

Army Transport in the Fifth and Fourth Centuries

N. G. L. Hammond

ANCIENT METHODS of military transport are clearly stated in our sources, provided that attention is paid to the technical terms. In view of recent interest and work in ancient military logistics, it seems appropriate to set out the evidence on these methods. We may list four.

1. A soldier carrying his own equipment and rations. For example, the Athenians were to go to Marathon with their rations (Arist. *Rh.* 1411a), and Philip's soldiers were trained to carry a month's supply of flour (Frontin. 4.1.6).¹ Alexander's men carried enough water to last them four days in the desert (Diod. 17.49.5). During forced marches they sometimes carried their arms and their rations (*e.g.* Arr. *Anab.* 3.21.3).

2. Porters 'carrying loads on their backs' (Curt. 3.13.7), who were called *σκενοφόροι* by Herodotus, referring to 480 B.C. (7.40.1, *cf.* 7.55.1), and *gangabae* by the Persians (Curt. 3.13.7). Greek hoplites were attended by porters throughout a campaign, just as Greek cavalrymen had grooms to assist them. In 359 Philip reduced the number of porters for his phalangites so drastically that there was only one porter to ten soldiers (Frontin. 4.1.6).

3. Animals 'carrying loads on their backs' (Diod. 17.105.7, Curt. 3.13.16), that is 'pack-animals'. Of these the camel was particularly efficient for carrying grain (in 480 B.C., Hdt. 7.125) and treasure (in 330, Diod. 17.71.2 *κάμηλοι . . . ἀχθοφόροι*). The normal pack-animals in Greece were donkeys and mules (Xen. *Hell.* 5.4.17 *ὄνους . . . αὐτοῖς σκεύεσι*, Diod. 17.71.2 *ἡμίονων . . . ἀχθοφόρων*).

4. Vehicles drawn by a 'pair' (*ζεύγος*) of animals 'under-the-yoke' (*ὑποζύγια*),² the yoke itself being called *ζυγόν*. Sometimes the ani-

¹ The standard ration (*cf.* Hdt. 7.23.4 and Xen. *An.* 1.10.18). A month was in theory the duration of a summer campaign, as in Thuc. 5.47.6.

² D. W. Engels, *Alexander the Great and the Logistics of the Macedonian Army* (Berkeley 1978) 14 n.10, calls this word "generic" for any kind of baggage animals, and he then assumes that this word in our sources generally means pack-animals. Neither the literal meaning of the word nor the application of it, often in association with 'pairs'

mals were referred to simply as 'pairs' (ζεύγη, e.g. in Thuc. 4.128). The strongest of them were oxen; they were probably used for such heavy loads as parts of ships (Arr. *Anab.* 5.8.5). Several pairs of animals could be used in team (e.g. eight horses in Hdt. 7.40.4 and Plut. *Alex.* 67.1). Vehicles were two-wheelers, four-wheelers, and six-wheelers. Of these the four-wheeler or ἄμαξα was used for transporting supplies, and the six-wheelers or ἀρμάμαξα for transporting distinguished personnel (e.g. Hdt. 7.83.2, Arr. *Anab.* 6.28.1).

The advantage of porters is that they can traverse very difficult ground or deep snow, and they are not dependent on trails or roads. Of the pack-animals the camel needs dry going and prefers desert conditions. Mules, horses, and donkeys usually pick their way in a single line up and down slopes and thus create a trail, if there is not one already there; on open, level ground they may fan out and go faster. In general they are considerably slower than a man walking. Wagons can operate on open grasslands or desert terrain, but in most kinds of ground they require made-up roads which are properly graded for ascents and descents. Such roads were built in the fifth century by Persians, Odrysians, and Macedonians (Hdt. 5.52–53, Thuc. 2.98.1 and 100.2). They were planned to be all-weather roads, and they crossed high ranges in the Balkans (Hdt. 7.131, Olympus; Thuc. 2.98.1, Cercine; Arr. *Anab.* 1.1.7, Haemus); we hear of wagons³ at the summit of the Haemus pass (Arr.). That they were properly graded need hardly be said; and we have two excellent examples of graded roads in Attica and Megaris.⁴ It is obvious too that vehicles drawn by 'under-the-yoke' animals were much more efficient than pack-animals;⁵ for there would be no point in making graded roads if that were not so.

That armies preferred to move supplies by wagon emerges clearly from the ancient evidence. Water for Cyrus I and his entourage on campaign was carried on "many four-wheeler wagons drawn by

and wagons, tolerates such a misinterpretation. H. Berve, *Das Alexanderreich I* (Munich 1926) 170, paraphrased it succinctly and correctly as "Zugtieren."

³ According to Polyaeus 4.3.11 these wagons were 'loaded', i.e. with rocks; they were not (two-wheeled) "carts," as P. A. Brunt in the LCL edition of Arrian *Anab.* (I p.7). For a cart would have lost its load at once when sent unguided downhill.

⁴ Mr E. Vanderpool took me over the road from the head of the pass between Mt Parnes and Mt Pentelicus to the Marathonian Oenoe; and I have described the road from the western ridge of Mt Karidhi to the Vathikhoria in *BSA* 49 (1954) 163f, reprinted in my *Studies in Greek History* (Oxford 1973) 431.

⁵ The inefficiency of pack-animals was borne in on me in occupied Greece in 1943–1944. To take an extreme example, when supplies and equipment for 50 British assault troops were carried across the Pindus range, 360 pack-mules and 130 muleteers took twelve eight-hour days to cover 150 miles; and 70 of the 360 loads were fodder for the mules. I owe this detailed information to Major Ronald Prentice.

mules” (Hdt. 1.188 *πολλαὶ κάρτα ἄμαξαι τετράκυκλοι ἡμιόνεαι*); and when he was stranded the Arimaspi are said to have brought grain on 30,000 wagons for his army (Diod. 17.81.1). When the army of Xerxes left Sardis, and again when it crossed the Hellespont, the porters and the ‘under-the-yoke animals’ brought the supplies (Hdt. 7.40.1 and 7.55); and ‘animals under-the-yoke’ drew supplies for the Persian ladies of high rank and also for the army as a whole (7.83.2 and 7.25.1 *ὑποζύγια*). During the campaign of Plataea in 479 the Greek forces were supplied by wagon-trains, one of which numbered 500 ‘under-the-yoke animals’, and its drivers attended the ‘pairs’ (Hdt. 9.39.2 *ὑποζύγια . . . τοῖς ζεύγεσι*). In 418 at the battle of Mantinea the enemy broke their way through to ‘the wagons’, *i.e.* to the supply-train of the Spartans (Thuc. 5.72.3). In 401, when the younger Cyrus was on his way to Cunaxa, a train of 400 wagons was carrying flour and wine for his Greek mercenaries, some 13,000 in number (Xen. *An.* 1.10.18 *ἀμάξας μεστὰς ἀλεύρων καὶ οἴνου*). During his journey down the Euphrates valley Cyrus had lost a number of ‘under-the-yoke’ animals for lack of fodder, and the Persian nobles had manhandled wagons which had stuck in the mud (Xen. *An.* 1.5.5 and 8). When Philip was reforming the Macedonian army in 359/8, his soldiers were not allowed to put their gear on the vehicles (Frontin. 4.1.6), which were certainly used for the carrying of supplies and heavy equipment. Thus in the year after Philip’s death Alexander sent the ‘under-the-yoke’ animals to forage during the Balkan campaign (Arr. *Anab.* 1.5.10). In Asia Alexander’s supply-train of wagons often followed the ‘wagon-road’ (Arr. *Anab.* 1.24.3, 3.18.1 *κατὰ τὴν ἀμαξιτόν*, 3.19.3, 3.23.2 and 6 *τὴν λεωφόρον . . . τὰς ἀμάξας*). When he wished to lighten the baggage-train, he burnt some wagons (with their loads) according to one account but only the baggage taken from the wagons according to another (Plut. *Alex.* 57.1–2; Polyaeus 4.3.10; Curt. 6.6.15 *vehicula onusta*). In the Gedrosian desert the progress of the army was delayed by the difficulties which the sand hills caused to the ‘wagons’ and the ‘pairs’ (Arr. *Anab.* 6.25.2); and it was the ‘under-the-yoke’ animals which died of thirst or were drowned in the flood or were killed by the soldiers (6.23.4, 24.4, 25.2 and 5). In order to make good his losses, a huge number of ‘under-the-yoke’ animals were sent to him, and from then on Alexander had “a great many wagons” (Plut. *Alex.* 67.1). Wagons were used also by the Scythians in 513 (Hdt. 4.121), the Thracians in 335 (Arr. *Anab.* 1.1.7), and the Indians in 326 (Arr. *Anab.* 5.22.4).⁶

⁶ Wagons were no doubt as old as the Mycenaean period in Greece and Asia; there was nothing anachronistic in Homer’s mention of a wagon-road in *Iliad* 22.146.

On the other hand the evidence for the use of pack-animals in supplying an army is relatively scanty. Pack-donkeys alone were used by the Spartan army on the difficult coast by Creusis (Xen. *Hell.* 5.4.17),⁷ and during Alexander's headlong pursuit of Darius water was fetched from a river and brought in wine-skins loaded on mules (Plut. *Alex.* 42.7). Otherwise pack-animals are mentioned as ancillary to wagons. Thus Xerxes crossed the Hellespont with the 'under-the-yoke animals and the batman-service' (Hdt. 7.55.1 τὰ ὑποζύγια καὶ ἡ θεραπῆιη), but in Crestonia he had 'grain-carrying camels' as well as 'under-the-yoke' animals, which were less to the taste of the lions (Hdt. 7.125). So too in Sicily the Carthaginian host at the Crimisis river lost not only the 'pairs and the masses of wagons' but also the 'baggage-carrying animals' (Diod. 16.80.5 τὰ σκευοφόρα). When great quantities of treasure had to be moved from Persepolis, Plutarch mentioned 10,000 'pairs of mules', *i.e.* for wagons, and 5000 camels (Plut. *Alex.* 37.4 = Curt. 5.6.9 *iumenta et camelos*), and Diodorus gave also 'burden-carrying mules', *i.e.* pack-mules (17.71.2 ἡμιόνων πλήθος, τῶν μὲν ἀχθοφόρων, τῶν δὲ ζευγιτῶν).

When we compare the ancient evidence concerning the wagon-train and that concerning pack-animals it is obvious that "the commissariat must normally have used wheeled vehicles to transport the supplies and the siege equipment of large armies."⁸ It would be absurd to do otherwise where roads were available. If we seek an analogy with full documentation, we need go no farther than the campaign of Gettysburg in the American Civil War. The photographs show masses of four-wheeled covered wagons, each drawn by a pair of horses, and not a single pack-horse. General Longstreet's force of 15,000 men was supplied by 150 such wagons, whereas Cyrus the Younger had 400 wagons of flour and wine for some 13,000 Greek mercenaries. Indeed the Americans found themselves very short of supplies and had no wine. During the retreat of the Confederate forces the wagon-train was seventeen miles long.⁹

⁷ W. A. Heurtley found this route very difficult in a high wind.

⁸ As I wrote in 1954 (*supra* n.4) 111. This view is the opposite of that advanced by Engels (*supra* n.2) 15 that in his campaigns in Asia Alexander had no more than "a few carts" for his heavy equipment and for the sick and relied almost entirely on pack-animals. T. Cuyler Young, "480/479 B.C.—a Persian Perspective," *Iranica Antiqua* 15 (1980) 213ff, following Engels uncritically and assuming Xerxes to have used only pack-animals, came to the extraordinary figure of 4,710,000 pack-horses to supply 210,000 men and 75,000 horses (Young's numbers, not those of Herodotus) on a ten-day march through Macedonia and Thessaly. His deduction is not that his assumption is wrong but that the army of Xerxes did not "even come close" to Young's own figures.

⁹ This campaign with 172,000 men engaged is comparable to that of the Greeks and Persians at Plataea; Professor Daniel Gillis kindly introduced me to the battlefield of Gettysburg.

We may end with a note on some Greek terms which have frequently been mistranslated.¹⁰ The Lacedaemonian army of the early fourth century B.C. had a supply company with its own specialist officers, and this body of men was called ‘the baggage-bearing company’ (Xen. *Lac.* 13.4 *στρατὸς σκευοφορικός*).¹¹ Originally they may all have been porters, as the name literally suggests, but already in the fifth century B.C. supplies and gear were carried on wagons during the campaigns of Plataea and Mantinea. In the same way, supply ships were known as ‘baggage-carrying ships’ (Arr. *Anab.* 6.3.2 *σκευοφόρα πλοῖα*), and ‘under-the-yoke’ animals were described as ‘baggage-bearing’ in order to indicate their function and not the way in which they performed that function (Xen. *Hell.* 4.1.24 *σκεύη πολλὰ καὶ ὑποζύγια σκευοφόρα*). So too with the expression *τὰ σκευοφόρα*. This meant originally the ‘baggage-bearing animals’, and it was so used in Diod. 16.80.5, cited above. But it already had a generalised meaning: the ‘baggage-train’. We may give as examples Arr. *Anab.* 1.13.1 (during the advance to the Granicus river), Diod. 17.32.3 (the baggage-train and the superfluous personnel sent to Damascus), Arr. *Anab.* 3.9.1 (the baggage-train and the unfit soldiers before the battle of Gaugamela), Polyaeus 4.3.6 (the baggage-train captured there), Arr. *Anab.* 3.15.4 (Parmenio captured “the camp, the baggage-train, the elephants and the camels” after the battle), and Arr. *Anab.* 3.16.2 (“the road was not difficult for the baggage-train”). A moment’s reflection will show that *τὰ σκευοφόρα* in these examples does not mean just “the baggage-carrying animals.”¹²

CLARE COLLEGE, CAMBRIDGE
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¹⁰ In particular *τὰ ὑποζύγια* is frequently translated as ‘sumpter-beasts’ or ‘baggage-animals’ or ‘pack-animals’, e.g. by A. de Sélincourt in his translation of Herodotus (p.459) and by R. M. Geer in his LCL translation of Diodorus (IX p.287).

¹¹ The Macedonians too had a supply company of which the commander was probably called *κοῖδος* or *σκοῖδος* (Hesych. s.v.; Poll. 10.16; Phot. s.v.; cf. J. N. Kalleris, *Les anciens Macédoniens* I [Athens 1954] 262).

¹² Some of the points in this article were mentioned in my review of Engels’ book in *JHS* 100 (1980) 256f (see too A. M. Devine’s review in *Phoenix* 33 [1979] 272f) and in a short talk which I gave after hearing Engels speak at the meeting of the Ancient Historians of North America in May 1982. Mr G. T. Griffith most kindly read and commented on the first draft of this article.