

Episode Twenty-Eight - The Number of Shapes of Atoms Is Not Infinite, But Innumerable

INDIA'S IVORY PALISADE

Against the theory that atoms of each shape are infinite in number it could be objected that certain things in nature are extremely rare. Forestalling this argument, Lucretius appeals to the Epicurean doctrine of *isonomia*, according to which the uncommonness of a species in one place is balanced by its abundance in another. For example, elephants are rare in Italy but plentiful in India (Lucr. 2. 536–40):

sicut quadripedum cum primis esse videmus
in genere anguimanus elephantos, India quorum
milibus e multis vallo munitur eburno,
ut penitus nequeat penetrari: tanta ferarum
vis est, quarum nos perpauca exempla videmus.

The “ivory palisade” defending India has been interpreted in three ways: (1) as a legend of some kind (Munro, Bailey),¹ referring either to an actual wall of ivory or a living barrier of elephants (Reid);² (2) as an exaggerative reference to the practice of using elephant tusks as palings or incorporating them into buildings (Ernout, Borthwick);³ (3) as a metaphorical allusion to the use of elephants in warfare (Creech,

1. H. A. J. Munro, *T. Lucreti Cari "De Rerum Natura" Libri Sex*,⁴ vol. 2 (Cambridge, 1893), p. 148 (“I know no other mention of this fable”), C. Bailey, *Titi Lucreti Cari "De Rerum Natura" Libri Sex*, vol. 2 (Oxford, 1947), p. 891; cf. O. Gigon, “Lukrez und Ennius,” in *Lucretius*, Fondation Hardt pour l'étude de l'antiquité classique, Entretiens 24 (Vandoeuvres-Genève, 1977), p. 185.

2. J. S. Reid, “Lucretiana,” *HSCP* 22 (1911): 38. The elder Pliny reports that elephants will spontaneously form a battle-line against hunters (*HN* 8. 9).

3. A. Ernout, “Lucretius et les éléphants,” *RPh* 44 (1970): 203–5; E. K. Borthwick, “Lucretius' Elephant Wall,” *CQ* n. s. 23 (1973): 291–92. To judge from Creech's note (see n. 4 below), this was also the interpretation of Lambinus.

Wakefield, Giussani, and others).⁴ Through a combination of internal and external considerations, I hope to place the third interpretation beyond reasonable doubt and to illustrate the use of similar imagery in other ancient descriptions of war elephants.

As for the first interpretation, no evidence exists for belief in a legendary wall of ivory. That a story like this might have gained credence is not implausible in view of the countless other spurious tales about India in ancient literature, but one would expect such an odd idea to have turned up in more than a single passage. In support of the legend of a living barricade of elephants Reif adduces Curtius Rufus 9. 2. 13 "modo quis bellum offentes montium speciem, quis Hydaspen amnem, quis cetera audita maiora quam vero sustineri posse crederet? alim, hercudim, fugissemus ex Asia, si non fabulae debellare potuissem," where, however, *montium speciem* alludes to the actual appearance of the elephants in the battle with Porus (cf. 8. 14. 13 "bella dispositae inter armatos speciem terrarum procul fecerant"), not to a fable. The evidence for the second interpretation, which claims a reference to the practical use of tusks in buildings or defenses, is no more convincing. Discounting Ernst's prehistoric archaeological evidence, which seems too far afield, it amounts to a couple of unrelated snippets, one of them referring to Africa not India (Pliny *HN* 8. 31 "in extremis Africae, qua confinis Aethiopiae est, postium vicem in domiciliis praebere, saepeque in his et pecorum stabulis pro palis elephanterum dentibus fieri Polybius tradidit auctore Gelusa regulo," Dio Chrys. *Or.* 79. 4. 41 ἢ ἔλαφοι ὀφθαλμοῦν κτῆμα καὶ παραστάτων, τοῦτο μὲν μάλιστα ἀφ' Αἰθιοπίας καὶ ἀπ' Αἰγύπτου, καὶ τὸν ἑσπερίων ἀνὰ καὶ οὐραίων ἀπὸ τῶν ἰσθμῶν, ὅμοιοι δὲ τῶν ἰσθμῶν τὸ καὶ ἰσθμῶν καὶ μακροῦ φανερὸν ἐν τοῖς τοῖχοις ἐπεσκόποιεθαι τὰ κτενὲς τῶν ἑσπερίων ἀνὰ καὶ οὐραίων).

Apart from their lack of supporting evidence, the first two interpretations suit the argument less well than the third. In the first place, Lucretius ought to be referring to something well known and verifiable in order to meet the requirements of Epicurean epistemology—not to a bizarre traveler's tale or an obscure local practice. In the second, the proof requires that at any one time the lack of a species in one place is compensated for by its abundance elsewhere, and this point is made most cogently by reference to living animals, not a palisade—or a building—built from dead ones. With the latter interpretation, there is a slight non sequitur between *vallo murarum eburno* and *num ferarum vis est*, for it could be objected, after all, that the elephant population had dwindled since the building of the palisade, that the palisade took many generations to build, or even that the ivory was imported from elsewhere. The argument is watertight only if it has to do with living elephants and invokes a matter of common knowledge.

Both these criteria are satisfied by the third interpretation, which in addition to being founded upon a well-known Indian practice is thoroughly in keeping with the boldly metaphorical style of Lucretius. The truth of the matter was discerned by Giussani, who saw a hyperbolic reference to the great number of elephants

4. T. Church, *J. Lucretii Cari "De Rebus Naturae" Libri Sex* (Oxford, 1695), p. 93 ("maximam Indiarum vis in elephantis vixit esse quae necesse) illos esse se nunquam parum Indis defendebant, haec cogita et maxime Lucretio utique"); G. Wakefield, *J. Lucretii Cari "De Rebus Naturae" Libri Sex*, vol. 1 (Lindsay, 1853), p. 291 ("ergo, vallo eburno murarum, quasi fronte excertis, ubi stationem, pro muris, habebant elephantes"); C. Giussani, *Lucretio: "De Rebus Naturae" vol. 1* (Inps. Turin, 1968), p. 217; W. E. Leonard and S. B. Smith, *J. Lucretii Cari "De Rebus Naturae" Libri Sex* (Madison, 1942), p. 362; E. L. Rieu, *Meninge Divina, "Elephant Towers"*, *ESQ* 49 (1951): 134–35; P. H. Schrijvers, *Warrior as Alibi: Colophon: Études sur le postique et le poète de Lucrèce* (Amsterdam, 1976), pp. 294–95.

used by the Indians to resist the invasion of Alexander.⁵ Along similar lines, Meneg-Davies suggests that "the Ivory Wall . . . for the elephants ranged in battle-line may have been proverbial in Roman military lore since the wars against Pyrrhus and Carthage." Schrijvers accepts the idea that the *vallo eburno* was proverbial but, retaining Giussani's theory, suggests that Lucretius borrowed it from some account of Alexander's exploits. In support of his conclusion he cites passages of Diodorus Siculus (17.87. 5 ἢ πῶς αὖτε ἔλα φρουρῶν ἀπὸ τῆς μάχης παραστάτων, τῆς ἐσπερίας ἢ πῶς τῆς τῶν ἑσπερίων στρατῶν, καὶ οὐραίων, ἢ ἀπὸ αὐτῶν κτενὲς ἐπιπέδων καὶ ἀνεπιπέδων διατεταρῶν, Appian (*Cyr.* 32 ἢ 5' ἄρα τῆς τῆς αἰσθητικῆς ἀπὸ τῶν, τῶν ἑσπερίων ἢ οὐραίων), and Curtius Rufus (8. 14. 13 [quoted above]), in which the sight of war elephants ranged among soldiers is compared to that of towers along a wall.⁶ There happens to be another example in Curtius Rufus,⁷ echoing Livy,⁸ and others too in Polybius⁹ and Julius¹⁰ which suggest that the idea derives from the Alexander-historians—probably the so-called vulgar tradition associated with the name of Cleitarchus.¹¹ In a related simile an analogy is drawn between war elephants and a defensive wall, to which soldiers run for protection¹² or from which they cast weapons.¹³ Of a similar sort are comparisons of elephants to ships, citadels, and hills.¹⁴ A number of factors contributed to the choice and expressiveness of the images of tower and wall: the massive size of elephants, of course, which invites descriptive terms appropriate to an edifice, especially when measured on a human scale; more particularly, the tactic of stationing elephants in the front line and of placing protective towers (*torres*) on their backs from which one or several men could rain down missiles.¹⁵

A connection with Alexander is further supported by the adverb *prolepis*, which acknowledges that he—and, according to tradition, Darius and Hercules before

5. Lucretio, p. 217: "Pensavo che il ricordo di una guerra leggenda, simile che si narra di un reame partecamente spirituale del gran numero d'elefanti degli eserciti indici che resistevano all'invadenza di Alessandro."

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