

NUMERAL CORRUPTION IN GREEK HISTORICAL TEXTS

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LET ME BEGIN with the justly esteemed Felix Jacoby.¹ At *Atthis* 379, note 139, he added a parenthetic remark: "Cowardice in the treatment of a text never pays." He was concerned with the figures in the *Athenaion Politeia* with regard to the Peisistratid tyranny and objected to the contention of Schachermeyer that "we cannot possibly alter three out of five intervals." Jacoby's opinion was that "out of seven numbers relating to intervals five must be altered" and he went on to say "admittedly this is an almost unique case in the history of tradition, and therefore interesting for principles of method: it shows that we have to learn how bad tradition can be in a papyrus" (194). There is a general problem here as to how the historian should deal with the literary texts which provide the information. Jacoby is at pains to insist that his method is not Procrustean, but the fact remains that his emendations of the text assume that time and copying have played havoc with what the author actually wrote and that the original must have been correct: the emendations are made in order to furnish the chronology which Jacoby feels must be correct. There are very real dangers inherent in this procedure. We surely would like our sources to have preserved for us accurate information and the temptation is there to maintain an author's value by changing a text presumed to have suffered in transmission. This may seem particularly easy where, as in the case of the *Athenaion Politeia*, we have for the most part only one surviving copy, a situation which opens the door to the supposition of interpolation, glosses creeping into the text, actual corruption. But it goes on also with works which survive through a variety of manuscripts and does not seem to need a confusion of readings within them to justify the procedure.

There is reason to apply such cautions to textual emendation in general. Here, however, I wish to concentrate on one area. It is a comfortable and

¹The following works are referred to in abbreviated form: F. Jacoby, *Atthis* (Oxford 1949); W. W. How and J. A. Wells, *A Commentary on Herodotus* (Oxford 1928); A. W. Gomme, A. Andrewes, and K. J. Dover, *A Historical Commentary on Thucydides* (Oxford 1945-1981); P. J. Rhodes, *A Commentary on the Aristotelian Athenaion Politeia* (Oxford 1981). Comments on the manuscripts are taken from the prefaces of the editions used. I thank the editor and the readers for *Phoenix* for their comments and suggestions. I have declined to enter in any detail into the instances where editors agree on emending a unanimous text, because this seems to me to be based upon prior assumptions which this paper examines (see, however, Thucydides no. 8 and Arrian). We may nonetheless appreciate the comment that "it is improbable that there are no examples of a corrupt reading common to all MSS."

often stated doctrine that numerals are easily corrupted. But is it true? After all, if one is dealing with numerals written out as words, they should be no more or less susceptible to miscopying than any other word. It is in the process of copying over the years that the original text is perverted. Scribes can vary in quality, attention, and understanding; tired eyes can wander; marginal suggestions and corrections in various forms can be incorporated into the text for good or ill. Then again, clarity of handwriting is not constant and may cause misreading. It is even possible for scribes and scrutineers, in the spirit of Jacoby, not to believe that what they see was what the author really wrote. I repeat, there would seem to be nothing special about numerals in this process. So the only real justification for their supposed ease of corruption is the assumption that at some stage in the tradition alphabetic signs were used to represent numbers. In some texts indeed alphabetics exist in the manuscripts, but for most of the time there is no sign of them, though there are some clues that they may have been used; one such is when we find the elements of a compound number in a different order as between one text and another, but this again may also be due to representation along the lines of a favoured convention. Mistakes do occur, but how often? My suspicion was that it was not as often as has been assumed and that the common statement must be tested. I have never seen any systematic discussion of the matter, but it must be possible to establish some facts. This is my intention.

My method has been to peruse the critical apparatus of standard texts. Things being as they are, though one cannot guarantee that an apparatus will notice all manuscript differences, it is all but certain that divergences in respect of numbers will be included. Essentially the operation concentrates on instances where *different* numbers appear as variants in the tradition. This, then, passes over omissions of numbers, transposition of letters or units in a compound number, erroneous or alternative spellings, additions or subtractions by modern scholars (though there will be cause to notice some). The legitimacy of what moderns do to a text in this regard is to be judged in relation to the results of this fundamental exercise. The possibility must be left open in cases where there is no manuscript discrepancy (and sometimes even where there is) that what is seen as a numerical or arithmetical error is the responsibility of the author and therefore must stand as part of the printed text. The authors I have looked at in whole or part are Herodotos, Thucydides, Xenophon (*Hellenika* and *Anabasis*), Polybios, Arrian *Anabasis*, and Polyainos, historical texts where numbers abound.

Now, since the central point in determining the corruptibility of numerals concerns, as I said, the assumed use of alphabetic signs, we need some general remarks on this. The fact is that with the authors here examined alphabetics are used only with Polybios and Polyainos; there are none in the manuscripts of the others, so far as I can determine, not even in the papyrus

fragments which are our earliest testimony for (parts of) the text, with the exception of quotation in other works. If, then, one asks whether and when alphabets may have been used in texts of these authors, one can give no answer from survivals and the possibility will only be glimpsed through the sort of exercise upon which we will be engaged here. One cannot tell whether the habits of our manuscripts, which are of course relatively recent, are tralatitane in regard to numerals or whether at some stage alphabets have been spelt out and copied thus from then on. There is some indication of possible change when we find that the excerpts of Polyainos spell out the alphabets of the archetype tradition, though the latter is more recent. One will need to make remarks on manuscript families on occasion.

And yet there is one thorn cast in my path by a reader for this journal which I must seek to render painless. My attention was drawn to Galen *De antidotis* 1, pp. 31–32 Kühn. The subject is books of medicinal recipes, some of which Galen says have suffered in the writing; some deliberately falsify what they give to others on request, others distort copies they have received. Those in the libraries that contain numeral notation are easily distorted; some make nine (ἐννέα) from five (πέντε), and other changes can come from the addition or subtraction of a letter. Thus he praises Menekrates for writing out his numerals in full and others for putting their recipes in verse to guard against or at least minimise distortion. Now as I understand this, it does suggest alphabetic numerals were a problem, susceptible to malicious and accidental alteration. And yet this is in a particular sort of text, recipes, where one would expect the use of numeral signs. Can one extrapolate from this to the wider field of transmission where malice at least is not to be expected? I turn to the expert words of E. G. Turner:² “I know of only one Greek book manuscript (an unpublished papyrus of Strabo) in which figures are not written out in full, but given in numeral notation.” He goes on to say that neither do numerical elements in compound words suffer abbreviation in texts of classical literature. It is a different matter in Christian texts and, as should not surprise us, in documentary papyri. And so the nature of the text made a difference. If, then, we may assume that the bulk of the manuscript tradition which we possess for historians derives from careful professional copies, it is likely that the full text wrote out its numerals. This is an assumption with a sound basis, but it is yet an assumption and must not allow us to pervert our exercise by distortion in ruling out absolutely alphabetic signs as the cause of a variant.

And so, to be fair, in appropriate cases I will give the alphabetic version of the number involved. It should be remembered also that the extent to

²E. G. Turner, *Greek Manuscripts of the Ancient World*², revised and enlarged by P. J. Parsons (London 1987, *BICS* Supp. 46) 15.

which alphabetics could be culprits may also depend on styles of writing letters at various periods and whether they were in capitals, normal in literary texts written in the ancient period, or in more cursive script. These are quicksands indeed. I am not, it must be said, a palaeographer, but those such as Turner who are (or were) seem to tread carefully. Perhaps if there is progress to be made beyond my paper, it may come from palaeographers and those with a closer knowledge of the particular manuscript tradition. For the moment I offer what I can.

HERODOTOS (OCT)

An archetype is postulated to which MS A, the oldest, of the tenth century, comes nearest. MSS ABC are grouped together as **a**; DRSV as **d**—not that it is quite so simple, as will be obvious.

(1) 2.5.2. For ἐν ἑνδεκα we have the variant ἐν δέκα (or ἐνδεκα). This is an error easily explained as simple miscopying nothing to do with the fact that there is a numeral. Cf. 7.183.2, where, however, there is no problem. The alphabetics are I (10), IA (11).

(2) 2.9.1. Here the reading of the group of four manuscripts under the sign **d** and of P is preferred, ἐξήκοντα καὶ ὀκτακόσιοι καὶ τετρακισχίλιοι (4860), as against the three MSS of **a**, which replace the second element with τετρακόσιοι. A degree of correction parallel to modern treatments may have gone on. The **d** group causes problems elsewhere, as we will soon see, and there are considerable difficulties with Herodotos' numbers in this general passage (see earlier 2.8.3, not to our purposes as emendation by addition is modern). I am not sure that the **d** group can be trusted in such matters. I will notice, however, the possibility that at some stage there has been a confusion of alphabetics, the numbers concerned being represented thus by ΔΩΞ and ΔΥΞ.

(3) 2.9.2. It is intriguing that here we are dealing with a cluster of instances and that the **d** group is again involved. A distance is given as χίλιοι καὶ ὀκτακόσιοι; for the first element **d** has εἴκοσι. I think it probable that the scribe's eye wandered to the εἴκοσι of the previous sentence, though again we may notice the possibility of corruption between alphabetics: 1000 is **A**, 20 is **K'**.

(4) 2.10.2. This is slightly different. The description of the Nile as πενταστόμον is a reading shared by one of the MSS in the **d** group, while the three others in that group and a correction to MS P have ἑπταστόμον. One should believe that the latter is a "correction" of Herodotos by adding in the two mouths which he classifies as artificial (2.17.6)—a scribe could be attentive but wrong.

(5) 2.143.1. Another simple miscopying explains καιδέκατον for ἑκκαιδέκατον.

(6) 3.90.2. Sheer inadvertence is responsible for τριήκοντα replacing the second element of ἐξήκοντα καὶ τριηκόσια, this in three MSS of the d group.

(7) 3.95.1. Here the reading ὀγδώκοντα καὶ ὀκτακόσια καὶ εἰνακισχίλια is preferred, despite appearing only *in rasura* in one MS (S) against all others, which have for the first two elements τεσσεράκοντα καὶ πεντακόσια. The competing alphabets are ΘΩΠ (9880) and ΘΦΜ (9540). But in fact the correction is adopted and I am sure was made to rationalize Herodotos' arithmetic: he gives the total annual tribute as 14560 Euboic talents (by conversion) and the gold as 4680, which does leave 9880, a number precisely reached by multiplying the 7600 Babylonian talents in the ratio of 60:78. But that ratio is only specified by an addition at 3.89.2 to read (ὀκτὼ καὶ) ἑβδομήκοντα, though no MSS have this and Pollux 9.86 read a text which had 70. It should be added that a multiplication in the ratio 60:70 produces only 8866 talents. Yet the conclusion ought to be that the text should not be interfered with and that Herodotos' arithmetic probably was at fault; the OCT reading should be left *in rasura*.

(8) 3.155.5. For δισχιλίους C and P¹ read χιλίους, a lazy misreading perhaps encouraged by χιλίους τάξον shortly before. Cf. below no. 11.

(9) 4.15.1. The MSS of d join up again with P (cf. above, no. 4) in writing τριηκοσίοις(v) for the second element of ἔτει τεσσεράκοντα καὶ διηκοσίοις. This again looks like a perpetuation of a simple misreading (alphabets are ΣΜ [240], ΤΜ [340]). But see the next example.

(10) 4.85.2. Here again the OCT prints a reading only found in a correction to MS S, one of the d group: στάδιοι τριηκόσιοι καὶ τρισχιλίοι. This may seem preferable, but only on grounds analogous to those which applied in no. 7 above, since all the other texts read for the first element διηκόσιοι, which therefore should be the reading no matter what may seem to be the geographical truth (see How and Wells *ad loc.*). Alphabets are ΓΣ (3200), ΓΤ (3300). I mention, though I clearly do not accept, the suggestion that the change was from τρι- to δι- under the influence of -δι- in στάδιοι.

(11) 5.119.1. The error χιλίους (in C) for δισχιλίους is easily attributed to misreading. Alphabets are ,Α (1000), ,Β (2000). Cf. above, no. 8.

(12) 6.14.2. Similarly explained is δέκα for ἑνδεκα (cf. above, no. 1).

(13) 7.185.1. Here the number is τετρακισχίλιοι καὶ δισμύριοι (,ΚΔ); one MS has μύριοι (,Ι), an error similar to that in no. 11 above, the d group has τρισμύριοι (,Λ), a different sort of comprehensible misreading. We will see this same group involved elsewhere in a similar error, and confusion

between δις- and τρις- occurs with other authors. It is clear that 24,000 is correct. See the next example for an interesting consequence.

(14) 7.185.3. Here is another instance of mistakes in close proximity, in regard to enumeration of troops. The reading is μυριάδες δηκόσαι και ἑξήκοντα καὶ τέσσαρες (2,640,000), while one MS has at the end πέντε (2,650,000), this being MS S, one of the *d* group (the others have it right). Comparison with nos. 7 and 10 above may suggest something about this MS. Indeed, let me quote the words of Hude in his preface to the OCT (ix): “S saepissime audaciam interpolatoris expertus est, ut testimonio eius solius summa adhibenda sit cautio.” In fact the total given by S results from the erroneous reading of the *d* group in no. 13 and consequently is not a numeral corruption at all, but a revision of the arithmetic in the wake of an earlier mistake perpetuated in a MS tradition. The alphabets that matter, for 4 and 5, are respectively Δ and Ε.

(15) 8.1.2. The Aiginetan ships are ὀκτωκαίδεκα. The original hand of MS D wrote δωδέκα, which was corrected. The same hand omitted the following Σικυώνιοι δὲ δυοκαίδεκα, the last elements being written δωδέκα in the *d* group, of which MS D is a member. Clearly inadvertence has led to the number of Sikyonian ships being transferred to the Aiginetans. The alphabets are ΙΗ (18), ΙΒ (12).

(16) 8.27.4. Our trouble with the *d* group continues and we have here a parallel of sorts to no. 13 above. It was misreading which created in *d* καὶ τρισχιλίων instead of τετρακισχιλίων. The alphabets are Δ (4000), Γ (3000).

(17) 8.48. See How and Wells for the problems with Herodotos' arithmetic at 8.43 ff., in which we now have some reason to believe more generally. Here the total of ships is given as τριηκόσαι και ἑβδομήκοντα και ὀκτώ (378); *d* has ὀκτώ και πεντήκοντα και τριηκόσαι (358). The different order of the elements may suggest that the problem goes back to the resolution of original alphabets, but the corruption of ΤΟΗ to ΤΝΗ is not easy, at least without some intermediary corruption. The preserved figures actually seem to add up to 366 and I suspect that someone behind the *d* group has done his own totting up and overlooked 8 ships (perhaps those of Troezen and Hermione).

The total, then, is 17, which in any case is a remarkably small number of MS variants in the presence of so many numbers; even discounting many instances of εἰς and πρῶτος, there are in Herodotos something like 1400 cardinals and 350 ordinals. Yet the conclusion seems to be that not one of these variants results from a corruption particularly ascribable to the fact that they concern numerals. My impression is that none is due to a mistake with original alphabets. Ten of the instances are due to misreading, inad-

vertence, or the wandering eye (1, 3, 5, 6, 8, 9, 11, 12, 13, 15, 16) and the remaining six seem to be due to deliberate "correction" (2, 4, 7, 10, 14, 17). What does emerge from this examination is that the scribes who copied the text of Herodotos were extremely accurate in their reproduction of numbers and indeed in thus perpetuating errors within a tradition. We might add an extra note to qualify attribution to misreading. It is possible that some errors were due to *mishearing*, if copies were made from dictation, but this is not an argument to which I will have particular recourse and it does not seem to make very much difference.

THUCYDIDES (OCT)

Most of the problems which arise with Thucydides' text in this regard are due to the "corrections" of modern scholars. It is thus a simple matter to deal with MSS. They seem to form two families, CG for one, ABEFM for another. However, the OCT preface also apprises us of possible changes in copying and notes that Books 1 and 2 exhibit 200 variants each, while for other books it is in the order of 50.

(1) 1.74.1. Here we have ships $\epsilon\varsigma$ τὰς τετρακοσίας, for which one MS (G) had τριακοσίας. Despite the wish of some to accept 300, a conventional number for the Greek fleet which allows Thucydides accurately to say that the Athenians were somewhat less than two-thirds, and despite Gomme's discomfort, the fact is that 400 is an approximation of Herodotos' figures (8.48), the Athenian envoys could be made to exaggerate in this speech, and the use of $\epsilon\varsigma$ can be defended by reference to the above $\epsilon\varsigma$ αὐτὸ παρεσχόμεθα which leads into the statement. Thucydides wrote 400 and the single variant may be due to considerations parallel to those of modern opinion or misreading. Confusion of alphabets seems unlikely; they are Y (400) and T (300). In fact, explanation by misreading is bolstered by comparison with nos. 4 and 7 below and with Herodotos no. 16, which allows us to see a developing pattern of corruption involving numerals beginning with τετρα-.

(2) 2.86.4. For ἐπὶ καὶ ἑβδομήκοντα, one MS (C) has for the latter number πεντήκοντα, strangely matching Herodotos no. 17. Allowing for coincidence, it is yet interesting to see a corruption (which the Herodotos example was not, in my opinion) which is not obviously due to numeral signs (OZ [77], NZ [57]) and should be put down to miscopying. I have no other instance of this variant.

(3) 4.13.2. OCT prints τεσσαράκοντα, a figure with which there is some difficulty (see the *Commentary*), and later MSS have πεντήκοντα, while Valla's translation has *sexaginta*. As may be expected, this is the only such case I have found. Since after 20 more ships came from Athens there are said to be 70 (4.23.2), the later reading may be a correction on arithmetical grounds,

but that does not guarantee that Thucydides wrote 50. An alternative is that alphabetics were confused, namely M and N. Yet none of these routes would seem to explain what Valla wrote (the Greek alphabetic for 60 is Ξ).

(4) 4.55.2. See above, no. 1. Here the same MS has the same variant, writing 300 for 400.

(5) 5.57.2. The reading is πεντακόσιοι, for which MS M has τετρακόσιοι, and this is to be explained simply as misreading, of a kind which will recur. The alphabetics are Φ (500), Υ (400).

(6) 6.96.3. Here there is only a single authority, along with Valla, for the number which ought to be correct, ἑξακοσίους; all other MSS have ἑπακοσίους. I am inclined to believe that the general reading was standard and that the correction was made to bring the text into line with the 600 found at 6.97.3. In alphabetics 700 is Ψ, 600 is Χ.

(7) 8.70.1. See above, no. 1. This time it is another MS, B, which has written 300 for 400.

(8) 8.104.2. Here there are two cruxes. For ἑβδομήκοντα (in the number 76 = ΟΓ) MSS C and G have ὀγδοήκοντα (86 = ΠΓ), which one would like to join the *Commentary* in ascribing to the influence of the next line, where the number ἑξ καὶ ὀγδοήκοντα is found. However, the latter is in fact a correction of the consistent ὀκτώ καὶ ἐξήκοντα (= ΞΗ) of the MSS, described in the *Commentary* as "an unusual but intelligible form of corruption." The fact is that the earlier figure must be lower than the later and it seems unavoidable that "eight and sixty" has somewhere along the line been written for "six and eighty"; 86 is the number at 8.103.1. We might say that straight corruption as between fully written numerals is not possible, but this is not a manuscript corruption for our purpose. The earlier number is an alteration and it may derive from a mistaken identification of the 86 at 103.1.

Naturally it is of interest that in nos. 1, 4, and 7 we have the same corruption, probably by route of misreading. That form of error and the phenomenon of correction are again prominent possibilities. Mysteries may remain, but it is difficult to show that any of the above instances involves a corruption peculiar to the sphere of numerals. And there are only eight, with six concerning only a single text variation. Again we see the possibility that the manuscript tradition has faithfully reproduced error (no. 8). Of course, other figures have been doubted, but with most a defence can be mounted and, in any event, uncomfortable as it may seem, we must not take it for granted that Thucydides was incapable of error.

XENOPHON (TEUBNER)

From the 328 pages of the *Hellenika* come but 5 manuscript variations. This is something of a surprise after we have been apprised in the preface that in one ms, V, "plurima audacissime mutata et interpolata sunt." Yet this is one of the better group, the branch of the early fourteenth-century B, "diligentissime ab uno librario scriptus."

(1) 1.6.35. The text of D is printed, ἐπὶ καὶ τετταράκοντα, as against ἔξ κτλ. in the rest. Indeed 47 seems to be confirmed at 1.7.30 and we may be dealing with another correction. It must, however, be pointed out that the alphabetic corruption is one of the easiest, ζ' (7) read as ς' (6). A parallel occurs at the end of the *Anabasis* (which I omit from examples therein) but nowhere else within the texts dealt with here.

(2) 5.1.6. All but one of the mss read δέκα rather than the δώδεκα which corresponds to the figure at 5.1.5. This is an understandable misreading which recurs below in no. 5. The alphabetics are I (10), IB (12).

(3) 5.1.7. Another proximate association of errors. Carelessness and/or confusion caused one scribe to substitute πεντήκοντα for πέντε.

(4) 7.4.16. The familiar confusion substituting 300 for 400 (cf. Thucydides nos. 1, 4, and 7) was here made easier by the recent occurrence in the text of a genuine 300.

(5) 7.5.10. See above, no. 2. Here three mss have written δέκα for the δώδεκα which corresponds to 7.4.20.

This is a remarkably good record for the scribes, at least in reproducing what they read. No further comments are necessary.

From the 294 pages of the *Anabasis* we have 19 cases. There are two families of mss, one of seven headed by F, of the tenth or eleventh century, under the sign f, the other four headed by C under the *siglum* c. ms C dates to 1320 and it is remarked that it has been subjected to a great deal of "correction" and comment from a number of hands. We are already warned, therefore, that there might be peculiarities with this text.

(1) 1.2.3. Here is the by now familiar confusion between 300 and 400, with a different sort of text in the f group, a manuscript tradition which will attract further attention. See also below, no. 18.

(2) 1.2.9. The f group reads χιλίους for τριακοσίους, probably influenced by the following χιλίους, which is also preceded by ὀπίτας.

(3) 1.2.9. Here is a peculiarity with the c group, which gives separate contingents instead of, but adding up to, the total given in other mss.

I suppose that this is really peripheral to this examination, but it shows what could be done to a text as a matter of interference.

(4) 1.4.3. Misreading between 400 and 500, which we saw in Thucydides no. 3, occurs in one MS. See also below, no. 5.

(5) 1.7.10. The same misreading as in no. 4. Here the variant occurs in two MSS.

(6) 1.7.18. Here is a familiar misreading, as one group of MSS has turned *τρισχίλιους* into *δισχιλίους*.

(7) 2.2.6. Here, in an athetized passage, c and D have *τριακόσιοι*, the rest *τρισχίλιοι*—a simple confusion among a plethora of numbers, rather than ,Γ for T?

(8) 2.4.28. Here is our only other example of 4 becoming 5; see above, Herodotos no. 14, which was not, however, adjudged a true corruption, and I wonder if this instance too is some sort of perverse correction.

(9) 2.6.30. The familiar confusion involving higher numbers compounded with three or four gains another element as 30 becomes 40 in one group. The alphabets are Λ (30), Μ (40).

(10) 3.4.31. The c group (cf. above, no. 3) has *ὀκτώ* for *τρεις*, which is probably influenced by the *ὀκτώ* above, rather than being a misreading of Γ as Η.

(11) 4.4.3. Now the group f again, which has *τρεις* for *δέκα*, to explain which we can point to *τρεις* in the next sentence, before rather than after *παρασάγγας*. In alphabets 10 is Ι, 3 is Γ.

(12) 4.5.3. A peculiar instance which may be treated as a single problem. The text printed is *σταθμούς τρεις καὶ παρασάγγας πέντε*; *πέντε* is the reading of A, the rest have *πεντεκαίδεκα* (Krüger wanted *δέκα*); the first hand of C wrote *σταθμούς τρισκαίδεκα*, the correcting hand has written in the margin *παρασάγγας πέντε καὶ*. What we seem to witness here is sloppiness and confusion.

(13) 5.2.4. By a comprehensible route of miscopying *εἰς χιλίους* has become *δισχιλίους* and indeed *εἰς δισχιλίους*.

(14) 5.2.29. A peculiar perversion has seen *δέκα* replaced by *τέτταρας ἢ πέντε*.

(15) 5.5.4. In a passage athetized by Krüger the f group has *εἴκοσι* instead of *ἑξακόσιοι*, probably deceived by the preceding *ἑξακόσιοι καὶ εἴκοσι* rather than misreading X as K.

(16) 6.3.2. Here c and four other MSS read *ὡς τριάκοντα*, for which others produce *πεντήκοντα*. See the next example.

(17) 6.4.25. We have the same mistake as in no. 16, though with only one MS in error. Not the most obvious of corruptions and one may wonder about a misreading at some stage of Λ (30) as N (50).

(18) 7.1.27. Another case of 400 for 300. See above, no. 1.

(19) 7.8.26. A familiar shortening, whereby τρισμύρια becomes μύρια. The alphabetics are ,Λ (30,000), ,Ι (10,000).

There are indeed some peculiar phenomena among the numerals in the *Anabasis*, but even though corruptions seem a relative plethora, many are familiar or understandable misreadings and a number involve a particular branch of the tradition, started, it may well be, by a scribe who might have benefited from the invention of coffee.

ARRIAN (TEUBNER)

The MSS (38 codices, with one of the late twelfth or early thirteenth century identified as the archetype) show one discrepancy, minor and familiar: 3.20.2, ἐν δεκάτῃ for ἐνδεκάτῃ. Modern editors have wished to tamper with 1.16.2, 2.27.3, 3.15.6, 6.2.4, so far as I have been able to find out. Not bad for 390 pages of text, even if all modern emendations are accepted. Yet perhaps one should examine these suggestions, as a question which has been raised is whether a uniform tradition can yet contain error by corruption.

(1) 1.16.2. Of Persian cavalry died εἰς χιλίους. Krüger wanted δισχιλίους, comparing Diodoros 17.21.6. This is hard to decide, but we realise that such a mistake is easy enough; see particularly Xenophon, *Anabasis* no. 13.

(2) 2.27.3. Alexander's mound at Gaza has a height in feet of πεντήκοντα καὶ διακοσίους. Krüger wished to replace the latter with πέντε, specifically as a misreading of ε' as c' Is this merely a matter of how high a mound one is prepared to accept, 250 feet or 55 feet?

(3) 3.15.6. Arrian has Alexander's losses as ἐς ἑκατὸν, the number of barbarian corpses as ἐς τριάκοντα μυριάδας. Diodoros 17.61.3 gives respectively 500 (Curtius 4.16.26 has 300) and more than 90,000 (Curtius has 40,000). Schmieder wanted to bring Arrian into line with Diodoros; for the first figure he could argue for φ' being misread as ρ', but it is more difficult for 30 (= Λ or λ) to be an error for 9 (= Θ or θ). If numbers become inflated, it is perhaps rather a historiographical than a palaeological question.

(4) 6.2.4. Here Krüger wanted to do the reverse of what he proposed in no. 1. Arrian is following Ptolemy and reports fleet numbers as not much less than 2000, δισχιλίων. Diodoros 17.95.5 has 1000, as does Curtius 9.3.22, while Arrian at *Indica* 19.7 has 800. Krüger had a point for an easy emendation, but see Appendix 25.2 in volume 2 of Brunt's Loeb Arrian.

POLYBIOS (TEUBNER)

Here I confine myself to the alphabetics used in the remains of Books 21–24 and 27, where I record the variants found. It should be understood that the many codices containing excerpts from Polybios may individually only contain excerpts of a certain kind, so that with particular cases we need not be dealing with a large number of texts. For example, the *siglum* Y which we will soon encounter is used for the codices containing the Constantinian excerpts on foreign embassies to Rome.

(1) 21.30.10. The text adopted by the editor for the value in talents of a crown awarded is ἑκατὸν καὶ πεντήκοντα. The Y text has πεντήκοντα καὶ ῑ; Ursinus has a note to this effect, though his MS has πεντήκοντα καὶ ϕ. The conclusion, therefore, is that ϑ has been misread into ϕ.

(2) 21.42.4. The text prints τριάκονθ' after a note by Ursinus. The reading of Y is given as the equivalent λθ', taken as λθ (39) in O before Bekker's edition of 1844.

(3) 21.43.21. The ϑξ (127) of Y is misrepresented as ϑξ, which is nonsense, by two MSS used by Ursinus and in his own MS.

See also 21.43.20, where τνθ (359) has been corrected to τν' (350) from Livy, and 21.43.19. The apparatus to 21.43 will suffice to show the degree of variation and modern tinkering in general, though in the sections 19 to 21 it may be seen that Y is generally accurate in representing by alphabetics numerals fully spelt out elsewhere. The point which really emerges is the accuracy with which the large number of alphabetics has been transmitted. There could well be a point here that it is in excerpts and epitomes where one might expect the use of alphabetics, although usage clearly varies in the MSS concerning Polybios here. Indeed, note how Y at 21.43.21 for χιλίας διακοσίας ὀκτώ has χιλίας ῑ ὀκτώ (cf. no. 1, above). It would seem also that there was similar variation in the case of Polyainos, as will be seen.

POLYAINOS (TEUBNER)

We seem to have the archetype here, F, a thirteenth-century MS brought to Rome, along with a copy, after the capture of Byzantium in 1453. It is described in the preface (xiii) as "nitide ac diligenter conscriptus." On xvi it is remarked that all the other codices show a remarkable agreement and this is ascribed not only to their shared original, but also to the work of a single scribe. On xix we find that the text of the excerpts is in fact earlier, tenth or eleventh century, and is "pulcherrime scriptus," details which may be of interest in what follows.

Let me begin here by detailing seven instances where necessary modern corrections have been made, as they introduce us to some possibilities in

alphabetic corruption and a particular manuscript tradition. At 2.30.3 we have ἐξήκοντα (ξ') corrected from ζ' (7) in F; 5.2.5, ἑπτακισχιλίους (,ξ) for ζ' (7) in F; 5.3.6, δισχιλίους (,β) for β' (2) in F; 6.5, ἐξήκοντα (ξ') again for ζ' (7) in F, this from Plutarch; 7.11.6, μυρίων (,ι) for ι' (10) in F; 8.23.3, τριάκοντα (= λ') from Plutarch for η' (8) in F, πεντήκοντα (= ν') M; at 5.23 F wrote σκάφας ἦ, from which editors have divined τρεῖς (γ') or ὀκτώ (η'). And so to MSS variants, among which I suppose 8.23.3 above may be counted.

(1) 1.43.1. F could err, as we have seen, but has it right here, ἑξακοσίων as opposed to ἑξακισχιλίων, a comprehensible misreading. The alphabetic would be χ' (600), ,F (6000).

(2) 2.4.1. Here τέσσαρας is correct (δ' P₂: *quattuor* Frontinus) as against τετρακισχιλίους (,δ) in F and the excerpt (H).

(3) 3.1.2. Here the τριακοσίους of FH is printed, though a corruption from the 400 of Thuc. 3.34 would fit a common pattern.

(4) 3.3. A second hand to M has written τετρακισχιλίους, which corresponds to Diodoros and is accepted where F has φ' (500); 4000 is ,δ. We may incidentally have here another case of conscious correction.

(5) 4.7.7. Here we see also how a text can be adopted by comparison with other authors. For we have a real variant, either ἑκατὸν ἑβδομήκοντα F and H (po), as well as V, the Latin version of Vulteius (1549), with support from Diodoros, or ἑκατὸν ὀγδοήκοντα PD, with support from Plutarch.

(6) 6.23. MV read κ' = εἴκοσι correctly, where Fvulg read χ' (600).

(7) 6.23. Again MV have the correct κ' = εἴκοσι, this time as against Fvulg η' (8).

(8) 7.27.1. We have the ἐνενήκοντα (i.e., θ') of the excerpt against the ρ' (6) of F.

(9) 8.23.11. The excerptor (19.6) wrote δισχιλίους instead of τρισχιλίους, a familiar error.

CONCLUSION AND A TEST CASE

The conclusions to be drawn are essentially obvious. In general we have seen that the number of numeral corruptions which occur in the MSS of the authors we have examined is notably small—if I have overlooked any, I am confident the picture would not change. Many are simple misreadings, others are not corruptions at all, but deliberate corrections. If there is anything particular to numerals, it is that mistakes could occur more easily when numbers appear in clusters, but even here we must bear in mind the many such clusters where all numerals are perfectly reproduced.

Further, one might suggest that numerals were one aspect of a text which elicited particular care from scribes. If I might be permitted an analogy, one department in which I have worked at one time had a secretary who made many mistakes in typing English, but in my experience never made a single error in typing Latin—perhaps the unfamiliar or tricky concentrates the mind. At the same time, I can recall a few occasions when I have written the wrong number, for no apparent reason, yet many more when I have omitted or misrepresented ordinary words in the speed of composition. Most pertinently, however, I have recently completed a book on Athenian officials replete with text references. The translation of my typescript into print involved a process analogous to that of copying a text and it is to be remarked that a bare handful of the numbers were distorted in that process.

So how may one use these findings in approaching a text? It is clear that the particular manuscript traditions of the author being used must be examined, for we have seen that such traditions may differ in accuracy from one author to another and that one can often identify a MS or a group which is especially prone to error. If we wish to emend a numeral, it will be good if we are able to refer to similar corruption elsewhere, especially if there is a plurality of examples. We have seen that there are some explicable patterns of corruption. Yet there are also mysteries and the bold may take comfort in the large number of corruptions which appear to be unique so far as this selection of authors has discovered. At least some account of why and how the corruption has taken place needs to be given. It remains the case that the incidence of variants is such that the more corruption you detect in a text, the less likely you are to be correct in all cases. Jacoby's proposition that five out of seven numbers relating to intervals have to be altered gains no support whatever, and, if anything, we have learned how good manuscript traditions can be in respect of numerals. With this in mind, I should like to turn, by way of a test case, to the historical section of the *Athenaion Politeia*.

At 4.2 the qualification for archons and *tamiai* is 10 mnai, for generals and hipparchs 100. I believe the latter qualification should be higher than the former, but not by so much. I would like to emend 10 to 50 (i.e., ι' to ν'), but I have no parallel for this and perhaps am not entitled to assume the author had it right.

I believe the thirty-second year of 14.1 is correct. Note that our search found no instance of δ' read as δεύτερος.

Excluding the supposition of months instead of years at some points, the numerals relative to the ins and outs of the tyranny must be kept (it is another matter whether the resultant chronology is correct), except one, which needs to be changed to make the arithmetic tot up. If I may be excused argument, that one is δωδεκάτω at 14.4 and it should become πέμπτω or ἕκτω. The latter is preferable palaeographically, the former arithmetically.

But there is no parallel and the change is not easy: alphabetically 12 is ιβ', 5 ε', 6 ς' and our text at least does not use alphabets for ordinals. Is it proper procedure to correct the arithmetic?

At 22.5 the text has a body of 500 *prokritoi*, which I believe to be correct. But Kenyon proposed that ϕ' (500) was a mistake for ρ' (100), a corruption for which we have one parallel (Polybios no. 1). Kenyon also pointed to Thuc. 2.7.2, where we have a 500 pronounced impossible by Gomme as a fact; there corruption is feasible. Yet at *Ath. Pol.* 22.5 the Berlin papyrus has the same reading.

At 22.8 τετάρτῳ δ' ἔτει is factually wrong and Plut. *Arist.* 8.1 has the correct τρίτῳ; though there is no exact parallel, there is enough in our findings to justify the emendation. But we cannot guarantee that a mistake was not made by the author. There is a similar case at 34.1, where we read ἔτει δ' ἐβδόμῳ, actually corrected in the Teubner of Oppermann to ἔκτῳ, as it refers to the period 411/0 to 406/5; Rhodes thinks it could be a mistake of the author, but we have seen one confusion where six was written for seven (Xenophon, *Hellenica* no. 1). Even so, I do not favour emendation, given that this is again an ordinal.

At 36.1 we have no surprise that δισχιλίωνς was written for τρισχιλίωνς.

At 38.4 we have δέκα, where Xenophon has πεντεκαίδεκα, but I agree with Rhodes in not emending, justifiable and easy as it may seem.

M. L. West, *Textual Criticism and Editorial Technique* (Stuttgart 1973) 28, concluded "abbreviations are not actually misread as often as some ingenious emenders think." Neither are numerals. This is an area where we can try to establish scientific principles. Informed caution is not cowardice.

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