what sense Atlas can 'turn the sky on his shoulder'; the idea is not original to the picture of Atlas, and the physical process is hardly imaginable.

¹⁵ For views on both sides see M. Wigodsky, *Vergil and Early Latin Poetry* (1972), p. 43 n. 203. H. D. Jocelyn, *CQ* n.s. 14 (1964), 295, argues for Atlas, but his arguments are not cogent: he states that 'no Roman poet of the archaic or classical period seems to picture Jupiter as standing apart from the *caelum/mundus* and making it rotate', but ignores Lucr. 5. 1209 f. (cited below); and I do not believe that in Virg. *Aen.* 9. 93 'Virgil identifies Jupiter with the *caelum/mundus* on which the *sidera* are fixed'; is the Magna Mater speaking to an astronomical globe? For further considerations bearing on the problem see below and note 19. I here collect some passages in which turning the universe is the attribute of supreme divine power: Lucr. 5. 1209 f., *ne quae forte deum nobis immensa potestas sit, vario motu quae candida sidera versat* (here the action is analysed into the *several* motions imparted to the heavenly bodies; the passage is possibly an echo – and deliberate criticism? – of Enn. *ann.* 29V (note, in the immediate context, line 1205, *stellisque micantibus aethera fixum*, and cp. the Ennian *stellis...aptum*); Cic. *nat. deor.* 3. 93, *fac [mentem divinam] esse distentam, caelum versantem terram tuentem maria moderantem* (this might also be an echo of the Ennian line – Cicero's language is poetic at this point); Virg. *Aen.* 4. 269 [*Jupiter*] *caelum et terras qui numine torquet* (*torquet* may also have a figurative sense here, being a favourite Ciceronian expression for 'turn, direct' (*LS* s.v. *torqueo* IIA), and the comment of Serv. Dan. ad loc. is pertinent: *utrum quia mundus volubilis est? an 'torquet' regit, sustinet?* – I would answer both; cf. *Aen.* 9.93 [*Jupiter*] *torquet qui sidera mundi*, and compare Ov. *Met.* 2. 71, [*caelum*] *sideraque alta trahit celerique volumine torquet*; and compare Ov. *Met.* 2. 71, [*caelum*] *sideraque alta trahit celerique volumine torquet*; Apul. *Met.* 11. 25, *tu rotas orbem...regis mundum*; Claud. *Stil.* 1. 63, *volventem sidera Mithram*. Examples in Greek mythological cosmologies: Kern *Orph. Fr.* no. 236, 1 f.; Plato *Politic.* 269^c; *Rep.* 617^c; Hippolyt. *Elench.* 5. 8. 34 (see Plato *Cratyl.* 408^c). Virgil also uses the idea of control by turning in the following passages: *Ecl.* 9. 5, *fors omnia versat*; *Aen.* 3. 376, *volvitque vices, is vertitur ordo*; 7. 100 f., (the Trojans' descendants) *omnia sub pedibus...vertique regique videbunt*.

¹⁶ On Varro Atacinus and his influence on Virgil see Wigodsky op. cit.; Lenz s.v. Terentius 88, *RE* 2. 9. 699. In the context of the motif of turning the heavens note Morel *FPL* inc. fr. 29, *Iuppiter omnipotens, caeli qui sidera torques, | ore tuo dicenda loquar*, which Maass sought to claim for Varro, attaching it specifically to the context of fr. 14. Fragment 14 may also be relevant to the association of Atlas and the *orbes* in *Aen.* 8. 137, for in lines 1–2 we find in close juxtaposition *axis* and *orbes* (indeed the *axis* of the *mundus* is also logically the *axis* of the *orbes*). For his two descriptions of Atlas Virgil then echoes two distinct aspects of the Varronian passage.

But the idea of *turning* does lay stress on the *rotundity* of the heavens; the *sphere* of the heavens and its anthropomorphic supporter are most readily visualized in the Hellenistic type of the Farnese Atlas, mentioned above as the probable visual analogue of *Aen.* 8. 137.

2. Two words in the line, *axem* and *torquet*, point to a different picture of Atlas: *Atlas as a personification of the world-axis*. This was a widely known allegorization of Atlas, plainly alluded to in Plato and Aristotle, and possibly going back to a pre-Socratic source.¹⁷ It is only in this context that we can reasonably explain the notion that Atlas *turns* the heavens; and only here that Pease's musings on the significance of the word *axem* find their proper resolution. Atlas turns the axis because he is the axis. Obviously *umero* cannot be included within this interpretation: the fit between myth and the concept of which it is an allegory is not complete here (as it is, for example, in the case of the equivocation between Atlas-giant and Atlas-mountain in *Aen.* 4. 246 ff.). This need not surprise in Virgil, although there may be an awkwardness in the suggestion that Atlas somehow supports and turns the axis on his shoulder like some cosmic caber.¹⁸

Support for this interpretation comes from Lucretius, who also combines the mythological and scientific in an allusion to Atlas:

aut hominem tanto membrorum esse impete natum,
trans maria alta pedum nisus ut ponere posset
et manibus totum circum se vertere caelum (5. 913 ff.)

That which has hands is of human form, but that around which the sky turns is the axis of the universe. In this picture of an impossible giant, a composite of Polyphemus (or Orion) and Atlas, I suggest that Lucretius starts from the axis-allegory of Atlas, and works back from there to the notion of one who turns the heavens with his *hands* (which balance the *footsteps* planted in the sea in the previous line).¹⁹

¹⁷ E. Tièche, 'Atlas als Personifikation der Weltachse', *MH* 2 (1945), 65–86; F. Buffière, *Les Mythes d'Homère et la Pensée grecque* (1956), pp. 579 ff. In addition to Tièche's collection of examples it occurs to me to wonder whether the personification may not be alluded to at Arat. *Phaen.* 22 f., ἄξων αἰὲν ἄηρεν, ἔχει δ' ἀτάλαντον ἀπάντη | μεσσηγὺς γαίαν, περὶ δ' οὐρανὸν αὐτὸν ἀγινεῖ. Might the rare use of the Empedoclean phrase ἀτάλαντον ἀπάντη (Emped. B. 17. 19 DK) contain an etymological pun on the name Atlas (Atlas as the cause of the equipoise of the earth)? The *active* role ascribed to the axis in the Aratean lines (ἀγινεῖ) is unusual and may point in the same direction. This sort of wordplay would not be unique in Aratus: see D. A. Kidd, *CQ* n.s. 31 (1981), 355.

¹⁸ Wernicke, art. cit., adduces passages to show the currency of the idea that Atlas turns the world-axis on his shoulders, but they do not in fact prove what he wants. Apart from the Virgilian passages he refers to Arist. *mot. an.* 699^a 27 ff., οἱ δὲ μυθικῶς τὸν Ἀτλαντα ποιοῦντες ἐπὶ τῆς γῆς ἔχοντα τοὺς πόδας δόξαιεν ἂν ἀπὸ διανοίας εἰρηκέναι τὸν μῦθον, ὡς τοῦτον ὥσπερ διάμετρον ὄντα καὶ στρέφοντα τὸν οὐρανὸν περὶ τοὺς πόλους· τοῦτο δ' αὖν συμβαίνει κατὰ λόγον διὰ τὸ τὴν γῆν μένειν and Σ. Hes. *Theog.* 509, ἐπ' ἄξονι τινι λέγουσι στρέφεσθαι τὸν πόλον. In both passages there is a clear distinction between myth (support on shoulders) and allegory (axis). A closer parallel for the conflation of two irreconcilable conceptions of Atlas is found in Aesch. *P.V.* 348 ff., ὃς πρὸς ἐσπέρους τόπους | ἔστηκε κίον' οὐρανοῦ τε καὶ χθονός | ὥμοις ἐρείδων, ἄχθος οὐκ εὐάγκαλον (combining the Homeric notion of the κίονες guarded (ἔχει) by Atlas (*Od.* 1. 53) with the more common notion of Atlas as directly supporting the heavens). G. Hermann (*opusc.* 7. 254) took the Aeschylean passage as a poetic allusion to the axis-personification: contra Tièche art. cit., pp. 65 f., 85 f.

¹⁹ A much later relief shows Mithras framed by a zodiac band, which he grasps and turns with one hand (Mithras 'volvens sidera', Claud., *Stil.* 1. 63), illustr. in H. L'Orange, *Studies on the Iconography of Cosmic Kingship in the Ancient World* (1953), p. 32. Lucr. 5. 915 might be used as an argument for referring Enn. *ann.* 29V to Atlas rather than to Jupiter, in which case one would naturally conclude that Ennius also refers to the personification. For a later passage

Finally I note the frequent similarity of language used to denote the activity of Atlas and that used to denote the function of the world-axis.

(a) Both Atlas and the axis are said to *support* (*sustinere*, *fulcire*) the heavens: of Atlas, e.g. Virgil *Aen.* 4. 247, 8. 137; of the axis, e.g. Cic. *Tim.* 37, *terra traiecto axe sustinetur*; Manil. 3. 357 f., *sub vertice caeli, quem gelidus rigidis fulcit compagibus axis*.²⁰

(b) Both Atlas and the axis are that around which the sky or universe *revolves* (*vertere*, *versare*, *volvere*, *torquere*). In the case of the axis this is too obvious to require exemplification, but with reference to our Virgilian passage it is perhaps worth pointing out that *torquere* is quite usual in this context.²¹ The fragment of Varro Atacinus is more interesting, in that here the rotation of the universe is actually ascribed to the instrumentality of the axis (*aetherio mundum torquerier axe*).²²

(c) An implication of (a) and (b) is the idea that Atlas as the axis *controls* or *regulates* the workings of the universe. We have already seen how the word *torqueo* itself is frequently used with the sense of deliberate direction, and the idea that Atlas is responsible for the coherence of the universe is an old one;²³ the very fact that the subject of Enn. *ann.* 29 V is in doubt is itself suggestive, and Virgil himself attributes the spinning of the heavens indifferently to Atlas and Jupiter.²⁴ It is rather more surprising to find the power of control ascribed to the mathematically conceived axis itself at Manil. 1. 279 f., *aera per gelidum tenuis deducitur axis libratumque regit diverso cardine mundum*.

AXIS

My argument so far rests on the equivocation between two senses of the word *axis*; it will be greatly strengthened if it is shown that the sense 'sky' of *axis*, on which the equivocation depends, is not in fact attested before the *Aeneid*; a suspicion will then arise that the Virgilian conception of Atlas may even have been determinative in establishing the future history of the word. Let us briefly remind ourselves of that history, in which I take the main stages to have followed in this order.

(i) An axle of a wheeled vehicle. From this sense several transferred usages arose, but I detail only those relevant to this enquiry.

(ii) The axis of the earth (or of the universe, this being merely the continuation into space of the earth's axis from each pole).

(iii) The extremity of the axis, the (north) pole.²⁵ In this development the analogy

where juxtaposition of the mythological and the scientific may imply awareness of the allegory: Avien. 3. 101 ff., *hic modus est orbis Gadir locus, hic tumet Atlas | arduus, hic duro torquetur cardine caelum*, | *hic circumfusus vestitur nubibus axis* (the last line echoes another description of Atlas in Virgil, *Aen.* 4. 248, *Atlantis, cinctum adsidue cui nubibus atris; duro* in line 102 appears to allude to the same etymology of *Atlas* as Virg. *Aen.* 4. 247).

²⁰ Cf. also Val. Fl. 3. 731; Arnob. *nat.* 2. 58.

²¹ E.g. Varr. *At. carm.* fr. 14. 1 (cited above); Cic. *Acad.* 2. 123; Manil. 1. 443 f., *Arctos... | axem quae mundi stridentem pondere torquent* (here it is the axis which is turned: cf. German. 227).

²² E. Maass, *Aratea* (1892), p. 270, n. 39, suggests that the immediate model may have been Arat. *Phaen.* 23, [ἄξων] περὶ δ' οὐρανὸν αὐτὸν ἀγυεῖ. I suggest above (n. 17) that the Atlas-axis personification may be present in the Aratean passage.

²³ E.g. Plato, *Phaedo* 99^c (possibly here combined with the axis-personification, Tièche, art. cit. pp. 78 f.); Aristot. *cael.* 284^a 18; Cornut. *Theol. Gr.* 26 (Cleanthes).

²⁴ In this connection it is interesting to compare the identification of the functions of a supreme power and the axis in Persian tradition, where the Great King is described as 'the cynosure, axis, and pole of the world' (E. Herzfeld, *Iran in the Ancient East* (1941), p. 320).

²⁵ The earliest example in this sense (Accius *trag.* 566) antedates considerably the earliest example in the sense 'axis' (Varr. *At. carm.* fr. 14. 1). I would judge this to be an accident of survival.

of the Greek *πόλος* is doubtless operative. Possibly by the fifth, and certainly by the fourth, century B.C. *πόλος* had acquired the meanings of (a) sky, heavens; (b) the pole (north or south); (c) the axis of the earth or universe.²⁶ One reconstruction of the development of the word *axis* would be that it was used of the celestial axis on the analogy of the Greek *ἄξων* (which, however, never bears the meaning of 'pole'), and then extended to mean 'pole' on the further analogy of *πόλος*.²⁷ This analogy was also doubtless important in allowing the rather bold leap from the sense 'pole' to:

(iv) the sky in general;

from there it was a fairly easy step to:

(v) a (specified) part of the heavens, region (compare the analogous use of *caelum*).

Lewis and Short and the *Oxford Latin Dictionary* both give passages from the *Aeneid* as the earliest examples of *axis* in the sense 'sky, heaven'; the *Thesaurus* is extremely confused in the arrangement of its material. But before I look at the Virgilian uses, it is necessary to clear up a problem raised by the *Oxford Latin Dictionary*, which gives a passage from Vitruvius as the earliest extant example of the sense 'a (specified) part of the heavens'.²⁸ If this is correct, then we shall probably be forced to admit that the sense 'sky' was current before the *Aeneid*, since the sense 'part of the heavens' must logically derive from it; and Vitruvius can hardly have been influenced by Virgil.²⁹ The passage runs as follows:

6. 1. 4 qui autem sunt proximi ad axem meridianum subiectique solis cursui... (contrasted with 6. 1. 3, quae sub septentrionibus nutriuntur gentes...)

The phrase *axis meridianus* recurs very soon, in an obscure account of the construction of a triangle on the surface of the sphere of the earth:

6. 1. 5 ab labro, quod est in regione septentrionali, linea traiecta ad id, quod est supra meridianum axem, ab eoque altera obliqua in altitudinem ad summum cardinem.

6. 1. 7 igitur quae nationes sunt inter axis meridiani cardinem ac septentrionalis medio positae. (ab *HEG*)

It is likely, though not certain, that the sense in all three places is the same; the details of the geometry are, however, much disputed; Vitruvius is perhaps muddled himself.³⁰ One thing does appear to be clear, and that is that *axis meridianus* in this very technical passage is likely to have a precise technical sense, rather than constituting a vague reference to location. Arguing from 6. 1. 4 alone I would add that *proximi ad axem meridianum* is an odd way of saying 'in southern climes'; in a phrase of this sort one looks for a fairly definite reference point after *proximus*, and why not 'the south pole'? I would here enter a plea for the proper recognition of *axis* in the sense 'either of the

²⁶ See Maass, op. cit. pp. 123 ff.; Kaufmann, art. cit. col. 2631; Tièche, art. cit. pp. 71 ff.

²⁷ There is other evidence to suggest that there is an easy shift between the sense of a word denoting the point or tip of something and the sense denoting the whole length of the object: (i) *cardo*, which is extended to mean a surveyor's line (and even to denote the three-dimensional sky, or part of the sky, *TLL* III. 445, 13 ff.); (ii) *umbilicus*, which, while properly referring to one of the bosses at either end of the stick round which the book-roll is wound, sometimes is better taken as referring to the whole stick (e.g. Hor. *Epod.* 14. 8); (iii) some instances of *axis* = 'axle' suggest that the sense is that of one of the ends of the axle, if not actually, by transference, the 'wheel' itself (e.g. Lucan 8. 200).

²⁸ S.v. *axis*¹ 5b.

²⁹ On Vitruvius' dates: C. Fensterbusch, *Vitruv: Zehn Bücher über Architektur* (1964), pp. 4 ff.: all, apart from the preface to bk. 1, probably completed before the end of the 20s B.C.

³⁰ See Fensterbusch op. cit. p. 556 n. 347. Fensterbusch understands the phrase in all three places to mean the 'south pole'; K. Reinhardt, *Poseidonios* (1921), p. 81, takes it to mean 'der Durchmesser des Himmelsäquators im Schnittpunkte des Meridiāns, als eine zweite Achse', but admits that he thinks that Vitruvius has muddled his source.

two poles'. This is indeed duly noted by Lewis and Short (who indeed include Vitruvius 6. 1 here),³¹ but ignored by both the *Thesaurus* and the *Oxford Latin Dictionary*.³² While *axis* indeed most often refers to the north pole (as being that which is most in evidence to those in the northern hemisphere), and can even stand unqualified in that sense, the analogy of *πόλος* would make it surprising if *axis* could not also refer to the south pole.³³

To return to Vitruvius 6. 1. 4, I would stress finally the unlikelihood of Vitruvius' using a sense whose history suggests that it is a poeticism, introduced only much later into prose.³⁴

The evidence that *axis* is used before Virgil to refer to the sky or a part of the sky is thus negligible. There are no instances of it in the *Eclogues* or in the *Georgics*, a fact in itself significant; those in the *Aeneid* may be divided into two classes, first those in which *axis* is qualified by a genitive, and secondly those in which it stands for 'sky' absolutely:

- (1)
 2. 512 nudoque sub aetheris axe
 8. 28 gelidique sub aetheris axe
 6. 790 progenies magnum caeli ventura sub axem

The analysis of these phrases is problematical. There are no earlier parallels, nor is there any comparable use of *πόλος*.³⁵ In general terms, in a phrase of the form 'x aetheris', 'x caeli', one does not expect x = *caelum* (though it is just possible that in 'aetheris axe', *aetheris* is a qualitative genitive, equivalent to *aetherio*).³⁶ One expects instead some word describing the sky under a particular aspect, such as *orbis caeli*,³⁷ 'the vault, dome, of heaven'. May it be that the sense is 'under the pole (or axis) of the sky', as a poetic periphrasis for 'under the sky', the stress being on the experience of the immense height of the sky? *Aen.* 6. 790 may give further grounds for suspecting that this is so, for *axem* here is separated from its use in the Atlantean context by only six lines: while the immediate sense is 'a race that will come up into the world under the sky', Virgil may intend us to envisage the Romans as a race whose historical destiny is comparable to that of Atlas, in that it too will be given charge of the universe. But even if it could be argued that *axis* in these passages does mean the sky in general, it would not materially affect my case.

- (2)
 5. 820 sub axe tonanti | sternitur aequor

³¹ S.v. *axis* II Ba (Luc. 7. 422, 8. 175; Vitruv. 6. 1).

³² The *Thesaurus* groups the sense 'pole' under the heading 'axle', sc. *Plaustris sideris septentrionalis*, II. 1637. 20, which would rule out the reference of *axis* to the south pole; none of the quotations supports this bizarre notion. (The author of the article is perhaps misled by Servius ad Virg. *Aen.* 2. 512.) The definition of *OLD* s.v. *axis* 4 is at least ambiguous: 'The extremity of the axis, the celestial north pole'; and none of the examples refers to the south pole.

³³ *Axis* in the sense 'south pole': Manilius 1. 375, 577, 589, 613, 624; Lucan 7. 422 (see Housman ad loc.), 9. 542. In some cases decision between the senses 'pole' and 'part of the sky' is impossible. 'Pole' may be the sense at Ovid *P.* 4. 10. 43, at *Notus, adverso tepidum qui spirat ab axe*: *Notus* is opposed to *Boreas*, which arises from the region of the circumpolar stars (for the idea that the winds blow from, or from the immediate vicinity of, the pole, cf. Varro *Men.* 271, *ventique frigido se ab axe eruperant | phrenetici septentrionum filii*; Lucr. 6. 720; (poss.) Ovid, *Ib.* 34; Manil. 4. 591; Sen. *nat.* 5. 16. 6; Plin. *nat.* 4. 89).

³⁴ It is frequent in Columella. *OLD*'s second example, Quint. Curt. 7. 3. 7, is also open to doubt; the translation 'pole' is quite possible; it occurs, in any case, in a passage of deliberately heightened style. The first certain examples of *axis* = 'part of the sky' known to me are Ovidian: *AA* 2. 94; *Met.* 4. 214.

³⁵ I can compare only Eur. *Or.* 1685 ἄστρων πόλον.

³⁶ Cp. Ov. *Tr.* 1. 2. 46, *quantus ab aetherio personat axe fragor*.

³⁷ E.g. Manil. 1. 454; Ov. *Met.* 6. 175.

⁴⁷ *Met.* 4. 214.

F. 3. 106 geminos esse sub axe polos

Met. 2. 74 f. ...poterisne rotatis
obuius ire polis, ne te citus auferat axis?

In the last two examples the ambiguity has different sources:

F. 3. 368 gravis aetherio venit ab axe fragor

Met. 1. 254 f. sed timuit, ne forte sacer tot ab ignibus aether
conciperet flammās, longusque ardesceret axis

This equivocation in Ovid might be explained simply as a play on two discrete senses of the word *axis*. I suggest instead that it is a reflection of a deliberate ambiguity introduced into the word by Virgil, when he chose to extend its signification from 'world-axis' to 'sky'.

P. R. HARDIE

⁴⁸ See note 38 above. ⁴⁹ Virg. *Georg.* 3. 223; *Aen.* 7. 288; Ovid *Met.* 6. 64.