

## THE MINA OF KARKEMIŠ IN THE NEO-ASSYRIAN SOURCES

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As compared to Babylonia, there were surprisingly many different weight standards in circulation in the Neo-Assyrian empire. The greatest part of them has already received adequate treatment in the research<sup>1</sup>, the only basic standard that is still problematic is the mina of Karkemiš<sup>2</sup>. This standard was widely used in Assyria from the middle of the 8th century<sup>3</sup> till the end of the empire<sup>4</sup>. The main question is whether this mina either “had a varying number of shekels with the same general absolute weight or had a varying absolute weight while preserving the sexagesimally-based system”<sup>5</sup>.

The most evident way of answering this question is examining the sums given in the mina of Karkemiš. Yet, the overwhelming majority of these sums are either given in round figures (1, 2, 3, etc. minas) or end up with half a mina added to a lump sum, which does not help us to come to any confident conclusion. Prices given in shekels could be another plausible alternative, but there are only two such indications at our disposal<sup>6</sup>, and further eight cases denote at least part of the price in shekels<sup>7</sup>. The highest value is 36 shekels<sup>8</sup>, thence the possibility that the mina of Karkemiš, alike the “heavy” Assyrian mina, contains only 30 shekels can be precluded. Thus the

1) The latest treatment is due to F.M. Fales, “Prices in Neo-Assyrian Sources”, SAAB 10 (1996), pp. 11-35. As the greatest amount of the data concerning the mina of Karkemiš can be found in tabulated form there (pp. 1-18\*), only the data of special interest for this study will be referred to hereinafter.

2) According to Fales, “For the moment, it will be safe to say that no archaeological evidence or inner textual comparison leads to any clear-cut statement on the matter ...”, *op. cit.*, p. 17.

3) SAA VI, 17, dated 747 BC in Kalḫu.

4) NATAPA I, 61, dated 616 BC in Assur.

5) Fales, *op. cit.*, p. 16.

6) GPA 1 and 215; SAA VI, 196 is questionable, see fn. 35, below.

7) See fn. 38, below.

8) TH 113 (one mina and 36 shekels).

single instance of the formula “1 mina minus 2 shekels”<sup>9</sup> must mean at least 38 shekels, but it does not in itself preclude the possibility that the mina of Karkemiš could have consisted of 40, 50 or 60 shekels. By consequence, no attested case is of any avail in choosing from among the potential solutions.

The overwhelming majority of the data concerning this unit of measurement pertain to the purchase of slaves or fields. Thus prices given not in the mina of Karkemiš cannot be used as parallels even in the sporadic cases of round sums, since manifold other factors exert influence over the prices of slaves and fields (for instance, the expertise, age and appearance of a slave or the location, fertility, etc. of a field). Consequently, no typical price can be reckoned with in these instances. Nevertheless, from among the 64 transactions given in the mina of Karkemiš I am conversant with, 15 examples deal with loan transactions, which provides a so far unutilized opportunity for the researcher to examine the issue. In 10 texts the rate of interest, in the other 5 cases the amount of the interest is indicated. These texts lend themselves particularly well to explore the relationship between the mina of Karkemiš and the shekel, since the interest rate can be inferred from the amount of interest as well, we are conversant with the Neo-Assyrian rates of interests, and the rate of interest is obviously independent of the unit of measurement (*i.e.* the same rates of interest are inevitably to be found in those prices as well that are given not in the mina of Karkemiš).

Text NALK 213 is about a loan of 4 minas<sup>10</sup>, for which a monthly 5 shekel of interest must be paid. If a 40 shekel mina is inferred, the rate of interest is 37.5%<sup>11</sup>; in case of a 50 and 60 shekel mina the rate would be 30%<sup>12</sup> and 25% respectively<sup>13</sup>. Since all but the most common Assyrian interest rate, the 25% one, are undocumented in other sources, the 60 shekel mina of Karkemiš seems to be the most feasible by reason of this text<sup>14</sup>. In texts SAA VI, 104 and 235<sup>15</sup> the interest to be

<sup>9</sup>) NATAPA I, 18.

<sup>10</sup>) The sum was read as 5 mina in ARU 261.

<sup>11</sup>)  $4 \times 40$  shekels = 160 shekels; 5 shekels per month = 60 shekels annually;  $60:160 = 0.375$  (if 5<sup>l</sup> minas was the correct reading, the rate of interest would be 30 per cent).

<sup>12</sup>)  $4 \times 50$  shekels = 200 shekels,  $60:200 = 0.3$  (in case of 5 minas, the interest rate would be 24 per cent).

<sup>13</sup>)  $4 \times 60$  shekels = 240 shekels,  $60:240 = 0.25$  (in case of 5 minas, the interest rate is 20 per cent).

<sup>14</sup>) For the frequent occurrence of the 25 per cent interest see e.g. SAA VI, 43, 167, 189, 216, 237, 240, 248, 262, 282, 291, 318, etc.; 24, 30 and 37.5 per cent interests are, to my knowledge, undocumented in Neo-Assyrian texts (although in Neo-Babylonian sources 24 per cent can sometimes be found and 30 per cent is rather common). I am aware only of four texts in which the 20 per cent interest rate does occur: TFS 62, BT 103, ND 2340 and ARU 275.

<sup>15</sup>) The transaction described in text SAA VI, 235 is not clear for me. The sum lent in November 671 BC had already had to be given back with an interest of 50 per cent by sometime between February and March, 670. If the debtor had failed to pay at that date he had had to pay the interest studied here. But this interest does not reach the earlier 16.66 per cent (the monthly level of the 50% interest) in either case. Even if calculated with a mina consisting only of 40 shekels, the monthly rate of interest is 5 per cent, although,

paid is 2 shekels per mina per month, which is 60%<sup>16</sup> in case of a 40 shekel mina, 48%<sup>17</sup> supposing a 50 shekel mina and 40%<sup>18</sup> in case of a mina consisting of 60 shekels. The same values ensue on text SAA VI, 107<sup>19</sup>. Since the interest rates 60% and 48% are unattested in other texts, whilst 40% appears several times<sup>20</sup>, these documents seem also to support the division of the mina of Karkemiš into 60 shekels.

The interpretation of text SAA VI, 108 is the most difficult task. The difficulty is entailed by the fact that the borrowed sum is half a mina, while the monthly interest is 4 shekels, which means that supposing a 40 shekel mina the interest is 240%, in case of a 50 shekel mina it is 192% and even in case of a 60 shekel mina the rate is 160%. These interests are incredibly high in all the three cases<sup>21</sup>, hence understanding the interest as compared to 1 mina seems to be a more probable solution. Consequently, in the above mentioned cases the interests are 120%, 96% and 80% respectively. Although in rare instances only, the 80% rate is attested in other texts as well<sup>22</sup>, while 120% and 96% are, to my knowledge, undocumented, which means that, as in the earlier instances, the mina containing 60 shekels seems to be probable in this case, too.

The situation is just the opposite in the other, larger subgroup of texts dealing with loan transactions. Here it is the rate of interest beside the principal that we are aware of, and the calculation of the amount of the monthly interest can be based upon these two data. Trying to figure out the monthly and not the annual interest is more advisable, for; on the one hand, this is the form in which the interest is given in the overwhelming majority of the texts, on the other, it segregates much more explicitly in case of smaller sums whether it is a matter of a whole number or that of a decimal fraction that can most likely be precluded. According to expectations, the rate of

in case of a fine, higher interest would be expected! Obviously, an allowance was made for non-payment, but in this case one wonders how and why interests could be lower in a period when prices were going up before the harvest. For all this, the amount of the interest to be paid from March on can easily be calculated.

<sup>16</sup>) Two shekels per month = 24 shekels annually;  $24:40 = 0.6$ .

<sup>17</sup>)  $24:50 = 0.48$ .

<sup>18</sup>)  $24:60 = 0.40$ .

<sup>19</sup>) With the difference that in this text the monthly 6 shekel interest refers to (the whole sum of) three minas and not to the usual one mina standard.

<sup>20</sup>) BT 114, 124 (cf. FNALD, pp. 119-122), 127; NATAPA I, 25; ARU 271 (interpreted as 141 per cent on p. 460), SAA VI, 47, 97, 104, 107 (see the previous fn.), 235 and 241. See also fn. 22, below, for SAA VI, 139.

<sup>21</sup>) High rates of interest like these can be found in the literature (e.g. ARU p. 460 with rates from 20 up to 160 per cent, where this highest rate is attributed to our text SAA VI, 108), although they are questionable. I do not think that in these texts the interest refers to the principal (which would push the interest up), but I prefer to interpret them as referring to one mina, the usual standard of defining the rate of interest.

<sup>22</sup>) NALK 85, ND 3432 («Iraq» 15, p. 142). In text SAA VI, 139 two minas are borrowed: one mina bears 80 per cent interest, whilst the other mina is without any interest. As a consequence, the overall interest rate seems to be 40 per cent in this case.

interest is 25% in most cases. The principal is 1 mina in texts SAA VI, 262 (and 236) and NALK 23a (and b), and it is 10 minas in texts SAA VI, 248 and 318, which means the same from the point of calculation. If a 40 shekel mina was inferred, the monthly interest would be 0.83 (8.3)<sup>23</sup>, in case of a 50 shekel mina it would be 1.04 (10.4)<sup>24</sup>, and supposing a 60 shekel mina, 1.25 (12.5) shekels<sup>25</sup>. Considering that in ancient Mesopotamia broken numbers and not decimal fractions were used to express not whole numbers, it must be evident that from among the above possibilities only those can be correct that can be given in broken numbers used in Mesopotamia (from 5/6 to 1/24). Taking all data into consideration, this requirement is met only by numbers calculated with a mina consisting of 60 shekels.

Two texts, SAA VI, 26 and 323, carry interest at the rate of 33<sup>1</sup>, but, unfortunately, the calculated amount of the interest fits always well in the Mesopotamian numerical system, whichever mina is taken into account<sup>26</sup>. Besides, there are still three additional texts that furnish the researcher with no appraisable information either<sup>27</sup>.

23)  $40 \times 25\% = 10$ ;  $10:12 = 0.83$

24)  $50 \times 25\% = 12.5$ ;  $12.5:12 = 1.04$

25)  $60 \times 25\% = 15$ ;  $15:12 = 1.25$

26) SAA VI, 26: supposing a mina consisting of 40 shekels:  $20 \times 40 = 800$ ;  $800 \times 33\% = 264$  shekels/year = 22 shekels/month; supposing a mina consisting of 50 shekels:  $20 \times 50 = 1000$ ;  $1000 \times 33\% = 333$  shekels/year = 27.75 shekels/month; supposing a mina consisting of 60 shekels:  $20 \times 60 = 1200$ ;  $1200 \times 33\% = 396$  shekels/year = 33 shekels/month; SAA VI, 323: mina of 40 shekels:  $40 \times 10 = 400$ ;  $400 \times 33\% = 132$  shekels/year = 11 shekels/month; mina of 50 shekels:  $50 \times 10 = 500$ ;  $500 \times 33\% = 165$  shekels/year = 13.75 shekels/month; mina of 60 shekels:  $60 \times 10 = 600$ ;  $600 \times 33\% = 198$  shekels/year = 16.5 shekels/month. In this last text 75 rams and one heifer can be found beside the borrowed sum of 10 minas of silver. We can agree with Postgate (FNALD, p. 140) that the interest refers only to the silver, but not with his statement that the hire of the animals was compulsory: "Almost certainly, therefore, we have here once again a creditor who has taken advantage of his debtor's need to impose on him (or them) an additional obligation". Neither the amount nor the social position of the debtors (or of the witnesses) point to any need on the part of the debtors. The amount of the interest does not confirm their need either. In case of animals, too, we have to reckon with a contract drawn on the usual terms. From similar Neo-Babylonian texts it becomes clear that only part of the offspring belongs to the owner and the remaining part rests with the other party who is paid this way. This is what we have to suppose here, too.

27) In VAT 9697 (= B. Menzel, *Assyrische Tempel*, Roma 1981, Vol. 2, no. 77) the principal is broken off, which renders this text useless for our purpose here. In contrast, SAA VI, 234 yields acceptable results counting with all the three minas, which excludes this text from taking it into account considering our point of view, too. The three mina thirty shekel principal yields a monthly 6.25 shekel interest in case of a mina divided into 40 shekels and an interest of 50 per cent (this is the accepted meaning of the phrase *ana 1/2 GÍN-šú GAL-bi*; it is, however, very probable that this phrase refers to the monthly interest and means only 10 per cent interest yearly); supposing a mina of 50 shekels results in a monthly 7.5 shekels interest; this value amounts to 8.75 shekels per month, if a 60 shekel mina is calculated. All the three sums fit well into the Mesopotamian sexagesimal system, which makes any choice between them hazardous, not to mention the difficulty caused by the interpretation of the interest rate itself. By contrast, NALK 40a (and b) offers no help to decide the question. Here the borrowed sum is 9 minas 15 shekels, in which

Nevertheless, taken as a whole, the conception is clear. Whether the rate was concluded from the amount of interest or the interest was inferred from the rate, in the overwhelming majority of cases it was possible to get the same rates or interests that are attested in other texts as well only if one mina of Karkemiš was regarded as 60 shekels<sup>28</sup>.

This result provides a reliable basis to determine the mina of Karkemiš. Namely, if this mina, likewise all the others, contains 60 shekels, then from the two initial possibilities only one can be regarded as correct: the weight of this mina differs from that of the other minas used in Assyria<sup>29</sup>. Unfortunately, this different weight cannot be documented on the strength of the Neo-Assyrian lion-weights<sup>30</sup>, but that the mina of Karkemiš was lighter than the others can be rendered verisimilar<sup>31</sup>. Since measures of weight generally preserve their heaviness for a long time<sup>32</sup>, and the mina of Karkemiš is abundantly documented in the second millennium as well<sup>33</sup>, it can be taken for granted that the 472.2 grams mina, which can be dated back to the third millennium BC and was found in the vicinity of Karkemiš, has to be taken as starting-point<sup>34</sup>. Taking notice also of the loss of weight caused by usage, the weight

case the monthly interest counting with the 25% rate is 7.81 (9×40 = 360+15 = 375; 375×25% = 93.75; 93.75:12 = 7.8125 shekels/month) supposing a 40 shekel mina, while it is 9.69 (9×50 = 450+15 = 465; 465×25% = 116.25; 116.25:12 = 9.6875 shekels/month) and 11.56 (9×60 = 540+15 = 555; 555×25% = 138.75; 138.75:12 = 11.5625 shekels/month) in case of a 50 and 60 shekel mina respectively. Neither of these sums seems to fit well into the Mesopotamian numerical system.

<sup>28</sup>) It has to be mentioned here that F.M. Fales, in his summing up the standards, left several possibilities open concerning the subdivision and weight of the Karkemiš mina, but in his annexed tables (*op. cit.*, pp. 1\*ff.) he reckoned the prices contained in NALK 222 and 332 with a mina consisting of 60 shekels, albeit with a question mark.

<sup>29</sup>) For these, see Fales, *op. cit.*, pp. 12-17 (mina "of the land", "of the king", "of the merchant", etc.). Only the "mina of Babylon" may raise a problem, since it had the same weight and was subdivided into the same 60 parts as the Assyrian mina, but this might perhaps be explained by a confrontation of the light and heavy standards.

<sup>30</sup>) F.M. Fales, "Assyro-Aramaica: the Assyrian Lion Weights", in K. van Lerberghe - A. Schoors (Eds.), *Immigration and Emigration within the Ancient Near East (Fs. E. Lipiński)*, Leuven 1995, pp. 33-55. There are, of course, weights that fall within the range of the supposed 472.2 gr heaviness of the mina of Karkemiš (see fn. 34, below), e.g. the weight published by W.G. Lambert in the same volume (pp. 135-138), but they cannot be shown to have come from Karkemiš.

<sup>31</sup>) In spite of the fact that it cannot be justified, this idea had already become prevailing as early as by the turn of the century. See H. Zimmern, «Göttingische Gelehrte Anzeiger» 1899, p. 250; F.H. Weissbach, ZDMG 65 (1911), p. 644; ZDMG 70 (1916), p. 83; ZDMG 71 (1917), pp. 379 ff. and 948; C.H.W. Johns, ADD, p. 269; F. Thureau-Dangin, RA 18 (1921), pp. 137 ff., A. Archi - E. Klengel-Brandt, "I pesi provenienti da Zincirli", SMEA 24 (1984), p. 247 fn. 10; I.J. Winter, AnSt 33 (1983), p. 189 etc.

<sup>32</sup>) See A. Archi - E. Klengel-Brandt, *cit.*, pp. 245-261, esp. p. 246 with further literature.

<sup>33</sup>) For references see my "Talent of Karkamish and Talent of Yamḥad" to be published in Fs. Klengel, AoF 24 (1997).

<sup>34</sup>) T.A. Holland, "An Inscribed Weight from Tell Sweyhat, Syria", «Iraq» 37 (1975), pp. 75-76. This weight was found about 64 km south of Karkemiš. Its original weight must have been a little bit heavier than the actual one.

of the shekel of Karkemiš could have been approximately 7.9 grams, which is equal to the weight of the so called Phoenician shekel widely spread in Northern Syria during the first millennium BC<sup>35</sup>.

The final inference of this paper still raises certain problems. In a recent study I came to the conclusion that the mina of Karkemiš consisted of 50 shekels during the second millennium BC, and thus the weight of the shekel was 9.4 grams<sup>36</sup>. This inference is sharply opposed to the result of this paper. If both proved correct, there must be a certain break between the second and the first millennium. However, this creates obstacles because of the above discussed continuity of the measures of weight, which is just further increased by the dynastic continuity in Karkemiš<sup>37</sup>, which is unparalleled in the region. The fact that this weight was generally used in case of large amounts during the second as well as the first millennium may be a possible solution for the discrepancy. Thus the typical weight of Karkemiš was the talent in earlier times, while during the first millennium BC the mina was applied, but the weight of the mina might have been equal in both millennia. The only thing that changed was the division of the mina (which may conceivably due to Assyrian influence) and thus the weight of the shekel, but without an essential change in practice, since the shekel appears beside the mina only in eight texts<sup>38</sup> from among the 64 cases that were examined in this paper. It is thus obvious that the core of the measure of weight is nothing but the mina.

Apart from this it seems probable by reason of the above arguments that the mina of Karkemiš was based sexagesimally during the Neo-Assyrian empire, namely there were 60 shekels in one mina, and the weight of both the shekel and the mina were lighter than the generally used Assyrian and Babylonian weights<sup>39</sup>.

<sup>35</sup> See e.g. D. Arnaud, "Contribution à l'étude de la métrologie syrienne au II<sup>e</sup> millénaire", RA 61 (1967), pp. 151-169, esp. 165-166; Archi - Klengel-Brandt, *cit.*, pp. 245-261, esp. 246. This shekel is, however, not a special shekel-standard of Karkemiš but the subdivision of the mina of Karkemiš (Postgate, FNALD, pp. 65-66 seems to take GPA 1:16 and 215:r.16 as evidence for an independent Karkemiš shekel-standard, but this is, with Fales, *cit.*, p. 15 fn. 7, not conclusive. SAA VI, 196 is a similar case, where either the restoration or the translation is wrong. Judging from the order of magnitude of the sum (x+30) and of the number of the slaves (probably two), the text may have "[1 mina and] 30 [shekels of silver in the one mina standard of Karchemi]š").

<sup>36</sup> See fn. 33 above.

<sup>37</sup> H. Klengel, *Syria: 3000 to 300 B.C. A Handbook of Political History*, Berlin 1992, p. 128.

<sup>38</sup> ARU 180, FNALD 9, GPA 1 and 215, NALK 40 a-b, NATAPA I, 18 and 39, TH 113 excluding texts SAA VI, 196, 234 and NALK 222, in which the figure of 30 shekels is attested, because it can be regarded as half a mina.

<sup>39</sup> Unfortunately, we know the intended weight of neither the Karkemiš nor the Assyro-Babylonian shekel or mina exactly (for the former 8.41 and 8.33 g. have been put forward), which, in the everyday praxis, was only approximately matched for. For this reason and the limited material at hand, the suggestion raised by Fales, *cit.*, p. 22, according to which prices written out by the normal standard corresponded in some way to "round" prices by other standards, cannot be verified.