Late Uruk Pigs and other Herded Animals

Robert K. Englund

Nichts widerspiegelt so sehr die
Verachtung der Naturgesetze als die
Überheblichkeit der Menschen
gegenüber Tieren.

One of the less recognized attributes of the scholar honored in this volume is his lively interest in and appreciation of Near Eastern fauna; anyone who in his presence has mentioned some Iraqi creature will have with pleasure made this discovery. Pressed as he has been in past years both as author and as editor to see to publication hundreds of articles and monographs, above all concerning the material finds of the German excavations at Uruk-Warka, Rainer Boehmer has, however, seldom found occasion to pursue this inclination. Readers are occasionally offered but a glimpse of his knowledge in Boehmer's short excurses to depictions of animals in early Mesopotamian art and glyptic.1

In a contribution to my recently edited ATU 5, Boehmer published twenty numbered seals which had been impressed on proto-cuneiform tablets excavated by German teams in the years 1928-1931 in Uruk.2 Most of these impressions consist of varying depictions of wild and domestic animals: fighting lions and dogs, wild goats, large cattle and onagers. The two seals which apparently contained depictions of boars may serve as a point of departure for a short discussion, dedicated to the honoree, on the exploitation during the late 4th millennium B.C. of swine and other beasts in the urban center which has occupied the greater part of his career.

The first of these seals, found in 16 impressions on six fragments, depicts a lion flanked by two wild pigs in a lower frieze, in an upper frieze two lions surrounding another animal (see figure 1a). More interesting is the depiction in the third composite drawing (figure 1c), found in 17 impressions on five fragments, of two boars standing or running amongst conventionally drawn reed thickets, confronted by the vaunted ruler of Uruk ("Stadtfürst") accompanied by two dogs. Boehmer interprets the staff in the hands of the ruler to be a possible punting pole used to propel a flat skiff, the so-called belam, through the southern marshes surrounding Uruk, where wild pigs are known to have lived and been hunted in antiquity.3 This boat – possibly the same form as that depicted in an impression from proto-Elamite Susa (figure 1g) and in Late Uruk and Early Dynastic reliefs (see below) – would be lost in the lower part of the impression. Similar hunting scenes are known from a relief on a stone bowl from the Late Uruk period.

1 Aside from his treatment of faunal scenes on Babylonian art and seals in his major publications, see, for example, "Das Auftreten des Wasserbüffels in Mesopotamien in historischer Zeit und seine sumerische Bezeichnung," ZA 64 (1975) 1-19 (to ab.za.za); "Frühste altorientalische Darstellungen des Wisents," BaM 9 (1978) 18-21.

2 Our common conviction that both the iconography and the administrative significance of seal impressions – in the case of scaled tablets their inscriptions and excavation loci – must be published in one source dictated the format of this and of other publications of archaic documents by our research team in Berlin (cf. the similar efforts of Englund, J.-P. Grégoire and R. Matthews in the volumes MSVO 1: The Proto-Cuneiform Texts from Jemdet Nasr [Berlin 1991] and MSVO 2: Cities, Seals and Writing: Archaic Seal Impressions from Jemdet Nasr and Ur [Berlin 1993]). A detailed commentary by Boehmer of all early seals and seal impressions deriving from German Uruk excavations is planned to appear as a volume of the final excavation reports Ausgrabungen in Uruk-Warka. Endberichte (Berlin).

3 The pigs were delivered by fishermen, certainly from their fishing grounds in the marshlands of southern Babylonia. See the reference texts from the pre-Sargonic Lagash, the Old Akkadian and the Ur III periods cited in my Organisation und Verwaltung der Ur III-Fischerei (= BBVO 10; Berlin 1990) 174-177 + 177564.
Fig. 1 Reconstructed seal impressions depicting lions and boars (a), lions, boar and caprids (b), and apparent hunting scenes (boars being hunted by the city rulers of Uruk, Susa and Habuba-Kabira, as a rule with their dogs) (c-h). (scale 1 : 2)

The seal impressions in the figure were drawn after the following publications:


1b) J. Jordan, UVB 2 (1931) 42, fig. 32 to W 7229,a-b, and Schott, op.cit., 43, pl. 24e (cf. Amiet, op.cit., pl. 10, no. 182).

1c) Boehner, op.cit., pl. 139, no. 16 (cf. Schott, op.cit., 43, pl. 25a, H. Lenzen, ZA 49 [1950] 11, fig. 14, and Amiet, op.cit., pl. 10, nos. 187-188 [one seal]).

1d) L. Legrain, MDP 16 (1921) pl. 16, no. 243 (cf. L. le Breton, Iraq 19 [1957] 106, fig. 20, no. 22, and pl. 24, no. 6, and Amiet, op.cit., pl. 39, no. 604).

1e) Legrain, op.cit., pl. 16, no. 245 (cf. le Breton, op.cit., 106, fig. 20, no. 3, and Amiet, op.cit., pl. 39, no. 607).

1f) E. Strommenger, Habuba Kabira: Eine Stadt vor 5000 Jahren (Mainz 1980) 62, fig. 55(d) (cf. Strommenger, AIA 84 [1980] 485, fig. 3).

1g) P. Amiet, op.cit., pl. 40, no. 609.

1h) H. Nissen, P. Damerow and R. Englund, Frühe Schrift und Techniken der Wirtschaftsverwaltung im alten Vorderen Orient (Berlin 1991) 43 (the seal impression on a tablet from the former Erlenmeyer collection purchased by the authorities of the Metropolitan Museum, New York, was originally drawn by Abdallah M. Kahlil; a commentary will be published by H. Pittman and J. Aruz).
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and from incised and painted depictions on Early Dynastic ceramic vessels from the Diyala region as well as from a small alabaster relief from Ur, of which two are shown in figure 2.

The naturalistic seals found in Uruk are generally dated to the archaic period Uruk IVb-a and may represent an administrative device developed during the Late Uruk period to facilitate the functioning of an increasingly overburdened bureaucracy at Uruk and other administrative centers at this time, overburdened by the growth of population, the more efficient agricultural production in the southern alluvium and by the irrevocable concentration of communal decision-making in the hands of an emerging elite. The administrative stage characterized by the use of these cylinder seals, of counting devices enclosed in clay balls and by the appearance of monumental architecture, would in the final centuries of the 4th millennium lead to the development of an ideographic system of writing and a highly involved system of numerical and metrological notations sufficient to control the movement and storage of large quantities of goods and services.

Whereas the iconography of the archaic cylinder seals and reliefs depicts pigs only in their habitat in the reed thickets of the southern marshes — where the pigs were particularly menacing and certainly no easy bag for the ruler-hunter — an imposing number of osteo-archaeological identifications as well as

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4 For figure 2a see H. Hall, La sculpture babylonienne et assyrienne au British Museum (= Ars Asiatica 11; Paris-Brussels 1928) pl. 1, no. 2, BM 118466, and id., The British Museum Quarterly 2 (1927-1928) 12-14 + pl. VI (believed to derive from Ur: the naked hunter in the figure is unlikely to have been the ‘ruler-priest’ depicted in the seal impressions fig. 1, c, f and h), for figure 2b see P. Delougaz, Pottery from the Diyala Region (= OIP 63; Chicago 1952) pl. 80c (from Kha‘fajah). The two hunting scenes were very kindly drawn to my attention by U. Moortgat-Correns, whose original drawings of the panels served as templates for figure 2. Hall also published in BMQ 2, pl. VII a, BM 116456, a fragment of a sculptured stone vase from Ur (U.210) which seems to include a boar with the same conventional fishbone pattern depiction of its pelt and the peculiar forked tail as seen in BM 118466; it is thus probably to be dated to the Late Uruk period as well. Two uncertain scenes are known from objects from Ur and Kha‘fajah. First, the Early Dynastic alabaster relief published in L. Woolley, U.4 (1955) p. 42 + pl. 38, U.6410, seems to contain on the front face a wild pig on a skiff in the marshes (note the depictions of a marsh bird and fish on the back face, comparable to those in figures 1g and 2b here); second, an upper panel of a scarlet-ware vase published first by S. Smith in BMQ 8 (1933-1934) 38-41, no. 39 + pl. VIII, republished by P. Delougaz in OIP 63, plts. 62 and, with a complete reconstruction, 138, apparently contains the drawing of a wild pig together with three human figures who seem to be playing percussion instruments (Delougaz, op. cit., p. 71). This vase, purchased by the British Museum from a Baghdad dealer, was reputedly excavated by robbers at Khafajah before commencement of Oriental Institute work there. Finally, the characteristic snout and tusks of the Mesopotamian boar can be observed in a steatite figure from the Jemdet Nasr level in Pit F of the British Ur excavations, published in U.4, pl. 37, U.14459.

5 All fragments containing the impression of figure 1a — including the three fragments which according to Bochmer were sealed both with his seal no. 2 and this impression, see ATU 5, 27 — were unearthered on the 17th and 18th of February 1930 next to the niched wall, as excavators worked their way down this long construction running about 18 meters from the so-called Red Temple in a southeasterly direction (see ATU 5, 14-16). Although mixed with some rounded ideographic tablets, texts from along this wall are of a peculiar flat format; they have been conventionally denoted numerical tablets, consisting of numerical notations and scaled with

6 Aggravated boars, feared for their strength and phenomenal charging power, or disturbed sows protecting young, can easily bring men to the ground and with violent bites or a whipping action of their tusks inflict grave and, unless rendered harmless, fatal injuries to internal organs. Thus the only known defense once put to ground by an attacking boar is to protect the stomach and thus accept deep but not fatal wounds to the back, and the legs. Wild pigs trapped on islands during the flooding season, on the other hand, were easily killed by spear from boats once the animals were forced into the water. See W. Thesiger, The Marsh Arabs (London 1964) 34-43, 167-169; A. Blunt, A Pilgrimage to Nejd, vol. 2 (London 1881) 122-128; R. Hatt, The Mammals of Iraq (Ann Arbor 1959) 57-59; D. Harrison, The Mammals of Arabia, vol. 2 (London 1968) 372-375.
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Fig. 2 Reconstructed depictions of boars being hunted with a spear from skiffs in the marshes, in one case a relief on a stone bowl from the Jemdet Nasr period (a; note the use of a hunting dog), in the other an incised drawing on the shoulder of a clay jar from the Diyala region, dated to ED IIIa (b; pig together with the other major food resources of the marshes, birds and fish). - (after original drawings by U. Moortgat-Correns; scale ca. 1 : 3)

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A text published recently by A. Cavigueaux (see figure 3), although the only proto-cuneiform account presently known which records the keeping of herds of ('wild'? pigs (archaic sign G, conventionally read ŠÀU₂ = [ŠUBURgumī]*), still offers a good general outline of pig herding in the archaic period. The text apparently records the distribution of animals from a large herd of 95 pigs into two groups of adults assigned temple units in Uruk and a third comprised of juvenile animals. Despite the fact that the obverse of the Uruk III period text is almost entirely destroyed, its preserved traces of deeply impressed numerical signs confirm the assumption that this side of the tablet contained specific information about numbers of animals subsumed in totals on the tablet reverse. It is thus possible to recognize three columns on the obverse which likely correspond to the three main entries of the first column on the reverse face. This correspondence seems primarily indicated by the range of notations in the sexagesimal sign system and a derived sexagesimal system consisting of numerical signs crossed horizontally with an additional stroke. Thus in the first column, eight of the signs N₂ (A) are partially preserved; two are missing to achieve the total of 10 (B) in the corresponding reverse case i lb2. In the second column, no such numerical signs are preserved, in accord with the notation of 2N₁₄ 4N₁ ("24", and no signs of the derived system) in the reverse case i 2. Finally, the third column preserves just 1N₂, also in full accord with the numerical notations in reverse i 3.

The reverse of W 23948, although partially destroyed, can with some confidence be completely reconstructed. It contains individual totals in three columns in a form known from other accounts. The first column (counting from the right) consists of three entries, of which the first and third are further divided into two subcases to the right and one case to the left, which contained a subtotal of animals listed in the subcases.

The pigs were described according to three categories. First, the animals could be qualified either with the ideogram conventionally read BA (C), or through the addition to their corresponding numerical notation of horizontal strokes (system S'). The former qualification, in subsequent periods used to denote the distribution of above all rations to dependent workers and animals, seems best translated in archaic sources with ‘inspected’ (‘and found to be available’, pictogram "eye"), roughly corresponding to later

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8 Obvious pictography and later use of the sign make sufficiently clear its referent pig. The sign is also found inscribed in the sign DUG₇, Q) representing a container of fats in the archaic lexical list ‘Vessels’ (l. 48); this should just as in the cases of AB₇, ANSE₂, KU₆, MA₂, ŚUBUR and possibly UI₂ denote vessels filled with a standard amount of fat derived from these animals (see R. Englund and H. Nissen, Die lexicalischen Listen der Archaischen Texte aus Uruk [= ATU 3; Berlin 1993] 123-134, in particular the lines 21-61, and compare the text A. Deimel, LAK, p. 73, no. 2, VAT 13600 [purchased in the antiquities market], obv. i 5: 1N₁; ŠAKIR, [=DUG₇+NI₂] ŚUBUR, following entries with notations of quantities of fish and fish containers). Since this sign is in fact the pictographic precursor of the sign with Sumerian reading šab or šaš (and zēh and zaḫdā; see P. Steinkeker, BSA [forthcoming]) – the sign inscribed in the vessel DUG₇, in the corresponding line of both of the Early Dynastic text witnesses (SF 64 iii 12 and OIP 99, no. 9 iii 3') replaced by ŠÀU₂ = LAK 40 –, a conventional reading ŠAH₄ of the archaic sign listed in M. Green and H. Nissen, ATU 2, under ŚUBUR may be proposed. The reading of this sign was, in fact, only determined by opting for one of the two signs which in the Fara period seemed to have replaced it in line 7 of the lexical list Lû A, the signs ŠAH₄ = LAK 40 and ŠAH₂+1N₁₂ = LAK 39, Sumerian ŚUBUR, for which see ATU 3, 70, and E. Arcari, La lista di professioni «Early Dynastic LU A» (Naples 1982) 13 and 31. Closer inspection of the list witnesses available to me in the form of photos or originals has shown, however, that the graph ŠAH₄ = LAK 40 is found not only in the lexical correspondence to this line from the earliest Sumerian texts, the ED I-II texts from Ur (see UET 3, 301 ii 2), but also in all the corresponding notations of ED texts misread ŚUBUR by the various editors of the texts concerned (A. Deimel, SF 33stel and 76 [cp. the text copy of SF 76 obv. i 7 with the tablet photo in the same volume, pl. 8]; MSL 12, 10, despite clear evidence from the Abu Sabikh sources; further, since line 7 of the text MEE 3 [Naples 1981] 1, published as photo in MEE 3/A, pl. 1, was misread GAL-ŚUBUR in MEE 3, p. 4, it is likely that the corresponding line of the other two Ebla witnesses MEE 3, 3+5 and 3+4, not available as photos, was also misread [cp. further the notation 5 šâb in rev. i 2 of the administrative text TM 75. G.2283, published by A. Archi in C. Gordon, G. Rendsburg and N. Winter, eds., Eblaica: Essays on the Ebla Archives and Eblaite Language, vol. 1 (1987) 122-124; 5 pigs as part of a bridewealth gift nig.mu.sâ for a princess]). The form LAK 39 = ŠAH₂+1N₁₂ is found particularly in the divine name of the vizier god Ṣîn.Šubur, dealt with recently by F. Wiggermann, JEOl 29 (1985-86) 3-34 (see p. 16, fn. 47, to the uncertain meaning of Sumerian Šubur; the original divine name is possibly to be understood as ‘Lady of the pigs’). Confer the remarks of P. Damrow and R. Englund, ATU 2, p. 156, fn. 79, and R. Englund, JESHO 31 (1988) 147-148. To compund this confusion, no reasoned ordering of the early cuneiform signs denoting pigs has been offered in the standard signlists, making again clear the need for a revised treatment including competence in 3rd millennium sources. F. Ellermeier, Sumerisches Glossar 1/1 (Nörten-Hardenberg 1979) 422, with reference to B. Landsberger, Fauna, 100-101, rejects the reading šaš of the neo-Assyrian sign ŠUBUR, reading instead šąš. The sign is, however, really Šubur, and the standard graph for pig is his ŠUL, read by Ellermeier šaš, šąš by R. Labat in his Manuel d’épigraphie akkadienne (Paris 1988). See below for the early paleographic development of the signs concerned.

9 The closest parallel to this text known to me was published by M. Green, "Animal Husbandry at Uruk in the Archaic Period," JNES 39 (1980) 33, no. 39 = W 17729, 6i (photo: UVB 11 [1940] pl. 38b), an account of a herd of 77 sheep.
Fig. 3 Copy (scale 75 % of original) and transliteration of the archaic Uruk text W 23948, after A. Cavigneaux, BaM 22, 1991, 57 (small differences between the drawing here and that of Cavigneaux result from my collation made in Baghdad in April 1986). The lower drawing contains a secure reconstruction of the totals on the reverse of the tablet.
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Sumerian gub or gâl, or possibly gûrum (IGI+GAR). The latter qualification was discussed first by M. Green in an important early article on herding in archaic Uruk; the author speculated there that the sign, found in two herding texts together with the sign ZATU 628, may have qualified sacrificial animals, with ZATU 628, corresponding to later Sumerian siskur. A. Vaiman, and following him P. Damerow and I have since proposed another interpretation, namely that the sign N₂ may have been a precursor form of BAD with Sumerian reading us or ug, meaning 'slaughtered.' We further interpreted the sign ZATU 628 to mean 'cadaver' (Sumerian su or adû). The sign itself is probably a pictogram of a flayed carcass. The two qualifications BA and the numerical system S' are employed to form the second subtotals in the second column of the reverse of the account W 23948, comprising 84 BA animals and 11 counted using system S'; the addition of these two entries results in the final total of animals, qualified in the last (left-most) column of the reverse as "altogether (LAGABb/nigin) 95 grain(-fed, SE) pigs."

The second category of qualifications involves the use of two signs in rev. 1-2 which together with a number of related signs have generally been considered representations of temple households. Both signs TUR₃₈ (M) and ZATU 648 (E) are comprised of a simplified form of the sign DU₆₉, a pictogram of a reed hut, and a sign representing a cultic standard or emblem attached to a pole which stood at the front of and was possibly a structural part of the hut (figure 4). The adult animals listed in W 23948 seem to have been assigned to these households, or were possibly their property, in the care of a common herder. The final use of the pigs booked here is not indicated.

![Fig. 4 Overview of signs representing probable temple households in texts from archaic Uruk (all signs have been rotated 90° clockwise to demonstrate their original pictographic position).](image-url)

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11 JNES 39, 1-35; see in particular p. 2 to the text formats used in administrative texts recording herds of small and large cattle, p. 8 to the use of N₂ in these texts.

12 W 17729.bz and W 17879.1 = JNES 39, 33, no. 40 rev. ii 3, and 34, no. 43 rev. ii 3.

13 A. Vaiman, VDI 1981/4, 81-82; see the German translation in BaM 21 (1990) 116-117, and our discussion in ATU 2 (Berlin 1987) 131 with fn. 31.

14 An overview of the signs involved in presumable archaic iconography is offered in K. Szarzynska, "Some of the Oldest Cult Symbols in Archaic Uruk," JEOL 30 (1987-88) 3-21; see further A. Falkenstein, ATU 1, pp. 58-60, E. Heinrich, Schilf und Lehm. Ein Beitrag zur Baugeschichte der Sumerer (= Studien zur Bauforschung 6; Berlin 1934) 1-18 + pls. 1-6; id., Bauwerke in der altsumerischen Bildkunst (Wiesbaden 1957) 1-38 ("Bauwerke in ländlicher Umgebung"); id., Die Tempel und Heiligtümer im alten Mesopotamien (Berlin 1982) 6-7 with figures 15-18; and, for a detailed current treatment of an archaic toponym iconography often based on cult symbols, R. Matthews, Cities, Seals and Writing: Archaic Seal Impressions from Jemdet Nasr and Ur (= MSVO 2; Berlin 1993).
Third, the animals were qualified according to their age. Although this categorization seems secure only with regard to the young pigs denoted $\text{SAU}_{24}+1\text{N}_{57}$ (H), comparison of the archeaic pig account W 23948 with herding and labor texts from later periods, in which the age and thus viability and use of domestic animals and of dependent labor was of particular importance, lends some credence to the interpretation that the animals qualified $\text{SAU}_{24}$ were adults, the same sign being used to denote pigs of all ages. Comparison with lexical entries and accounts of herds of other animals in the Late Uruk period, however, makes the most persuasive case for this interpretation. Two texts from a group of nearly 50 from Uruk\textsuperscript{13} may serve as examples of this accounting format employed to control animal herds (see figure 5). The first, W 20274,15, records numbers of male and female sheep ($\text{U}_9$ and UDUNITA) in the first two cases of the obverse, followed by an entry containing the name and profession of the herder to whom the animals were entrusted. The second column of the obverse records in separate entries the male and female lambs (KIRI\textsubscript{11} and SILANITA) born in the accounting year of the text. The age of these animals is indicated by the sign combination $\text{U}_4+1\text{N}_{57}$ BAR, whereby the first sign is known to represent "one" or the "first" year.\textsuperscript{16} The second text W 20274,12 records in parallel fashion two cows, their cowherd, and one female calf (sign combination SAL-AMAR) also qualified with $\text{U}_4+1\text{N}_{57}$ BAR.\textsuperscript{17} The latter notations are comparable to the Old Sumerian qualifications gir/\text{gu}_4 amar sig\textsuperscript{18} and $\text{Ur III ab}/\text{gu}_4 amar ga$ for nursing calves, $\text{ab}/\text{gu}_4$ mu.1-3 for juvenile cattle in their 1st, 2nd and 3rd years.\textsuperscript{19} Old Sumerian accounts record the following corresponding qualifications of pigs: $\text{Såh}/\text{Ü SAL}/\text{nita Såh H}I$ for piglets/shoots, $\text{Såh}/\text{Ü SAL}/\text{nita mu.2-3}$ for pigs in their 2nd and 3rd years (in all likelihood including gilts, sows and barrows), and $\text{Såh}.\text{sig}$ for breeding hogs, possibly boars ("reed thicket" pigs).\textsuperscript{20} Since we know that the inclusion of the sign $\text{U}_4$ in notations of years was optional, the sign combination $\text{SAU}_{24}+1\text{N}_{57}$ must have represented a pig in its first year.\textsuperscript{21}

\textsuperscript{15} M. Green, \textit{JNES} 39, 1-35; add the text A. Cavigneaux, \textit{BuM} 22 (1991) 159, W 24239.

\textsuperscript{16} R. Englund, \textit{JESHO} 31, 156-162.

\textsuperscript{17} Note that the reverse faces of these accounts contain notations representing amounts of dairy fats which the herders will have been required to deliver to the animals’ owners each year, in all likelihood the butter oil won from milk, later qualified \text{i-\text{ab} \text{se-gu} / da a (pre-Sargonic Girsu) and i-\text{mun} (\text{Ur III}) for cows, i-\text{mun} (pre-Sargonic Girsu and Old Akkadian) and i-\text{mun} (UA) (\text{Ur III}) for goats. The two texts W 20274,12 and 20274,63 edited by H. Nissen, P. Damerow and R. Englund, \textit{Archaic Bookkeeping} (Chicago 1993) 90, fig. 71, indicate a dairy fat quota of $\frac{1}{12}$ or $\frac{1}{14}$ of the capacity of the container $\text{DUG}_5$ per milk cow (here as in the \text{Ur III text TIL} 2, 5499, reckoning one calf retained per two cows). This may represent from 2 to 5 liters (see R. Englund, "Archaic Dairy Metrology," \textit{Iraq} 53 [1991] 101-104) and would thus correspond well with the delivery expectation of 5 sîla i-\text{mun} per milk cow in the \text{Ur III} period. Herders of sheep—these are the only known early accounts recording the deliveries of dairy fat from sheep, against M. Stol, \textit{BSA} 7 (1993) 100 and \textit{RIA} 8/3-4 (1994) 194—were on the other hand required to deliver the capacity equivalence in milk fat of one of the oil vessels represented by the sign $\text{KISIM}_5$, per 15 (W 20274,74 = \textit{JNES} 39, 21, no. 3), 18 (W 20274,15 = \textit{JNES} 39, 21, no. 4), 20 (W 20274,3, 38, 55, 60, and 61 = \textit{JNES} 39, 22, no. 6, 23, no. 7, 20, no. 1, 22, no. 5 and 24, no. 9, respectively) or 30 (W 20274,85 = \textit{JNES} 39, 20, no. 2) ecws. This may be only $\frac{13}{16}$ to $\frac{5}{10}$ of the amount of fat delivered per nanny goat by goatherds—between 3 and $\frac{3}{2}$ goats per vessel $\text{KISIM}_5$—recorded in the texts W 17879,ad, 20274,61, 65 and 148 ($= \textit{JNES}$ 39, 28-29, nos. 22-25). For comparison, goatherds in the \text{Ur III} period were expected to deliver between $\frac{1}{3}$ and $\frac{1}{2}$ sîla of butter fat per nanny goat (see M. Stol, \textit{RIA} 8/3-4, 194, and add for a delivery norm of $\frac{1}{3}$ sîla fat and $\frac{1}{2}$ sîla cheese $\text{UET} 3$, 1198, 1514 [Stol’s i-\text{mun} \text{UA} texts cited p. 197; correct there $\text{PTD} 634$ to $\text{PTD} 1$, 634], and $\text{UET} 9$, 916, for $\frac{1}{2}$ sîla fat and $\frac{1}{4}$ sîla cheese $\text{AUCT} 2$, 391, 12-18, and $\text{SET} 130$, 90-112 [L. 107: 4'10u]; this delivery transposed on the archeaic sources would presume a $\text{KISIM}_5$ capacity of ca. 1.2 liters and, assuming equal size of vessels, a delivery norm of just ca. 5-10 cl of butter oil per ewe (corresponding to ca. 1-2 sîla of milk per animal, based on a fat content of 5% [the milk of well-fed ewes reaches 6.5%]). Since goats will have produced no more than ca. 50% more milk than ewes, and will have given comparable amounts of milk to their young, the difference is probably due to the share of milk of their personal share of production to sheep herders as opposed to goat herders.

\textsuperscript{18} See the treatment of the pre-Sargonic Girsu cattle accounts by A. Deimel, \textit{Or} 21 (1926) 1-40 (cf. \textit{AntOr.} 2 [1931] 96) and K. Mackawa, \textit{Zinbun} 15 (1979) 122-123.


\textsuperscript{20} A. Deimel, \textit{Or} 20 (1926) 57-59; R. Englund, \textit{JESHO} 31, 141-147.

\textsuperscript{21} See below to comparable age notations with the sign $\text{ȘUBUR}$. 

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Fig. 5 Herding accounts recording adult and juvenile male and female animals and the amounts of dairy fats expected to be delivered by their herders. (scale 60% of the originals)

These age qualifications are unambiguously documented in a unique lexical list from Uruk dealing with animals represented by the sign ŠUBUR (I). The tablet W 12139, dating to the Uruk III period, consists of 58 individual entries, each of which contains the sign ŠUBUR (figure 6). Not only the clear graphic relation of this sign to the sign ŠAḪ2a – it is the same sign minus the guimation of the back of the depicted animal’s neck, i.e., its bristly mane23 – but above all the sequence ŠUBUR, ŠUBUR+1N57 (J) and ŠUBUR+2N57 (K) of the first three cases of the text24 present a clear correspondence to the age qualifications of pigs attested in later periods.25

The identification of this list with designations of pigs seems justified, moreover, by a number of qualifications of the sign ŠUBUR in the text which would be incompatible with other interpretations, for instance, ŠUBUR = “dog”.26 The lines rev. i 2-3 and 7-8 with ŠUBUR AB7, ŠUBUR NE3 and ŠUBUR GI6, ŠUBUR U4, i.e., “cow/reddish ŠUBUR” and “black/white ŠUBUR”, for example, contain adjectival pairs known only in lexical lists and administrative texts dealing with livestock, namely, with large and small cattle. A further example is the entry rev. iii 5 with ŠUBUR ŠE3; the sign L seems to represent a

22 A. Falkenstein mentioned the text in ATU 1, pp. 45-46, equating the sign ‘ŠUBUR’ with UR = “dog”; he did not, however, state that the text contained a list of designations of dogs, rather “eine Liste von Tiernamen ... wie sie ähnlich die Fara-Tafel VAT 12806 (= SF Nr. 81) für ab ‘Kahb’, gud ‘Stier’ und amar ‘Kalb’ bietet.” The improbable identification of the text as a dog list nevertheless was assumed in M. Green’s signlist of ATU 2 x.v. ŠUBUR, and has since been corrected by P. Damerow and R. Englund, ATU 2, 156, fn. 79. See now R. Englund and H. Nissen, ATU 3, 22-23 and 100-103 + pl. IV.

23 See the depictions of this mane in the seal impressions in fig. 1, composite drawings b, c and g.

24 The entry ŠUBUR+3N57 in rev. iii 4 = line 54 (ATU 3, p. 103) may or may not belong to this progression; the sign 3N57 is known in other combinations to be a graphic variant of the sign KUR, (N; compare, for example, the variant readings of ŠURUPPAK [= KUR + R] in the subscript of the first column of the two accounts depicted in figure 5 above), designating a male animal or possibly an animal from the eastern mountains.

25 The account P. van der Meer, RA 33 (1936) 190, no. 12, seems to record in two separate cases obv. i 5 and ii 5 rations distributed to female and male one year pigs (SAL ŠUBUR+1N57 and KUR ŠUBUR+1N57, respectively; collated).

26 An interpretation ŠUBUR = “human” was considered and rejected by A. Falkenstein, in ATU 1, 46, reading UR, since no parallels from Sumerian prosopography to the sign combinations in W 12139 were known to him; UR is, moreover, a different sign, which in its ED I-II form – UET 2, sign no. 284 – assumes precisely the expected function in personal names (see UET 2, p. 38, and, for example, UET 2, 3 ii 1: Ur Nanna; 9 ii 3: Ur:Nin.gal; 41 i 3: Ur:lugal; 72 ii 1: Ur:Inanna, etc.). The interpretation ŠUBUR = “human” seems further excluded by the probable age qualifications in the text noted above, although it should be noted that the entry GAL ŠUBUR in line 7 of the lexical list Lü A (ATU 3, p. 70) contains with GAL a designation of a supervisor usually in charge of humans, but also apparently of sheep herds (GAL SILA4, see below). Even here the situation is ambiguous, however, since there is no clear evidence in archaic administrative or lexical texts for the use of the candidate signs PAP, PA, UTUL (Sum. ún) or as in later pig herding tradition SIPA (PA.UDU) to denote animal herders, whereas the most obvious sources for a corresponding professional designation, the herding texts edited by M. Green, JNES 39, 1-35, name only the professions ŠE+NAM4 (see P. Steinkeller, AuOr. 2 [1984] 139-141, who offers the improbable interpretation ‘flayer’ of the sign combination; the sign combination most likely designates the ‘feeder’), PA NAM2 RAD and GAL SILA4.
product delivered by herders, best attested together with sheep and goats. We have tentatively identified this product with dung, a highly desirous fuel used in cooking and heating in antiquity. The entries iii 6-7 with ŠUBUR SE and ŠUBUR GURUSDA provide the hardest evidence, since it would be difficult to imagine the purpose of fattening a dog (assuming a correspondence of ŠUBUR SE to later šaḫ niga) or of a fattener (gurušda) of dogs. Finally, it may be noted that the archaic entry GAL ŠUBUR of line 7 of the lexical list ED Lú A is apparently in all witnesses from later periods, beginning with the witness from ED I-II Ur, replaced by GAL ŠAHU. It is thus probable that the two signs coalesced during the hiatus between the Late Uruk and the Early Dynastic periods.

Fig. 6 Copy (scale 75 % of original) and transliteration of the presumable pig list W 12139. Note in particular the first three entries of the obverse with the progression ŠUBUR, ŠUBUR+IN, and ŠUBUR+2N („pig”, „pig (in ist) first (year)”, „pig (in ist) second (year)”). The left edge of the tablet contains a numerical notation recording the total number of entries in the list (58).

27 See H. Nissen et al., Archaic Bookkeeping, p. 93.

28 The qualification in the list of ŠUBUR with toponyms, for example, ADAB (ii 8 and see W 20497 iii 1, ATU 3, 101, l. 18; the sign combination is also found in the administrative texts BIN 8, 3, obv. i 2b1, i 5 and rev. i 1, P. van der Meer, RA 33, 190, no. 14 i 4 [collated]) or UB (ii 10), does not assist in identifying the meaning of the sign. It may be stated in passing that the reading ŠUBUR MAḪ of iii 8 tells us nothing about the animal (M. Green based her identification of the entire list generally on a graphic resemblance of the sign ŠUBUR to the Near Eastern saluki, but specifically on this entry, which she interpreted to be ur. maḫ, ‘lion’), since the latter sign was assigned the reading MAḪ in the signlist ATU 2 (and in R. Labat’s Manuel) following an idle speculation about the sign made by Falkenstein in ATU 1 to no. 649. A more likely interpretation of the sign, based on form and on contextual usage with signs representing animals, is ‘oven’.

29 See above, fn. 8.
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Fig. 7 Paleographical development of signs representing pigs. The sign \( \text{ŠUBUR} /\text{ŠAH} \) did not survive the break between the Uruk III/Jemdet Nasr period and Early Dynastic I-II, but rather coalesced with the sign \( \text{ŠAH}_2 \). The sign \( \text{ŠAH}_2+1\text{N}_{57} \), representing a shoat/piglet, shifted to the Sumerian \( \text{ŠUBUR} \), of unclear meaning.

Selected references.


\( \text{ŠAH}_2 \) Uruk IV: ATU 5, Glossary, in particular W 9123,a1, a probable school exercise with numbers of \( \text{ŠAH}_2 \) followed by \( \text{SUHUR} \); Uruk III: W 20593,14 obv. i 3, 21498 obv. ii 1, 22099 obv. i 1b (unpubl.), W 23948 (above); ED I-II: E. Burrows, UET 2, sign no. 18, MSVO 1, 240 obv. i 1 (?); ED IIIa: LAK 40, TSŠ 46, obv. vi 5-6; ED IIIb: Y. Rosengarten, Répertoire commenté des signes prélargoniques sumériens de Logaš (Paris 1967) no. 457; Old Akkadian-Ur III: N. Schneider, KWU 348.

\( \text{ŠUBUR}+1\text{N}_{57} \) Uruk IV: ATU 5, Glossary; Uruk III: W 12139 (above), W 24006,10 obv. ii 4b (A. Cavigneaux, BagM 22, 85), 24011,6 obv. iii 3 (BagM 22, 95), etc., H. Nissen, P. Damerow and R. Englund, Frühe Schrift, p. 20, 4.19 obv. i 2; confer further the notation \( \text{ŠUBUR}+1\text{N}_{57} \) in contexts suggestive of a personal designation in such texts as ATU 5, pl. 26, W 7227,h obv. i 4 and pl. 46, W 9206,c obv. ii 1.

\( \text{ŠUBUR}+2-3\text{N}_{57} \) Uruk III: W 12139 (above).

\( \text{ŠAH}_2+1\text{N}_{57} \) Uruk III: ATU 3, Glossary (list “Grain” d 5), W 23948 (above); ED I-II: UET 2, 224 obv. i 3, i 6, 309 obv. ii 8; ED IIIb: for the use of the age notations see R. Englund, JESHO 31, 140-147, further the texts CT 50, 37 vii-x, CTc 3 viii-x, DP 145 v-vi, 149, iii-v, 150 iii-iv, 152 v-xi, etc.; Old Akkadian-Ur III: the best currently available accounts for the analysis of pig herding terminology from the Ur III period are T. Gomi, SNAT 436, BM 106149 (Shu-Suen 1, Umma), F. Yildiz and T. Gomi, FAOS 16, 1049 (Shulgi 40/v, Drehem) and D. Owen, MVN 15, 64 = JCS 24, 162, 64 (Shulgi 40/v, Drehem).

\( \text{šubur} \) ED I-II: see above to \( \text{ŠAH}_2+1\text{N}_{57} \); ED IIIa: LAK 39, see the indices of personal names in WF, TSŠ and NTSS under Šubur; ED IIIb: Rosengarten, Répertoire 458, see V. Struve, Onomastika rannedinasticeskogo Logaša (Moscow 1984) s.v.; Old Akkadian-Ur III: Schneider, KWU 43, passim.
While evidence for a so involved terminology of pigs and organization of pig herding as would seem to be implied by the existence of a lexical pig list including 58 entries is not known from later periods, still the nature of archaic lexical lists as often fanciful paradigmatic name-generating exercises – a phenomenon well documented from later periods but also known, for example, in the archaic list of domestic animals – would make such a complex list imaginable, if not plausible. Thus the list here would presume a categorization of primarily domesticated animals, their products, probably including meat cuts and means of cooking or preserving/salting, and workers involved in the breeding, herding and slaughtering of pigs.

Taken together, the paleographic and semantic data from proto-cuneiform sources dealing with probable pig herding (see figure 7) are suggestive of a simplification of graphic information following the Uruk III period, from signs for possibly domesticated animals qualified according to age on the one hand, for wild animals on the other, the young of which were easily tamed, the wild boars prized for their size and so used for breeding, to a single sign for pigs in the ED period. Ideographic qualification of this sign served to differentiate between wild and domestic breeds and between age groups.

The type of accounting format we have seen employed in recording household herds during the archaic period toward the end of the 4th millennium B.C., and the administrative and mental structures which must be assumed to underlie this format, in particular the goal of maximizing control and regulating production of the animals, offer a glimpse of the inchoate state building of this age. Proto-cuneiform documents seem also to reward us with intriguing, albeit obscure information about the organization and exploitation of men and women, whose labor and low maintenance created the economic surpluses requisite for a growing urban elite; for the same archaic administrative interest in recording, as an example, the age of herded animals – cattle, sheep and goats, and pigs – may be demonstrated in the organization of dependent labor. The text W 23999, I depicted in figure 8 contains an account of eight humans designated in the summation

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30 Swine are recorded in the 14th tablet of the lexical series \( \text{ijAR} = \text{hubullu} \), ll. 158-183, following entries for bears and preceding the section dealing with rodents. See B. Landsberger, Die Fauna des alten Mesopotamiens nach der 14. Tafel der Serie \( \text{ijAR-RA} = \text{UBULLU} \), (= ASAW 6; Leipzig 1934) 12-15, 100-103 and id., MSL 8/2 (Rome 1962) 19-21.

31 See ATU 3, 22 with fn. 41, and 89-93.
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SAL + KURa (F). In proto-cuneiform documents, SAL represents female, KURa male laborers. The two are here, just as in accounts recording herds of small and large cattle and, in the case of W 23948, pigs, booked separately according to sex and age: a group of five females consists of four adults and one child, a group of three males of one adult and 2 children. The only difference between the method of accounting for herded animals and for this group of humans, possibly slaves, lies in the fact that following entries of numbers of each sex and age category individual cases record the names of the persons involved.

This gives a strong impression not of being an early census, but rather of being an account of a "herded" family of name-cognizant humans; the point need not be belabored that the psychological borders between men and animals are not everywhere clearly drawn, still the exchangeability of humans and pigs in state documents of 3rd millennium Babylonia seems less to elevate the pigs than to demean the accountants.

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32 This compositum was first recognized by A. Vaiman, VDI 1974/2, 138-148 (Russian article translated into German as "Die Bezeichnung von Sklaven und Sklavinnen in der protosumerischen Schrift," BaM 20 [1989] 121-133; see also id., VDI 1981/4, 81-87 = BaM 21 [1990] 116-123) to represent male and female humans, so that the still seen reading 'geme' of the compositum in archaic texts is to be rejected. See now the treatment of the signs in proto-cuneiform and proto-Elamite texts in P. Damerow and R. Englund, The Proto-Elamite Texts from Tepe Yahya (= American School of Prehistoric Research Bulletin 39; Cambridge, Mass., 1989) 24 and 53-57.

33 Note the clear correspondence in the bookkeeping of the children qualified ŠA 31 TUR (cf. the entry obv. ii 3a: 2N1; U 4 + I N 57 TUR in W 20274,2 [copy and photo in ATU 2, pl. 18] as a possible further correspondence; the qualification in later periods was ša.l[u] and the animals qualified U 4 + I N 57 and ŠAH 31 + I N 57 for large and small cattle and pigs, respectively. This is not to say that the designation ša.1 31 TUR will have qualified infants in their first year, but rather probably children which were 'non-exploitable', i.e., too young to be set to some task. H. Wactzoldt estimated in "Die Situation der Frauen und Kinder anhand ihrer Einkommensverhältnisse zur Zeit der III. Dynastie von Ur," AoF 15 (1988) 40, that children will have been employed during the Ur III period beginning at the age of 5 or 6.

34 These together with further sign combinations in comparable texts should, as incontrovertible designations of individual persons, play a major role in any attempt at language decipherment of the archaic texts. It must be kept in mind, however, that, as is known from historic periods, dependent laborers and slaves often bore foreign names.

35 This text, the parallel text W 20274,2 (see fn. 33 above) and the Jemdet Nasr accounts MSVO 1, 212-214 (see also H. Nissen et al., Archaic Bookkeeping, 72-75) may be noted to I. J. Gelb's assertion in CRAI 18 (Munich 1970) 84 that the first known case of the planned breeding of existing slaves to be sold and for the purpose of retaining a viable work force is documented in the American South, a consequence of U.S. law which made illegal the importation of slaves into the country after 1807. Third millennium texts are unfortunately not clear about the social nature of slave exchange and in particular about the familial structure amongst dependent state laborers in Babylonia on the one hand, and private chattel slaves on the other. At least a financial incentive to deal in chattel slaves is documented from all periods beginning in ED III, both on a local and, contracted by dam.gar, on an interregional level. Institutional slaves working in state productive units were not dealt into this market.