

HANNIBAL'S ELEPHANTS AND THE CROSSING OF THE RHÔNE

Hannibal's trek through western Europe has fascinated ancient and modern historians alike. Although most attention has been focused on determining his route through the Alps, a less popular question, the site of his Rhône crossing, has been by no means neglected. Many scholars have offered differing solutions to this problem, but all agree on one point: that Hannibal transported his elephants across the Rhône by raft. No doubt this consensus stems from the fact that both Polybius and Livy, who give almost identical versions of the crossing, agree on this mode of transport. But an analysis of their accounts will show that the use of rafts was neither necessary nor desirable and that a more likely method is contained in an alternative version that Livy records, then rejects in favour of Polybius' account.

Upon his arrival at the Rhône, Hannibal found that its opposite bank was occupied by hostile Gauls. To remove this obstacle to the crossing of his army, he sent Hanno upstream with orders to ford the river out of sight of the enemy, then circle around and attack their rear. When Hannibal received the signal that Hanno had arrived on the far bank, he positioned a line of boats upstream to break the force of the current and began to send his men across, some on boats, some swimming next to their horses. Hanno's subsequent attack put the enemy to flight and allowed the remainder of the Carthaginian army to cross without opposition (Livy 21.27–28.5, Polybius 3.42.4–44.1). But just as the troops reached the far bank, scouts informed Hannibal that the Romans had arrived at the mouth of the Rhône and were advancing against him (Polybius 3.44.1–4). It was at this point that the Carthaginians began the complicated and time-consuming process of moving the elephants across the river. According to Livy (21.28.5–29.1), the troops constructed a ramp that stretched from the bank into the river, then covered it with dirt so that it appeared to be solid ground. Female elephants led small groups along this ramp onto a raft anchored at its end. Then the raft was cut free and towed toward the opposite bank by small boats. When the elephants realized they were surrounded by water, many became so frightened that they flung themselves overboard, finishing the crossing by walking on the riverbed. In spite of this drawback, the operation was repeated until all the elephants had been put across. Polybius (3.46), who gives essentially the same account as Livy, adds that raft transport was necessitated by the elephants' refusal to enter the river and that the animals who abandoned the raft reached the opposite bank by walking on the riverbed and using their trunks as snorkels.

This account cannot be faulted on the basis of its description of elephant behaviour. Zoologists tell us that herd instinct motivates these animals to follow their female leaders,¹ which explains why they would have followed the females onto the raft.² The nervousness elephants commonly exhibit when transported over water is reflected by the large number who jumped from the raft in terror.³ Moreover,

¹ They have a matriarchal organization in which a dominant female leads the entire herd, while subordinate females lead its subdivisions. The males follow in the train of the herd and function mainly as sires. See S. Sikes, *The Natural History of the African Elephant* (New York, 1971), pp. 260–5.

² The same method is still used today for loading elephants onto rafts for long river journeys. See J. H. Williams, *Elephant Bill* (Garden City, 1950), pp. 116–17.

³ Pliny, *H.N.* 8.1.

Polybius' assertion that many of the animals reached the opposite shore by walking on the riverbed and using their trunks as snorkels describes a well-documented practice of elephants who find themselves in water above their heads.⁴

Before we accept the method advocated by Polybius and Livy as the one actually utilized for the Rhône crossing, we must consider an alternative not found in Polybius, but recorded and then rejected by Livy (21.28.5). In this version, the elephants were gathered at the bank, then a driver annoyed a particularly ferocious one until it charged him. The driver plunged into the river with the irritated elephant in hot pursuit. The rest of the herd followed blindly. By the time they realized they were in deep water, the current caught hold of them and carried them to the opposite bank. Frontinus (*Strategemata* 1.7.2) also records this version, adding that this method was necessitated by the elephants' refusal to enter the water and that the particularly ferocious animal was wounded behind the ear.

These two versions have much in common. Both were employed because the elephants refused to enter the river.⁵ Both indicate that the elephants made some part of their crossing while actually in the river. Finally, both depend upon herd instinct. But in Livy's alternative account, one particular animal described as *ferocissimus* leads the entire herd into the water and across the river without the aid of rafts. Any elephant can have an aggressive nature⁶ which could be aggravated very easily by goading or piercing it behind the ear, an extremely vulnerable area that cannot be protected by the trunk.⁷ In this situation, the elephant would charge its attacker and, through herd instinct, draw the rest of the animals along with it. Although the female leads the herd under normal circumstances, the male assumes control in dangerous situations.⁸ This explains why the leader in this version is male, while in the Polybian version in which there is no apparent danger the female is in charge. From the standpoint of elephant behaviour, then, this account is just as valid as that detailing the crossing by raft.

Although both versions are accurate from a behavioural perspective, the raft method is less attractive because of Hannibal's strategic situation. He had just completed the crossing of his entire army except for the elephants when he discovered that the Romans had arrived at the Rhône and were advancing in pursuit. It was to his advantage to put the elephants across as quickly and efficiently as possible, thereby avoiding an engagement with the Romans and the loss of some or all of the herd. But the preparation of an elaborate ramp and raft system that transported only five⁹ out of thirty-seven¹⁰ elephants at a time with a number jumping off at each pass

⁴ H. H. Scullard, *The Elephant in the Greek and Roman World* (Ithaca, 1974), p. 22, Aristotle, *De Partibus Animalium* 659a13–15, and Sikes, op. cit. (n. 1), p. 69.

⁵ Elephants exhibit this behaviour when they are required to cross a river that is in flood. See R. Kipling's *In Flood Time*. The Rhône floods in the spring and, to a greater extent, in the autumn. According to D. Proctor's calculations, *Hannibal's March in History* (Oxford, 1971), pp. 36, 58, Hannibal arrived at the Rhône at the end of September. See Livy 21.27.8 and Polybius 3.43.3 for the swiftness of the current.

⁶ Williams, op. cit. (n. 2), pp. 139–52. This is especially true in the case of the African elephant. See Sikes, op. cit. (n. 1), p. 16. Although Polybius referred to their drivers as *Indoi* (3.46.7), this had become a generic term and did not imply that the elephants or their drivers were Asian. See Scullard, op. cit. (n. 4), p. 131. As Scullard indicates, *ibid.*, pp. 62–3, Hannibal was probably using the North African Forest elephant as opposed to the larger Bush elephant.

⁷ Sikes, op. cit. (n. 1), pp. 282–3 and Pliny, *H.N.* 8.34.

⁸ R. Carrington, *Elephants: a Short History of Their Natural History, Evolution, and Influence on Mankind* (New York, 1959), pp. 63–4 and Scullard, op. cit. (n. 4), p. 21.

⁹ Two females (Polybius 3.46.7) and three others (Livy 21.28.8).

¹⁰ Polybius 3.42.11.

is by no stretch of the imagination either fast or efficient.¹¹ An error in the construction of the raft makes this version even less attractive. Since elephants refuse to cross a ramp or travel by raft if they realize they are surrounded by water,¹² the sides of the ramp and raft must be camouflaged with foliage so they will think they are on solid ground.¹³ According to Polybius and Livy, the Carthaginians did cover these structures with dirt, but did not attach foliage to their sides. Therefore, the elephants jumped overboard when they realized they were surrounded by water. Since the Carthaginians had over one hundred years' experience in handling elephants before the First Punic War¹⁴ and had, at the very least, sent them over ramps onto the ships that would carry them to Sicily and Spain, it is difficult to believe that they could have been ignorant of this elephant phobia and the proper way to mitigate it. Therefore, since the account adopted by Polybius and Livy does not take into account Hannibal's strategic situation and attributes to the Carthaginians an inconceivable lack of understanding of elephant behaviour, it must be viewed with suspicion.

If we reject the raft method, we must ask ourselves why both Polybius and Livy accepted it over the version in which the elephants crossed under their own power. The answer lies in a long-standing misconception caused by the scarcity of reliable sources on elephant behaviour.¹⁵ The most accurate ancient accounts were those of Nearchus, the admiral who guided the fleet of Alexander down the Indus, Megasthenes, the ambassador of Seleucus I to the court of the Indian king Chandragupta, and, for African elephants, Agatharchides, who wrote on hunting and transport. All of these authors had observed elephant behaviour first-hand and have proved to be very accurate. There is no evidence that Polybius or Livy had read these accounts or that they had any first-hand experience with elephants. But what they do tell us about elephant behaviour agrees with the information found in Aristotle's *Historia Animalium*. Aristotle knew that elephants use their trunks as snorkels while walking underwater,¹⁶ but believed that they are poor swimmers.¹⁷ This may have led Polybius, who was familiar with Aristotle's work,¹⁸ to reject any method that required them to swim a river that was too deep for them to snorkel across.

Modern studies, however, have shown that elephants enjoy the water and are excellent swimmers.¹⁹ It is not unusual for entire herds to swim mile after mile²⁰ for

¹¹ For an attempt to work out the technical aspects of this version of the crossing, see J. Philipp, 'Wie hat Hannibal die Elefanten über die Rhone gesetzt', *Klio* 11 (1911), 343–54. Contra, F. Walbank, *Historical Commentary on Polybius* (Oxford, 1957), i.379–80.

¹² Pliny, *H.N.* 8.3. ¹³ Williams, op. cit. (n. 2), p. 116 and the plate facing p. 11.

¹⁴ Scullard, op. cit. (n. 4), pp. 146–7.

¹⁵ For ancient sources on elephants, see Scullard, op. cit. (n. 4), pp. 32–63.

¹⁶ *De Partibus Animalium* 659a13–15 and *Historia Animalium* 630b25–30.

¹⁷ *Historia Animalium* 630b25–30. Contra, see Nearchus, quoted at Strabo 15.1.43. Pliny, *H.N.* (8.28), who transmits the same information as Aristotle, propagated this error which is still current in modern times. See Sikes, op. cit. (n. 1), p. 273, who cites as an example F. Bourliere, *The Natural History of Mammals* (New York, 1964), p. 21.

¹⁸ Although he refers to Aristotle several times, it is unclear whether Polybius derived his information directly from his writings or through an intermediary. See F. Walbank, *Polybius* (Berkeley, 1990), pp. 32–3 n. 3.

¹⁹ Sikes, op. cit. (n. 1), pp. 273–4, states that elephants have been seen swimming very deep African rivers such as the lower Zambesi, Nile, Ubangi-Chari and in Lake Chad. See also J. H. Williams, *Big Charlie* (London, 1959), pp. 36–7 and *Elephant Bill*, p. 95, Job 40:23, Sikes, *ibid.*, pp. 331–4, H. Williams, *Sacred Elephant* (New York, 1989), pp. 20, 83–5, and D. Johnson, 'Problems in the Land Vertebrate Zoogeography of Certain Islands and the Swimming Powers of Elephants', *Journal of Biogeography* 7 (1980), 383–98.

²⁰ Williams, *Elephant Bill*, pp. 94–5, 115–16, reports on the elephant's ability to hold its breath underwater and gives an account of an elephant's 12-year, 200-mile island-hopping journey in the Bay of Bengal.

hours at a time without touching bottom.²¹ Crossing the eight hundred metre width of the Rhône²² would have presented no obstacle to animals who are able to swim much faster and deeper rivers,²³ especially since, as Polybius and Livy admit, they were able to walk part of the way on the riverbed.²⁴ The Roman general Frontinus seems to have known this since, at *Strategemata* 1.7.2, he accepted swimming as a viable alternative to transporting elephants across the Rhône by raft. His work was a compendium of military tactics used in previous battles. Not merely a collection of trivia, it was a textbook of practical advice for the use of commanders who might find themselves in difficult situations that their predecessors had faced and overcome.²⁵ Since Frontinus was well informed as to the aquatic abilities of the elephant and since the accuracy of technical details was his chief concern,²⁶ his version of the Rhône crossing should carry more weight than that of either Polybius or Livy.

Having established the more likely method of crossing, we must now identify the sources of the two versions. Polybius' account involving the use of rafts is reminiscent of the method of elephant transport used by Metellus during the First Punic War. After the battle at Panormus, this general transported a large number of captured elephants from Sicily to Italy on rafts, covering them with soil, then surrounding them with foliage and fences so the elephants would think they were in a barnyard and not at sea.²⁷ It is likely that Polybius came upon a source detailing this mode of elephant transport while researching his own account of Metellus' victory (1.40.6–16). But, although the story of Metellus told Polybius that the rafts used to transport elephants had to be camouflaged, it is significant that he chose to omit this one vital detail in his account of the Rhône crossing. Both Polybius' account and Livy's alternative version agree that the elephants at first refused to enter the river and that they completed the crossing under their own power. What they disagree on is the manner in which they began the crossing: on a raft or on foot. Polybius' belief that elephants were unable to swim would not allow him to accept that they could cross the entire width of such a deep river under their own power, although he did believe they could wade through the shallower parts by walking on the riverbed and using their trunks as snorkels. As a stopgap measure, Polybius may have altered a source that required the elephants to swim by inserting the raft method that Metellus used in the First Punic War while leaving out one vital element: the camouflaging of the raft with foliage. In this way, the ramp would provide a way to get the reluctant elephants onto the river, while the raft would carry them over its deepest parts so they would not have to swim. But since the raft was not camouflaged, the elephants would eventually realize that they were surrounded by water, then jump overboard and complete their crossing on foot. So by combining two stories about the transportation of elephants, Polybius created a new version that reconciled his source for the crossing of the Rhône with his own views on the elephant's inability to swim.

Although it is impossible to pinpoint the source of Livy's alternative version, we

²¹ G. Sanderson, *The Wild Beasts of India* (Delhi, 1983 reprint of the 1878 edition), pp. 51–2.

²² G. de Beer, *Hannibal's March* (London, 1967), p. 51.

²³ For elephants positioned in a line across the Nile to break the current, see Diodorus 18.35.1. The Rhône's average annual discharge is 60 cubic feet per second, while that of the Nile is 110. R. Gresswell and A. Huxley, *Standard Encyclopedia of the World's Rivers and Lakes* (New York, 1965).

²⁴ Polybius 3.46.12 and Livy 21.28.12.

²⁵ *Strategemata* 1, preface.

²⁶ Cf. P. Walsh, *Livy: his Historical Aims and Methods* (Cambridge, 1967), pp. 173–218, for Livy's tendency to sacrifice strict accuracy to dramatic possibilities.

²⁷ Zonaras 8.14, Frontinus, *Strategemata* 1.7.1, and Pliny, *H.N.* 8.6.

can narrow down the possibilities.²⁸ Livy admits the existence of *variata memoria actae rei* (21.28.5). Our investigation has revealed two traditions, the synthetic account of Polybius and another, more accurate version. Since the second version relates the more likely method of crossing, it probably stems from the account of an eyewitness. We know that Livy drew on Coelius Antipater for his account of the Hannibalic War.²⁹ Coelius, in turn, drew on Silenus, who accompanied Hannibal on his campaign and wrote a history of it.³⁰ Livy, then, may be reporting the alternative method on the authority of Silenus through Coelius. Since Frontinus gives a similar version but with greater detail, he was not drawing on Livy, but directly on Coelius or the account of another eyewitness such as Sosylos, who also accompanied Hannibal.³¹

The account accepted by Polybius and Livy in which Hannibal's elephants crossed the Rhône by raft, although accurate in its description of elephant behaviour, not only ignores the Carthaginians' need for a quick and efficient crossing, but also portrays them as inexperienced elephant handlers. This version stems from Polybius' modification of his source through the addition of the details about the raft that served to reconcile it with his belief that elephants could not swim. Livy accepted this version on the authority of Polybius, whom he considered a *haudquaquam spernendus auctor* (30.45.5), but also recorded an alternative version in which the elephants crossed the Rhône by swimming. This alternative account is just as accurate as Polybius' version in its description of elephant behaviour, but is superior to it because the method it describes is more efficient and because it may derive from the eyewitness account of one of the writers who accompanied Hannibal on his campaign.³²

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²⁸ For historians of the Second Punic War, see Walbank, *Historical Commentary on Polybius*, i.28–9, E. Meyer, *Kleine Schriften* (Halle, 1924), ii.338–40, and U. Kahrstedt, vol. 3 of O. Meltzer's *Geschichte der Karthager* (Berlin, 1913).

²⁹ Walsh, op. cit. (n. 26), pp. 124–32, Kahrstedt, op. cit. (n. 28), pp. 360–2, and Livy 21.38, 46, 47, 22.31, 23.6, 27.27, 28.46, 29.25, 29.27, 35.

³⁰ Cicero, *De Divinatione* 1.24.49 and Cornelius Nepos, *Hannibal* 13.3. See also Livy 26.49.3.

³¹ For Sosylos, see Cornelius Nepos, *Hannibal* 13.3. U. Kahrstedt, op. cit. (n. 28), pp. 163–4, 180 n. 2, believes that Coelius is the source of the Polybian/Livian version because he accepts this as the true method of crossing.

³² I would like to thank M. Gwyn Morgan and the anonymous referee for their valuable suggestions. Any errors are my own.