

THE *ARS TACTICA* OF ARRIAN: TRADITION AND ORIGINALITY

PHILIP A. STADTER

THE sense of tradition and the rhetorical principle of *imitatio* were so fundamental to Greek literary production in the imperial period that it is frequently difficult to determine the contribution of an individual writer. Such is the case with Arrian of Nicomedia. Arrian's major work, the *Anabasis*, is heavily influenced by literary models, such as Herodotus and Xenophon, and is immediately dependent on the historical writings of Aristobulus and Ptolemy. How much can we expect Arrian to have modified the presentation and point of view of his sources? One means of attacking the problem is to analyze Arrian's practice in a quite different genre. The *Ars tactica* (Τέχνη τακτική) gives valuable clues about Arrian's handling of earlier material.

Knowledge of the military organization of Greek and Hellenistic armies was passed down from generation to generation by a series of manuals on tactics, of which three have survived, by Asclepiodotus, Aelian, and Arrian.¹ It is the nature of manuals, especially those on technical subjects, to repeat themselves, and these are no exception.² The two by Aelian and Arrian echo each other so closely that Hermann Köchly, the first to study the problem in detail, concluded that they were actually two recensions of the same work.³ Both this hypothesis and the theory subsequently advanced by Richard Förster,⁴ that Arrian used Aelian's treatise as a source for his own, have been shown to be false by Alphonse Dain.⁵ Aelian and Arrian, as well as an anonymous lexicon of military terms (the *Glossarium militare*, or *Definitiones*), derive independently from a common source. Asclepiodotus' treatise is distinct

1. Asclepiodotus has been edited with Aeneas Tacticus by W. A. Oldfather and the Illinois Greek Club for the Loeb Classical Library (London-New York, 1923); Arrian's treatise is in *Flavii Arriani Quae exstant omnia*, vol. 2: *Scripta minora et fragmenta*² (Leipzig, 1968), ed. A. G. Roos, with additions by G. Wirth. Aelian has not been re-edited since the edition of H. Köchly-W. Rüstow, *Griechische Kriegsschriftsteller*, vol. 2.1 (Leipzig, 1855). On Aelian and Asclepiodotus, see the articles by K. K. Müller, s.v. "Aelianus (10)," *RE* 1 (1894): 482-86, and s.v. "Asclepiodotus (10)," *RE* 2 (1896): 1637-41.

2. Note that the title in the manuscripts of a similar work on artillery is "Ἡρώων Κρησιβίου Βελωποϊκά, Heron's edition of Ctesibius' *Belopoeica*. I learned Latin composition from Bradley's Arnold, edited by Mountford, again a single work successively revised. For a general discussion of ancient handbooks, see M. Fuhrmann, *Das systematische Lehrbuch* (Göttingen, 1960). Works on tactics are considered on pp. 181-82. Various studies exist of particular traditions: see, e.g., H. Plommer, *Vitruvius and Later Roman Building Manuals* (Cambridge, 1973); and O. A. W. Dilke, *The Roman Land Surveyors* (New York, 1971).

3. See his *De libris tacticis, qui Arriani et Aeliani feruntur, dissertatio*, Index lectionum (Zurich, 1851), reprinted in *Opuscula academica*, vol. 1 (Leipzig, 1853). In his edition (*Griechische Kriegsschriftsteller*, 2.1:218-471) he printed the texts of Aelian and Arrian in parallel columns.

4. R. Förster, "Studien zu den griechischen Taktikern, I: Über die *Tactica* des Arrian und Aelian," *Hermes* 12 (1877): 426-49. Förster demolished Köchly's theory of the single work in two recensions.

5. A. Dain, *Histoire du texte d'Élien le tacticien* (Paris, 1946), pp. 26-40.

but closely related. The common source is not preserved, but we can guess its author. The Asclepiodotus who wrote on tactics was probably the same man as the follower of Posidonius mentioned by Seneca; and since Posidonius' lost treatise on tactics is mentioned by Arrian and Aelian, it is likely that all these works go back, directly or through an intermediary, to Posidonius' book.⁶

To the writers of the manuals before Arrian, Hellenistic military practice was an abstract study, not directly related to contemporary usage. Therefore each author followed his exemplar, with only minimal changes. Aelian, in his dedication addressed to the emperor Trajan, freely admitted that he had no military experience, no knowledge of Roman military practice (*praef.* 1–2). Like Posidonius and Asclepiodotus before him, he wrote as a philosopher, whose duty and privilege it was to consider systematically every branch of knowledge. The consular Frontinus had encouraged Aelian to write, showing an interest in the “theoretical learning of the Greeks” (τὴν παρὰ τοῖς Ἕλλησι θεωρημένην μάθησιν, *praef.* 3); and the philosopher expresses the hope that the work will please as “Greek theory and refined inquiry” (Ἑλληνικὴν θεωρίαν καὶ γλαφυρὰν ἱστορίαν), and considers the index of contents which precedes the treatise a major contribution, permitting rapid consultation of the desired topics (*praef.* 6–7).⁷

Arrian's situation was quite different. At the time of composition of the *Tactica*, in A.D. 136/37,⁸ Arrian was commander of two Roman legions and numerous auxiliary troops as governor of Cappadocia.⁹ Unfortunately the beginning of Arrian's treatise was lost when a folio was torn out of our archetype,¹⁰ so that we do not know whether he there mentioned his experi-

6. On the identity of Asclepiodotus, see Müller, s.v. “Asclepiodotus (10),” cols. 1637–41. The only fragments of Posidonius' *Tactica* are the citations by Aelian and Arrian (F 80 and 81 in L. Edelstein and I. G. Kidd [eds.], *Posidonius*, vol. 1; *The Fragments* [Cambridge, 1972]). In Dain's reconstruction (see his stemma, *Histoire*, p. 39), Aelian and Arrian are derived from a common source; this lost source and Asclepiodotus are in turn both derived from Posidonius. The differences which separate Asclepiodotus from Aelian and Arrian Dain attributes to changes in the lost work. However, a simpler stemma is also possible, according to which all three authors used Posidonius directly, but Asclepiodotus introduced a number of modifications. The text of the *Glossarium militare* is in Köchly–Rüstow, *Griechische Kriegsschriftsteller*, 2.2: 219–33.

7. See the analysis of Aelian's preface by Dain, *Histoire*, pp. 15–21, and the comments on Aelian's purpose by F. Kiechle, “Die ‘Taktik’ des Flavius Arrianus,” *BRGK* 45 (1964): 109 and 113–14. Frontinus himself wrote a *De re militari*, now lost, as well as the extant *Strategemata*, *De aquis urbis Romae*, and a book on measuring land preserved in fragments. Since Frontinus was active as a commander of troops, his book may have been less theoretical than Aelian's. On Frontinus as a writer of handbooks, see Fuhrmann, *Lehrbuch*, pp. 98–104.

8. The *Tactica* is dated by the reference to Hadrian's twentieth regnal year at *Tact.* 44. 3.

9. See especially H. F. Pelham, “Arrian as Legate of Cappadocia,” *EHR* 11 (1896): 625–40 = *Essays* (Oxford, 1911), pp. 212–33; K. Hartmann, *Flavius Arrianus und Kaiser Hadrian*, Progr. Augsburg, 1907; and A. B. Bosworth, “Arrian and the Alani,” *HSCP* 81 (1977): 217–55. For a brief summary of the contribution of recently discovered inscriptions to our knowledge of Arrian's career, see W. Eck, s.v. “L. Flavius Arrianus,” *RE*, suppl. 14 (1974): 120. See also Bosworth, “Arrian's Literary Development,” *CQ*, n.s. 22 (1972): 163–185.

10. On the loss of one folio at the beginning of the *Tactica* and another at the end of the *Acies contra Alanos* as well as elsewhere in the archetype (Laur. 55.4), see Dain, *Histoire*, p. 375. The pages were ripped out not for their illumination, as suggested by Holstein, and repeated by Bandini and Roos, but for empty or half-empty parchment pages. One side of a page in Laur. 55.4 equals about forty lines in the Teubner edition. In Laur. 55.4, the text of Aeneas Tacticus ends at f. 181^v. Since the next page (181^a) was ripped out, the recto must have been blank, or more likely, carried a diagram so pale that the sheet could be reused (the folio lost between ff. 145 and 146 is similar: Dain, *Histoire*, p. 187). In this case Arrian's *Tactica* would have begun at the top of f. 181^a. Allowing

ence, explained his decision to write, or described his intended audience. The book itself shows that he had a double purpose: in the first part he describes Macedonian tactics (1–32), in the second contemporary Roman cavalry exercises (33–44). His audience, then, would have been men interested in both the theory and the practice of war. The major difference from Aelian is not in the first part, the description of Macedonian tactics, but in Arrian's recognition that a manual such as Aelian's was not enough, and in his decision to complement it with the second section on contemporary Roman exercises. The combined work, therefore, reflects a spirit far different from that of Aelian.

Moreover, the *Ars tactica* was not Arrian's first work on military matters. At *Tactica* 32. 3 he writes, "I have already explained the infantry exercises [performed by the Romans] in a treatise I wrote for the emperor himself." The *Tactica* was a sequel and complement to his earlier booklet on contemporary Roman infantry exercises (*gymnasia*). This second work developed the thought of the first in two different directions: first, historically, by giving his version of the standard account of Macedonian and Hellenistic military practice (both infantry and cavalry); second, practically, by completing his description of contemporary military exercises through a treatment of the Roman cavalry. Seen in this perspective, the historical section of the *Tactica* (1–32) is only a part of a larger work directly concerned with the military practice of his day. The contemporary Roman army is also the subject of a third work by Arrian, the *Acies contra Alanos* or *Ectaxis*. While governor of Cappadocia, Arrian had to defend this province against the marauding Alans. Later, he wrote a semi-literary version of the plan of march and battle which he used. The *Acies* is preserved in the same archetype manuscript as the *Tactica*, and immediately follows it. Arrian may well have appended it to the *Tactica* as a practical example of the use of some of the formations described there. A didactic purpose would explain the style of the *Ectaxis*, which, while preserving some of the flavor of an order of the day (notably in the constant use of the third person imperative and infinitive with imperative force), is far removed in choice of vocabulary from military usage. It would also account for the presence of explanatory phrases which would not be necessary in an actual order of battle (e.g., *Ect.* 16, explaining the meaning of *kontophoroi*).¹¹

The booklet on Roman infantry exercises which preceded the *Tactica* was dedicated to Hadrian (*Tact.* 32. 3). The author's familiarity with the emperor, as revealed in his *Periplus Ponti Euxini* (chap. 1 and passim) written five years before, and all we know of Hadrian's efforts to renew the army assure us that Hadrian would have read the *Tactica* with interest, too, even if he had not specifically requested it. However, the *Tactica* is addressed not to Hadrian but to some unknown figure, as is apparent from the use of the third person to name the emperor at *Tactica* 32 and 44. 2–3.

space for the title, about thirty-five Teubner lines would be lost before our present text begins at 182^r.

11. The style of the *Acies* makes it most unlikely that it is a fragment of the *Alanike*, a lost history of the Alans, as suggested by F. Jacoby, (*FGH Hist.*, comm. to 156 F 12) and others. Most of the *Acies* has recently been translated by A. Dent, "Arrian's Array," *HT* 24 (1974): 570–74.

The practical and contemporary direction of Arrian's writings on military subjects had its effect even on the first and traditional portion of the *Tactica*, as can be discovered by a systematic comparison of the texts of Aelian and Arrian. Although Arrian is not derived directly from Aelian, but from a common source, Aelian (supplemented by Asclepiodotus and the *Glossarium militare*) gives us an excellent indication of the contents of the common source. This paper will explore as precisely as possible Arrian's use and modification of traditional material in the first half of the *Tactica*. The second half, Arrian's detailed presentation of Hadrian's reforms in cavalry training, has been recently studied with great care by Franz Kiechle.¹²

The outline of the traditional section of the *Tactica* follows the procedure of subdivision and explanation standard in such manuals.¹³

ARRIAN	AELIAN
I. Introduction (1)	1. 1-3
II. Basic divisions of warfare (2)	2. 1-6
III. Description of combatants by equipment used (3-4)	2. 7-13
1. Infantry (3)	2. 7-10
2. Cavalry (4)	2. 11-13
IV. Organization of the army (5-10)	3-10
1. Need for organization (5. 1-3)	3
2. The <i>lochos</i> (5. 4-6. 6)	4-5
3. Combinations of <i>lochoi</i> (7-8)	6-7. 3
4. Light-armed troops and cavalry (9. 1-2)	7. 4-6
5. The ideal number for an army (9. 3-6)	8
6. Army units from the <i>lochos</i> to the full army of 16,384 men (10)	9
V. Formations and use of troops in battle (11-19)	11-23
1. The phalanx (11-12)	11. 1-4, 13-14
a. Formations (11)	11. 1-4
b. Different ranks (12. 1-5, 10-11)	13-14
c. Spacing and the use of the <i>sarissa</i> (12. 6-10)	
2. Light-armed troops (13-14)	15-16
3. Archers and spearmen (15)	17
4. Cavalry (16-18)	18-20
5. Chariots and elephants (19)	22-23
VI. Movements (20-27)	24-35
1. Names (20)	24
2. Descriptions of turns, etc. (21-25)	25-29
3. Shapes of the phalanx (26)	30-31
4. Relaying commands to the army (voice, signal, trumpet) (27)	35
VII. Marches (28-30)	36-39
1. Order of the army (28)	36
2. Formations on the march (29)	37-38
3. Baggage (30)	39
VIII. Manner of issuing commands (31-32)	40-42

12. Kiechle, "Die 'Taktik' des Flavius Arrianus," pp. 87-129, demonstrates that the cavalry exercises described by Arrian are indeed contemporary and incorporate the reforms of Hadrian known from other sources, notably the Lambaesis inscription (*CIL*, 8. 2532; *ILS* 2487; E. M. Smallwood, *Documents Illustrating the Principates of Nerva, Trajan, and Hadrian* [Cambridge, 1966], no. 328).

13. The chapters listed in the right-hand column give an indication of the parallel passages in Aelian. The many omissions and additions are only apparent from inspection of the parallel texts in the Köchly-Rüstow edition.

The scheme followed here is the same as that of Aelian, and the content almost equivalent, as was seen by Köchly.¹⁴ The modern reader is surprised to discover that even the introductory section, which reviews earlier writers of tactical manuals, contains the same names as Aelian, in the same order (*Tact.* 1. 1 = Ael. 1. 2).¹⁵ Both Aelian and Arrian complain that earlier writers have written for experts and not explained the technical terms, and assert that they will remedy this obscurity (*Tact.* 1. 2 = Ael. 1. 3). In the body of the *Tactica*, passages of technical explanation are frequently almost verbatim equivalents of those in Aelian: we need only cite one example, quoted also by Dain.

ARRIAN 21. 3

Ἐπιστροφή δέ ἐστιν ἐπειδὴν τὸ πᾶν σύνταγμα πυκνῶσαντες κατὰ παραστάτην καὶ ἐπιστάτην καθάπερ ἑνὸς ἀνδρὸς σῶμα ἐπὶ δόρυ ἢ ἐπ' ἀσπίδα ἐγκλίνωμεν, καθάπερ ἐπὶ κέντρῳ τῷ (πρώτῳ) λοχαγῷ παντὸς τοῦ τάγματος περιελιχθέντος καὶ μεταλαβόντος τόπον μὲν τὸν ἔμπροσθεν, ἐπιφάνειαν δὲ τὴν ἐκ δεξιῶν (ἢ εὐωνύμων), διαμενόντων ἑκάστῳ τῶν τε ἐπιστατῶν καὶ παραστατῶν.

AELIAN 25. 5

Ἐπιστροφή δέ ἐστιν ὅταν πυκνῶσαντες τὰ συντάγματα κατὰ παραστάτην καὶ ἐπιστάτην ὅλον τὸ σύνταγμα ὡς ἑνὸς ἀνδρὸς σῶμα ἢ ἐπὶ δόρυ ἢ ἐπ' ἀσπίδα κλίνωμεν, ὡς ἂν περὶ κέντρον περὶ τὸν πρῶτον λοχαγὸν ὅλου τοῦ τάγματος περιελιχθέντος καὶ μεταλαβόντος τόπον μὲν τὸν ἔμπροσθεν, ἐπιφάνειαν δὲ τὴν ἐκ δεξιῶν ἢ ἐκ εὐωνύμων, διαμενόντων ἑκάστῳ τῶν ἐπιστατῶν καὶ παραστατῶν.

Less scientific passages are handled with slightly more freedom. An example is the simile at *Tactica* 12. 2, comparing the front rank of the phalanx to the edge of a sword.

ARRIAN 12. 2

τοῦτο γάρ τοι τὸ ζυγὸν ξυνέχει τὴν πᾶσαν φάλαγγα καὶ τὸ ἴσον παρέχεται ἐν ταῖς μάχαῖς ὅ τι περὶ τὸ στόμαμα τῷ σιδήρῳ ὁποῖον γάρ αὐτὸ τοῦτο [ἢ τομὴ τοῦ σιδήρου], οὕτω καὶ ὁ πᾶς σιδηρὸς τὸ αὐτὸ ἐργάζεται. ἢ μὲν γε τομὴ αὐτῷ κατὰ τὸ στόμαμα γίγνεται, τὸ δὲ ὑπόλοιπον, καὶ εἰ μαλθακὸν τύχοι ὄν, τῷ βάρει ὁμῶς ξυνεπερείδει τῷ τεμόντι.

οὕτω καὶ τῆς φάλαγγος στόμαμα μὲν θείη τις ἂν τὸ ἐκ τῶν λοχαγῶν σύνταγμα,

ὄγκον δὲ καὶ βάρος τὸ κατόπιν τούτων πλήθος.

AELIAN 13. 2

τοῦτο γάρ τὸ ζυγὸν συνέχει τὴν φάλαγγα καὶ τὴν μεγίστην χρεῖαν παρέχει· ὥσπερ γάρ μάχαιρα τῷ ἑαυτῆς στομῶματι βάρος καὶ σήκωμα τὸν τοῦ ἐπικειμένου σιδήρου ὄγκον προσλαβοῦσα τὴν αὐτῆς δύναμιν παρέχει,

τὸν αὐτὸν τρόπον καὶ φάλαγγος ὑποληπτέον στόμαμα μὲν εἶναι τὸ τῶν λοχαγῶν τάγμα,

ὄγκον δὲ καὶ σήκωμα καὶ βάρος πρόσθεσιν τὸν κατὰ ῥώτου τασσόμενον ὄχλον.

The comparison with Aelian reveals that even such a "literary" device as this simile was taken over by Arrian from his source.¹⁶ Recognizing the suitability and didactic value of the sword simile here, Arrian rewrote the passage

14. The relation is set out in the parallel presentation in Köchly-Rüstow and in the tables in Förster, "Studien, I," pp. 431-32. Förster also demonstrates their similarity to the scheme of Asclepiodotus. The parallel with the *Glossarium militare* is clear from the apparatus in Roos's edition of Arrian. See also W. A. Oldfather and J. B. Titchener, "A Note on the *Lexicon militare*," *CP* 16 (1921): 74-76, and Dain, *Histoire*, pp. 26-40.

15. See the parallel texts of Köchly-Rüstow and Dain, *Histoire*, pp. 27-28. The equivalent of nine Teubner lines has been lost in Arrian, paralleling the first part of this chapter in Aelian. Arrian's own preface would thus have run about twenty-six Teubner lines (cf. n. 10). At the end of his list of names, Arrian omits the "many others, who published introductions, like Bryon, or particular treatises" mentioned by Aelian.

16. The simile also appears briefly in Asclep. 3. 5. Xenophon had used a slightly different version at *Eq. mag.* 2. 3.

for greater clarity and effectiveness, but did not hesitate to borrow the idea itself, and much of the presentation of it.

In another passage, *Tactica* 31, we might expect that the series of quotations from Homer on silence in the army would reflect the Nicomedian's own literary inclinations. Not so: all the quotations, in the same order, are found in Aelian 41, and thus derive from the common source. Aelian had begun his treatise with a quotation from Homer (1. 1), and since he cites Homer as the first writer on military matters, we may presume that, from the earliest manuals on the subject, the poet was regularly quoted.¹⁷ Comparison of the parallel chapters in the two authors does show, however, that Arrian makes stylistic changes, as he had with the simile in *Tactica* 12. Less important lines are paraphrased, reducing the eighteen lines of Homer quoted by Aelian to nine. Aelian's first citation of *Iliad* 3. 8–9 is omitted, because it will appear again only a few sentences later. A false line had been added in Aelian's quotations before *Iliad* 4. 428 and a false ending to *Iliad* 4. 431 to complete the sense; Arrian's paraphrase eliminates these.¹⁸ Thus the long blocks of quotations in Aelian¹⁹ are broken into smaller and more cogent units, and the whole passage becomes smoother and more effective.

Arrian treats these two passages (*Tact.* 12. 2 and 31) individually, preserving the content of his source while substantially altering the verbal presentation. The author's skill with words is evident. Unfortunately, a stylistic analysis of the first half of the *Tactica*, although it would reveal Arrian's general superiority in clarity and felicity of expression to the average contemporary writer of Greek prose, would not give us a certain indication of Arrian's own contributions. Since both Aelian and Arrian drew from a common source, there would still remain the unknown factor of Aelian's own stylistic modifications, which are much less easy to define than his minor additions of content.²⁰ We may note, however, that while Aelian has a marked aversion to hiatus, Arrian here, as in his other works, makes no attempt to avoid it.

Arrian, then, takes over the contents and frequently the words of the tactical manual he used as a source. Nevertheless, significant differences in content reveal his active contribution. The abstract categories of the manual he clarifies with examples, from both history and contemporary Roman ex-

17. Note also Polybius' irrelevant quotation of Homer in his account of the phalanx at 18. 30.

18. Both Aelian and Arrian seem to imply that *Il.* 4. 436–37 followed immediately upon 2. 459–63. This combination of two Homeric passages into one unit to illustrate a point was common in antiquity: e.g., Plato's combination of *Il.* 3. 8 and 4. 431 at *Rep.* 389E.

19. Ael. 41. 1 quotes *Il.* 4. 428–31, prefixed with an additional line and, after καί, 3. 8–9; 41. 2 quotes *Il.* 2. 459–63 followed immediately by 4. 436–37; 41. 3 quotes *Il.* 3. 1–2, 8–9. In all, there are three blocks of seven, seven, and four lines respectively.

20. On the style of Arrian in this part of the *Tactica*, see Förster "Studien, I," pp. 439–41 and H. R. Grundmann, *Quid in elocutione Arriani Herodoto debeatur* (Ph.D. diss., Leipzig; Berlin, 1884), pp. 83–88 = *Berliner Studien* 2 (1885): 263–68. Both Förster and Grundmann demonstrate the presence of typical features of Arrian's style in the *Tactica*. The problem of drawing conclusions about modifications from the common source is illustrated by *Tact.* 29. 8. The reference to Xenophon there is absent from Aelian, and might be thought to be an addition by Arrian; but it is found also in the *Glossarium militare* and therefore belongs to the common source. Similarly, for the reference to the frightening aspect of the phalanx at *Tact.* 12. 6, cf. Asclep. 5. 2.

perience.²¹ In one case, after his description of hoplite armor according to the traditional manual, Arrian adds:

For the complete heavy hoplite outfit, a helmet is added too, or Laconian or Arcadian caps,²² and shinguards, as the ancient Greeks did, or a single shinguard for the knee which is put forward in battle, as the Romans did,²³ and corselets, some of scale, some overlapped with fine iron chains. [*Tact.* 3. 5]

In describing cavalry weapons he supplements and clarifies the traditional material with references to the Romans and their opponents (the italicized passages are not found in the other manuals):

δορατόφοροι are those who draw near to the ranks of the enemy and fight with spears (*δόρατα*), or *push with lances* (*κοντοί*) in their onslaught, as do the Alans and Sarmatians; *ἀκροβολισταί* are those who use missiles from a distance, like the Armenians and those of the Parthians who do not carry lances. [*Tact.* 4. 3]

Note that Arrian had had direct experience with the Alans and the Armenians as governor of Cappadocia, and that the Parthians, just across the Euphrates frontier, would also have become known to him then, if he had not already seen them in action years before during Trajan's Parthian campaigns.

At the end of the same section Arrian adds his own information on Roman cavalry equipment:

With the Romans, some cavalry carry lances (*κοντοί*), and attack in the manner of the Alans and the Sarmatians, while others carry spears (*λόγχοι*). A wide and flat sword is hung from their shoulders, and they carry flat oblong shields, an iron helmet, a woven corselet, and small shinguards. They carry spears (*λόγχοι*) for both purposes, both to hurl from a distance, when there is need, and to hold in the hand when fighting close in; and, if it is necessary to lock together in hand to hand combat, they fight with their swords. Some have also small axes (maces?) with points all around in a circle.²⁴ [*Tact.* 4. 7-9]

Arrian supplements the standard account of the use of a deep phalanx by citing the tactics of Epaminondas at Leuctra and Mantinea (cf. *Xen. Hell.* 6. 4. 12 and 7. 5. 21-22), and he adds that the deep phalanx is necessary "if one has to repel onrushing troops, as for instance against the Sarmatians

21. Contrast Asclepiodotus, of whom Oldfather writes in the Loeb edition, "There is not a single illustration drawn from either history or from experience" (p. 232). The same could be said of Aelian.

22. On ancient Greek military caps (*πίλοι*), see J. K. Anderson, *Military Theory and Practice in the Age of Xenophon* (Berkeley-Los Angeles, 1970), pp. 29-37.

23. The Romans had taken over from the Samnites the practice of using only one greave, although by Arrian's day greaves had been abandoned except for parade dress. See F. Lammert, s.v. "Ocreae," *RE* 17.2 (1937): 1778, and note the use of the singular *προκημήις* in Polyb. 6. 23. 8. Some gladiators continued to use the single greave in imperial times: see G. Lafaye, s.v. "Gladiator," *Dar.-Sag.*, vol. 2³, figs. 3573 and 3576.

24. This passage is quoted and related to the evidence from Trajan's column by G. Webster, *The Roman Imperial Army of the First and Second Centuries A.D.* (London, 1969), p. 151. Unfortunately, he does not distinguish the Hellenistic material from Arrian's contemporary additions. We have no other evidence for the greaves which Arrian says the armored horsemen wore. The last weapon described is called an axe with a curved blade by Webster, but it seems more like a mace, such as those illustrated by E. Saglio, s.v. "Clava," *Dar.-Sag.*, vol. 1², figs. 1581-83. Cf. also the mace of rather different shape described by F. Cumont, "Le sacrifice du tribun romain Terentius," *MMAI* 26 (1923): 35 and fig. 5.

and the Scythians" (*Tact.* 11. 1–2).²⁵ He followed his own precepts in his formation against the Alans, drawing up his phalanx eight deep and close together (*πυκνή*, *Ect.* 15). In the same passage of the *Tactica* he also describes the peculiarly Roman formation called *testudo* (which he calls by its Greek name, *χελώνη*) as a particular example of the close formation called *συναπισμός* (*Tact.* 11. 4–6). In his account of cavalry units, he notes that the hipparchy of 512 men is called *εἴλη* by the Romans (*Tact.* 18. 3). He is thinking of the Roman *ala quingenaria* of 500 men, which he regularly calls *εἴλη* in his battle plan against the Alans (*Ect.* 1 and *passim*).²⁶

The methodical scheme of the original manual furnished the occasion for a remarkable discussion of the use of chariots and elephants (*Tact.* 19). Arrian had already revealed an interest in the subject at the beginning of his work, where he had enriched the standard reference to elephants with a specific statement on their use by the Indians, Ethiopians, Macedonians, Carthaginians, and Romans (2. 2).²⁷ In the same chapter he had also explicitly contradicted the traditional opinion as we know it from Aelian. The latter states that both elephant and chariot warfare is of one type only (*Ael.* 2. 6). Arrian begins by agreeing, at least about elephants, but then has second thoughts. Exceptions exist: some elephants carry howdahs or towers (*πύργοι*); others are trained to fight with tusks fitted with metal.²⁸ Chariots are even more subject to variation:

Chariot warfare was multifold: one could fight with unarmed chariots, like the ones in the Trojan War, or with scythe-bearers like the Persian ones later, or with horses either armored or not, and with [chariots having] one pole, or two, or even many poles. [*Tact.* 2. 5]²⁹

Considering this unusual interest in these two methods of fighting, we are surprised to discover Arrian saying at *Tactica* 19. 1 that it is futile (*ματαιὸν πόνον*) to give the names of the elephant and chariot units, since their use

25. The whole passage from *κατὰ βάθος δέ τοι χρητάρτεται* appears to be Arrian's addition. The use of *ἐμβολον* here and in Xenophon for the Theban formation is confusing, since Arrian uses *ἐμβολον* elsewhere in the sense of "wedge": see J. K. Anderson, *Military Theory and Practice*, pp. 326–27.

26. *εἴλη* is Arrian's normal spelling for *ἑλη* in these works: see Roos's apparatus to *Ect.* 1. The explanation of the Roman use of the term is desirable because just before Arrian had explained that (in Hellenistic usage) the *εἴλη* consisted of sixty-four men (*Tact.* 18. 2).

27. *Tact.* 2. 2, *καθάπερ . . . Ῥωμαῖοι*.

28. H. H. Scullard, *The Elephant in the Greek and Roman World* (Ithaca, 1974), pp. 240–45, describes the towers or platforms used on elephants in ancient times. There is no certain evidence for the use of platforms before the time of Pyrrhus, but Arrian may be thinking of the various traditions which linked their use with the Indians and the first successors. For the use of sharpened tusks, Scullard's closest parallel is the reference to spears fastened to tusks in Silius Italicus 9. 581–83 (pp. 239–40). Arrian himself remarks that he had seen elephants dancing and playing cymbals (*Ind.* 14. 5–6); can he be thinking of some kind of exhibition or spectacle in this case, too?

29. The notion of many-poled chariots seems to reflect Arrian's reading of Xenophon's *Cyropaideia*. The chariot of Abradatas in that work had four poles (*τετραάρριον*): *Cyr.* 6. 1. 51, 6. 4. 2. Anderson, *Military Theory and Practice*, p. 179, suggests that this type of chariot is "probably a product of Xenophon's imagination." At *Cyr.* 6. 1. 52, Cyrus decides to make an *ὀκτάρριον* carriage for moving towers. For general comments on the multiplicity of military uses of chariots in ancient times, see Anderson, "Homeric, British, and Cyrenaic Chariots," *AJA* 69 (1965): 349–52, and "Greek Chariot-Borne and Mounted Infantry," *AJA* 79 (1975): 175–87. On chariots in general, see T. G. E. Powell, "Some Implications of Chariotry," in I. L. Foster and L. Alcock (eds.), *Culture and Environment: Essays in Honour of Sir Cyril Fox* (London, 1963), pp. 153–169.

had been abandoned long ago, and the Romans never fought with chariots in any case. In the parallel passage, Aelian (22. 1) defends his decision to record these names, "for completeness' sake," and goes on to record conscientiously the various units: "two chariots are called a zygarchy," etc. (Ael. 22-23).³⁰ Arrian omits these useless names, but in their place furnishes a précis on chariots in warfare.

The barbarians in Europe did not use chariots either, except those of the so-called British isles, outside the great sea. These used two-horse chariots, with small, bad horses. Their light, two-wheeled chariots [δίφροι as opposed to ἄρματα] are well adapted to running across all sorts of terrain and the wretched horses to enduring hardships.³¹ Of the Asians, the Persians long ago practiced the use of scythe-bearing chariots and armored horses, beginning in the time of Cyrus, and even before this the Greeks with Agamemnon and the Trojans with Priam used chariots with unarmored horses. The Cyrenians also for some time fought from chariots.³² But now all these practices have been abandoned, as has the use of elephants for warfare, except by the Indians and the upper Ethiopians. [*Tact.* 19. 2-6]³³

Thus the author gives the reader some sense of the variety of types of military chariots, rather than a bare list of obsolete titles.

Certain other additions by Arrian also reflect his desire to make the book significant to the contemporary reader: thus his notes differentiating Clearchus and Iphicrates, the writers of earlier tactical manuals, from the homonymous and more famous generals;³⁴ and the note identifying the Scipio who was friend of Polybius (*Tact.* 1. 1). Other additions describe with greater precision the weapons of the hoplites³⁵ and cavalry,³⁶ Xenophon's use of the word ἐνωμοτία,³⁷ the importance of the οὐραγός (the last man of a file),³⁸ and the use of light-armed troops.³⁹ He notes that, besides the standard bowmen and javelin men, slingers are very useful,⁴⁰ and in general is more precise and descriptive of the use of missiles than is the standard presenta-

30. Cf. also Asclep. 8-9.

31. The Britons' use of chariots to harass his troops in the invasions of 55 and 54 B.C. was described by Caesar, *BG* 4. 33, 5. 15-16; cf. Sheppard Frere, *Britannia* (Cambridge, Mass., 1967), p. 35. Plautius encountered them again in A.D. 43; see Dio 60. 20. 3 and Frere, p. 64. Incidentally, Plautius brought elephants on this expedition (Dio 60. 21. 2).

32. The statement that Cyrus originated the use of the scythe-chariot is no doubt based on Xen. *Cyr.* 6. 1. 30. Xenophon also refers to Trojan and Cyrenian chariots, *Cyr.* 6. 1. 27-28. Cf. Anderson, "Homeric, British, and Cyrenaic Chariots," p. 352; "Greek Chariot-Borne and Mounted Infantry," pp. 176-77.

33. On Ethiopian elephants, see Scullard, *The Elephant*, pp. 134 and 207, and (quoting Pliny), pp. 216 and 218. In the next century the Sassanids continued to use elephants in their battles with Rome: see Scullard, pp. 200-206.

34. Both generals, Clearchus and Iphicrates, had been made famous by Xenophon, the former in the *Anabasis*, the latter in the *Hellenica*.

35. *Tact.* 3. 2 θώρακας . . . Μακεδόνες.

36. *Tact.* 4. 1 φολιδωτοῖς . . . προμετωπιδίοις.

37. *Tact.* 6. 3 Ξενοφών . . . λόχων, referring to Xen. *Anab.* 4. 3. 26. On the problem of λόχοι and ἐνωμοτία in Sparta, see Anderson, *Military Theory and Practice*, pp. 225-51, esp. 226-27, and p. 297, n. 17.

38. *Tact.* 6. 5 πολλὰ . . . ἐπιτέρπαι. Xenophon's Socrates had long before noted the importance of the last man in the file (*Mem.* 3. 1. 8). See also *Eg. mag.* 2. 3 (the last man in a cavalry file), *Cyr.* 3. 3. 41-42, and the comments of Anderson, *Military Theory and Practice*, pp. 174-76. More is said on the οὐραγός at Arr. *Tact.* 12. 11 (cf. Ael. 14. 8).

39. *Tact.* 9. 1 ὡς αὐτοῖς . . . ἀκοντισμάτων; 9. 2 ἐπὶ κέρως . . . ὠφέλιμοι ἔσεσθαι.

40. *Tact.* 15. 1 καὶ σφενδονῆται; 15. 2 μάλιστα δὲ οἱ τοῖς λίθοις ἀκροβολιζόμενοι.

tion known from Aelian or Asclepiodotus.⁴¹ Arrian's respect for this branch of his army is real, for when he was planning his confrontation with the Alans, he was certain that a heavy shower of missiles would be sufficient to repel the Alan cavalry, before there was any real contact (*Ecl.* 25–26). He explains the effectiveness of the wedge formation of cavalry,⁴² and is well aware of the dangers of changing formation when close to the enemy.⁴³

A number of omissions, on the other hand, reveal a desire not to overburden the reader with useless information passed down in the manuals. Besides the obsolete names of elephant and chariot units already mentioned, Arrian omits the whole section in Aelian 10 on where the best phalangarchs should be placed, and also the sections on the density and weapons of the phalanx (Ael. 11. 2, 5–6; 12). His idea seems to be to avoid going into unprofitable detail, whether on cavalry formations,⁴⁴ certain kinds of troop movements,⁴⁵ or types of commands.⁴⁶

Deliberate or unconscious distortion of the original, as opposed to additions or omissions, is difficult to establish. In several places where Arrian differs from Aelian, one cannot be certain whether it is Aelian or Arrian who deviates from the source. The only clear example of Arrian's changing content is at *Tactica* 12. 7–10, on the use of the *sarissa* by the phalanx. Arrian states that the *sarissa* was sixteen feet long, of which four feet were needed to hold it, and that the ranks stood two feet behind each other, so that six rows of *sarissae* would project distances of twelve, ten, eight, six, four, and two feet beyond the front line. Aelian, on the other hand, explains that the *sarissa* was originally sixteen cubits long (1 cubit = 1½ feet), but in practice was fourteen cubits, of which four cubits were used for holding the *sarissa*; and that the ranks were two cubits behind one another, allowing five rows of *sarissae* to project ten, eight, six, four, and two cubits beyond the front line. Aelian here echoes precisely the statements of Polybius in describing the Macedonian phalanx (18. 29–30. 4), and we may conclude that the manuals from Polybius on gave Aelian's figures.⁴⁷ Asclepiodotus (5) is

41. Contrast *Tact.* 15 with Ael. 17 and Asclep. 7. 1.

42. *Tact.* 16. 8 ἢ δ' εἰς ὄξυ . . . παρέχεται.

43. *Tact.* 25. 7 ὅτι παραχῆς τε . . . καθιστᾶσιν.

44. Cf. Ael. 19. 2–4 on the necessity of keeping the proper distance when in formation, and on the various types of rhomboid formations, either with ranks, or files, or both, or neither; 19. 6–13 on the formation of the wedge, which Arrian dismisses in a few words: "the wedge is half of a rhombos, so that I have explained the scheme of the wedge at the same time" (*Tact.* 17. 3). Cf. also Asclep. 7. 6–9. Aelian had used diagrams to illustrate the cavalry formations described (see Ael. 1. 5, 18. 1, and Dain, *Histoire*, pp. 48–52); none appear or are mentioned in Arrian's text. Arrian may have omitted them because they were not in his source, because he did not understand them (in Aelian they are very confused), or because he expected that his readers would not.

45. Cf. Ael. 25. 3–4 on the difference of a μεταβολή (about-face) toward or away from the enemy and 32–34 on turns executed by whole *συντάγματα* (256 men).

46. Arr. *Tact.* 32 gives only eighteen of the forty-four commands found in Ael. 42, chiefly because Arrian does not repeat commands already listed in another context. Thus for a turn Arrian gives, "Left face. Right face. Forward march. Halt. Front face." He combines two separate sets of orders; whereas Aelian keeps left and right face as two sets of commands, and adds left and right about-face, thus listing thirteen commands to Arrian's five. Asclep. 12. 11 strikes a middle ground with twenty-seven commands.

47. Note that both Ael. 1. 2 and Arr. *Tact.* 1. 1 cite Polybius as an earlier writer on *tactica*. Posidonius continued Polybius' history, and it is likely that he rewrote Polybius' *Tactica* for his own treatise, the probable source of Aelian and Arrian.

slightly different, giving the length of the *sarissa* as between ten and twelve cubits, but since he calculates on the basis of a ten-cubit projection (i.e., a twelve-cubit *sarissa*, with two cubits for holding), his conclusion is the same as that of Aelian and Polybius, that there were five ranks of *sarissae* projecting, each two cubits behind the other. It is apparent that Arrian's substitution of feet for cubits represents his own correction of his predecessors.⁴⁸ Modern writers have frequently questioned Polybius' figures on the length of the *sarissa*, disturbed by the weight of the weapon and its consequent awkwardness in use (European pikes in medieval and modern times have been fifteen feet or less) and by Theophrastus' casual comment that Macedonian *sarissae* were twelve cubits long (supported by the passage in Aelian just referred to). We must suppose that Arrian shared these doubts, and that he not only questioned the figures but changed them, changing as well the interval between the ranks and thus preserving the same overall situation. His use of sixteen units rather than fourteen is apparently an attempt at compromise, using the larger figure given with a smaller unit, and results in his six projecting ranks rather than the standard five. Arrian's correction, as far as can be determined, was mistaken: Polybius' figures apparently are reliable, although it is difficult to imagine how the twenty-one-foot *sarissa* was manipulated in battle.⁴⁹

In sum, then, the raw material of the first half of Arrian's *Tactica* is a manual of Hellenistic military practice, but in preparing his work he has introduced significant modifications. Building upon the traditional form and content, he has incorporated it into a larger scheme of works on Hadrianic military practice, the lost booklet on the infantry, *Tactica* 33–44 on the cavalry, and the *Acies contra Alanos*. Furthermore, he has added historical and contemporary examples relating the definitions of the standard manual to specific events and practices and has indicated Roman parallels to Hellenistic usage. With the contemporary reader in mind, he omits, or, as in the case of elephant and chariot warfare, substitutes for, material of value only to theoreticians or antiquarians. Where he believes his source mistaken, on the length of the *sarissa*, he is ready to correct it.

On the whole, Arrian has achieved an unusual synthesis. While conscious that he is repeating a technical manual (cf. *ὡς περ ἐν τέχνῃ*, 32. 2), his is not an exercise in pedantry. An active soldier, who is intimately involved with the Hadrianic military reforms—as is evident from the close relationship of Hadrian's address to his troops at Lambaesis and *Tactica* 33–44⁵⁰—

48. It is possible but unlikely that the change represents an error in the manuscript tradition.

49. On the question of the Macedonian *sarissa*, see F. Lammert, s.v. "Sarisse," *RE* 1A (1920): 2515–30, esp. 2517 on Arrian; F. W. Walbank, *Commentary to Polybius*, vol. 2 (Oxford, 1967), pp. 586–87 on 18. 29. 1–30. 4; M. Andronicos, "Sarissa," *BCH* 94 (1970): 91–107; and M. M. Markle III, "The Macedonian Sarissa, Spear, and Related Armor," *AJA* 81 (1977): 323–39. It would be incorrect to emend Arrian's *πόδας* to *πήχεις* as Walbank suggests. The mistake—or correction—is Arrian's. Markle suggests that Arrian may have wished to give an average dimension for the *sarissa*, which he estimates to have been between fifteen and eighteen feet long.

50. On the close ties between Arrian's treatise and the training of the cavalry under Hadrian, see Kiechle, "Die 'Taktik' des Flavius Arrianus," pp. 123–27, and R. W. Davies, "Fronto, Hadrian and the Roman Army," *Latomus* 27 (1968): 88–91. See also K. Hartmann, *Über die "Taktik" des Arrian*, Progr. Bamberg, 1895, on the relation of the *Tactica* to Arrian's *Acies contra Alanos*.

Arrian tries always to make the principles of Hellenistic practice comprehensible and relevant to his contemporaries. He draws on his own experience with the Alans and the Parthians, and on his reading of Roman history (British chariots) and of Greek history (Epaminondas' phalanx). Style also, as far as is possible in such matters, he adapts to fit the needs and expectations of his readers. The final work represents a combination of traditional knowledge and original intelligence which reflects the spirit of the Hadrianic age. Arrian himself sounds the keynote: "[The Romans] do not love so much their own traditional ways that they do not select the best from every quarter and make it their own."⁵¹ Arrian has brought his military experience and literary skill to the task of re-editing a military manual, revealing even in a work that is necessarily derivative his capacity as an original writer.

University of North Carolina, Chapel Hill

51. *Tact.* 33. 2; cf. 44. 1-2. Arrian's book on hunting, *Cynegeticus*, in a similar way reveals his combination of dependence on an earlier author (in that case Xenophon's *Cynegeticus*) and original contributions. See my "Xenophon in Arrian's *Cynegeticus*," *GRBS* 17 (1976): 157-67.