

ROMAN MILITARY PAY FROM CAESAR TO DIOCLETIAN*

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In a recent issue of this Journal, M. Alexander Speidel published a new document concerning Roman military pay, a receipt from Vindonissa dating to A.D. 38. This document, he claims, provides the missing link, which allows him to present a table of pay rates for legionaries and auxiliaries from Caesar to Diocletian and prove finally the proposition resurrected by M. P. Speidel that soldiers of the auxiliary cohorts were paid five sixths of the annual pay of legionaries.¹ From a re-examination of the texts and documents traditionally used as evidence for the pay rates of the Roman military, I conclude that, although we can establish the rates of legionary infantry pay from the date of the increase under Caesar until A.D. 197, we have little evidence for legionary pay rates in the third century and, since most of the documents provide us with figures which are unknown proportions of the annual pay of the soldiers concerned, the evidence for auxiliary pay is not sufficient to allow the calculation of exact pay rates for any period. There are, therefore, no grounds for believing either the five-sixths theory as elaborated by M. Alexander Speidel or, indeed, any of the many other theories that have been proposed.² Nevertheless, the documentation can be interpreted to establish likely minimum figures for auxiliary pay rates in the first century A.D. This interpretation of the documents suggests that there was, in fact, no difference between the rates of pay of auxiliary and legionary infantry and the cavalry of the legions and *alae*, a controversial conclusion that has previously been avoided for reasons central to much of Roman imperial military historiography.

I. THE LITERARY EVIDENCE FOR PAY

All studies of the issue of military pay commence with the relative certainties of the literary material. A passage in Polybius (vi.39.12 f.), with a dramatic setting in the Second Punic War, attests payment to the legionary infantry of two oboloi per day whilst the cavalry received one drachma per day. The allies were not paid at all but were given their food by the Roman authorities, while the cost of the food, weaponry, and clothing of the Roman troops was deducted from their pay at fixed rates. It is normally assumed that Polybius treated the drachma and the Roman denarius as equivalents and, since two oboloi were one third of a

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¹ M. A. Speidel, 'Roman army pay scales', *JRS* 82 (1992), 87-106; M. P. Speidel, 'The pay of the *auxilia*', *JRS* 63 (1973), 141-7, reprinted in idem, *Roman Army Papers* 1 (1984), 83-9; idem, 'The captor of Decebalus, a new inscription from Philippi', *JRS* 60 (1970), 142-53, reprinted in idem, *Roman Army Papers* 1 (1984), 173-87. The Speidels have been supported by Jahn: J. Jahn, 'Zur Entwicklung römischer Soldzahlungen von Augustus bis auf Diocletian', *Studien zu Fundmünzen der Antike* 2 (1984), 53-74; idem, 'Der Sold römischer Soldaten im 3 Jh.n.Chr.: Bemerkungen zu *ChLA* 446, 473 und 495', *ZPE* 53 (1985), 217-27.

² Apart from the works cited in n. 1, there is a large bibliography on this issue. The main works are: A. von Domaszewski, 'Der Truppensold der Kaiserzeit', *Neue Heidelberger Jahrbücher* 10 (1900), 218-41; R. Marichal, *L'occupation romaine de la Basse Egypte. Le statut des auxilia* (1945); A. Passerini, 'Gli aumenti del soldo militare da Commodo a Maximino', *Athenaeum* 24

(1946), 145-59; P. A. Brunt, 'Pay and superannuation in the Roman Army', *PBSR* 18 (1950), 50-75; R. Marichal, 'Le solde des armées romaines d'Auguste à Septime-Sévère d'après les *P.Gen.Lat.* 1 et 4 et le *P.Berlin* 6.866', *Annuaire de l'Institut de Philologie et d'Histoire Orientales et Slaves* 13 (Mélanges Isidore Lévy) (1953), 399-421; R. Marichal (ed.), *ChLA* x.410; G. R. Watson, 'The pay of the Roman army: Suetonius, Dio and the *quartum stipendium*', *Historia* 5 (1956), 332-40; idem, 'The pay of the Roman army: the auxiliary forces', *Historia* 8 (1959), 372-8; A. H. M. Jones, *Later Roman Empire* (1964), III, 187-8; R. Develin, 'The army pay rises under Severus and Caracalla and the question of the *annona militaris*', *Latomus* 30 (1971), 687-95; D. J. Breeze, 'Pay grades and ranks below the centurionate', *JRS* 61 (1971), 130-5; J. Kaimio, 'Notes on the pay of Roman soldiers', *Arctos* 9 (1975), 39-46; R. P. Duncan-Jones, 'Pay and numbers in Diocletian's army', *Chiron* 8 (1978), 541-60, reprinted in idem, *Structure and Scale in the Roman Economy* (1990), 105-17; H. C. Boren, 'Studies relating to the *stipendium militium*', *Historia* 32 (1983), 427-60; L. Wierschowski, *Heer und Wirtschaft. Das römische Heer der Prinzipatzeit als Wirtschaftsfaktor* (1984).

drachma, the Roman infantry was paid a third, or about a third, of a denarius, probably three asses per day.³

Suetonius (*Div. Iul.* 26.3) attests a doubling of pay under Caesar: 'legionibus stipendium in perpetuum duplicavit', creating the rate which was maintained until the reign of Domitian. Tacitus (*Ann.* 1.17) informs us that the mutinous legionaries of A.D. 14 complained about their pay of ten asses per day and demanded that they be paid one denarius per day, suggesting an annual rate of 225 denarii (= 3,600 asses).

More figures, and the least contentious figures to emerge from all the evidence, come with Domitian's increase in pay in 83, though the new rates may not have applied until 84. Suetonius (*Dom.* 7.3) attests the addition of a *quartum stipendium* of three gold pieces (aurei), each of which were worth twenty-five denarii, while Cassius Dio (LXVII.3) refers to an augmentation of each payment of seventy-five drachmae so that each was now one hundred drachmae (= 100 denarii). As there were three payments annually, a practice reasonably well attested for the Empire,⁴ Dio and Suetonius agree that pay was increased from 225 denarii per year (three payments of 75 denarii) to 300 denarii per year (three payments of 100 denarii). The level of increase was determined in part by the value of the aureus. The pre-increase pay was three payments of three aurei and the post-increase pay was three payments of four aurei. Suetonius' *quartum stipendium* either refers to a single payment in 83 or 84, or was simply a more economical way of indicating the size of the increase.

It is likely that the aureus was an important coin for army pay in the imperial period. The aureus was the most prestigious and valuable of coins and paying the soldiers in aurei probably had symbolic value. Further evidence for this can be seen in the level of the *viaticum*, a travel allowance paid to soldiers on enlistment, which was set at seventy-five denarii and was paid to recruits in three gold coins.⁵ Even if the soldiers very rarely saw the aurei, their pay immediately being converted into more easily exchangeable monetary units, the imperial government's calculations as to the level of military pay seem to have been made in aurei.

The next increase in pay came under Septimius Severus in 197 and is reported by Herodian (III.8.4) and by the *Historia Augusta* (*Sev.* 12.2), though neither source quantifies the increase. In 212 Caracalla, according to Herodian (IV.4.7), increased pay by fifty per cent. Although Herodian refers explicitly only to the praetorians, Dio (LXXVIII.36.3-4) suggests, as we would expect, that the increase was paid to all troops. The last known increase in pay before Diocletian occurred in 234 when Maximinus Thrax, as part of his bid for the throne, doubled the pay of his troops.⁶

Since we have figures for the percentage increases under Caracalla and Maximinus Thrax, calculation of third-century legionary pay depends upon the estimated size of the increase under Severus. Severus could have increased pay by any amount he considered appropriate and so we are unable to estimate safely legionary pay rates for the third century. Nevertheless, if we assume that Severus maintained the essential elements of the old system of military pay (three payments per year and payment in aurei), he would have had only four possible options. He could have increased pay by one to four aurei per payment, three to twelve aurei per year. These options suggest increases of 25, 50, 75, or 100 per cent and would have increased pay to 375, 450, 525, or 600 denarii per year. Caracalla's increase of 50 per cent would, therefore, have increased basic pay to either 562.5, 675, 787.5, or 900 denarii per year. Neither 562.5 denarii per year nor 787.5 denarii per year can be represented as three four-monthly payments in aurei. These options require a break in the use of aurei, a break that would mean that the 197 increase could not be estimated. Although there can be no certainty,

³ See also Livy VII.41.8. For further discussion of the issues surrounding these texts, see M. H. Crawford, *Roman Republican Coinage* (1974), 621-4; idem, 'Money and exchange in the Roman world', *JRS* 60 (1970), 40-8. The most probable reconstruction of rates of pay before the increase under Caesar is by D. W. Rathbone, 'The census qualification of the *assidui* and the *prima classis*', in R. J. van der Spek (ed.), *De Agricultura. In memoriam Pieter Willem de Neeve* (1993), 121-53, though Boren, op. cit. (n. 2), produces a plausible alternative.

⁴ For the continuation of the three-payment system see *RMR* 71 and 72.

⁵ *RMR* 70; *BGU* II.423.

⁶ Herodian VI.8.8. Both this passage and Herodian IV.4.7 refer not to pay but to σιτηρέσιον, food, and Develin, op. cit. (n. 2) (cf. D. van Berchem, 'L'annone militaire dans l'empire romain au III^e siècle', *Mémoires de la Société Nationale des Antiquaires de France* 10 (1937), 117-202), interprets the passages to mean that some or all of the food that the soldiers had previously had to pay for was provided free from the time of this increase. C. R. Whittaker (ed.), *Herodian I* (1969), note on III.8.5, shows that σιτηρέσιον was used by Herodian as an equivalent of 'pay'.

the most attractive increases for the A.D. 197 pay rise are, therefore, 50 per cent and 100 per cent.

The literary sources provide us with one further figure. Dio (LXXVIII.36.3) reports a letter written to the Senate in A.D. 218 by Macrinus complaining about the pressure on the imperial finances caused by meeting the demands of the soldiers. Macrinus claimed that Caracalla's increase in military pay cost 70,000,000 denarii. If Severus had increased pay by 50 per cent to 450 denarii, Caracalla's increase would have raised basic legionary pay by 225 denarii, but if Severus had doubled pay to 600 denarii, then Caracalla's increase would have raised basic pay by 300 denarii. Seventy million denarii would, therefore, represent an increase paid to either about 311,000 or 233,000 recipients of basic legionary pay. At this date, there were thirty-three legions of a paper strength of 5,000 men, making a total of 165,000 troops. If we assume that the legions were ten per cent under strength, there would be 148,500 legionary troops but, since junior officers received multiples of basic pay, 160,000 units of basic pay seems the lowest feasible estimate for the cost of the legions, leaving either about 151,000 or 73,000 units for the auxiliaries.⁷ In A.D. 23, auxiliary and legionary numbers were approximately equal but military historians generally believe that the auxiliaries became an increasingly large proportion of the army in the imperial period.⁸ Also, the cavalry, who were paid on higher rates than the infantry, formed a high proportion of the auxiliary forces. Assuming a doubling of pay under Severus, 70,000,000 denarii would only have been sufficient to fund the Caracallan increase if the auxiliaries received less than fifty per cent of legionary rates of pay, which, as we shall see below, is extremely improbable. If auxiliaries and legionaries were paid on the same rates, the 70,000,000 denarii cost of the Caracallan increase seems extremely low even assuming a fifty per cent increase in pay under Severus.

We can be certain about the rates of legionary pay from Caesar to Septimius Severus. Between c. A.D. 49 and A.D. 83, the legionary was paid 225 denarii per annum and Domitian increased the annual rate to 300 denarii. The most likely rates from Severus to Diocletian, assuming that there was no increase in military pay after the reign of Maximinus Thrax, are 450 denarii from 197 to 212, 675 denarii from 212 to 234, and 1,350 denarii thereafter.⁹

There is virtually no literary evidence for the pay of the legionary cavalry, except for the Polybian passage mentioned above, and no literary evidence for the rates of pay of the auxiliaries. Our only hope of establishing rates of pay for the *auxilia* lies in the documentary evidence.

II. THE DOCUMENTARY EVIDENCE FOR PAY

There are now eight documents which have been thought to attest rates of pay. In approximate chronological order, these are: the Vindonissa tablet of A.D. 38, *P.Yadin 722* of A.D. 72 or 75, *RMR 68 = P.Gen.Lat. 1* of A.D. 83, *RMR 69 = P.Gen.Lat. 4* of the late first century, *RMR 70 = ChLA x.410* of A.D. 192, *ChLA x.446* and *ChLA xi.495* of the third century and *P.Panop. Beatty 2* of A.D. 300. With the exception of *P.Yadin 722* (from Masada) and the Vindonissa tablet, all the documents come from Egypt. *P.Yadin 722*, *P.Gen.Lat. 1*, and *P.Gen.Lat. 4* are similar in form and are the easiest of the documents to interpret. *RMR 70* and *ChLA x.446* and *xi.495* pose similar problems. There are no parallels to the Vindonissa tablet, a receipt for money received by a horseman, nor to *P.Panop. Beatty 2* which is a collection of letters including several concerning the transfer of money to military units to meet the four-monthly payments to soldiers.

(i) *RMR 68* is one of three documents pasted together to create a single large sheet of papyrus on the verso of which was written a duty roster of a century. The sheet of papyrus, first published as *P.Gen.Lat. 1*, contains, therefore, four documents to which I shall refer by Fink's

⁷ R. MacMullen, 'The Roman emperor's army costs', *Latomus* 43 (1984), 571-80, provides a high estimate for the number of units of basic pay required by a legion. He estimates that each legion would require 6,622 units of basic pay. Thirty-three legions would, therefore, require 218,526 units of basic pay. MacMullen's estimate for the number of auxiliary troops is also high, 258,000 men.

⁸ Tac., *Ann.* iv.5.

⁹ M. Alexander Speidel's equivalent rates are 225 denarii, 300 denarii, 600 denarii, 900 denarii, and 1,800 denarii.

separate publication numbers.¹⁰ The duty roster on the verso, which Fink has published in two parts as *RMR* 9 and 58, deals with a century, probably of Legion III Cyrenaica (perhaps named in *RMR* 58.i.11), which was based at Nikopolis. *RMR* 9 lists the duties performed by thirty-one of the men over a ten-day period starting in the month of Domitianus, giving a *terminus ante quem* for the document of the death of the emperor in A.D. 96. All members of the unit had Roman names and this, together with the probable mention of the legion, suggests that they were legionaries. Of the documents on the recto, *RMR* 37 is a list of Roman citizens. These men were probably legionaries. *RMR* 10 is a list of duties performed by three men, all of whom had Roman names and served at or around the legionary camp at Nikopolis.

RMR 68 is the most important of all the supposed pay documents. It contains two accounts detailing a year's transactions of two soldiers, Q. Iulius Proculus from Damascus and C. Valerius Germanus from Tyre. The unit in which the soldiers served is not attested. It is known that people with Roman names served in auxiliary units in this period and it is possible, therefore, that these men served in an auxiliary unit.¹¹ Although all the documents on the sheet emanate from the double legionary camp at Nikopolis, some auxiliary units were also stationed there. However, all the documents involve soldiers with Roman names and not a single soldier mentioned can be identified as an auxiliary. Encountering so many Roman names in a military context, one would normally assume that these men were legionaries, even without the positive evidence from *RMR* 58. It is very likely, therefore, that both these soldiers served in a legion, probably the III Cyrenaica.

Fink dated *RMR* 68 to A.D. 81 on the basis of a consular date in line 1 col. 2, but it is not clear that the consular date refers to the date of the payments recorded below. As Kaimio has pointed out, other military texts place the date of enlistment at the head of the entry.¹² If the text was analogous to *RMR* 70, all those beneath the same consular date will have enlisted in the same year, explaining why there is no consular date above the second entry and why Proculus' and Germanus' entries appear together. The date, in fact, appears in the second line of the entry which reads, from col. iii, 'acceptit stip i an iii do dr ccxlvii s'. Fink translates this line as 'received the first pay of the third year of the emperor 247½ drachmas'. He expands *do()* to *do(mini)* to reconcile this date with the consular date and understands the emperor in question to be Titus. A more plausible restoration is, however, *Do(mitiani)*, dating the payment to A.D. 83.¹³

The payment made is 247½ Alexandrian drachmae, a reading proposed by Fink which solves some of the arithmetical problems of the latter sections of the text. The payment was made three times and each payment was entered in a different hand. The account lists standard deductions for shoes, hay, and so on, from each of these payments. In the first two thirds of the year, both men accumulated a small surplus which was retained for them, but, in the final third of the year, they both spent their full 247½ drachmae. Over the year, 742½ Alexandrian drachmae were paid into the accounts. Since the Alexandrian tetradrachm was reckoned to be equivalent to the denarius, this sum represents 185⅝ denarii, 82.5 per cent of annual legionary pay at this date. M. P. Speidel notes that 247½ is 99 per cent of 250 Alexandrian drachmae, which itself is five-sixths of 300 Alexandrian drachmae (= 75 denarii), the expected level of legionary four-monthly payments. He concludes that the soldiers of the account were paid five-sixths of the legionary rate and were, therefore, auxiliaries.¹⁴

Speidel's suggestion that the payment of 247½ drachmae is derived from a sum of 250 drachmae from which there had been a one per cent deduction is attractive. We would expect that payments into these accounts would be of round sums. However, although these accounts show an impressive regard for small sums, there is no entry for the alleged one per cent deduction. It is not clear who took that one per cent, nor why the one per cent does not appear in the accounts. It was not a charge for converting the soldiers' pay from Roman to Alexandrian currency since, as we shall see, the apparent one per cent deduction affected sums paid into accounts which use Roman coinage. The deduction cannot have been a book-keeping charge since it does not appear in all our accounts. The crucial point is, however, that if

¹⁰ *RMR* 9 and 58, 10, 37, and 68. Fink is over-cautious in separating *RMR* 9 and 58

¹¹ See *P.Oxy.* vii. 1022 = *RMR* 87.

¹² Kaimio, *op. cit.* (n. 2).

¹³ One would normally expect a consular date but a date

by regnal year is not exceptional in Latin military documents. The abbreviation *Do(mitiani)* is unusual but if the emperor was not specified, we would expect just *an iii*. The reading of the text is clear.

¹⁴ M. P. Speidel, 'The pay of the *auxilia*', *op. cit.* (n. 1).

deductions were made from the pay of the soldiers before that pay reached this account, then other sums may be deducted too, and there is, therefore, no particular reason to believe that the full four-monthly payment was 250 drachmae.

A further problem with the supposition that this account dealt with all their pay, or even ninety nine per cent of their pay, is that the two soldiers of *RMR* 68 did not receive any cash. The surplus from the accounts was deposited in the legionary bank and not given to the soldiers. Although the army looked after their most basic needs, soldiers spent money on entertainment, on luxuries, on essentials not provided by the army's supply service, and on the support of dependants, slaves and families. The *canabae* outside camps are usually seen as satellite communities, economically dependent upon the expenditure of the soldiers, and many ostraka and papyri show soldiers trading amongst themselves and with others. All these activities required a certain amount of cash. It is inconceivable that all this money came from sources other than their pay. The army cannot, as a matter of course, have retained all the money earned by the soldiers. It is difficult to believe that the mutinous soldiers of A.D. 14 never actually received any of their pay and the money with which they bribed corrupt centurions came from sources other than their pay. Soldiers must have received some payment in cash but such payments do not appear in these accounts. There must have been significant deductions from the four-monthly payments before they were deposited in this account. The 247½ drachmae were probably not, therefore, the whole of the four-monthly payment to the soldiers. The purpose of the money deposited appears to have been to meet the camp expenses of the soldiers and the level of deposit was probably determined by those standard expenses. The fact that the money exactly met the standard expenses incurred in the final third of the year supports this interpretation.

(ii) *RMR* 69 = *P.Gen.Lat.* 4 is a far less well preserved document than *RMR* 68. Fink noted that 'the task of reading the scanty text and reconstructing the account has been formidable and was rendered worse by the clerks' many errors and corrections'. The whole of the left hand side of the account on which the entries were detailed is missing and only the figures are partially preserved. The first section begins with the probable payment of 297 Alexandrian drachmae from which deductions are made amounting to a total of 216 drachmae, 2½ asses. The balance is given as 96 drachmae, but corrected to 80 drachmae, 3½ asses which tallies using a six-as drachma. The second portion of the account begins with a further payment of 297 drachmae but this portion is far from clear. The arithmetic may, with a little imagination and correction, be understood. The third section is simply impossible. On the last line, there is an entry that may read '[c]cxc[v]ii' (297 Alexandrian drachmae), but the reading is far from clear. Speidel sees this as a fourth payment, but the text is so poorly preserved that this restoration is highly contentious. Since the notation of each entry has been lost, we cannot know what the figure represents.¹⁵ In a document of such careless construction, the figure may refer to any number of matters. With all the problems of reading this document, very little weight can be placed on the text. The name of the soldier concerned is not fully preserved but Fink restores his name as 'Qu]adratu[s]'. There is no other evidence for the status of the soldier. The hand suggests a date of the mid- or late first century.

Three payments of 297 Alexandrian drachmae amount to annual receipts of 222¾ denarii (891 Alexandrian drachmae), 99 per cent of 225 denarii, the legionary rate between c. 49 B.C. and A.D. 83. If the document dates to after A.D. 83, however, the payments amount to 74.25 per cent of annual legionary pay. The expenses charged to the soldier appear to have been slightly higher than those entered in *RMR* 68. The Roman authorities may have taken advantage of an increase in pay to retariff camp expenses. However, since we know nothing about the soldier involved, the account may relate to an officer or to a cavalryman. In any case, it seems unlikely that the amounts paid into the account represent the full pay of the soldier and it is reasonable to suppose that the money was deposited to meet camp expenses.

(iii) *P.Yadin* 722 appears very similar to both *RMR* 68 and 69. The document opens with a date followed by a heading, both imperfectly preserved, and then the name of the soldier,

¹⁵ According to the Speidels, this document attests four legionary payments of 297 drachmae. Four payments of 297 Alexandrian drachmae amount to annual receipts of

297 denarii (1,188 Alexandrian drachmae), 99 per cent of 300 denarii, the rate of legionary pay after A.D. 83.

C. Messius C. f. Fabia from Beirut. Neither the rank nor the unit of the soldier are given but all commentators have assumed that he was a legionary. The next line contains the payment received, fifty denarii. The list of deductions below total thirty-four denarii but the amount for the first entry is lost. The editors restore this amount as sixteen denarii, a reasonable restoration since the entry for the same item in the second half of the account is 'XV[] denarii'. As in the final third of the accounts of *RMR* 68, the amount paid into the account exactly met the camp expenses of the soldier. The second section of the account starts with the payment of a sum of at least sixty denarii (LX[]). This section of the account is only partially preserved but two of the entries record payments made to named individuals as a result of private transactions.

The substantial difficulty of this document for all theories is the irregularity of the two payments. This is, of course, a catastrophic blow for those who would maintain that these payments represent the whole of the pay of the soldiers concerned, especially since the first payment is twenty-five denarii below the expected level of legionary payments for this period. Various possible solutions may be suggested. M. Alexander Speidel suggests that the first payment was lower because of a deduction to meet a prior debt. This is not, however, persuasive since if the money was owed to the camp, it should have been accounted for in the normal fashion and if the money was owed to another institution or individual, that institution or individual would need to establish a claim prior to the claim of the camp, which seems unlikely. It is possible that Messius deposited more in the account to meet extra expenses which he knew he would incur because of the private transactions. A more likely possibility, however, is that Messius was, for some reason, absent from camp on the second pay-day and, therefore, the whole of the due payment, seventy-five denarii, was deposited for him in this account, which would explain why Messius needed to make use of the account to meet private debts. Although there are some differences between this account and *RMR* 68, such as the irregularity of the payments and the inclusion of two payments to individuals, these are superficial. It seems that, like *RMR* 68, *P.Yadin* 722 lists the standard camp expenses of the particular soldier and the fifty denarii deposited reflects those expenses.¹⁶

(iv) *RMR* 70 = *ChLA* x.410 is dated by Fink to 192 and, although Marichal rejected his arguments, both Fink and Marichal date the text to before Septimius Severus' increase in pay. The document lists amounts on deposit in individual soldiers' accounts, a payment into those accounts, deductions from the accounts and finally gives balances for each account. The nomenclature of the soldiers shows that they served in an auxiliary unit but it is not known whether the soldiers were infantry or cavalry. Most soldiers had 175 denarii on deposit of which 75 denarii were the *viaticum*. Most received a payment of 84 denarii 15³/₄ oboloi from which a tax of 4 denarii 22¹/₂ oboloi was deducted, leaving 79 denarii 21¹/₄ oboloi which the soldiers withdrew.¹⁷ Some soldiers did not deposit any money in the account and the tax was deducted as a debit. One must suppose, however, that they were paid and that their pay was not passed to this account. The accounts cannot, therefore, be the pay accounts of the unit. Three payments of 84 denarii 15³/₄ oboloi amount to 253 denarii 19¹/₄ oboloi, about 84.5 per cent of the annual legionary pay at this date. M. Alexander Speidel points out that three payments of 84 denarii 15³/₄ oboloi amount to 99 per cent of 1,025 Alexandrian drachmae (256.25 denarii), 175 Alexandrian drachmae (43.75 denarii) less than the annual legionary pay of the period.

(v) *ChLA* x.446 = *P.Berol. inv.* 14100 and

(vi) *ChLA* xi.495 = *P.Hamb.inv.* 310 may be considered together. The documents are dated from the hand to the third century. The status of the two soldiers is not attested. *ChLA* xi.495 contains a payment of 257 denarii 22¹/₄ oboloi whilst the payment in x.446 is 257 denarii 22³/₄ oboloi. Three payments of the former figure amount to 773 denarii 10³/₄ oboloi. Three payments of the latter figure amount to 773 denarii 12¹/₄ oboloi, 99 per cent of 3,125

¹⁶ M. Alexander Speidel, the original editors, and I agree as to the function of this document but Speidel regards the document as fundamentally different from the Egyptian texts.

¹⁷ Suet., *Dom.* 7, notes a limitation on deposits imposed by Domitian to ensure that usurpers could not obtain cash merely by taking over the legionary bank. This limitation may account for the withdrawal of the surplus.

Alexandrian drachmae (781¼ denarii). Since we do not know the date of either text, we do not know which of our proposed legionary pay rates to compare with these payments. The fragments preserved are too small to allow any firm conclusions to be drawn as to the nature and function of the accounts but there appears to be a number of deductions from these payments. Although there are differences in format between these accounts and *RMR* 68 and 69 and *P.Yadin* 722, the function of the accounts may be similar.

We cannot reconstruct the procedures by which the Roman military accountants arrived at these figures and, even if we could, the uncertain context of these documents means that we would not know to what type of soldiers the rates of pay applied. The payments made do not have any obvious relationship to any suggested rates of pay.¹⁸ The sums paid cannot represent one of the four-monthly payments to the soldiers but may be ninety-nine per cent of another sum. The failure of the accountants to enter this one per cent is a significant issue for the interpretation of these accounts as it is for those discussed above. It appears likely that the payments into the accounts are of the sums set aside for specific expenses and the irregularity of the figures suggests that there was no simple correlation between these payments and real levels of pay. These texts cannot be used to establish pay scales.

(vii) The Vindonissa document is a receipt for money received by Clua, a cavalryman of an auxiliary unit. M. Alexander Speidel reads the text as follows:¹⁹

Asinio Ce[l]ere Non[io] cos XI K(alendas)
 Aug(ustas) s(upra) s(criptus) Clua eq(ues) Raetor(um)
 tur(ma) Albi Pudentis ac(c)epi (denarios) L
 [e]t stipendi proximi (denarios) LXXXV

Speidel translates the last line and a half as '(I) have received 50 denarii, and as next pay 75 denarii'. The use of the genitive form 'stipendi proximi' requires explanation. M. Alexander Speidel sees it as a genitive of relation, following Marichal's interpretation of a genitive in *RMR* 70 in his republication of the text as *ChLA* x.410. Fink wonders, however, whether *stipendi* in *RMR* 70 is a partitive genitive but fails to come to any conclusion. A similar formulation also appears in *P.Yadin* 722. Since neither the sum in *RMR* 70 nor the fifty denarii in *P.Yadin* 722 were the whole of the four-monthly payment, a partitive genitive appears a more natural interpretation. A more likely translation of the last line and a half of this document is, therefore, 'I have received 50 denarii and 75 denarii of my next pay'.

The final pay-day of the year was 1 September and this text is dated to July. Clua should, therefore, have received one further payment in 38. The payment of 75 denarii is part of the September payment of Clua's salary. Clua was, therefore, paid more than 225 denarii per year.

We know from Hadrian's Lambaesis oration that there were two rates of pay for cavalrymen in the imperial period: the soldiers of the *alae* were paid more than those serving in the cohorts.²⁰ Although the document does not mention the unit in which Clua served, it is likely, as Speidel suggests, that he served in a cohort.²¹

(viii) *P.Panop. Beatty* 2 of A.D. 300 contains three requests to the authorities in Panopolis to make payments towards the *stipendia* of military units stationed in Upper Egypt. These payments were 73,500 denarii to be paid to an *ala*, 65,500 denarii to be paid to a cohort, and 343,300 denarii to be paid to a number of legionaries. To use the figures to calculate rates of pay, we have to assume that the contributions paid met the whole of the pay bill for that unit. If money from other sources was used to supplement the contributions of the city, these figures

¹⁸ M. Alexander Speidel explains the level of payment in *RMR* 70 as payment of the annual auxiliary infantry rate of 250 denarii (1,000 Alexandrian drachmae), five-sixths of 300 denarii, plus a bonus of 6¼ denarii (25 Alexandrian drachmae). His explanation of *ChLA* x.446 is similar. This payment is the auxiliary *stipendium* of 750 denarii (3,000 Alexandrian drachmae), five-sixths of 900 denarii (Speidel's rate for the period between the increases of Caracalla and Maximinus Thrax), plus a bonus of 31¼ denarii (125 Alexandrian drachmae). There is no evidence for the existence of such bonus payments and, therefore,

no evidence for the size of such payments. Extraordinary payments, such as donatives, were paid as single payments and not, administratively at least, absorbed into the *stipendium*.

¹⁹ The only possibly contentious reading of the text is the *et* in the final line but the drawing and photograph of the text show the cross of the 't' and, therefore, *et* seems the most likely restoration.

²⁰ *ILS* 2487.

²¹ Speidel suggests this since no *alae Raetorum* are known.

would be of no value. We must also assume that the figures are calculated from the number of men serving in the unit and the unit's rate of pay, allowance being made for officers. The most problematic payment is that of 343,300 denarii to the legionaries. This payment could represent 3,433 units of 100 denarii or, since some junior officers received additional half units of pay, 1,716.5 units of 200 denarii. We would expect, however, the level of four-monthly payments to the legionaries to have been substantially higher, possibly about 450 denarii. There are three possible solutions: the figure may be incorrect; the figure may be rounded to the nearest 100 denarii; or the figure may be a combination of different rates of pay which were not simple multiples of each other. The first possibility would, of necessity, prevent any meaningful discussion of the figure. The second possibility allows the historian considerable latitude but does not render the figure useless: 763 units of basic pay at a rate of 450 denarii amount to 343,350 denarii. The third possibility is quite attractive since it is likely that legionary cavalry formed part of the garrison. As, however, we do not know the relationship between legionary infantry and cavalry pay, the figure cannot be used to establish basic rates of pay.²²

As 73,500 has eight prime factors and 65,500 six, a bewildering number of combinations of the units of basic pay and pay rates are possible for the auxiliary units. It is possible that the cohort had some cavalry or camel riders, and so calculations based on this figure must be treated with a certain caution. We have no figures for the pay of the soldiers of the *alae* and so there is little reason to prefer any one of the combinations, though Duncan-Jones suggests from *P.Panop. Beatty* 1 that there were probably about one hundred men serving in the *ala* in 298.²³ In any case, since all the figures are multiples of 100, the figures may be rounded to the nearest 100 denarii. Some possible combinations are listed below.

P.PANOP. BEATTY 2. POSSIBLE RATES OF PAY

Legion: 343,300 = $2 \times 2 \times 5 \times 5 \times 3,433$.

343,300 den. = $3,433 \times 100$ den. = $1,716.5 \times 200$ den.

343,350 den. = 763×450 den.

343,200 den. = 572×600 den.

Cohort: 65,500 = $2 \times 2 \times 5 \times 5 \times 5 \times 131$.

65,500 den. = 131×500 den. = 262×250 den. = 524×125 den.

Ala : 73,500 = $2 \times 2 \times 5 \times 5 \times 3 \times 7 \times 7$.

73,500 den. = $49 \times 1,500$ den. = $70 \times 1,050$ den. = 98×750 den.

= 105×700 den. = 147×500 den. = 140×525 den.

= 196×375 den. = 210×350 den. etc.

Most of the documents that have been used to support the various proposals as to the rates of pay of the soldiers of the different units of the Roman army do not provide figures which can be simply converted into rates of pay. The methods by which the Roman military accountants arrived at the various figures cannot be reconstructed from these documents. We cannot use the documentary evidence to calculate exact rates of pay.

III. THE RELATIONSHIP BETWEEN AUXILIARY AND LEGIONARY PAY RATES

In this section I show how the documentation can be used to establish minimum figures for auxiliary pay. I use figures for the period before the Domitianic increase in pay in this discussion.

²² M. Alexander Speidel explains the 343,300 as a combination of pay units of 600 and 700 denarii, 700 denarii being Speidel's preferred rate of pay for the legionary cavalry, and several combinations of these figures produce 343,300. Combinations of 600 and 700 denarii can, however, be used to make every multiple of 100 over 3,000

and, if half pay units are used, every multiple over 1,500.

²³ Duncan-Jones, *op. cit.* (n. 2), calculates that 116 troops were stationed in the *ala* at Thmou in 298 and it is likely that there had been little change in the size of the garrison since then.

Roman legionaries were expected to pay for necessities out of their pay and it seems likely that once the Roman authorities started to pay the auxiliaries, they would have treated the auxiliaries' pay in a similar fashion and deducted camp expenses from their pay. The pay of the auxiliaries must, therefore, have been sufficient to cover the expenses of the camp. It is difficult to believe that the army could have applied different rates of charges to auxiliary and legionary soldiers and, therefore, the camp expenses incurred by the legionaries are a minimum level above which the auxiliaries must have been paid. *P.Yadin* 722 shows that Messius spent fifty denarii in a four-month period and the two soldiers whose expenses are detailed in *RMR* 68 incurred expenses of 133.875 denarii and 143.875 denarii over the full year. In fact, auxiliaries must have received more money than this simply to cover expenses since these soldiers did not purchase any costly equipment during the periods of the accounts. An auxiliary infantryman must have received a minimum of 150 denarii per year and will have needed at least 175 denarii to avoid accumulating debts to the army.

To calculate a similar minimum figure for cavalry pay, we have to assess the cost of supporting a horse. There are, however, no figures in the military accounts for this cost. The cost of the horse's food can, however, be assessed. Sixth-century A.D. soldiers received a ration for their horses of 0.1 *artaba* of barley plus one sixth of a load of hay per day.²⁴ The ration attested by Polybius is, however, considerably larger. In the second century B.C. allied cavalry were given 5¹/₃ Attic *medimnoi* of barley a month and the legionary cavalry seven *medimnoi* of barley. Since Polybius probably treated the Attic *medimnos* as equivalent to six *modii* and there were probably 4.5 *modii* to the *artaba*, the annual ration for a horse was 85–112 *artabai*.²⁵ Comparative modern data suggest that the second-century B.C. ration was generous, perhaps including an allowance for a servant or a second mount, and the later ration seems closer to a subsistence level.²⁶ The deductions from *RMR* 68 do not suggest that the army of the first century A.D. provided goods cheaply, though they bought and sold at fixed rates, ignoring fluctuations in the market. The price paid by the soldiers for barley would probably be close to the market rate. In early first-century Egypt that rate was 1–1.125 denarii per *artaba*.²⁷ A cavalryman needed, therefore, 36.5–41 denarii per year to pay for the barley for his horse. After making allowance for the costs of other food stuffs and equipment, a cavalryman would probably have needed at least 75 denarii per year to support his horse. The cavalry of the *auxilia* must, therefore, have received annual pay of at least 225 denarii and probably needed 275 denarii to avoid accumulating debt.

These are minimum figures, but we know that auxiliaries as well as legionaries were economically active. Egyptian evidence shows that soldiers were comparatively well paid in the first centuries of Roman occupation and there was little difficulty in attracting recruits.²⁸ We must, therefore, make some allowance for the profit of the soldiers. It would be surprising if the auxiliary infantryman received less than 200 denarii per year, a ratio of 8:9 with legionary pay. The rewards of service with the cavalry were greater than those for infantry service. When the Batavians attempted to extract more money from Vitellius in the Civil War of A.D. 69, they also demanded an increase in the number of their cavalry, suggesting that they thought there was profit to be made from maintaining a horse.²⁹ Auxiliary cavalrymen should have received at least 325 denarii per year, a rate lower than the 360 denarii paid to the legionary cavalry in the second century B.C.³⁰

Some soldiers moved from legions to auxiliary units. Ti. Claudius Maximus served as a junior officer in the legionary cavalry and then transferred to become a *duplicarius* in an *ala*. Breeze has argued convincingly that Maximus received double legionary cavalry pay while in the legion.³¹ In transferring from legion to *ala*, his pay will have been reduced by the differential between legionary cavalry and *ala* pay. We would assume, however, that

²⁴ *P.Oxy.* xvi. 2046.

²⁵ R. P. Duncan-Jones, 'The Choenix, the artaba and the modius', *ZPE* 21 (1976), 43–52.

²⁶ Duncan-Jones, op. cit. (n. 2).

²⁷ H. J. Drexhage, *Preise, Mieten/ Pachten, Kosten und Löhne im römischen Ägypten bis zum Regierungsantritt Diokletians (Vorarbeiten zu einer Wirtschaftsgeschichte des römischen Ägypten)* (1991), 24f. Egyptian prices were probably significantly lower than prices elsewhere.

²⁸ R. Alston, *Soldier and Society. A Social History of the Roman Army in Egypt* (forthcoming).

²⁹ Tac., *Hist.* iv. 19.

³⁰ It is possible that cavalry rates of pay were reformed by Caesar so that annual cavalry pay could be expressed in multiples of seventy-five denarii, thus making 375 denarii, 450 denarii, 525 denarii, 600 denarii, and 675 denarii attractive options.

³¹ Breeze, op. cit. (n. 2). M. P. Speidel, 'The captor of Decebalus', op. cit. (n. 1), argues that Maximus received legionary cavalry pay with an additional 50 per cent because of his rank in the legion, and, after transfer, he received double auxiliary cavalry pay.

promotion would not reduce salary and, therefore, it is likely that there was either no differential or a very small differential between legionary cavalry and *ala* pay.

There cannot have been any significant difference between the pay rates of auxiliary and legionary infantry or between the rates paid to the cavalry of the *alae* and legions. This suggests that the great scholarly search for auxiliary pay rates has been in vain. The infantry of legions and auxiliary units and the cavalry of *alae* and legions were paid on the same rates.³²

The legions were originally the Roman people in arms and responsible for the expansion of Roman power. Consequently, ancient literary sources treat the auxiliaries and legionaries differently (Ps.-Hyginus, for instance, allows auxiliaries less space in camp³³), but official documents normally treat soldiers and veterans as a homogeneous group, regardless of their original units, and as auxiliary units became an integral part of the standing army, the differences between legionary and auxiliary service were reduced. There may have been residual differences but soldiers moved between the different units, the troops were recruited from the same social groups and the legal privileges granted to the troops and veterans of the different units were broadly similar. Roman citizens joined auxiliary units and non-Romans joined legions. It is very difficult to see any major difference in the treatment of soldiers from the different units in this period.³⁴

The pay of the Roman legions was intended to meet any expenses incurred by the soldiers during service and was, therefore, related to the basic needs of the soldier. In the imperial period, soldiers enjoyed a small surplus above subsistence, but this does not alter the historic principles behind the rates of pay. Our literary sources represent imperial increases in pay as attempts to curry favour with the troops but, given the slight inflation over most of the period, the increases in pay probably did not alter the economic status of the soldiers in the long term. We do not know when all the auxiliary units came to be paid by the Roman authorities. One presumes that auxiliaries were either paid by their native communities or by the Roman authorities in the Republican period, depending upon the particular arrangements made between Rome and the troop-supplying states. It would appear logical that when Rome started to pay all auxiliaries, all troops, whatever their status, would be paid on standard infantry and cavalry rates.³⁵

The proposal of parity between auxiliary and infantry pay rates is not altogether new. Marichal thought that the figure of 84 denarii 15³/₄ oboli of *RMR* 70 was derived from a payment of 100 denarii. Since this was the level of the four-monthly legionary payment, he concluded that auxiliaries were paid only once per year and, therefore, received only a third of the annual legionary pay.³⁶ Similarly, Brunt faced the possibility of parity when comparing *RMR* 68 and *RMR* 70 but concluded that parity was 'obviously impossible', leading him to redate *RMR* 70 to after the Severan increase.³⁷ Such reluctance to accept the possibility of parity shows that the ramifications of the issue of military pay are central to the modern understanding of the Roman army.

Much modern military scholarship starts from the premise that the Roman imperial army was the first modern professional army. Many historians, explicitly or implicitly, use comparative data drawn from modern armies to understand the Roman army.³⁸ These historians have perceived the rigid hierarchies that characterized European military organization in the late nineteenth and twentieth centuries in the Roman imperial army and have regarded Roman legionaries as superior to the non-Roman auxiliaries. It has been assumed that this hierarchy would be reflected in rates of pay, an assumption that has led to various proposals of ratios of auxiliary to legionary pay, ranging from 1:3 to 5:6.³⁹ Parity in pay causes

³² The documentary evidence does not contradict or support this proposal since all the figures are unknown fractions of pay. The payment to the cohort in *P.Panop. Beatty* 2 of 65,500 denarii could be made to fit the proposal since 145.5 units of 450 denarii (one third of the annual legionary pay of 1,350 denarii), amounts to 65,475 denarii. The relationship between the pay of the cavalry of the *alae* and legions and the pay of the cavalry of the cohorts is not known.

³³ Ps.-Hyginus, *De Munationibus Castrorum* 1, 25. The legionary infantry had eight men to a tent, the auxiliaries ten.

³⁴ See Alston, op. cit. (n. 28).

³⁵ The Polybian evidence presents a slight problem but

the Roman legionary cavalrymen of this period were an anomaly because of their elevated social status.

³⁶ R. Marichal, *L'occupation romaine de la Basse Égypte. Le statut des auxilia* (1945), 35-7.

³⁷ Brunt, op. cit. (n. 2).

³⁸ E. Birley, a dominant figure for a generation of Roman military historians, has made numerous explicit statements of this methodology: see Birley, *The Roman Army Papers 1929-1986* (1988), esp. vii.

³⁹ D. J. Breeze and B. Dobson, *Hadrian's Wall* (1976), 172-4, construct model pay rates using a 1:3 ratio for auxiliary to legionary pay on the premise that it was not credible that 'a man in an *ala* was paid as much as or more than a legionary'.

us to question one of the more fundamental assumptions of Roman military historiography and, in so doing, the analysis throws doubt on the methodology that led to that assumption. One could draw a parallel between the development of the rates of pay and that other controversial area of military history, the imperial strategy. As the strategy appears to have developed in reaction to changing political and military circumstances, with little evidence for the formulation of an imperial policy, so the pay of the soldiers developed from a system of subsistence payments in the Republican period, with no evidence of any consideration having been given as to whether it was appropriate for auxiliaries and legionaries to be paid on the same rates.

Historians are increasingly aware of the gradual nature of institutional change in the Roman army and that a continuous development of military institutions is a better explanation for perceived differences between the armies of various periods than the actions of military reformers. The implication of such a view is that the Roman army was almost certainly a far more flexible and less hierarchical institution than armies of the modern period and was a more characteristically ancient institution than modern military historians have allowed.⁴⁰

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⁴⁰ The flexibility of the Roman army can also be seen in the pattern of dispersal of a unit's troops (*P.Hamb.* 1.39) and the variations in numbers of troops between units of the same type or even in the same unit over time. See

A. K. Bowman and J. D. Thomas, 'A military strength report from Vindolanda', *JRS* 81 (1971), 62–73; *P.Brooklyn* 24; *RMR* 47; 48; 50; 62; 63; 64.