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*The Journal of Roman Studies*, Vol. 82. (1992), pp. 87-106.

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# ROMAN ARMY PAY SCALES\*

By M. ALEXANDER SPEIDEL

(Plate I)

How much did Rome pay the soldiers serving in the legions and the auxilia, who expanded and defended her empire? The answer is of some significance not only to the history of the Roman army but to the political, social, and economic history of the Roman Empire in general. Many a learned article has therefore been devoted to this matter and steady progress has been made. Yet problems remain, the evidence being scanty and often not readily intelligible. Work on the 600 and more writing-tablets from the legionary fortress of Vindonissa (Switzerland), currently in progress, has turned up a missing link in the chain of evidence. The new text, a pay receipt of an auxiliary soldier, reveals a new sum and thus allows the reconstruction of the Roman army's pay scales through the first three centuries A.D. The overall pay model given below reconciles all the hitherto known evidence.

## I. THE LITERARY AND PAPYROLOGICAL EVIDENCE

Roman soldiers received their annual pay in three instalments (*stipendia*),<sup>1</sup> due on the first of January, May, and September.<sup>2</sup> The pay of the legions for the first two centuries A.D. is well known and has recently been established for the third.<sup>3</sup> The figures are given in Table 1.<sup>4</sup>

While legionary pay is reliably known, the ancient writers unfortunately give us no notion of what the pay of the auxilia may have been. We therefore have to turn to the papyri, our only other source, so far, for auxiliary soldiers' pay. What can be learned from them is presented in Table 2.

\* The following abbreviations are used:

ChLA: A. Bruckner and R. Marichal, *Chartae Latinae Antiquiores* (1954).

CPL: R. Cavenaile, *Corpus Papyrorum Latinarum* (1958).

HABES: *Heidelberger althistorische Beiträge und epigraphische Studien*.

Jahn (1983): J. Jahn, 'Der Sold römischer Soldaten im 3. Jh. n. Chr.: Bemerkungen zu ChLA 446, 473 und 495', *ZPE* 53 (1983), 217–27.

Jahn (1984): J. Jahn, 'Zur Entwicklung römischer Soldzahlungen von Augustus bis auf Diokletian', *Studien zu den Fundmünzen der Antike* 2 (1984), 53–74.

MASADA II: H. M. Cotton and J. Geiger, *Masada II. The Yigael Yadin Excavations 1963–1965, Final Reports. The Latin and Greek Documents* (with a contribution by J. D. Thomas) (1989).

RA: E. Birley, *The Roman Army Papers 1926–1986* (1988) (= *Mavors* IV).

RAP: J. F. Gilliam, *Roman Army Papers* (1986) (= *Mavors* II).

RAS I: M. P. Speidel, *Roman Army Studies* 1 (1984) (= *Mavors* I).

RMR: R. O. Fink, *Roman Military Records on Papyrus* (1971).

RMR, pp. 241f. and 255; cf. also L. Wierschowski, *Heer und Wirtschaft. Das römische Heer der Prinzipatszeit als Wirtschaftsfaktor* (1984), 13f. and 228 (n. 58). *Stipendia* continued to be paid in the fourth century:

P. Panop. 2 *passim* (A.D. 299/300), P. Oxy. 1047 (early fourth century), *Paneg. Lat.* III (XI).1.4 (mid-fourth century). Domitian added a *quartum stipendium* (Suet., *Dom.* 7.3) after his victory over the German tribe of the Chatti in A.D. 83. A sestertius of A.D. 84 with the legend *STIP AUG DOMITIAN* (cf. C. M. Kraay, 'Two New Sestertii of Domitian', *American Numismatic Society Museum Notes* 9 (1960), 109–16) reveals the date and confirms Suetonius' statement of a fourth pay-day. Later, most probably after Domitian's death in A.D. 96, the *stipendium Domitiani* was abolished. By the late second century at the latest we find the old system of three pay-days reintroduced (cf. *RMR* 71 and Fink's comments *ibid.* p. 253). In Dio's time only the pay-rise was remembered (Dio LXVII.3.5).

<sup>2</sup> 1 January: *RMR* 72.7; 73 fr. h; ChLA 466; 473; 495; P. Panop. 2.37; 58; 201; 292. 1 May: *RMR* 66 fr. b I 30; 71 fr. a 1; 10 fr. b 5. 1 September: *RMR* 66 fr. b II 3; ChLA 495; P. Oxy. 1047; P. Oxy. 2561.

<sup>3</sup> Jahn (1984), 66ff.

<sup>4</sup> For easy comparison all figures will be given here and below in sestertii. Sestertii, four of which make a denarius, seem to have been the basis on which the soldiers' pay was originally calculated (cf. Jahn (1984), 65) although the *stipendia* were paid mainly in denarii (cf. H. W. Doppler, 'Die Münzen', in Ch. Meyer-Freuler, *Das Praetorium und die Basilica von Vindonissa* (1989), 107–19, esp. 110f., and the documentary evidence of the papyri (I) and the new Vindonissa pay receipt (II)).

TABLE 1. THE BASIC PAY OF A LEGIONARY FOOTSOLDIER (IN SESTERTII)

Date	Stipendium	Annual pay	%-increase
Caesar/Augustus <sup>5</sup>	<b>300</b> <sup>6</sup>	900	<b>100</b>
Domitian <sup>7</sup> (A.D. 84)	<b>400</b>	1,200	<b>33<math>\frac{1}{3}</math></b>
Septimius Severus <sup>8</sup> (A.D. 197)	800	2,400	100
Caracalla <sup>9</sup> (A.D. 212)	1,200	3,600	<b>50</b>
Maximinus Thrax <sup>10</sup> (A.D. 235)	2,400	7,200	<b>100</b>

The bold figures are based on literary evidence.

TABLE 2. SOLDIERS' PAY FOR VARIOUS TYPES OF UNITS MENTIONED IN PAPYRI

Date	Source	Stipendium as recorded	In sestertii <sup>11</sup>
A.D. 72/75	P. Yadin 722.4 <sup>12</sup> 11	50 denarii 60 denarii or more	200 240 or more
A.D. 81	RMR 68/ChLA 7 (= P.Gen.Lat. 1)	247 $\frac{1}{2}$ drachmae	247 $\frac{1}{2}$
C.A.D. 84	RMR 69/ChLA 9 (= P.Gen.Lat. 4)	297 drachmae	297
A.D. 192	RMR 70/ChLA 410 (= P. Berol. 6866 +P. Aberd. 133 +P. Reinach 2222)	84 denarii 15 $\frac{3}{4}$ obols	338 $\frac{1}{4}$
II/III cent. A.D. <sup>13</sup>	ChLA 446 (= P. Berol. 14100)	257 denarii 22 $\frac{3}{4}$ obols	1,031 $\frac{1}{4}$
II/III cent. A.D. <sup>13</sup>	ChLA 495 (= P. Hamb. 310)	257 denarii 22 $\frac{1}{4}$ obols <sup>14</sup>	1,031 $\frac{1}{4}$

<sup>5</sup> Suet., *Iul.* 26.3 may imply that Caesar had already fixed this sum by doubling the legions' previous pay: 'legionibus stipendium in perpetuum duplicavit.' No legionary pay-rise is recorded for the reign of Augustus.

<sup>6</sup> Tac., *Ann.* 1.17.4: 10 asses per day in A.D. 14. This equals 912 $\frac{1}{2}$  sestertii a year, which shows that Tacitus (i.e. the rebellious soldier speaking) gives no more than an approximation (if he was not implying a 'military year' of 360 days). The intention was clearly to dramatize the soldiers' situation, which is why their pay was broken down to the day. Dio LXVII.3.5 reports that the pay per pay-day before A.D. 84 was 300 sestertii.

<sup>7</sup> Domitian's *quartum stipendium* consisted of three aurei (= 300 sestertii) (Suet., *Dom.* 7.3; cf. also n. 1). After abolishing the *stipendium Domitiani* the old system of three pay-days was reintroduced, but now every soldier received 400 sestertii (Dio LXVII.3.5).

<sup>8</sup> All we learn from Severus' *Vita* (HA, *Sev.* 12.2) and Herodian (III.8.5) is that the increase was greater than all previous ones. Jahn (1984) has shown this increase to have been 100 per cent. Jahn's convincing arguments can now be confirmed (cf. below, vi, and n. 89). There seems to have been no pay-rise during the reign of Commodus; cf. A. Passerini, 'Gli aumenti del soldo militare da Commodus a Massimino', *Athenaeum* 24 (1946), 145-59.

<sup>9</sup> Caracalla increased the soldier's normal pay by a half to win over the soldiers after he killed his brother: Herodian IV.4.7; cf. also Dio LXXVIII.36.3 who states that Caracalla's increase cost Rome 70 million denarii yearly around A.D. 218. At this time, it seems, Caracalla's

pay-rise was at least partially taken back by Macrinus (Dio LXXVIII.12.7; 28.2; cf. Th. Pekáry, 'Studien zur römischen Währungs- und Finanzgeschichte von 161-235 n.Chr.', *Historia* 8 (1959), 443-89, esp. 484). Cf. also Dio LXXVIII.28.3 and 36.1 for Macrinus paying the soldiers recruited during his reign the rates Septimius Severus had established. As this, according to Dio, was one of the reasons for Macrinus' overthrow, Elagabalus almost certainly restored the previous pay scale (cf. Jahn (1984), 66 n. 49).

<sup>10</sup> Maximinus Thrax doubled the soldiers' pay: Herodian VI.8.8. After Maximinus Thrax there seems to have been no further increase of the *stipendia* (cf. Jahn (1984), 66, 68), only the two other forms of soldiers' income, *annona* and *donativa*, were increased (cf. D. van Berchem, 'L'annone militaire dans l'empire romain au 3<sup>e</sup> siècle', *Mem. Soc. nat. des Ant. de France* 80 (1936), 136f.; Jahn (1984), 53ff.).

<sup>11</sup> The conversions are based on the following rates: 1 sestertius = 1 drachma = 7 obols, or 1 denarius = 28 obols.

<sup>12</sup> For this new pay document see below, iv.

<sup>13</sup> On the dates, cf. Jahn (1983), 222f., who compares lay-out and script of the papyri to RMR 70.

<sup>14</sup> The figure is given here as convincingly restored by Jahn (1983), 221. The difference of  $\frac{1}{2}$  obol from the sum in ChLA 446 cannot be expressed in asses and may have to do with fluctuating currency exchange rates (cf. Jahn (1983), 223). The reading of the exact amount of obols may also be doubted.

As for the *stipendia* around A.D. 300, P.Panop. 2.36ff. informs us that the *ala I Hiberorum* received 73,500 denarii (= 294,000 sesterterii) to pay its soldiers. P.Panop. 2.292f. shows that the *cohors XI Chamavorum* was sent 65,500 denarii (= 262,000 sesterterii) for its soldiers' pay in the same period. P.Panop. 2.57 reports that an unspecified number of soldiers of the *legio III Diocletiana*, serving at the governors' *officium*, received a total of 343,000 denarii for their salaries.

Understanding of these data is hindered by several obstacles. P.Panop. leaves the number of recipients unmentioned, though we may be fairly certain that the commander's pay was not included.<sup>15</sup> The other papyri fail to mention both unit and rank of the soldiers.<sup>16</sup> Only for *RMR* 70 can we be certain that auxiliaries were being paid. None of these figures equal the *stipendia* of legionary soldiers, nor does there seem to be any simple ratio between them. R. O. Fink improved the reading of the *stipendia* in his edition of P.Gen.Lat. 1 (= *RMR* 68) from formerly 248 drachmae (= sesterterii) to 247½ drachmae. This led M. P. Speidel ('the Elder') to the conclusion that the figures in both *RMR* 68 and 69, if understood as 99 per cent of the full pay, could be restored to 250 sesterterii and 300 sesterterii respectively.<sup>17</sup> *RMR* 68 would therefore concern the *auxilia* whereas *RMR* 69 was the pay document of a legion and matched the legionary's pay as known from the ancient writers. This entailed a ratio of exactly 5:6 between the pay of the *auxilia* and the pay of the legions. This pay model<sup>18</sup> seems superior to others<sup>19</sup> because it can help explain transfers of soldiers from the legions to the *auxilia* without having to assume pay cuts or punishment.<sup>20</sup>

Yet this approach, it appeared, could not explain the odd figure of 84 denarii 15¾ obols in *RMR* 70.<sup>21</sup> It was therefore rejected by R. Marichal in his commentary on that document,<sup>22</sup> where he quoted two new pay records (*ChLA* 446 and 495), which also showed seemingly inexplicable figures: 257 denarii 22¾ obols and 257 denarii 22¼ (?) obols. Recently J. Jahn, adopting both the 1 per cent deduction and the 5:6 ratio, has shown that the 84 denarii 15¾ obols, being equal to 84 denarii 9 asses or 1,353 asses (= 338 sesterterii 1 as), and taken as 99 per cent of the full pay, lead to a *stipendium* of 1,366⅔ asses (= 341 sesterterii ⅔ as).<sup>23</sup> This sum, due three times a year, would therefore amount to a yearly salary of 4,100 asses or 1,025 sesterterii for the auxiliary soldiers in *RMR* 70 before Septimius Severus' pay-rise. Understanding the figures in *ChLA* 446 and 495 in the same way reveals an annual pay of 3,125 sesterterii. According to the 5:6 pay model one would expect a *miles cohortis* to receive 1,000 sesterterii a year (opposed to the 1,200 sesterterii a *miles legionis* was paid) before Septimius Severus' pay-rise, and 3,000 sesterterii (*mil. leg.*: 3,600 sesterterii) after Caracalla's. The supernumerary 25 sesterterii and 125 sesterterii respectively, Jahn suggested to be bonuses of some kind.<sup>24</sup>

Attractive and convincing though these considerations are, they were lacking, so far, proof beyond cavil.

<sup>15</sup> cf. P.Panop. 2.197f., where the pay of a *praepositus equitum promotorum legionis II Traianae* is listed separately.

<sup>16</sup> *RMR* 68 was formerly presumed to mention legionary soldiers because of the *tria nomina* of the recipients. M. P. Speidel, 'The pay of the *auxilia*', *RAS* 1, 83–9, esp. 86 and nn. 8–10, and more recently A. Mócsy, 'Die Namen der Diplommempfänger', in W. Eck and H. Wolff (eds), *Heer und Integrationspolitik* (1986), 437–66, have shown that as early as the first century A.D. the *tria nomina* are no proof for either Roman citizenship or type of unit.

<sup>17</sup> M. P. Speidel, op. cit. (n. 16), 86. Readers may note that the present author, M. A. Speidel (the 'Younger'), Basel, is the nephew of M. P. Speidel (the 'Elder'), Honolulu.

<sup>18</sup> Earlier suggestions of the 5:6 pay model (cf. A. Ch. Johnson, 'Roman Egypt to the reign of Diocletian', in T. Frank, *An Economic Survey of Ancient Rome II* (1936), 670ff., A. Passerini, *Le coorti pretorie* (1939), 101 n. 2, and G. Forni, *Il reclutamento delle legioni da Augusto a Diocleziano* (1952), 32ff.) were lacking an explanation of the figures given in the papyri.

<sup>19</sup> These can be described as the 1:3, 3:5, and 2:3 theses. For a short summary and the literature see Jahn (1984), 58ff., esp. nn. 17 and 18.

<sup>20</sup> M. P. Speidel, op. cit. (n. 16), 145 quoted the career of the 'Captor of Decebalus' (*AE* 1969/70, 583; cf. M. P. Speidel, 'The captor of Decebalus, a new inscription from Philippi', *JRS* 60 (1970), 142–53 = *RAS* 1, 173–87, esp. 179f.), who was promoted from the rank of a *vexillarius equitum* of the *legio VII Claudia* to a *duplicarius alae*. According to the 1:3 thesis this would have meant a severe pay-cut. For more evidence see *ibid.*, 180 and n. 43; cf. also Wierschowski, op. cit. (n. 1), 7ff., esp. for the high-ranking of the *alae*.

<sup>21</sup> M. P. Speidel, op. cit. (n. 16), 87; J. Kaimio, 'Notes on the pay of Roman soldiers', *Arctos* 9 (1975), 39–46, esp. 41: 'Unfortunately, all my attempts to find a mathematical solution to the problem of 84 denarii 15¾ obols have failed'.

<sup>22</sup> *ChLA* x, 7ff.

<sup>23</sup> Jahn (1984), 64f. and *idem* (1983), 224ff.

<sup>24</sup> Jahn (1984), 64f. and *idem* (1983), 225ff.



rather wobbly hand.<sup>28</sup> Preceding and now missing pages may have contained an official text by the unit's treasurer (*signifer*)<sup>29</sup> or its book-keeper (*librarius*), as well as perhaps the names and seals of witnesses. The complete document was presumably kept with the treasurer's records.

Clua was a member of a squadron (*turma*) — a subdivision known only in the auxilia<sup>30</sup> — led by a certain Albius Pudens.<sup>31</sup> Although Clua named his unit simply by the colloquial expression *equites Raetorum*,<sup>32</sup> we can be certain a *cohors Raetorum equitata* was meant, perhaps *cohors VII Raetorum equitata*, which is attested at Vindonissa during the mid-first century.<sup>33</sup>

According to this receipt, Clua received 50 denarii on 22 July A.D. 38 and, in addition, the whole of his next pay (75 denarii) in advance.<sup>34</sup> Clua's next pay-day was 1 September, his previous one had been on 1 May of the same year. Why, after only half the period between the pay-days had elapsed, he needed the equivalent of two-thirds of his normal pay and the whole of his next he fails to inform us. A possible explanation for his advanced pay may be that Clua suddenly and unexpectedly needed more money than he had on his account and therefore decided to overdraw it. He would then have received no pay on 1 September. On the troop's pay record an entrance of the kind *debet ex priore ratione* X . . . (cf. *RMR* 70 frag. a i 28; a ii 25, *passim*) may then have been made. Such practice is attested for the second and third centuries A.D.,<sup>35</sup> some soldiers owing over 176 denarii to the Roman state.<sup>36</sup>

Under what circumstances was the Roman army willing to grant advance pay? There may have been several, though we know of only one. It is revealed by an Egyptian papyrus of A.D. 179 (*RMR* 76), the main body of which contains some sixty-two receipts, issued by horsemen of the *ala Veterana Gallica* for their yearly hay money of 25 denarii. The great majority of them explicitly mention that they received the money in advance (ἐν προχορίᾳ), because they were about to leave their camp in Alexandria for several outposts in Lower Egypt, some more than 300 km away.<sup>37</sup> For the remaining few, which give no such mention, we can

<sup>28</sup> Some irregularities may cause surprise. When copying the date, Clua omitted the cognomen Quintilianus of the second consul. Dating by suffect consuls outside Italy was very uncommon (cf. W. Eck, 'Consules ordinarii und consules suffecti als eponyme Amtsträger', *Actes du colloque en mémoire de Attilio Degraffi Rome 27–28 Mai 1988* (1991), 15–44, esp. 30ff.) and may shed some light on military administration customs of the early empire. The use of both forms of the letter 'e': E (in 'Raetor(um)') and II (being the normal form on stylus tablets) in the same text or word, was, admittedly, unusual. Yet examples can be found with ease: cf. e.g. L. Bakker and B. Gallsterer-Kröll, *Graffiti auf römischer Keramik im Rheinischen Landesmuseum Bonn* (1975) no. 349; R. S. O. Tomlin, *Tabellae Sulis* (1988) no. 53; *CIL* XIII. 10009, 6, 119a; 10010, 188, 228d<sup>2</sup>, 228i, 251e *passim*. For the colloquial expression *eques Raetorum* cf. below n. 32.

<sup>29</sup> Vegetius, *Ep. rei mil.* II. 20 reports, that the *signiferi*, who had to be *litterati homines*, were in charge of the troops' money and responsible *singulis reddere rationem*.

<sup>30</sup> The legionary horsemen were assigned, instead, to the *centuriae* (cf. M. P. Speidel, 'Ein Silberring aus Baden für die Reiter der 21. Legion', *Helvetia Archeologica* 70 (1987), 56–8).

<sup>31</sup> Otherwise unknown. He may have been a member of the legion (perhaps an *eques legionis*) *ad tradendam disciplinam immixtus* (Tac., *Agric.* 28), as this was often done during the early Empire. Cf. also *AE* 1969/70, 661; *CIL* III.8438 and esp. M. P. Speidel, 'A Spanish cavalry decurion in the time of Caesar and Augustus', *RAS* I, 111–13.

<sup>32</sup> For such colloquial expressions, cf. Tab. Vindolanda 1988/944 (unpub.): *equites Vardulli for equites cohortis I fidae Vardullorum millariae civium Romanorum equitatae* and Tab. Vindolanda 1985/183 (unpub.): *Vocontii for equites alae (Augustae) Vocontiorum civium Romanorum* (for these tablets, cf. e.g. R. Birley, *The Roman Documents from Vindolanda* (1990), 29 and 9). The speech the emperor Hadrian gave on his inspection of the troops at Lambaesis, recorded in *ILS* 2487, 9133–9135 (A.D. 128), uses both terms equally: *campus*

*Commagenorum* and in the next line: *eq(uites) coh(ortis) VI Commagenorum* (*ILS* 9134). Cf. also M. P. Speidel, 'Ala Maurorum? Colloquial names for Roman army units', *RAS* I, 109–10.

<sup>33</sup> No *alae Raetorum* are known (the late Roman *ala I Flavia Raetorum*: Not. Dign. Occ. xxxv. 23 and *ala V Raetorum*: Not. Dign. Or. xxviii. 30 were upgraded *cohortes (equitatae?)*, cf. E. Birley, 'Raetien, Britannien und das römische Heer', *RA*, 259–71, esp. 266 n. 33; M. P. Speidel, 'The Roman army in Arabia', *RAS* I, 229–72, esp. 248f.). Of the many *cohortes Raetorum* the following are known to have had cavalry detachments: *I Raetorum eq.*; *I Raetorum eq. c. R.*; *III Raetorum eq.*; *V Raetorum (eq.?)*; *VII Raetorum eq.*; *VIII Raetorum eq.* During the first half of the first century A.D. there is no evidence of where any of these troops may have been stationed. Of the *cohors VII Raetorum* stamped tiles have been found in Vindonissa dating around the mid-first century A.D. (*CIL* XIII.12457, 12458; cf. Hartmann and Speidel, op. cit. (n. 27)). For the Vindonissa *alae*, cf. M. A. Speidel, 'Römische Reitertruppen in Augst', *ZPE* 91 (1992), 165–75.

<sup>34</sup> This is how 'accepit stipendi proximi X LXXV' is to be understood. The expression written out fully is also found in *RMR* 70 *passim*: 'accepit stipendi X . . .' and in P. Yadin 722, 4 and 11: 'accepit stipendi X . . .' *RMR* 68, *ChLA* 446 and 495 show only 'accepit stip.', *RMR* 71 and 72: 'accep. stip.' R. Marichal has shown (*ChLA* x, p. 14), that *stipendi* was a genitive ('généatif de relation'), linked to the verb *accipere* ('adverbialer Genetiv'), and specifying the nature of what was received ('Genetiv der Rubrik'), rather than the amount ('il n'est en rien question de quantité, mais de nature'). Hence his translation 'reçu comme solde', which is followed above: 'I . . . have received . . . as next pay.'

<sup>35</sup> cf. e.g. *RMR* 70 (A.D. 192); 73 (A.D. 120–50); *ChLA* 473 (second/third century A.D.).

<sup>36</sup> *RMR* 73 fr. a i 24.

<sup>37</sup> cf. S. Daris, 'Le truppe ausiliarie romane in Egitto', *ANRW* II.10.1 (1988), 743–66, esp. 752f. For advanced payments of grain, cf. *RMR* 78, 2 and 9 (second/third century A.D.).

safely assume the same. The money was given to the horsemen between 9 January and 6 March. Unfortunately we do not know when hay money was officially paid, but the most likely explanation for an early receipt is that the detachments would not be back on the day it was due, as outpost-duty could last several months.<sup>38</sup>

It may be that Clua too was about to go on a mission,<sup>39</sup> and therefore received his third *stipendium* early. As for the 50 denarii, on which he gives us no further information, one may quote the similar case of Tinhius Val[—] in the pay record *RMR* 70 (= P.Aberd. 133 frag. b col.ii.7ff.), who received a certain sum ('accepit sum(—)' and was sent 'ad praesi(dium?) Bab(ylonis?)'. His absence on the day the document was made is thus attested, and hence there was no entry 'accepit stipendi'. Admittedly, this happened over 150 years later, and the 50 denarii of the Vindonissa tablet may just as well have come from Clua's own account; the parallel nevertheless seems striking.

### III. THE FIRST-CENTURY PAY SCALES

Whatever questions may remain, the Vindonissa tablet provides us, for the first time, with safe and unambiguous evidence for the pay of an auxiliary soldier whose rank we know. This information enables us to assess the pay of the Roman army on safer grounds than were hitherto possible. It is now clear that an *equus cohortis* before Domitian's pay-rise in A.D. 84 received 75 denarii (= 300 sesteratii) per *stipendium*, i.e. 900 sesteratii per year.

We may next turn to the literary and papyrological evidence presented earlier. The pay of the horsemen in the cohorts equals that of the legionary soldiers. *RMR* 68, we can now be certain, reveals the basic pay of a *miles cohortis*, earning 250 sesteratii per *stipendium* or 750 per year before A.D. 84. *RMR* 69 supplies the basic legionary *stipendium* of 300 sesteratii, paid four times a year after Domitian's pay-rise, amounting to a yearly income of 1,200 sesteratii. Domitian will have raised the pay of the auxilia *pari passu* with the legions' pay by one third.<sup>40</sup> The ratio between the basic salary of a *miles cohortis* and that of a *miles legionis*, it can now be confirmed, was indeed 5:6.

The difference in pay between a *miles cohortis* and an *equus cohortis* before A.D. 84 was 50 sesteratii per *stipendium* or 150 sesteratii per year. As for the *equites legionis* we can be certain they received more than the basic pay of a *miles legionis* (= *equus cohortis*), 'cum naturaliter equites a peditibus soleant discrepare' (Veg., *Ep. rei mil.* 11.21). Also, before being promoted legionary horseman and earning *equestria stipendia*,<sup>41</sup> one had to serve several years as a footsoldier.<sup>42</sup> The difference in pay before A.D. 84 may well have been the same 150 sesteratii per year, amounting to an annual pay of 1,050 sesteratii, i.e. 350 sesteratii per *stipendium*.<sup>43</sup>

The emperor Hadrian tells us that the *equites alae* too received a higher pay than the *equites cohortis* (= *miles legionis*).<sup>44</sup> Yet was there a difference in pay between an *equus alae* and an *equus legionis*? The few surviving careers mentioning transfers from the legions to the *alae* do not necessarily suggest this. Ti. Claudius Maximus, the 'captor of Decebalus', was promoted by the emperor Domitian from *vexillarius equitum legionis*, drawing presumably pay-and-a-half, i.e. 1,575 sesteratii per year, to *duplicarius alae*, now receiving the double pay of an *equus alae*.<sup>45</sup> If we assume that the horsemen in the legions and in the *alae* were paid the

<sup>38</sup> cf. M. P. Speidel, 'Outpost duty in the desert. Building the fort at Gholai (Bu Njem, Libya), *Antiquités africaines* 24 (1988), 99–102. R. Marichal, *L'occupation romaine de la Basse Égypte: le statut des auxilia* (1945), 54f., explained the missing *stipendia* of several soldiers in *RMR* 70 by their absence from the camp at the time the money was paid or the record made respectively.

<sup>39</sup> For possible outposts, cf. Hartmann and Speidel, op. cit. (n. 27).

<sup>40</sup> M. P. Speidel, op. cit. (n. 15), 87; Jahn (1983), 66.

<sup>41</sup> *CIL* xii. 2602 = *ILS* 2118.

<sup>42</sup> cf. J. Gilliam, 'Dura rosters and the *Constitutio Antoniniana*', *RAP*, 289–307, esp. 292ff.; idem, 'An Egyptian cohort in A.D. 117', *RAP*, 309–15, esp. 309 and n. 3.

<sup>43</sup> Confirmation of this will be found in the later data (see below p. 96, and n. 93). The ratio between the income of a *miles* and an *equus* in the legion, in theory, may also have been calculated on the same basis as in the cohorts (750 sesteratii:900 sesteratii before A.D. 84), i.e. 5:6. This would lead to 1,080 sesteratii per year, a sum easily divisible by 3, suggesting a *stipendium equestre* of 360 sesteratii. But this sum does not reconcile with the figures of P. Panop. (cf. below pp. 99–100).

<sup>44</sup> *CIL* viii.2532, 18042 = *ILS* 2487, 9133–9135: *Difficile est cohortales equites etiam per se placere, difficilior post alarem exercitationem non displicere: ... equorum forma armorum cultus pro stipendi modo.*

<sup>45</sup> *AE* 1969/70, 583; M. P. Speidel, op. cit. (n. 20), 146f.; cf. also idem, op. cit. (n. 16), 87 and n. 18.



A NEW PAY RECORD ON A WRITING-TABLET FROM VINDONISSA



same basic *stipendium*, Ti. Claudius Maximus' promotion would have entailed a 25 per cent pay-rise. Another, slightly earlier, career reports the promotion of M. Licinius Fidelis from *eques legionis* to *duplicarius alae*.<sup>46</sup> This would have meant a 100 per cent increase. An even greater increase was granted to M. Annius Martialis during the later first century A.D., when he was promoted from *miles legionis* to *duplicarius alae*.<sup>47</sup> It, therefore, seems possible that *equites legionis* and *equites alae* received the same basic pay of 1,050 sesterterii per year before A.D. 84.<sup>48</sup> One may now propose the following pay scale for the first century A.D.

TABLE 3. FIRST-CENTURY PAY OF THE ROMAN ARMY (SESTERTII PER YEAR)

Branch	Rank	Before A.D. 84	After A.D. 84
<i>miles cohortis</i>	basic	<b>750</b>	1,000
	<i>sesquiplicarius</i>	1,125	1,500
	<i>duplicarius</i>	1,500	2,000
<i>eques cohortis</i>	basic	<b>900</b>	1,200
	<i>sesquiplicarius</i>	1,350	1,800
	<i>duplicarius</i>	1,800	2,400
<i>miles legionis</i>	basic	<b>900</b>	<b>1,200</b>
	<i>sesquiplicarius</i>	1,350	1,800
	<i>duplicarius</i>	1,800	2,400
<i>eques legionis or alae</i>	basic	1,050	1,400
	<i>sesquiplicarius</i>	1,575	2,100
	<i>duplicarius</i>	2,100	2,800

The bold figures are based on direct documentary or literary evidence.

All figures before A.D. 84 were easily divisible by three and therefore, in theory, payable in sesterterii as *stipendia* three times a year. Domitian's pay-rise brought the soldiers another *stipendium*, the yearly sums now being divisible by four.

These figures, though, were but nominal sums from which several considerable deductions were made.<sup>49</sup> As all full pay records show, a deduction of 1 per cent was made from each *stipendium*, even before it was accredited to the soldier. The nature of this deduction is obscure.<sup>50</sup> Its absence on the Vindonissa tablet does not necessarily mean that the 1 per cent deduction was not enforced in Vindonissa; it may instead reflect the nature of the tablet, of which we are not fully informed.<sup>51</sup>

The first-century pay records show that of the remaining 99 per cent (*ex eis*) 80 drachmae (= sesterterii) of the *stipendium* before A.D. 84 (RMR 68) and 100 drachmae (RMR 69)

<sup>46</sup> AE 1969/70, 661 from A.D. 55/8–71/4.

<sup>47</sup> CIL VIII.2354 add. = ILS 305. He was transferred from the same legion (*III Augusta*) to the same *ala* (*Pannoniorum*) as the above M. Licinius Fidelis several years earlier. One may also note the late second-century career of M. Aurelius Paetus, who was promoted from *eques alae* to *sesquiplicarius legionis* (AE 1977, 720; cf. Y. LeBohec, *La Troisième légion auguste* (1989), 205 and n. 214), which, according to the above pay scales, also entailed a pay-rise.

<sup>48</sup> For confirmation see below 96f. and 99f. The demand of the Batavian Cohorts in A.D. 69 for 'donativum, duplex, stipendium, augeri equitum numerum' (Tacitus, *Hist.* IV.19) — a passage quoted with great regularity whenever the pay of the auxilia is being discussed — is of no value in helping to determine the basic pay of the auxilia. For a detailed discussion of the passage, cf. Wierschowski, op. cit. (n. 1), 9ff.; see also M. P. Speidel, op. cit. (n. 16), 87 n. 19.

<sup>49</sup> Tacitus, *Ann.* I.17 reports deductions for: *vestis, arma, tentoria*.

<sup>50</sup> M. P. Speidel, op. cit. (n. 16), 86, who first recognized the 1 per cent deduction, suggested an exchange fee for conversion of denarii to drachmae. Yet, as 1 per cent of the *stipendia* in RMR 70, ChLA 446 and 495 appears to have been deducted although they were paid in denarii (and obols), this deduction is perhaps not to be explained as a conversion fee. Hence Jahn (1984), 63 n. 36, surmised its use for an institution or purpose, benefiting all soldiers of the unit. G. R. Watson, 'Documentation in the Roman army', *ANRW* II, 1 (1974), 493–507, esp. 499, suspected a service-charge for book-keeping.

<sup>51</sup> cf. above, II, with our suggestion that the horseman Clua received his money in advance because he was about to leave the camp. If this is correct, none of the above explanations (n. 50) would fully apply, which might explain the absence of the 1 per cent deduction. It is, of course, equally possible that the 1 per cent deduction was not yet in force at the time the Vindonissa tablet was issued.

thereafter were kept back for food (*in victum*).<sup>52</sup> Standard stoppages, it appears, were also made for hay money (*faenaria*), boots and socks (*caligas, fascias*), which, together with the deduction for food, represented about 40 per cent of the basic *stipendium* of footsoldiers.<sup>53</sup> Occasional stoppages were made for clothing (*in vestimentis*) and contributions towards the camp Saturnalia (*saturnalicium kastrense*) and the standards (*ad signa*). Altogether these deductions amounted to roughly three-quarters of the annual pay of the two auxiliary soldiers in *RMR* 68.<sup>54</sup> The rest of the money was booked to the soldiers' account (*depositum*), for which there must have been separate book-keeping.<sup>55</sup>

#### IV. THE NEW MASADA PAY RECORD (P. YADIN 722)

The recently published pay document from Masada has so far been excluded from the above discussion of the first-century pay scales and stoppage systems, for it differs in several points from all other known pay records. This is perhaps because it is not a complete pay record but rather an extract, copied out at the end of the year and serving as a receipt (hence 'accepi' in ll. 4 and 11). The remaining upper half of the papyrus contains the accounts for the first *stipendium* and parts of the second. After a heading with the date, the title of the document ('ratio stipendia(ria)'), and the name of the soldier, it shows two entries 'accepi stipendi', each followed by several deductions ('ex eos solvi'). Its purpose was 'to give a breakdown of the expenses he (i.e. the soldier) incurred throughout the year: a detailed account of his "debit"'.<sup>56</sup> It seems it was not meant to give further information. The text runs as follows:<sup>57</sup>

1.	IMP(ERATORE) VES]PAS[IA]N[O AV]G(VSTO) III CO(N)[S(ULE)	
2.	R]ATIO ST[IP]END[IA] (RIA?)	
3.	C.MESSIVS C.F(ILIVS) FAB(IA) BERV(TENSIS)	
4.	accepi st]ipendi	X L
5.	ex eos s[olui	
6.	hordiaría	[X XVI
6a.	(2 hand) ]rnius	
7.	sumtuarium	X XX
8.	c[a]ligas	X V
9.	lorum fasciari(um)	X II
10.	tunica linia	X VII
11.	accepi stipendi	X LX[
12.	ex eos solui	
13.	hordiaría	X XV[
14.	sumtuarium	X [XX
14a.	(3 hand) C.Antonius	
15.	pallium operatori(um)	[X
15a.	(4 hand) Puplius Valerius	
16.	tun[i]ca alba	[X

C. Messius from Beirut, the soldier mentioned in this document, was clearly a Roman citizen, for his tribe (Fabia) is given (l. 3). His unit and his rank, however, are not mentioned.

<sup>52</sup> We follow Marichal's convincing proposition (*ChLA* 1, p. 25), that the 128 drachmae in *RMR* 69, l. 5, deducted *in victum* (?), included 28 drachmae for the *saturnalicium*, leaving the standard 100 drachmae *in victum* as found with the second and third *stipendium* of this document.

<sup>53</sup> These standard stoppages and 4 drachmae, *ad signa* were the only deductions made during the second *stipendium* of Q. Iulius Proculus and C. Valerius Germanus in A.D. 81 (*RMR* 68), equalling c. 42 per cent of the *stipendium* (cf. also n. 54).

<sup>54</sup> This may also have been true for the legionary account in *RMR* 69 though we cannot be certain since the greater part of the last entry for the *quartum stipendium* with the deductions is missing. Of the first *stipendium*

c. 75 per cent was kept back, the following two show deductions of c. 50 per cent. The items for which these deductions were made are lost.

<sup>55</sup> cf. e.g. *RMR* 73.

<sup>56</sup> *Masada* 11, 45. Cf. *ibid.*, 41ff. for a detailed discussion of the differences between the Masada document and the pay records in *RMR*.

<sup>57</sup> The text and the reconstructions given here are the editors' (*Masada* 11, 46f.); cf. also their commentary 47ff. The expansion of the date in l. 1 is uncertain and could also be understood as IMP VES]PAS [A]V[G VI TIT]O III CO[S, i.e. the year 75 (cf. *op. cit.*, 47f.). The reconstruction of l. 2 seems open to doubts, since it lacks a grammatical link between the two words (cf. *op. cit.*, 48f.).

The sums he received as *stipendium* are *XL* (l. 4) and *XLX*[- (l. 11) respectively.<sup>58</sup> The 50 denarii, the reading of which seems beyond doubt, does not correspond with the pay scales suggested above (Table 3). Our understanding is further aggravated by the 60 or more denarii C. Messius received as his next pay. As the editors stressed, the 50 denarii credited to C. Messius as his first pay seem to equal the total of the deductions. The editors therefore concluded, 'that we have total expenditure rather than the sum of the *stipendium*' entered after 'accepi stipendi'.<sup>59</sup> This explanation lacks documentary support. In all other documents known, the formula *accepi* or *accepit stipendi*<sup>60</sup> is followed by the sum credited to the soldier. Furthermore the first-century pay records show an entry expressly reserved for the total of all expenses ('expensas': *RMR* 68; 'est s(umma) s(upra) s(criptarum)': *RMR* 69). A summing up of the expenses under the heading *accepi stipendi* thus seems unlikely.

The explanation for the absence of the total of expenses in the first section of the Masada document may be provided by the third pay account of C. Valerius Germanus in *RMR* 68 (l. 23ff.). Here too addition of the expenses listed gives a total equal to the pay credited. Again the entry with the total of expenses was omitted, just as in the Masada document. Because of the correspondence of pay and expenditure the omission of the entry with the total of expenses in both accounts may have been deliberate.<sup>61</sup> Of the second pay account on the Masada document too little is preserved to draw any safe conclusions on this matter.

If the figures in ll. 4 and 11 were C. Messius' pay and not the total of his expenses, how are the unexpected sum of 50 denarii and the different sum of the second *stipendium* to be explained? The editors have concluded that the purpose of this document was solely to give a detailed breakdown of the soldier's expenses throughout the year. Hence the absence of statements concerning further money transactions as we find them in the Geneva documents: the depositing of the balance (*reliquas deposuit*), the statement of the previous balance (*habuit ex priore ratione*) and the new total (*fit summa omnis*).<sup>62</sup> If correct, this would not allow for statements on prior deductions of the *stipendium*, which had no connection with the expenses. Such deductions, however, may have occurred. The entry 'debet ex priore ratione' in *RMR* 70 (*passim*) shows that debts could be carried over from the last pay period, and were probably deducted from the next *stipendium*.<sup>63</sup> Moreover, as we have seen, an unitemized 1 per cent was normally deducted from the full pay. Considering the purpose of the document and the possibility of unspecified deductions before crediting, the sum of 50 denarii for C. Messius' first *stipendium* may have been what was left of his pay for stoppages. As for his second pay, again too little is preserved to draw any safe conclusions. Nevertheless, we can observe that his pay now amounted to 60 denarii at the least, opening the possibility that Messius this time received his full *stipendium*.<sup>64</sup>

What was the rank and unit of C. Messius? Though the document does not explicitly mention it, the editors suggested he may have been *eques legionis X fretensis*.<sup>65</sup> This assumption is based upon Messius' Roman citizenship and the surprisingly high amount of money that was deducted from each *stipendium* for barley (as fed to cavalry horses), rather than for hay (fed to pack animals) as in *RMR* 68. Another argument in favour of Messius' rank as a horseman may be the sum he was charged for boots and socks. This deduction, it appears, was made only once a year. If this is correct, the sum he had to pay, 7 denarii, was, over the whole year, less than the deductions *caligas fascias* from the *stipendia* of the soldiers in

<sup>58</sup> The editors of the document understood the expression *accepi stipendi*, by suggesting the genitive to relate to the sum of 50 denarii, which was obviously not the full *stipendium*. Hence their translation 'I received of/from my pay' (pp. 44, 47). On the other hand, they quoted *RMR* 68, 69, and 70, where they believed the same expression to denote the full sum, despite the fact that these documents only show the full sum minus 1 per cent. As the new Vindonissa tablet proves, *accepi stipendi* could indeed be followed by the full *stipendium*. It must, therefore, be translated 'I have received as pay', the genitive denoting the quality of the money rather than the amount (cf. above n. 34).

<sup>59</sup> *Masada* II, 51; cf. also 44f.

<sup>60</sup> See also the abbreviations *accep.* and *stip.* as in e.g. *RMR* 68, 71, 72, *ChLA* 446, 495.

<sup>61</sup> In his comment on *RMR* 68 (p. 248), R. O. Fink reached the same conclusion.

<sup>62</sup> It could also be argued that C. Messius had no money at all in his deposit, which would also explain the absence of the entries concerning the *depositum*.

<sup>63</sup> In any case, it seems, the debts were not automatically deducted from the soldiers' savings: the amounts *in deposito* and *in viatico* remained untouched: e.g. *RMR* 70 fr. a i, 28ff.; ii, 25ff.; fr. b i, 9ff.; 22ff. The new Vindonissa tablet may show how such debts could originate.

<sup>64</sup> Because of the fragmentary state of the papyrus, the possibility that Messius ran up further debts cannot be totally excluded.

<sup>65</sup> cf. the editors' comments, *Masada* II. 39 and 51ff.

*RMR* 68, who paid 9 denarii (36 drachmae) per year. It seems plausible that horsemen needed new boots less often than footsoldiers. For all these reasons it seems justified to suppose that C. Messius was a horseman, perhaps serving in a legion.

The stoppages for horsemen as recorded on the new Masada pay record together with a Latin loan of A.D. 27 enable us to cross-check the above pay scales for the *alae*.<sup>66</sup> On 25 August of that year L. Caecilius Secundus, cavalryman of the *ala Paulini*, borrowed 600 drachmae (= sestertii) from C. Pompeius, a *miles cohortis*. He promised to pay back 200 drachmae with his next pay (*stipendio proximo*), which was due only nine days later (1 September). According to the figures reached above his full *stipendium* was 350 sestertii, or, after the 1 per cent deduction, 346½ sestertii. If the standard sums for barley (64 sestertii = 16 denarii)<sup>67</sup> and food (80 sestertii = 20 denarii) were deducted, Secundus was left with 202½ sestertii,<sup>68</sup> just enough to cover the interest of six obols on the 200 drachmae.<sup>69</sup>

At first glance it may seem hard to believe that Secundus was willing to dispose of the full sum he would receive on his next pay-day. However, since he needed another 400 drachmae, this becomes plausible. For these 400 drachmae he left as pledges a helmet, inlaid with silver, a silver-inlaid badge, and a scabbard adorned with ivory and silver. Perhaps C. Pompeius would have preferred to lend more of his money on interest. On the other hand, the pledges must have been worth more than the money Pompeius was willing to lend for them. Yet in contrast to the above 200 drachmae, no repayment scheme for the 400 drachmae was arranged. This may imply that Secundus was not able to redeem the pledges in the immediate future. In addition to these arguments, Secundus at this time, shortly before his next pay-day, must have known how high his stoppages would be. It therefore seems possible that c. 200 drachmae (= sestertii) was the full amount which would be left of Secundus' pay after deductions, and which Pompeius could safely assume to be repaid after Secundus' next pay-day.<sup>70</sup> If our assumptions are correct, they confirm the above conjecture that the pay of the *equites alae* may have been 350 sestertii per pay-day before A.D. 84. Further confirmation will be found with the third- and fourth-century data presented below (vi).

The Roman soldier of the first century A.D. was well taken care of. All basic necessities were provided for, the costs being deducted at source. The supply services were run by the troops' specialists and their financial administration was left entirely with the troops' accountants.<sup>71</sup> Apart from the increase of pay and deductions Domitian seems to have left this system unaltered, as the unchanged book-keeping system before and after A.D. 84 implies (compare *RMR* 68 and *RMR* 69). Because it left so much money in the hands of the

<sup>66</sup> P. Vindob. L. 135; cf. H. Harbauer and R. Seider, 'Ein neuer lateinischer Schuldschein: P. Vindob. L. 135', *ZPE* 36 (1979), 109–20, Taf. iv. For further comments on this text see J. F. Gilliam, 'Notes on a new Latin text', *RAP*, 429–32; M. P. Speidel, 'Auxiliary units named after their commanders: four new cases from Egypt', *RAS* 1, 101–8. J. Shelton, 'A note on P. Vindob. L. 135', *ZPE* 38 (1980), 202.

<sup>67</sup> By analogy to the equal sums deducted in *victum/sumptuarium* from both the legionaries' (P. Yadin, 722) and the auxiliaries' (*RMR* 68) *stipendium* and the equal pay for cavalrymen in the legions and in the *alae* (for confirmation, cf. also the third-century data below), we assume that the stoppages for the horsemen's barley-money were also equal in both types of unit. Differences in stoppages, it seems, were mainly due to different equipment and clothes, hence Hadrian's remark: 'equorum forma armorum cultus pro stipendi modo', *ILS* 2487 (cf. above n. 44).

<sup>68</sup> If boots and socks were deducted with each *stipendium* rather than at the beginning of the year, he would have had 193.2 sestertii left: the deduction then would have been 7 denarii or 28 sestertii: 3 = 2.3 denarii or 9.3 sestertii. There is no apparent reason, however, why the *equites alae* should have paid for their boots and socks more often than the *equites legionis*. For the equal treating of *equites alae* and *legionis* see above n. 20 and pp. 92–3 and below pp. 99–100ff.

<sup>69</sup> All other stoppages, mainly for clothes (*in vestimentis*) did not occur regularly, and Secundus will have avoided them, if he could. As the pay accounts of the

second *stipendium* of Q. Iulius Proculus and C. Valerius Germanus show (*RMR* 68), it was possible to keep deductions at a minimum (cf. above n. 49). Cf. also Tacitus, *Ann.* xiii. 35: 'fuisse in eo exercitu veteranos... sine galeis, sine loriceis, nitidi et quaestuosi, militia per oppida expleta.'

<sup>70</sup> Even if Secundus invested the borrowed money so that he could not dispose of it for a longer period of time, it could be argued that he probably needed no extra money for daily living expenses, since these were covered by the deductions from his pay.

<sup>71</sup> For a possible reconstruction of the supply services, cf. J. Remesal Rodríguez, 'Die Procuratores Augusti und die Versorgung des römischen Heeres', in H. Vettters and M. Kandler (eds), *Der römische Limes in Österreich 36/1; Akten des 14. Internationalen Limeskongresses 1986 in Carnuntum* (1990), 55–64. In *La 'annona militaris' y la exportación de aceite Bético a Germania* (1986), 91ff., esp. 94, the same author expressed the view that because of the many deductions from the soldiers' pay, hardly any money actually changed hands. This can have been no more than a general tendency during the first century A.D. as is shown by the accounts of the second *stipendium* of Q. Iulius Proculus and C. Valerius Germanus in *RMR* 68 (A.D. 81). Well over 50 per cent of these *stipendi* was actually paid out (cf. above nn. 53 and 54). Cf. also the soldiers' loan on the above P. Vindob. L. 135 (A.D. 27), promising the repayment of 200 drachmae with the next *stipendium*. For the second-century developments, cf. below and especially the soldiers' loans *CPL* 128, 188, 189, 194.

commanding officers, this pay system was open to fraud, and Pliny found 'magnam foedamque avaritiam, negligentiam parem' which called for official controls of the 'rationes alarum et cohortium' (Pliny, *Ep.* VII.31). For some of these reasons the system underwent changes during the second century.<sup>72</sup>

## V. SECOND-CENTURY CHANGES

The next recorded pay-rise after A.D. 84 is the one granted by Septimius Severus in A.D. 197, i.e. over a century later. If there was indeed no further pay-rise in the intervening period, the pay rates presented above were, at least in theory, still accurate, but a pay record from the time between the pay-rises of Domitian and Septimius Severus, *RMR* 70 of A.D. 192, shows that several considerable changes of the accounting system had been undertaken, changes that can also be observed on the later pay records (*ChLA* 446, 473, and 495). The rolls no longer contained all the *stipendia* of one year under the soldier's name. Now a new roll was made up for each *stipendium* containing a continuous list of all the soldiers' accounts (cf. *RMR* 70). The only standard deductions were itemized *collatio* (*RMR* 70), *contulit publico* (*ChLA* 495), or *sublatio* (*ChLA* 446, 473), the figures extant being 8 denarii 4 obols (*ChLA* 446), 4 denarii 22½ obols (*RMR* 70), and 4 denarii 4 obols (*ChLA* 495). It is clear that these stoppages were of a different nature from the prior deductions in *victum/sumptuarium* and *faenaria/hordiararia*.<sup>73</sup> If they were still connected to the supply system, these small deductions could only have represented a compulsory contribution towards the financial upkeep of its logistic organization,<sup>74</sup> and no longer served to cover the expenses for hay, barley, food, boots and socks. Whatever the exact nature of these stoppages, it is certain that deductions were gradually reduced.<sup>75</sup>

The reduction of stoppages can already be observed in a loan of 7(?) August A.D. 140, in which an *eques cohortis* promises to pay back 79 denarii to a fellow horseman of the same unit from his next pay ('e stipendio proximo').<sup>76</sup> His income per pay-day was 100 denarii (400 sestertii per *stipendium* or 1,200 sestertii annually, if this was paid three times per year). After the 1 per cent deduction, which still seems to have been enforced at this time (cf. below), he had 99 denarii left. If he kept his promise to pay off his debts on his next pay-day (1 September), only 20 denarii were available for deductions. These would not even have covered the prior stoppages for food (25 denarii = 100 drachmae or sestertii; cf. above, n. 52), let alone money for barley or anything else. If the costs for these were no longer deducted at source, the soldier could have hoped (or planned) to procure either more money or perhaps even the items required during the time between pay-days, and would not have had to rely on the 20 denarii (minus whatever deductions) left of his *stipendium*.

Stoppages appear to have been reduced perhaps as early as Hadrian's reign, for this emperor is said to have reorganized the administration and the expenses of the army during his visit to the troops on the Rhine in A.D. 121.<sup>77</sup> Perhaps the Roman soldiers now had to buy their rations (and those for their horses), as well as other items on their own behalf, either from the

<sup>72</sup> cf. also A. R. Birley's suggestion that some of the soldiers described by Tacitus, *Ann.* XIII.35 (cf. n. 69) as 'nitidi et quaestuosi' 'had been making money from selling "duty-free goods" from the army's supplies to civilians ("The economic effects of Roman frontier policy", in A. King and M. Henig (eds), *The Roman West in the Third Century. Contributions from Archaeology and History*, BAR Int. Ser. 109 (1981), 39–53, esp. 46).

<sup>73</sup> Occasional deductions survive for the repair of armour and helmet ('re[fectio] lorice[ae] et casid[is] X I s[emis]': *ChLA* 446, cf. Jahn (1983), 220 and n. 13) and for servants' food ('solvit tess[eras] baronum X LX': *ChLA* 495, cf. M. P. Speidel, 'The soldiers' servants', *Anc. Soc.* 20 (1989), 242 and n. 19).

<sup>74</sup> cf. above n. 71.

<sup>75</sup> Another way of decreasing stoppages was to keep the

sums deducted at a fixed rate over periods of great inflation. This can be observed e.g. with the deposits which the *equites cohortis XX Palmyrenorum* had to pay for their horses: 125 denarii in both A.D. 208 and 251 (*RMR* 99 = *ChLA* 311 and *RMR* 83 = *ChLA* 352; cf. R. W. Davies, 'The supply of animals to the Roman army and the remount system', *Service in the Roman Army* (1989), 153–73). Already in A.D. 139 *equites alae* did not pay significantly more, as a receipt for the return of such a deposit (*RMR* 75 = *ChLA* 397) reveals the 'pretium equi' to have been '[d]enarij centum[-]' (ll. 3 and 5; cf. esp. Marichal's comments in *ChLA* IX, p. 103).

<sup>76</sup> P. Mich. VII.438 = *CPL* 188; cf. esp. Gilliam's comments and improved readings in *RAP* 53–9, esp. 54ff.

<sup>77</sup> 'labentem disciplinam retinuit ordinatis et officiis et impendiis' (HA, *Hadr.* x.3).

army or through other agents. Some evidence of this can be found on papyri and ostraca.<sup>78</sup> This would have given the soldiers the opportunity to buy at low prices, and the state may have saved some money by reducing the costs for the army's supply services.

During the second half of the second century the emperors began the provision of free *annona*,<sup>79</sup> and in the late seventies we even find that the Roman state had begun to pay annual contributions towards the cavalrymen's expenditure on fodder.<sup>80</sup> Although the evidence is admittedly scanty, we see a reduction of stoppages and the beginning of contributions towards expenses. This entails a steady increase of the soldiers' net income.

#### VI. THE LATER *STIPENDIA*

Information on the later *stipendia* can be obtained from *RMR* 70 (84 denarii 15<sup>3</sup>/<sub>4</sub> obols), *ChLA* 446 (257 denarii 22<sup>3</sup>/<sub>4</sub> obols), and *ChLA* 495 (257 denarii 22<sup>1</sup>/<sub>4</sub> obols) (cf. above, Table 2). The fact that odd figures were credited as *stipendia* is not surprising as the troops' accountants had to deal with uneven sums since the *stipendium Domitiani* was abolished, and the annual salaries, all divisible by four, suddenly had to be paid in three instalments again. The figures surviving on papyri prove that the Roman military accountants' precision went as far as to ignore the payability of the *stipendia* in full drachmae (sestertii) or obols, let alone denarii.<sup>81</sup>

Jahn's interpretation of the auxiliary pay record *RMR* 70 (cf. above, n. 23), with its *stipendia* of 84 denarii 15<sup>3</sup>/<sub>4</sub> obols, yields the yearly pay of 1,025 sestertii for a *miles cohortis* in A.D. 192. Yet the sum expected after Domitian's pay-rise in A.D. 84 would be 1,000 sestertii (cf. Table 3), which leaves a difference of 25 sestertii, for which there seems to be no obvious explanation. Jahn suggested that this may have been a bonus of some kind.<sup>82</sup> In any case it appears to reflect a further state contribution towards the soldiers' pay, for a mathematical explanation confined to the *stipendia* seems unavailable. The legionaries' basic *stipendium* at this time was 1,200 sestertii (cf. above, Table 1); hence the ratio remained 5:6, as in the first century A.D.

With *ChLA* 446 and 495 we are in a similar situation. For both papyri the *stipendia* (257 denarii 22<sup>3</sup>/<sub>4</sub> (1/4?) obols) can be reconstructed to yearly salaries of 3,125 sestertii (cf. 1). Again, these can be best understood as 3,000 sestertii per year plus 125 sestertii, a contribution of the kind found above in *RMR* 70. Both papyri have been dated to the second/third century by R. Marichal, and show a close resemblance to *RMR* 70 of A.D. 192. Thence Jahn dates them to the early third century.<sup>83</sup> The sum of 3,000 (+ 125) sestertii must clearly belong to the period after Septimius Severus' pay-rise, who granted 'militibus tantum stipendiorum quantum nemo principum dedit' (HA, *Sev.* 12.2). His pay-rise, therefore, must have been substantial. If this emperor used any of the classical factors (33 per cent, 50 per cent, or 100 per cent) to raise the soldiers' pay, the sum of 3,000 (+ 125) sestertii can, in theory, be explained as the annual income of a *miles cohortis*, drawing pay-and-a-half (cf. Table 3) after a 100 per cent pay-rise. Although it cannot be completely excluded that both *ChLA* 446 and 495 represent pay records of *sesquuplicarii*, it seems rather unlikely. It is, therefore, more attractive to date the papyri after Caracalla's pay-rise of A.D. 212, which increased the soldiers' normal pay by a half

<sup>78</sup> cf. Jahn (1983), 223, and especially the many examples of soldiers acquiring food, clothes, and even weapons mainly from or through their relatives, cited in Wierschowski, op. cit. (n. 1), 112ff. The earliest and the majority of these examples date to the early second century. Wierschowski therefore, too, comes to the conclusion, 'dass sich seit dieser Zeit (the time of the Geneva papyri) das System der Soldatenversorgung seitens der Armee gewandelt haben muss' (121).

<sup>79</sup> van Berchem, op. cit. (n. 10); idem, 'L'annone militaire est-elle un mythe?', *Armées et fiscalité* (1977), 331-40.

<sup>80</sup> P.Hamb. 39 = *RMR* 76 (A.D. 179): 25 denarii per year for χοῦσις (green fodder, esp. for horses: cf. Liddel, Scott and Jones, *Greek-English Lexicon* s.v.). As the deduction of 16 denarii for barley from each horseman's *stipendium*, made over one hundred years

earlier, implies, this was not the full sum cavalrymen spent on horse fodder. By the fourth century at the latest, soldiers also received free rations for their servants; cf. M. P. Speidel, op. cit. (n. 73), 242 and n. 20.

<sup>81</sup> cf. only the many fractions of obols recorded in *RMR* 70 and *ChLA* 446. Jahn's argument (1983), 223ff., that payability of the *stipendia* was achieved by enforcing the 1 per cent deduction, does not seem convincing, for the sums credited (*accepit stipendi*) and those actually handed out (*reliquos tulit*) in *RMR* 70 show fractions of obols. If the military accountants had ever tried to achieve payability in round sums, it seems they should have been able to do better. Certainly the soldiers' yearly pay was calculated irrespective of its payability in thirds after a 1 per cent deduction.

<sup>82</sup> cf. above p. 89 with n. 24.

<sup>83</sup> Jahn (1983), 222ff.

(cf. above, Table 1). The figure of 3,000 sesterii can then, still assuming a 100 per cent pay-rise by Septimius Severus, be explained as the basic annual pay of a *miles cohortis*.<sup>84</sup> The ratio between basic pay for the legions and the auxilia may still have been 5:6.

Confirmation of these results is found in the Panopolis papyri. For the first of January pay-day in A.D. 300, 65,500 denarii (= 262,000 sesterii) were delivered to pay for the *stipendia* of an unspecified number of soldiers of *cohors XI Chamavorum*.<sup>85</sup> Taking Maximinus Thrax' pay-rise of 100 per cent into account, we arrive at an annual pay of 6,000 sesterii for a *miles cohortis* at that time. This leads to a *stipendium* of 2,000 sesterii. The delivered sum divides exactly into 131 such *stipendia* of 2,000 sesterii.<sup>86</sup>

Jahn has reached the same result by splitting the sum of 65,500 denarii into prime numbers:  $2 \times 2 \times 5 \times 5 \times 5 \times 131$ .<sup>87</sup> It seems convincing that the factor 131 could have nothing to do with the calculation of the value of the *stipendia*, and therefore must have been due to their number. In theory the number of *stipendia* could also be doubled (262), which would lead to a value of 250 denarii. Yet this theoretical result can almost certainly be excluded, for a *stipendium* of 250 denarii (= 1,000 sesterii) for a *miles cohortis* at this time is not to be reached by the attested pay-rises.<sup>88</sup>

Jahn's attempt to establish the pay of the horsemen in *ala I Hiberorum* by the same method is somewhat less convincing. 73,500 denarii were transferred to this unit (the strength of which is again unknown), to be paid as *stipendia* to its soldiers.<sup>89</sup> Split into prime numbers, the figure is  $2 \times 2 \times 3 \times 5 \times 5 \times 5 \times 7 \times 7$ . Jahn took the factors  $3 \times 7 \times 7$  to be responsible for the number of *stipendia*, the remaining factors for its value.<sup>90</sup> This calculation leads to 147 *stipendia* of 500 denarii (= 2,000 sesterii),<sup>91</sup> which implies the same *stipendium* for a *miles cohortis* and an *eques alae* at the end of the third century A.D. If the above calculations of the *stipendium* of the *miles cohortis* are correct and his pay indeed followed all pay-rises, Jahn's conclusion of equal pay would entail a considerable pay-cut or a curtailment of some of the pay-rises during the second and third centuries A.D. for the *equites alae*. This seems rather unlikely.

The suggested annual pay of the *eques alae* as presented above (Table 3) was 1,050 sesterii before A.D. 84 and 1,400 sesterii thereafter (a factor 7 was hence already included). If we lead this sum through the above described pay-rises, we arrive at an annual pay of 8,400 sesterii (= 2,100 denarii) and a *stipendium* of 2,800 sesterii (= 700 denarii). The sum of 73,500 denarii, delivered to *ala I Hiberorum*, would therefore allow for exactly 105 ( $3 \times 5 \times 7$ ) basic *stipendia* of 700 denarii ( $2 \times 2 \times 5 \times 5 \times 7$ ).<sup>92</sup> This even result appears to confirm the *stipendium* of 2,800 sesterii (= 700 denarii) for an *eques alae* during the reign of Diocletian.<sup>93</sup>

If these results are correct, the *stipendia* of the *miles cohortis* and the *eques alae* at the turn of the third to the fourth century still show the same ratios to each other. If we run the remaining figures for the legions (cf. above, Table 3) through the pay-rises of the second and third centuries A.D. we arrive at a basic legionary *stipendium* of 2,400 sesterii (= 600 denarii), the legionary horseman drawing 2,800 sesterii (= 700 denarii) per pay-day. The ratio between the basic pay for the auxilia and for legionary footsoldiers thence remained 5:6.

The sums in P.Panop. 2.57 give us the opportunity to crosscheck this conjecture. For their *stipendium* of 1 January A.D. 300, an unspecified number of soldiers of *legio III*

<sup>84</sup> Jahn (1983), 225, it seems, reached the same conclusion. His arguments, based on the assumed ratio of 5:6 between the legions and the auxilia (cf. Jahn (1984), 66ff.), can now be confirmed.

<sup>85</sup> P.Panop. 2.292f.

<sup>86</sup> This sum would allow for any number of *duplicarii* and any even number of *sesquiplicarii*. Some centurions' pay may also have been included (cf. below p. 104f.). This understanding of the figures in P.Panop. does not allow for bonuses of the kind found in *RMR* 70 and *ChLA* 446 and 495. Perhaps, therefore, they were no longer included in the *stipendia* at this time.

<sup>87</sup> Jahn (1984), 67.

<sup>88</sup> Only if one of the pay-rises of Septimius Severus and Maximinus Thrax is totally denied, can this sum be reached.

<sup>89</sup> P.Panop. 2.36ff.

<sup>90</sup> Jahn (1984), 67 n. 55.

<sup>91</sup> The unlikely theoretical alternative being 294 *stipendia* of 250 denarii.

<sup>92</sup> The surprisingly small number of soldiers in both the *cohors XI Chamavorum* (max. 131) and the *ala I Hiberorum* (max. 105) need not be the units' full strengths (as Jahn (1984), 61 and nn. 28–30 seems to assume). It is perhaps more likely that the units, whose full strengths at this time are unknown, were split up into several detachments in different camps: cf. e.g. A. K. Bowman, 'The military occupation of Upper Egypt in the reign of Diocletian', *BASP* 15 (1978), 25–38, esp. 33. If correct, this might explain why the *ala I Hiberorum*, when the above pay arrived, was under the command of only a *decurio* (Besas; cf. P.Panop. 37).

<sup>93</sup> In consequence, the figure suggested above of 1,050 sesterii before Domitian's pay-rise is also confirmed. The alternative presented above of 1,080 sesterii (cf. n. 43) can now, in all probability, be ruled out, for it cannot be run through the second- and third-century pay-rises to fit the sums of the Panopolis papyri.

*Diocletiana*, doing duty at the *officium* of the *praeses* of the lower Thebais, were sent 343,300 denarii. This sum cannot be explained as multiples ( $1 \times$ ,  $1.5 \times$ , or  $2 \times$ ) of the basic legionary *stipendium* ( $343,300/600 = 572-1666$ ), which is why Jahn assumed a scribal mistake.<sup>94</sup> It may be worthwhile to recall the composition of the staff (*officium*) of governors. Several ranks and functions could be employed here, the most important being the *cornicularius*.<sup>95</sup> The *cornicularii*, however, drew *equestria stipendia*.<sup>96</sup> The total figure must therefore allow for (multiples of) legionary horsemen's pay. If this is taken into account and the above reached *stipendia*, 600 denarii for the legionary footsoldier and 700 denarii for the horseman, are applied, the figure of 343,300 denarii makes sense. The problem of how many soldiers in how many different ranks were being paid still remains, but we can now at least give a few examples of how to divide the 343,300 denarii: 1 basic horseman's *stipendium* and 571 basic footsoldiers' *stipendia* or 7 basic horsemen's *stipendia* and 564 basic footsoldiers' *stipendia*,<sup>97</sup> or 13 and 557, etc. Many different divisions are, of course, possible.

The number of basic *stipendia* thus reached is admittedly rather high, but it reflects no more than a theoretical maximum of soldiers present on the governor's staff. Many of these soldiers will have been paid more than the basic *stipendium* (receiving pay-and-a-half or double pay) thus reducing the number of soldiers. The total of *stipendia* may also have included the pay of a centurion (cf. below, VII),<sup>98</sup> which would decrease the number of soldiers in the *officium* of the *praeses* even further.

The results so far achieved appear to confirm the 5:6 ratio between the auxiliary and the legionary basic pay up to beginning of the fourth century A.D. The reconstructed pay scales can be reconciled with all the available evidence. What was paid as *stipendium* in these days, however, was no longer the soldier's main source of income. Supplementary payments were made in kind from the *annona militaris* since the late second century A.D.,<sup>99</sup> and an ever increasing amount of money was given to the soldiers by the emperors as *donativa*.<sup>100</sup> These gifts of money would make no distinction between auxiliaries and legionaries or even between the ranks — only the higher officers received double<sup>101</sup> — and would thus keep the actual difference in pay at an even lower ratio. As for the deductions at the beginning of the fourth century A.D., the evidence allows no conclusions. The figures in the Panopolis papyri are sums which have not yet been credited to the soldiers and hence are free of all stoppages.

The basic annual pay in sesterii of the soldiers serving from Septimius Severus to Diocletian can now be set forth (Table 4).

## VII. THE HIGHER PAY RATES

The Roman army had a great many ranks and functions below the centurionate but perhaps only three different pay grades: basic, pay-and-a-half (*sesquiplicarius*), and double pay (*duplicarius*).<sup>102</sup> For the early Empire at least, there is also evidence for treble pay (*triplicarius*) as instanced by a gravestone found not long ago at Mainz.<sup>103</sup> The stone records Antiochus, son of Antiochus, who had served as an *eques ala(e) Parthorum et Araborum* and

<sup>94</sup> He explained the figure by assuming the scribe of the papyrus had actually meant to write 343,200 denarii, which is divisible by the basic footsoldiers' *stipendium* ( $343,200/600 = 572$ ). The mistake happened because the scribe, according to Jahn, misheard *διακοσίας* for *τριακοσίας*: cf. Jahn (1984), 68f.

<sup>95</sup> For a list, see esp. A. v. Domaszewski and B. Dobson, *Die Rangordnung des römischen Heeres* (2nd edn, 1967), xi–xiii and 29–37, esp. 29ff. Cf. also A. H. M. Jones, 'The Roman civil service (clerical and sub-clerical grades)', *JRS* 39 (1949), 38–55, esp. 44.

<sup>96</sup> *CIL* XII.2602; cf. Domaszewski and Dobson, op. cit. (n. 95), 31. Cf. also D. Breeze, 'Pay grades and ranks below the centurionate', *JRS* 61 (1971), 130–5, esp. 133, who suggested that the *cornicularii* were not actually mounted, but received *equestria stipendia* 'simply as a means of increasing their pay'.

<sup>97</sup> Divisible, of course, into e.g. 3 double and 1 basic (= 2 pay-and-a-half and 4 basic (or 2 double)) horsemen's pays and 282 double foot-soldiers' pays, etc.

<sup>98</sup> For centurions attested in the *officium* of governors, cf. Jones, op. cit. (n. 95), 44 and n. 60.

<sup>99</sup> cf. esp. Berchem, op. cit. (n. 79). If the supplies in kind did not suffice, the difference was paid in cash. Perhaps this is in part the explanation for the super-numerary 25 sesterii and 125 sesterii respectively in *ChLA* 446 and 495 (cf. above p. 89). The figures given in the Panopolis papyri have recently been discussed by R. Duncan-Jones, 'Pay and numbers in Diocletian's army', now in idem, *Structure and Scale in the Roman Economy* (1990), 105–17.

<sup>100</sup> cf. Jahn (1984), 53ff. for comments and estimations especially on the figures given in the Panopolis papyri.

<sup>101</sup> Jahn (1984), 53ff.

<sup>102</sup> Breeze, op. cit. (n. 96); cf. also J. F. Gilliam, 'The Moesian "Pridianum"', *RAP* 263–72, esp. 271f. and M. P. Speidel, op. cit. (n. 16), 88 and nn. 23–4.

<sup>103</sup> *AE* 1976, 495 = 58 *BerRGK* (1977), no. 99 (Mainz-Weisenau); reign of Tiberius?



TABLE 4. THE THIRD-CENTURY PAY SCALES (IN SESTERTII PER YEAR)

Unit	Rank	Severus (A.D. 197)	Caracalla (A.D. 212)	Maximinus Thrax (A.D. 235)
<i>miles</i>	basic	2,000	<b>3,000</b>	<b>6,000</b>
<i>cohortis</i>	<i>sesquiplicarius</i>	3,000	4,500	9,000
	<i>duplicarius</i>	4,000	6,000	12,000
<i>eques</i>	basic	2,400	3,600	7,200
<i>cohortis</i>	<i>sesquiplicarius</i>	3,600	5,400	10,800
	<i>duplicarius</i>	4,800	7,200	14,400
<i>miles</i>	basic	2,400	3,600	<b>7,200</b>
<i>legionis</i>	<i>sesquiplicarius</i>	3,600	5,400	10,800
	<i>duplicarius</i>	4,800	7,200	14,400
<i>eques</i>	basic	2,800	4,200	<b>8,400</b>
<i>legionis</i>	<i>sesquiplicarius</i>	4,200	6,300	12,600
or <i>alae</i>	<i>duplicarius</i>	5,600	8,400	16,800

The bold figures are based on direct documentary or literary evidence.

was then asked to stay with the army as an *evocatus triplicarius*.<sup>104</sup> After the mid-first century A.D., however, there is no evidence for this pay grade, and it may have been abolished.<sup>105</sup>

For the pay of legionary centurions some evidence can be found in two papyri of the early fourth century.<sup>106</sup> In P. Panop. 2.197ff. a *praepositus equitum promotorum legionis II Traianae* is paid 18,000 denarii for the *stipendium* of 1 January A.D. 300. This equals an annual pay of 54,000 denarii or 216,000 sesterterii. P.Oxy. 1047 reveals the September *stipendium* of a *praepositus* of an unknown unit of 36,000 denarii, i.e. 108,000 denarii or 432,000 sesterterii per year. Although the title *praepositus* is of no help in determining exact rank, Jahn has concluded that both men were centurions, for they received *donativa* of twice the amount of normal soldiers.<sup>107</sup> Compared to the basic legionary *stipendium* paid at the time (cf. Table 4) these figures give a simple ratio of 30:1 in the former case and 60:1 in the latter.<sup>108</sup> The ranks of the two centurions may hence be restored as *centurio primi ordinis* and *primuspilus* respectively.<sup>109</sup> The pay grades can then be assumed to have been fifteen times basic legionary pay for the centurions in Cohorts II–X, thirty times for the centurions *primi ordinis* (i.e. the centurions in Cohort I) and sixty times for the *primuspilus*.

Because the exact ranks of the above two *praeposti* are not mentioned, these conjectures require further confirmation. Whatever the legionary centurion's pay may have been, it seems logical that it shared in all the pay-rises of the first three centuries A.D., and that the ratios were kept constant. This not only follows from the Roman army's strong tendency to follow tradition, as observed above with the ratios of the basic *stipendia* of the auxilia and the legions, but also from the patterns of promotion to the centurionate during the period under discussion. This last point is best observed with the highest-paid rank known promoted to the

<sup>104</sup> cf. P. A. Holder, *The Auxilia from Augustus to Trajan* (1980), 91, who finds confirmation for treble pay for the post of *evocatus* in the career of C. Iulius Macer, *duplicarius alae Aetorigianae*, before becoming *evocatus* in charge of 600 *Raeti gesati* during the first half of the first century A.D. (CIL XIII.1041). This promotion entailed, according to Holder, a pay-rise.

<sup>105</sup> cf. idem, 91. The *evocati* may later have been paid the otherwise highest pay rate below the centurionate, double horsemen's pay, i.e. the rate of a *cornicularius* (cf. n. 96 and n. 117). This assumption may find some support in the fact that legionary centurions were regularly appointed from those two ranks of the praetorian guard (cf. D. Breeze, 'The organisation of the career structure of the immunes and principales of the Roman army', *Bj* 174 (1974), 245–92, esp. 247ff.).

<sup>106</sup> For the following see Jahn (1984), 69f.

<sup>107</sup> Jahn (1984), 69 (cf. also *ibid.*, 54). Hence, he concludes, they were not of equestrian, let alone senatorial rank.

<sup>108</sup> Since we can now be more certain of the basic annual rate of 1,800 denarii for legionaries, the above ratios reached by Jahn (1984), gain further credibility. Their simplicity further suggests that the two sums of P. Panop. 2.197 and P. Oxy. 1047 were calculated on the basic pay of a legionary, which may be taken as an additional argument in favour of the two *praeposti* having been legionary centurions.

<sup>109</sup> For the ranking of centurions, see T. Wegeleben, *Die Rangordnung der römischen Centurionen* (1913). He surmised that all centurions in Cohorts II–X were equal in rank, differing only in seniority. Hence promotion was only involved upon transfer to the first cohort, then joining the senior grade of the *primi ordines*, of whom the *primuspilus* and the *praefectus castrorum* were the top ranks. This was accepted by E. Birley, 'Promotions and transfers in the Roman army II: the centurionate', *RA*, 206–20, esp. 206, and B. Dobson, 'Legionary centurion or equestrian officer? A comparison of pay and prospects', *Anc.Soc.* 3 (1972), 193–207, esp. 197 and n. 25, and 201f.

centurionate, the *evocatus Augusti* of the praetorian guard, drawing treble pay, at least during the first half of the first century A.D.<sup>110</sup> The basic pay of a praetorian during the early Empire seems to have been 1,000 sesteratii per *stipendium* or 3,000 sesteratii annually.<sup>111</sup> The *evocatus* would therefore presumably earn 9,000 sesteratii.<sup>112</sup> Promotions from this rank to the legionary centurionate were frequent throughout the first three centuries A.D.<sup>113</sup> The minimum salary of a legionary centurion during the early Empire should thus be something more than 9,000 sesteratii, for this sum was almost certainly increased on promotion to the centurionate.

The reconstructed salary of a centurion on the basis of a 15:1 ratio to the legionary's basic pay would amount to 13,500 sesteratii per year, that is one-and-a-half times the pay of the *evocatus* during this period, or four-and-a-half times the basic pay of a praetorian. It seems clear that the centurion's pay must have been increased with the pay of the praetorian cohorts since we still find *evocati* promoted to the centurionate in the late third century,<sup>114</sup> even if at this point the difference in pay between the *evocatus* and the legionary centurion may have grown somewhat.<sup>115</sup>

There is another clue to help establish the legionary centurion's pay. Suetonius (*Caligula* 44) reports that as the emperor Caligula was inspecting his assembled troops on the Rhine in early A.D. 40, he took several altogether arbitrary measures against leading officers. One of these was to decrease the discharge money (*commoda emeritae militiae*) of the *primipili* down to 600,000 sesteratii.<sup>116</sup> Suetonius tells us that these monies were given by the emperors *pro gradu cuiusque* (*Div. Aug.* 49.2), and the documentary evidence, though scanty, suggests this was observed.<sup>117</sup> The basic sum paid to the legionary soldier was 12,000 sesteratii.<sup>118</sup> The ratio between this figure and the sum reduced by Caligula was therefore 1:50. The *commoda* of the *primipili* were obviously greater before Caligula's cut and presumably also thereafter, for these measures were no doubt hated by the army and therefore may have been rescinded by Claudius.<sup>119</sup> The minimum pay of the *primuspilus* therefore was over fifty times the basic pay of a legionary soldier. This goes well with the above assumed ratio of 1:60. These observations, then, support Jahn's conjectural pay scale with the legionary centurions getting fifteen, thirty, and sixty times the basic pay of the *miles legionis*. The following figures for the centurions annual salaries in sesteratii are thus likely.

TABLE 5. THE LEGIONARY CENTURIONS' ANNUAL PAY IN SESTERTII

Rank	Augustus	Domitian	Severus	Caracalla	Max. Thrax
<i>centurio leg.</i>	13,500	18,000	36,000	54,000	108,000
<i>primus ordo</i>	27,000	36,000	72,000	108,000	<b>216,000</b>
<i>primuspilus</i>	54,000	72,000	144,000	216,000	<b>432,000</b>

The bold figures are based on direct documentary or literary evidence.

<sup>110</sup> Later it may have been the *cornicularius praefecti praetorio*, receiving double horsemen's pay: cf. above n. 105.

<sup>111</sup> cf. e.g. M. Durry, *Les cohortes prétoriennes* (1938), 264ff.; G. R. Watson, *The Roman Soldier* (1969), 98.

<sup>112</sup> We are not informed how much a horseman in the praetorian guard received. If the difference in pay was the same as in the auxilia and in the legions, i.e. 150 sesteratii per year before A.D. 84, we arrive at a yearly income of 6,300 sesteratii for the *cornicularius praefecti praetorio*.

<sup>113</sup> Breeze, op. cit. (n. 105), 247ff. Note also the many promotions from the rank of *cornicularius*. For the career prospects of the *evocati Augusti*, cf. also E. Birley, 'Evocati Aug.: a review', *RA*, 326–30.

<sup>114</sup> Breeze, op. cit. (n. 105), 252.

<sup>115</sup> cf. above n. 105.

<sup>116</sup> On the *commoda* in general, cf. e.g. M. P. Speidel, 'Cash from the emperor. A veteran's gravestone at Elecik in Galatia', *AJP* 104 (1983), 282–6; H. Wolff, 'Die Entwicklung der Veteranenprivilegien vom Beginn des 1. Jahrhunderts v. Chr. bis auf Konstantin d. Gr.', in W. Eck and H. Wolff (eds), *Heer und Integrationspolitik. Die römischen Militärdiplome als historische Quelle* (1986),

44–115, esp. 50ff. The figure of 600,000 sesteratii, although an emendation of a corrupt text, is generally accepted, cf. e.g. Dobson, op. cit. (n. 105), 193–207, esp. 198.

<sup>117</sup> cf. *CIL* v.5832: P. Tutilius P. f. Ouf. *veteranus*, who died A.D. 29, formerly a *signifer*, *aquilifer leg.* and *curator veteranorum*, received *praemia duplica ab Imperatore*, and his pay grade must have been that of a *duplicarius*. L. Pellartius Celer Iulius Montanus, *missus ex evocato et armidoctor. leg. XV Apol.*, boasted to have received 30,000 sesteratii from Domitian, 'quod ante illum nemo alius accebit (!) ex hac militia (!)', for he would normally only expect 24,000 sesteratii (twice the amount of a normal soldier, i.e. 12,000 sesteratii, cf. also n. 118) according to his pay grade as a *duplicarius* (*AE* 1952, 153: Aquileia). Cf. above n. 105 for the possible reduction of pay grades from *triplicarius* to *duplicarius* of the *evocati*.

<sup>118</sup> Dio LV.23.1. Augustus had fixed this sum. It seemed to remain unaltered until Caracalla raised it to 20,000 sesteratii (Dio LXXVII.24.1); cf. Wolff, op. cit. (n. 116), 52. It may be noted that all attempts to understand these sums as multiples of the *stipendia* seem to have failed, cf. Wolff, 52ff.

<sup>119</sup> cf. Suet., *Claud.* 11.3: 'Gai . . . acta omnia rescidit.'

These results find further support in the second-century career patterns and pay scales of the equestrian officers as commanders of auxiliary units or as junior officers in the legions. Their ranking, as developed during the first century, was:<sup>120</sup>

*praefectus cohortis quingenariae* / *tribunus cohortis voluntariorum civium Romanorum*  
(= 'militia prima')

*tribunus cohortis milliariae* / *tribunus militum legionis* (= 'militia secunda')

*praefectus alae quingenariae* (= 'militia tertia')

*praefectus alae milliariae* (= 'militia quarta')

B. Dobson has devoted a study to the relations of the equestrian officers' and the centurions' careers.<sup>121</sup> He has shown that the *praefectus cohortis* ('militia prima') could transfer to the legionary centurionate, and that equestrians could choose between seeking a post as *praefectus cohortis* or as *centurio legionis*. In the case of the future emperor Pertinax, who had chosen to become *centurio legionis*, and even had the support of an ex-consul, this wish was not granted, and he was made *praefectus cohortis*.<sup>122</sup> The 'militia prima' may, therefore, have paid the same or perhaps a little less than a legionary centurionate.

In c. A.D. 220 the yearly salary of the 'militia prima' seems to have been 50,000 sesterii,<sup>123</sup> as a *tribunus semestris* in that time earned 25,000 sesterii.<sup>124</sup> This explains why the *praefecti cohortis* could be promoted to the legionary centurionate, where they would earn 54,000 sesterii at that time.<sup>125</sup>

The equestrian legionary tribunate ('militia secunda') seems to have been paid less or the same as the centurionate of the *primus ordo* (36,000 sesterii between Domitian and Septimius Severus).<sup>126</sup> The *praefecti alae quingenariae* ('militia tertia') earned less than 60,000 sesterii between the reigns of Domitian and Septimius Severus, as their next promotion would normally lead them to a sexagenarian procuratorship.

The *primuspilus*, if promoted, would normally advance to a centenarian procuratorship, which earned 100,000 sesterii per year before Septimius Severus.<sup>127</sup> In the light of the proposed pay rates of the *primipili* (72,000 sesterii between Domitian and Septimius Severus) this promotion can now be better understood. At the same time this promotion confirms the above reconstruction of the pay of the *primuspilus*.

There is no documentary evidence of the pay of the remaining important ranks: *centurio cohortis*, *decurio cohortis*, and *decurio alae*. The following attempt to reconstruct their pay rates must, therefore, remain hypothetical. Of these posts the *decurio alae* was highest in rank.<sup>128</sup> It therefore seems likely that the *decurio cohortis*, as the leader of a squadron of

<sup>120</sup> For a description of this development, cf. e.g. Holder, op. cit. (n. 104), 72ff.

<sup>121</sup> Dobson, op. cit. (n. 109). For the following, see esp. pp. 196ff. and 199ff.

<sup>122</sup> HA, *Pertinax* 1.5-6. The increasing number of *cornicularii praefecti praetorio* and *evocati Augusti* of the praetorian guard promoted to *praefecti cohortis* and *tribuni cohortis* in the third century also shows that the pay of the legionary centurionate, to which they were normally promoted, and of the *prima* and *secunda militia* must have been similar at that time. Cf. Breeze, op. cit. (n. 105), 252.

<sup>123</sup> Dobson, op. cit. (n. 109), 201. This has been accepted by H. Devijver, 'La Prosopographia Militarium Equestrium. Contribution à l'histoire social et économique du principat', in *The Equestrian Officers* (1980) (= *Mavors* VI), 396-411, esp. 409.

<sup>124</sup> CIL XIII.3162; cf. the commentary on this text by H.-G. Pflaum, *Le Marbre de Thorigny* (1948). This is the only known sum to have been paid to an equestrian officer as a salary. Dobson, op. cit. (n. 109), 201 and Devijver, op. cit. (n. 123), 409 have taken the 25,000 sesterii to be half the annual pay of the 'militia prima'.

<sup>125</sup> It may be noted that the sum of 50,000 sesterii cannot be explained as a multiple of any of the above basic pay grades, which shows that the pay grades of the equestrian 'militiae', as a career of their own, were calculated on completely different grounds. An attempt to re-establish the remaining equestrian salaries without further evidence must therefore produce wholly conjectural

figures. During the first century, it appears, all the equestrian officers were paid better than the legionary centurions (cf. e.g. ILS 9090, CIL IX.2564; XII.3177, 3178). This might suggest that the pay rates of the 'militia equestris' and of the lower procurators were kept level until Septimius Severus when they seem to have been raised (cf. also n. 127). At the beginning of the third century A.D. the salary of the *militia secunda* was, according to the career of Rufinus (RIB 1288 = ILS 1425), higher than the income of a sexagenarian procurator, who still earned 60,000 sesterii at the time (Dio LIII.15.5).

<sup>126</sup> This conclusion of Dobson's is based on the Trajanic career of T. Pontius Sabinus (ILS 2726). Cf. Dobson, op. cit. (n. 109), 252.

<sup>127</sup> H.-G. Pflaum, *RE* xxiii, 1272f. Cf. also idem, *Abbrégé des procurateurs équestres* (1974), 56ff. Commanding a milliary cavalry unit as the 'militia quarta' would also lead to a centenarian procuratorship. Under Septimius Severus and Caracalla some of the salaries of both equestrian officials and senators seem to have been raised; cf. e.g. G. Alföldy, 'Die Stellung der Ritter in der Führungsschicht des Imperium Romanum', *Die römische Gesellschaft*, HABES I (1986), 162-209, esp. 178, 180; cf. also P. A. Brunt, 'Pay and superannuation in the Roman army', *PBSR* 18 (1950), 50-71, esp. 69.

<sup>128</sup> cf. J. F. Gilliam, 'The appointment of auxiliary centurions', *RAP*, 191-205, esp. 202 and n. 25; see also Domaszewski and Dobson, op. cit. (n. 95), 53 and 57.

horsemen, ranked above the *centurio cohortis*.<sup>129</sup> If the above observations are correct, both the *centurio* and the *decurio cohortis* received considerably less money than a *centurio legionis*, for even their commander, the *praefectus cohortis*, may have been paid below that level, at least during the second and third centuries. This assumption finds support in the fact that from all three posts, *decurio alae*, *centurio* and *decurio cohortis*, one could be appointed to the legionary centurionate.<sup>130</sup>

The total of salaries delivered to the *ala I Hiberorum* (P. Panop. 2.36f.) and the *cohors XI Chamavorum* (P. Panop. 2.292f.) seems to have excluded the pay of the officers in command (cf. P. Panop. 2.197). However, the decurions' and the centurions' *stipendia* may have been included. Therefore, and on analogy to the calculation of the legionary centurions' pay, we may assume that their salary was a multiple of the respective basic *stipendium*. As for the exact factor with which the basic pay was multiplied we have no evidence, but the promotions to the auxiliary decurionate and centurionate recorded on inscriptions may help to determine the brackets.

Whilst the auxiliary centurions and decurions were normally appointed from the ranks of *sesquiplicarii* or *duplicarii*, and sometimes from the *equites legionis*,<sup>131</sup> the best paid soldier known to have been promoted to one of these ranks was a soldier of the praetorian guard, L. Arnus Bassus.<sup>132</sup> As a *miles cohortis praetoriae* serving before A.D. 84 he drew 3,000 sesterii annually.<sup>133</sup> His promotion to the rank of a *centurio cohortis* will have entailed a pay-rise. The 3,000 sesterii he was paid before his promotion equalled four times the basic pay of a *miles cohortis* ( $4 \times 750$  sesterii, cf. Table 3). We can, therefore, safely assume that he was paid at least five times the basic pay of an auxiliary footsoldier after his promotion to the centurionate.

The *duplicarii* and the *sesquiplicarii* of the emperor's horseguards, the *equites singulares Augusti*, could also be promoted to the decurionate in the auxilia, their decurionate to the legionary centurionate.<sup>134</sup> Although the horseguards' pay is unknown, we can assume that, as with other military units in the city of Rome, their basic pay was higher than the basic pay in the provinces.<sup>135</sup> As the emperor's horseguards were mainly picked from the *alae*, their pay may have been a multiple of the basic pay of an *eques alae*, perhaps double.<sup>136</sup> A *duplicarius* of the *equites singulares Augusti* may then have drawn four times the basic pay of an *eques alae*. His promotion to the decurionate of an *ala* would thus have entailed a further pay-rise if we assume it paid five times the basic *stipendium*. This assumption also allows for a pay-rise of c. 30 per cent for the decurion of the emperor's horseguards upon his promotion to the legionary centurionate.

Five times the respective basic pay of the *miles cohortis*, *eques cohortis*, and *eques alae* therefore seems a likely conjecture for the pay of the *centurio cohortis*, *decurio cohortis*, and *decurio alae*. In any case it cannot have been much more.<sup>137</sup> The following hypothetical table of pay scales may now be put forward.

<sup>129</sup> contra Domaszewski and Dobson, op. cit. (n. 95), 56.

<sup>130</sup> cf. e.g. *ILS* 305 (*dec.alae-cent.leg.*; Flavian-Trajan), *ILS* 2596 (*dec.coh.-cent.leg.*; mid/late first century); *CIL* v.522 (*cent.coh.-cent.leg.*; mid first century). Cf. also Domaszewski and Dobson, op. cit. (n. 95), 53f. and 56f. for further examples. During the first century A.D. (until Domitian's pay-rise?) it seems the equestrian officers were paid better than the legionary centurions: cf. above n. 127.

<sup>131</sup> cf. e.g. Gilliam, op. cit. (n. 128); M. P. Speidel, op. cit. (n. 20), 183; Holder, op. cit. (n. 104), 86ff.

<sup>132</sup> *CIL* v.522, mid-first century.

<sup>133</sup> For the pay of the praetorian guard, see above vii and n. 111.

<sup>134</sup> M. P. Speidel, *Die equites singulares Augusti* (1965), 49.

<sup>135</sup> cf. *ibid.*, 50; M. P. Speidel, *Guards of the Roman Armies* (1978), 36 and n. 196.

<sup>136</sup> 2.5 is the maximum factor, if the praetorian guard is to remain the best paid Roman troop. (In this case an *eq. sing. Aug.* would have drawn 7,000 sesterii after Severus' pay-rise, a praetorian 8,000.) Yet this is but a theoretical possibility, for if that factor is applied and if five times basic pay is accepted as the minimum salary of a decurion,

there would have been too insignificant a difference between the legionary centurions' pay and that of the *decurio equitum singularium Augusti* (e.g. 36,000 *cent. leg.*—35,000 *dec. eq. sing. Aug.* after Severus' pay-rise). The same basic pay as the *alares* or their pay-and-a-half may in theory have been the basic pay of the emperor's horseguards. It may also be that their pay was not a multiple of the basic salary of the *alares*, but some independent (higher) amount below the pay of a *duplicarius alae*.

<sup>137</sup> If the emperor's horseguards received 1.5 times the basic pay of the *equites alae*, a factor of 6, or 7 at the very most, could also be envisaged. Domaszewski, op. cit. (n. 95), 70ff., assumed that these ranks were paid three times basic legionary pay, which he believed to be 500 denarii per year during the reign of Septimius Severus. His assumption was based on the money presents given to members of military *collegiae* according to their rank. Yet these sums show no correspondence with the soldiers' income. Moreover, treble basic legionary pay as the income of auxiliary centurions and decurions would have brought a considerable pay-cut for the above mentioned praetorian L. Arnus Bassus upon his promotion to the auxiliary centurionate.

TABLE 6. PAY RATES OF AUXILIARY CENTURIONS AND DECURIONS IN SESTERTII PER YEAR

Rank	Augustus	Domitian	Severus	Caracalla	Max. Thrax
<i>centurio cohortis</i>	3,750	5,000	10,000	15,000	30,000
<i>decurio cohortis</i>	4,500	6,000	12,000	18,000	36,000
<i>decurio alae</i>	5,250	7,000	14,000	21,000	42,000
<i>decurio equitum singularium Aug.</i>		(14,000)	28,000	42,000	84,000
<i>centurio legionis</i>	13,000	18,000	36,000	54,000	108,000

## VIII. CONCLUSIONS

The new Vindonissa pay receipt turns out to be the missing link in our evidence for Roman soldiers' pay. It provides us, for the first time, with a safe and unambiguous figure for the pay of an auxiliary soldier of known rank. By revealing the *stipendium* of a horseman serving in an auxiliary cohort in A.D. 38 to be 300 sestertii, it enables us to understand otherwise uncertain documents and figures, and thus to reconstruct the pay scale of the Roman army down to the fourth century A.D. Yet the suggested model still requires further substantiation in detail, as several pay rates have been reached solely on theoretical grounds, and are in want of documentary confirmation.

The pay scales now appear much simpler than hitherto assumed, with the Roman army in the provinces (the fleets excluded) knowing only three different basic pay rates, applied throughout the first three centuries A.D. Before A.D. 84, the year of Domitian's pay-rise, a footsoldier in a cohort was paid 250 sestertii each pay-day; 300 sestertii was the pay of the legionary footsoldiers and the horsemen in the cohorts, whilst the horsemen in both the legion and in the *alae*, received 350 sestertii. Higher ranks might have received pay-and-a-half or double pay, and during the first half of the first century even treble pay.

The auxiliary decurions and centurions may have drawn five times the pay of the soldiers they commanded, whilst the legionary centurions were paid fifteen times the basic *stipendium* of a legionary footsoldier. The top ranking centurions received thirty times basic rate, and the *primuspilus* twice that amount. During the second century A.D. this would have been a sum of 72,000 sestertii annually, which accords with the normal promotion of *primuspilus* to a centenarian procuratorship, where he would earn 100,000 sestertii. Although to a simple legionary soldier the salary of the *primuspilus* must have been a staggering sum, it was still far below the income of the senatorial commander of a legion, who earned more than 200,000 sestertii during the same period.<sup>138</sup>

Our data also bear out the soldiers' pay-rises as seen by Jahn, in particular Septimius Severus' pay-rise of 100 per cent. During the long period between A.D. 84 and 197, which seems to have seen no such pay-rises, it can be shown that the deductions from the soldiers' pay were gradually reduced, and a system of ever-increasing government contributions developed. These changes were such that by the end of the third century A.D. they overshadowed the actual pay. Although the ratio between the *stipendia* of the different units was kept constant down to the fourth century, the differences in overall income almost disappeared (see Table 7).

The overall pay scale suggested here may help in understanding promotions and transfers in the Roman army, and in appreciating the social standing of generals, officers, soldiers, and veterans. It may also shed light on the Empire's budget and thereby on the political and economic history of the Roman Empire.

<sup>138</sup> Alföldy, op. cit. (n. 127), 180.

TABLE 7. THE PAY OF THE ROMAN ARMY (SESTERTII PER YEAR)

<i>Rank/Unit</i>	<i>Augustus</i>	<i>Domitian</i> (A.D. 84)	<i>Severus</i> (A.D. 197)	<i>Caracalla</i> (A.D. 212)	<i>Max. Thrax</i> (A.D. 235)
LEGIONS					
<i>miles legionis</i>	<b>900</b>	<b>1,200</b>	2,400	3,600	<b>7,200</b>
<i>eques legionis</i>	1,050	1,400	2,800	4,200	<b>8,400</b>
<i>centurio legionis</i>	13,500	18,000	36,000	54,000	108,000
<i>primus ordo</i>	27,000	36,000	72,000	108,000	<b>216,000</b>
<i>primuspilus</i>	54,000	72,000	144,000	216,000	<b>432,000</b>
AUXILIA					
<i>miles cohortis</i>	<b>750</b>	1,000	2,000	<b>3,000</b>	<b>6,000</b>
<i>eques cohortis</i>	<b>900</b>	1,200	2,400	3,600	7,200
<i>eques alae</i>	1,050	1,400	2,800	4,200	<b>8,400</b>
<i>centurio cohortis</i>	3,750	5,000	10,000	15,000	30,000
<i>decurio cohortis</i>	4,500	6,000	12,000	18,000	36,000
<i>decurio alae</i>	5,250	7,000	14,000	21,000	42,000
HORSEGUARDS					
<i>eques singularis Aug.</i>		(2,800)	5,600	8,400	16,800
<i>decurio eq. sing. Aug.</i>		(14,000)	28,000	42,000	84,000

The bold figures are based on direct documentary or literary evidence.

*Basle*