

6. The Value of Wool in Early Bronze Age Mesopotamia. On the Control of Sheep and the Handling of Wool in the Presargonic to the Ur III Periods (c. 2400–2000 BC)

Walther Sallaberger¹

1. Export of wool from a farming region

In Early Bronze Age Mesopotamia, in the 3rd millennium BC, textiles were generally made of wool, while linen garments were mostly restricted to cultic use. Herds of sheep could be kept not only in the alluvial plains, but also in the steppe and in the hilly and mountainous regions surrounding the lowlands. Groups specialized in sheep-herding lived primarily in those regions which were less suitable for agriculture. The need for transhumance, annual, seasonal migrations to reach regions with sufficient food for the herds, also conditions a specialized lifestyle. These pastoralists had to live off of their flocks of sheep, using the milk, meat and wool for their own consumption, and exchanging any surplus in the cities to obtain other necessary goods. They thus depended economically on a constant exchange with the agriculturalists living in the alluvial plain. Such an exchange is documented for Old Babylonian (Middle Bronze Age) Mari, for example, in the form of tribute to the state.² Earlier, in the Ur III period at the end of the 3rd millennium, sheep and cattle were sent to Sumer, the southern part of the alluvial plain, from the eastern regions along the Zagros mountains as regular tribute.³ Booty from military expeditions to the mountain lands and to the 'Mardu land' often included sheep as well.⁴ Shipments of sheep in the other direction are unknown, whereas barley is exported from Sumer, for example to buy copper, which in the 3rd millennium arrived from Oman via the Persian Gulf.⁵

One might easily interpret this flow of goods as reflecting the economies of greater Mesopotamia: the irrigation agriculture of the alluvial plains produced a surplus of grain, whereas sheep were imported from the hilly flanks or the steppe, which appear less suitable for large-scale farming.

¹ This article owes central insights to Antoinette Rast-Eicher and Eva Andersson Strand at the ESF Explanatory Workshop in Nanterre, who have pointed out to me the importance of control in breeding and the work necessary to obtain wool for spinning. Furthermore, the discussions and presentations at the workshop have led to a better understanding of the preparation of wool and a complete revision of my original paper. I heartily thank Cécile Michel for her comments and Christian Hess for revising the English.

² See e.g. Streck 2002; Marti 2008; Michel this volume. Porter 2013, chapter 1 argues convincingly for an integrative view on the various shades of lifestyles and economies.

³ Steinkeller 1987; Maeda 1992 on *gun₂ ma-da*.

⁴ Sallaberger 2007, 447; Michalowski 2011, 100–104; both with further literature.

⁵ On barley used to buy copper in Umma merchant accounts see Ouyang 2013, 120, footnote 383.

To be certain, crops must also have been harvested there, just as the alluvial plains always kept sheep, as attested in written documents. But based on these general patterns of exchange, we face the paradox that Sumerian merchants of the 24th and 21st centuries also sold wool. Moreover, they sold wool itself, not textiles produced in the weaving workshops of the large cities. It would be easier to accept the export of high quality products from the specialized workshops of the cities, just as the merchants of Aššur sold textiles in Anatolia a few centuries later.⁶ At least some of the goods the Sumerian merchants imported, like honey, minerals, stones, metals, or resins, arrived from or through the Zagros mountains.⁷ This could lead to the impression that wool was sold precisely to those peoples who specialized in sheep-herding. Though the merchants may have sold the wool locally or to the Gulf region (see below), the sale of wool as a raw material instead of finished garments and textiles is puzzling. In addition, wool remained an export good during the Ur III period, when the decline of urban settlements in Upper Mesopotamia⁸ might possibly have led to a surplus of wool produced by the pastoralists in the steppe. Nevertheless, evidence for the import of wool cannot be found in the dense textual record.

In the following discussion of this conundrum, I have selected three different corpora of evidence: first, for the Presargonic period (24th century BC), the archive of the Emunus of Girsu, the organization of the wife of the city ruler or king of Lagaš, the 'Lady of Girsu', which provides the most comprehensive view of all aspects of the economy; second, the tablets from Tell Beydar, ancient Nabada, in Upper Mesopotamia, which derive from an ecologically different region with a similar socio-economic basis; and third, the massive Ur III evidence (21st century BC), which allows the most detailed investigation. The similarities in the internal organization of society and economy between the Presargonic and Ur III periods have often been pointed out.⁹ Cultural similarities are also reflected in the use of the archaeological designation of the 'Early Bronze Age', which includes all of these periods. Cultural continuity is obvious in the continued existence of the same urban centres and their surrounding regions, such as Girsu, Lagaš, Umma, Adab, Ur or Uruk. The early city states became 'provinces' of the Ur III state, remaining autonomous in many respects, except for state matters such as the military. With the downfall of Ur, the political landscape changed completely. The city states that dominated the 3rd millennium disappeared and new territorial states emerged. The results of this study pertain to the Early Bronze Age, more specifically to the second half of the 3rd millennium, but similar patterns of control of sheep and their wool were most likely also at work in the earlier city states of the Fara period (ED IIIa) and the Ur archaic texts (ED I/II).

2. Sumerian merchants selling wool

2.1. *Merchants in Presargonic Girsu*

In the Presargonic city state of Lagaš, wool appears as a trade-good handed over to merchants. In the organization of the Lady of Girsu, the ruler's wife living in the capital at Girsu, trade activities

⁶ Michel and Veenhof 2010 with earlier literature, also discussing the import of textiles to Aššur from Babylonia.

⁷ A recent summary of the goods of the Ur III merchants accounts is Ouyang 2013; she does not, however, discuss the provenance of the various goods. For the case of resins which were both imported and farmed locally, see Brunke and Sallaberger 2010.

⁸ Sallaberger 2007.

⁹ Only two examples are cited here: Maekawa 1987, Selz 2010.

are only rarely documented, though more should be expected from the archives of the ruler. Wool was used to acquire spices by the merchant Ur-emuš.¹⁰ Wool and silver were handed over to this seafaring merchant¹¹ or, most importantly, consigned together with silver to buy copper arriving from Magan through the Persian Gulf.¹² Wool was apparently one of the most important commodities that Sumerians could exchange to acquire foreign goods. Wool was bartered for barley, which was then sent to Elam.¹³

Discussing the commercial exchange of the household of the Lady of Girsu, which specialized in textile production, R. Prentice writes:¹⁴

One would expect woollen garments to have been an important export product. Lagaš possessed large herds of sheep and the number of women weaving and spinning¹⁵ was continually growing. However, there is only one document which records the export of textiles.

The one document mentioned by Prentice¹⁶ is DP 518, according to which three standard bar-dul₅-garments (probably kilts) were given together with five minas of silver to the seafaring merchant Ūirinibatuš for barter (niŋ₂-sam₂) with Dilmun.

To summarize the evidence from Presargonic Girsu, wool was one of the primary products exported by the Emunus, but the main export good in quantity and number of references was clearly barley, which could easily be shipped to neighbouring regions. Besides locally produced wool and barley, fish, lard and scented oils were also exported.¹⁷

2.2. Merchants in Ur III Umma

Turning now to the end of the 3rd millennium, the period of the Third Dynasty of Ur, the textual evidence allows two perspectives: first, a comparison of sales and purchases executed by the institutional economy of Umma, directed by the governor; and secondly, an evaluation of the accounts of the merchants who provided goods both from local and from external markets.

¹⁰ *Nik* 1 300 (Lugalanda 3): 42.5 minas (c. 22 kg) of wool worth 21.25 shekels to buy spices (šem bulug_x).

¹¹ DP 518 (Lugalanda 6): 5 minas of wool together with 5 minas of silver for the seafaring merchant (gaeš₃^{ga}) Ūirinibatuš.

¹² Foster, *ASJ* 19, 61 YBC 12130 (Lugalanda 6): 10 minas of silver and 300 minas of wool. It is no coincidence that the three Presargonic Lagaš references date to the time of Lugalanda, since under his successor, Urukagina, foreign commercial relations soon came to an end; see Schrakamp (in print).

¹³ (1) *Nik* 1 310 iii 8: 50 ma-na siki še '50 minas of wool (for) grain' handed over to an Elamite in the context of a long list of grain given to Elamites (Prentice 2010, 107, footnote 434 erroneously calls siki še a type of wool; there is probably a confusion with siki udu še gu₇-a). (2) *Nik* 1 85 (Lug 1): (i) 4,30.0.0* še gur-saŋ-ŋal₂ / niŋ₂-sam₂ siki-kam / ur-e₂-muš₃ / gal dam-gara₃ ensi₂-ka-ke₄ (ii) en-u₄-da-na / dam-gara₃ e₂-munus-ra / e-na-šum₂ / elam^{ki}-še₃ (iii) ba-de₆ '270 standard kor, barter for wool: Uremuš, the chief merchant of the city ruler gave it to Enudana, the merchant of the Emunus. It is brought to Elam'. Clearly the barley is given to the merchant of the Emunus to be brought to Elam, as in other documents; the additional note that it is 'barter for wool' indicates that the chief merchant Uremuš had exchanged the grain for wool. Prentice (2010, 107 with footnote 433), however, suggests an '(intended) importation of wool'; this would remain a unique reference to the import of wool.

¹⁴ Prentice 2010, 111–112.

¹⁵ Prentice 2010 interprets ki-siki as 'weaving' and ki-gu as 'spinning'; however, the number of persons employed speaks against this interpretation, since spinning needs 10 times more work than weaving, but the number of persons employed at ki-gu is much lower. Therefore the traditional interpretation of women working with wool (ki-siki) or flax for linen (ki-gu) is maintained.

¹⁶ Prentice 2010, 112.

¹⁷ Prentice 2010, 110–111.

Purchase of wool	Silver value in shekels	Sale of wool	Amount of wool in talents	Silver value in shekels
a) 43 shekels of silver (AS 1)	43	a) for bitumen (Š 37)	2	≈ 12
		b) for 'merchandise' (Š 47)	9	≈ 54
		c) for grain (AS 3)		10
b) 6 kor of grain (AS 7)	6	d) for dry bitumen (AS 7)	4	≈ 24
		e) for gold (AS 7)	115	≈ 690
c) 25 shekels of silver (ŠS 1)	25			
d) silver for 23 ¼ talents of wool (ŠS 2)	≈ 140	f) for eggs (?) (ŠS 3)	≈	≈ 1
e) 420 kor of grain (ŠS 6)	420			
f) grain for 30 talents of wool ([x])	≈ 180	g) for a woman, 2 children (IS 2)	3	≈ 18

Table 6.1. Wool bought and sold by the governor's institutional economy at Umma in chronological order:

Values are rounded. Estimated prices (indicated by ≈) are calculated according to the standard price relationship of 1/6 shekel of silver per mana of wool, or 6 shekels of silver per 1 talent (following Snell, 1982, 178–179).

References for the purchase of wool: a) MVN 18, 125; b) Nisaba 11, 17 i 18–19; c) TCL 5, 5680; d) MVN 1, 241; e) TCL 5, 6037; f) Nisaba 11, 6 iv 3–4. 6.

References for the sale of wool: a) AAICAB 31 Ashm. 1911–217, b) MVN 1, 220; c) Studies Jones 216:15–17 (11th month, i.e. period before harvest with shortage of grain), d) and e) NATN 805; f) Nisaba 9, 46; g) AAICAB 41f. Ashm. 1911–237b.

References from Wilcke (2008, 267–281), with one addition (sale reference c) taken from Ouyang (2013, 239–241, table 5.2.C: Wool received by Umma merchants; and 292–294, table 5.2.M-2: Animal parts and by-products supplied by Umma merchants).

The references to wool in institutional purchases and sales are extracted from the lists provided by Wilcke (Table 6.1).¹⁸ Concerning the balance between wool sold and bought in these references, the conclusions drawn by Ouyang on the purchase of wool are worth citing in full:¹⁹

A shortage of wool in the institutional sector might have led to this demand, for the supplies of wool from the merchants appear documented during the reign of King Šu-Sin, when they received only small amounts of their capital.

The administrators, who withdrew wool from the merchants, at the same time took wool from the institutional economy in Umma to meet their needs. [...] These wool transactions suggest that incidental shortages could have compelled the Umma institutional economy to fall back on the merchants for supplementary supplies of goods in which it specialized. The evidence does not point out the source of the wool purchased by the merchants though.

So it seems that temporary shortages forced the governor's organization to buy wool from another source, probably other organizations within the same or another province. Importantly, the highest amount of wool spent by Umma's administration was used to buy gold, the most precious metal of the period and therefore used to fulfil the demands of annual taxes to the state. Wool was also exchanged for bitumen, which was imported from Madga in the Eastern Tigris region, somewhere in the area of the modern oil-producing centre of Kirkuk, the region where most researchers would localize a centre of the Mardu (Amorite) land.²⁰ In these cases, wool was clearly invested in the superregional market, since gold and bitumen had to be imported to Sumer.

¹⁸ Wilcke 2008, 267–281.

¹⁹ Ouyang 2013, 146–147.

²⁰ Stol 2012, 57–58.

Date	Capital, total (<i>saj niḡ₂- gur₁₁-ra-kam</i>) in shekels (rounded)	Silver value of wool in shekels (rounded)	Percentage of wool as part of the capital (rounded)	Merchant	Text
AS 3/01	927	262	28%	Ur-Dumuzida	<i>Studies Jones</i> 216
AS 4/-	846	300	35%	'merchants', dam-gara ₃ -ne	TCL 5, 6046
AS 4/-	413	238	24%	Ur-Dumuzida	<i>Ledgers no. 3</i> = YOS 18, 122
AS 5/-	228	40	16%	Enimanizi	TCL 5, 6052
AS 5/-	156	40	26%	Pada	<i>Ledgers no.4</i>
AS 5/-	201	40	20%	Seskala	TCL 5, 6056
AS 5/-	77	40	52%	Seskala	<i>Ledgers no. 6</i>
AS 5/11	267	117	44%	Pada	AAICAB, Ashm.1924-0667
AS 6/-	113	33	29%	Kateša	SNAT 365
AS 6/02	「233」	40	17%	Kuda	<i>Ledgers no. 8</i>
AS 6/11	197	85	43%	Seskala	<i>Nisaba</i> 6, 2
AS 6/11	271	120	44%	Pada	STA 23
AS 6/11	369	228	62%	Ur-Dumuzida	<i>Ledgers no. 9</i>
AS 7/07	265	151	57%	Ur-Dumuzida	<i>Ledgers no. 10</i>
AS 7/09	252	88	35%	Pada	<i>Ledgers no. 11</i>
AS 8/07	304	96	32%	Ur-Dumuzida	STA 1
AS 9/-	869	331	38%	Ur-Dumuzida	YOS 18, 123
ŠS 2/-	336	25	7%	Ur-Dumuzida	TCL 5, 5680
ŠS 5/-	13	2	13%	Pada	<i>Ledgers no. 12</i>

Table 6.2. Wool belonging to the capital of merchants employed by the governor of Umma (Ur III) in balanced accounts about merchants. Values are rounded. References in Ouyang 2013, 239-240, table 5.2.C, which also includes other documents.

The distribution of sales and purchases of wool agrees with the fact that wool appears as one of the staple goods of the province of Umma that were handed over to merchants travelling on behalf of the state. The balanced accounts written to control the business of the merchants not only provide the quantities and value of wool spent, but allow us to calculate the amount of wool in the merchants' capital: Between 7% and 62%, mostly a quarter to half of the capital given to merchants, came from wool (see Table 6.2). Interestingly, garments or textiles never appear as capital goods. Only the raw product, the wool itself, was used by the merchants to acquire goods. Besides silver, goods handed over to the merchants included barley, dates, fish and fish oil, sheepskins and leather products, wood, sesame oil, or alkaline plants and various foodstuffs.²¹

In three cases, the Umma scribes indicated the goods the wool was budgeted for. Once, Seskala should supply ku-mul, 'fennel, anis'(?),²² a plant that was also grown locally. In two other instances, the merchant had to buy gold for wool, in each case for an amount of 5 talents of wool, worth

²¹ Most recently Ouyang 2013, 117-123 and 233-247 with Tablets 5.2.A to 5.2.G.

²² AS 6/11, *Nisaba* 6, 2.

30 shekels of silver.²³ Again, as in the cases collected in Table 6.1, wool was invested to import gold to Sumer.

Besides gold, the merchants imported silver by selling staple goods on foreign markets, furthermore metals, especially copper and tin, alkaline plants, gypsum, bitumen, honey,²⁴ and resins, which partly came from foreign regions. Wool, which was provided mostly by the governor himself, his wife (Ninmelam) and more rarely by officials,²⁵ was thus invested in interregional trade.

It can be assumed that the goods traded by the merchants were usually transported by boat on the rivers and canals and on the sea to Elam or other regions via the Persian Gulf. Although wool was one of the main products sold by the Umma merchants (see Table 6.2), it did not serve as means of payment in the same way as silver or, to a lesser degree, barley: wool is not mentioned as a price in sale documents or as a commodity in loans.

The role of wool as merchandise in some respects recalls the Old Babylonian situation that merchants sold the wool yielded by the state's herds.²⁶ Perhaps the wool business explains the background of one of the best known money-lenders of the Ur III period, *ŠI.A-a*, who was a *na-gada* 'shepherd' by profession.²⁷

3. The urban control of sheep herds in Upper Mesopotamia: Presargonic Nabada (Tell Beydar)

As the preceding section has shown, wool for trade was provided by the communal organizations that managed the economy in Early Bronze Age Mesopotamia, in these instances by the palace of the city-ruler or the Lady of Girsu's organization in Presargonic Lagaš, and by the governor and his officials in Ur III Umma. The control of flocks of sheep by such organizations is attested in hundreds, probably thousands of cuneiform documents from all over third-millennium Mesopotamia. Excellent evidence for the control of flocks of sheep comes from Tell Beydar, ancient Nabada.

Nabada was a second-rank city in the Habur plain in Upper Mesopotamia, dependent on the political capital at Nagar (modern Tell Brak), and it housed roughly two thousand inhabitants at the time covered by its main archive in the early 24th century BC.²⁸ The inhabitants lived in small houses, where they also prepared their food, especially on the basis of barley, which they received as monthly allocations from the communal organization. As was common in early Mesopotamia, from Sumer in the south to Upper Mesopotamia in the north, they worked collectively both in the fields and in the workshops, and the harvested grain was stored in communal granaries. Life was thus determined by collective labour and private food consumption. An important source for our understanding of sheep husbandry is provided by a group of 18 round small tablets, 3.5 to 4.5 cm in diameter.²⁹

²³ AS 7/07, *Ledgers* no. 10; AS 7/09, *Ledgers* no.10.

²⁴ 'Honey' (lal₃) appears in the merchants' accounts and so it may well have been imported to Sumer, since the honey-bee was not native to lowland Mesopotamia (Volk 1999). The interpretation of lal₃ as 'date syrup' is problematic as long as its production is not attested in the enormous economic documentation of the Ur III period.

²⁵ Ouyang 2013, 121.

²⁶ Stol 2004, 922–926.

²⁷ Garfinkle 2012, 36–71 with earlier literature.

²⁸ On the economy of Nabada see now Sallaberger and Pruß in print.

²⁹ Subartu 2, no. 118; Subartu 12, no. 151–167; see Sallaberger 2004; Pruß and Sallaberger 2003/2004. The goat herds

Herdsmen	Total	Sheep	Rams/ wethers	Ewes	He-goats	Lambs	Text Subartu 2 and 12
<i>type 1a</i>							
ir-ib-sá-lim	97	82			1	14	161
ʾA-la-gi-mu	164	138			4	22	162
Ma-ti	165	113			2	50	152
Šu-na-na	168	129			1	38	151
An-na-kun	201	165			2	34	118
Gi-la-nu	211	1 ? 60			2	49	167
<i>type 1b</i>							
ʾA-ša-lum	165+		20+	105		40+	164
A-ḥu-DU ₁₀	253		60	139	1	53	166
UD-il	286			219		67	155
É-GAL	306		100	160	-	46	153
Lu-sá-lim	331		100	185	3	43	158

Table 6.3. Flocks of sheep at Nabada/Tell Beydar according to herd inspection documents. Following Sallaberger 2004, 19, table 4.

The texts maintain the following form:

1. Type of small livestock (sheep or goats)
2. personal name
3. number of animals
4. further types of sheep (sheep texts only) and respective numbers
5. month name (except once 'Month of the Sun-god').

In tabulated form, these texts provide information on the composition and size of the herds of sheep at Tell Beydar (Table 6.3).

The persons named are the shepherds, who cared for the flocks entrusted to them by the communal organization of the city of Nabada. The flocks were of a perfect size to be managed by one person, consisting of 160 to 300 animals. The relatively high rate of male animals (relation of rams or probably more often wethers to ewes lies between 1:1.6 and 1:2.3) indicates that they were kept not only for husbandry, but primarily for wool production. There is no evidence at all that sheep cheese was delivered. The flocks of sheep also appear in another group of similar documents (Table 6.4), small tablets recording the amounts of wool plucked (ur_4) from the sheep and all dated to the 'Month of the Sun-God', thus clearly to be identified with the period of plucking and revision of the herds. The texts most likely date to a span of one or at most two years.

Finally, the shepherds appear in lists concerning the delivery of sheep for slaughter or of hides to the management. The documents kept in the centre of the city³⁰ and written by the urban scribes demonstrate that the flocks of sheep belonged to the communal organization of Nabada, and that the shepherds were thus considered an integral part of the urban community. The small documents on the inspection of herds allow us to calculate the average size of a flock.

equally present at Nabada (and likewise tabulated in Sallaberger 2004) are not discussed here.

³⁰ On the find-spots of the herd inspection texts Subartu 12, 151–167, see Lebeau 2004, 1. 5 pl. I. 8, fig. 1–2.

Personal name	Total	From sheep	From rams or wethers	From ewes	Text Subartu 2 and 12
'Ā-ša-lum	463 (minas of) wool +3 'free of fleece' ¹	463			103
Bù-[EN]	102+ (minas of) wool	102+			51
Dab ₆ -ra	113 (minas of) wool	113			95
É-GAL	457 (minas of) wool		200	257	82
É-GAL	526 (minas of) wool + 5 'free of fleece'	526			60
Īr-Īb-sá-lim	196 ² (minas of) wool + 4 'free of fleece'	196 ²			61
Kūn-BĀD	580 (minas of) wool + 4 'free of fleece'	580			50
URI-APIN	923 (minas of) wool + 24 'free'		400	523	56

Table 6.4. Small round tablets documenting flocks of small cattle (Excerpted from Sallaberger 2004, 14, table 1); minas of wool, probably representing a ratio of 2 minas of wool per ram or wether, 1.5 minas per ewe (Sallaberger 2004, 20).³¹

	Number of animals attested in individual documents	Average size of flock	Additional herdsmen	Estimated additional animals	Estimated total (low estimate)
Sheep	2347+ in 11 flocks	213	7	1491	c. 3840 in 18 flocks
Goats	2072 in 7 flocks:	296	5	1480	c. 3550 in 12 flocks
Total	4419+ in 18 flocks:		12	2971	c. 7400 in 30 flocks

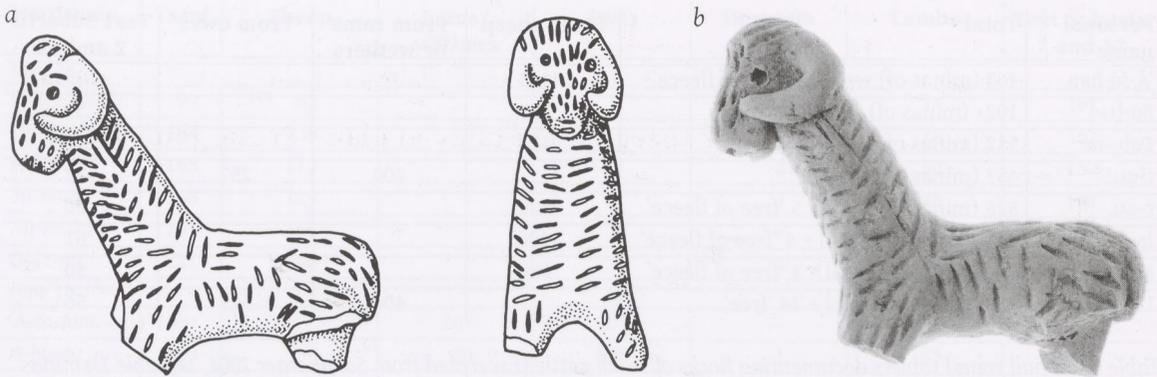
Table 6.5. Total number of sheep and goats kept by the local administration of Nabada. From Sallaberger 2004, 20

Consequently, the total number of shepherds known from larger lists of persons allow for a conservative estimate of the total number of sheep controlled by Nabada as comprising c. 4000 heads (and a slightly smaller number of goats).

In the environment of Tell Beydar, fallow land and fields provided fodder after the harvest. During the humid season in winter and spring the flocks could stay in the hills stretching to the west, and one could also imagine a seasonal transhumance to the Jebel 'Abd al-'Aziz.³¹

According to the textual documentation, the pastoralists of Upper Mesopotamian Nabada were integrated in the urban communal management. There is even further evidence that the animal herds were an essential part of the urban perspective on their world, and this evidence comes from an unexpected side, namely the find of zoomorphic terracottas. Alexander Pruß's analysis of the terracotta figurines found in private houses excavated at Tell Beydar showed that depictions of domestic animals clearly outnumber those of wild animals (bears, foxes, lions). Local differences can be noted, however. More bovine figurines are attested in the Euphrates

³¹ The formula siki bar aš 3 sikil remained unclear to Van Lerberghe 1996, 109, and was not discussed by Sallaberger 2004; siki bar aš = 'single, one complete fleece', sikil 'free'; so these numbers indicate the number of sheep that did not deliver wool, probably because they had already lost their fleece before plucking. No more than 4 fleeces were usually lost from a standard herd of 210 sheep (Sallaberger 2004, 19–20). This seems to be a very low rate of losses and confirms the strict control of the flocks of sheep. The interpretation of the wool weight is confirmed by Subartu 2, no. 6, which says that 'one complete fleece' (siki bar aš) has the 'weight (ki-la₂) of 2', i.e. minas (c. 1 kg), as already noticed by Van Lerberghe 1996, 112.



Figs 6.1a and b. Figurine of a ram from Halawa from the 24th c. BC ('EB IVA', courtesy A. Pruß: Pruß and Link 1994, 114; 125, Abb. 35 and Taf. 16, there 'Schafterrakotte Nr 79' (HLW.78T121)).

valley, which is more suited for cattle breeding, as also attested by the finds of animal bones. Equid figurines predominate in the capital at Nagar/Tell Brak, which concentrates on this sector of the palace economy. In the Habur plains, sheep are more prominent than in the Euphrates valley. Whatever the function of the terracottas may have been, they illustrate the personal view of the inhabitants on their environment. Whether the terracottas represent magical figurines or toys, both uses would represent an ideal world. In this way the high number of sheep and goat figurines within the city attests to the social integration of shepherding in urban society.³²

Can we assume that independent nomadic or pastoralist groups migrated in the same region, the Habur plains? The dense settlement in that period, well documented by archaeological surveys, precludes such an assumption. The space necessary for the sheep and goats of Nabada corresponds to about half of the province's total surface; this leaves little room, if any, for independent groups, especially if one allows for cattle, equids, and royal herds as well.³³ The 24th-century situation in the Habur plains thus is directly opposed to the situation in the same region half a millennium later in the Old Babylonian period, the Middle Bronze Age, when the region was predominantly inhabited by pastoralists, as attested in the written sources and confirmed by the archaeological evidence.³⁴

The tablets from Tell Beydar document the strict control of animal herds by the urban organization, and this control included the exact number of sheep entrusted to the shepherds and the weighing of the wool plucked every spring. Furthermore, the loss of sheep was registered by the tally of hides from shipments delivered by shepherds.³⁵

The subsequent use of the plucked wool is not attested in the textual documentation from Tell Beydar. Industrial production of textiles is often linked to the royal sector, and so the wool may

³² Pruß and Sallaberger 2003/2004.

³³ See Pruß and Sallaberger 2003/2004, 298–299. With a standard value of 2 to 3 hectares of land used per sheep, our 7,400 animals of small cattle would use 148 to 222 km². This corresponds to half of the estimated size of the province of Nabada. Additional space has probably to be calculated for the royal herds of Nagar.

³⁴ See the references to the archaeological data in Lyonnet 2004.

³⁵ See Sallaberger 2004, 14–17, especially on documents Subartu 2, nos 4 and 70, lists of hides (kuš) of sheep and of goats delivered by herdsmen.

have been delivered directly there.³⁶ Similarly to the Presargonic archive of the Lady of Girsu, a single document from Nabada attests to the sale of wool. Interestingly, as at Girsu, wool is sold by fleeces in order to obtain a luxury good, namely wine, a delicacy in ancient Mesopotamia.³⁷

4. The urban control of herds of sheep on the alluvial plain: Presargonic Girsu, Ur III Umma, Girsu, and Ur

4.1. Presargonic Girsu

Turning from Upper Mesopotamian Nabada to the contemporary southern archive of the Lady of Girsu, we note both parallels and differences. First, shepherds of sheep raised for wool (*sipa udu siki-ka*) are part of the workforce of the organization, and up to three shepherds appear together with six herding assistants.³⁸ The size of their herds cannot be ascertained, since only small numbers of sheep, around 40 to 60 heads, appear in lists of barley as fodder. This suggests that these animals were earmarked for slaughter. As with the Nabada lists of hides, the shepherds of Girsu also had to document all losses by returning hides for fallen animals.³⁹ The few preserved tablets that deal with plucking (*ur₄*) list only surprisingly low numbers for the three or four shepherds, such as 42 (VS 25, 55), 63 (DP 258), or 68 (VS 14, 73) sheep. These texts, however, deal with special taxes for sheep,⁴⁰ and, in contrast to the Nabada documents, do not record the total amount of wool plucked.

Interestingly, the Emunus organization housed both shepherds and female textile workers, but apparently did not control the wool itself. Although the documentation covers practically all aspects of subsistence economy, it does not mention the plucking of wool, its storage or its processing. These aspects were apparently reserved for the palace of the ruler, and this is in line with the value of wool, which was handed over to traders as merchandise (see Section 2.1 above). This again dovetails with the Tell Beydar documents: although there the wool was plucked locally, it then disappeared from the records, probably because it was handed over to the palace. An impressive contemporary example of the palatial management of the valuable commodity of wool stems from the archives of Ebla, whereas the second-rank town Nabada and the subordinate Emunus organization were involved in the production, but not in the ultimate control of wool.⁴¹ Taken together this suggests that wool was regarded as a valuable good treated by the palatial economy.

4.2. Ur III Umma

The abundant evidence from the Ur III period allows for an in-depth analysis of sheep husbandry and the production of wool. Only two aspects will be discussed here: the institutional control of herds of sheep kept for wool and the types of sheep bred. This and the subsequent sections on the

³⁶ Sallaberger 2013.

³⁷ Subartu 2, no. 6. See Van Lerberghe 1996, 112.

³⁸ DP 121. The pertinent texts on sheep were collected by Deimel 1926a, 24–48; see his summary Deimel 1931, 95; Wu 2006, 1–4, lists these texts without referring to earlier studies and without any discussion.

³⁹ The respective term is *na de₃-g*; see Sallaberger 2005.

⁴⁰ Foxvog 1994 with earlier literature.

⁴¹ Despite many studies on the subject (see e.g. the literature cited by Foxvog 1994), the wool business in the Emunus organization and the exact interpretation of the pertinent passages from ‘Urukagina’s Reforms’ would be worth a new investigation. The differentiation of commodities according to their control by the palace, the seat of the political ruler, or by other organizations is a topic studied by Sallaberger 2013, discussing, however, only textiles, not wool for the Early Bronze Age.

'Fat-tailed sheep'	udu GUKKAL	1,939	44%
'Sumerian sheep'	udu eme-gi	2,150	49%
'Black sheep'	udu gegge	289	7%
Total number of sheep	udu hi-a	4,398	100%

Table 6.6. YOS 4, 237 vii (Umma ŠS 7), distribution of types of sheep.

Ur III period are based on excellent studies on the terminology of sheep-raising in the Ur III period,⁴² the organisation of animal husbandry at Umma,⁴³ and the production of wool.⁴⁴ Animals kept for slaughter as documented in the royal archives of Puzriš-Dagan (modern Drehem) are not of concern here.

At Ur III Umma, the herds of the governor (ensi₂) contained two types of sheep. The first type was called 'native' or 'Sumerian sheep' (udu eme-gi),⁴⁵ while the second type was usually called 'mountain sheep' (udu kur-ra), only exceptionally referred to as 'fat-tailed sheep' (GUKKAL).⁴⁶ The most important document is an inventory of Umma's sheep and goats that were handed over by the governor Aiakala to his successor Dadaga in the year Šu-Suen 7 (see Table 6.6).⁴⁷

The total of 4,398 sheep seems quite modest, especially compared to the Presargonic second-rank town Nabada with an estimated number of 3,840 sheep. This cannot be explained by the different environmental conditions, since other towns in the southern alluvial plain show impressively high numbers of sheep, namely Girsu (Table 6.8, *TUT 27*: 74,533 sheep) and, especially, Ur (Section 4.4 below: an estimated 320,000 sheep). Only institutional differences explain the low numbers, namely that only a part of the governor's herds was listed here; the governor of Umma was, as stated above (Section 2.2), the main provider of wool for the merchants.

The low number of 'black, dark sheep' (udu gegge_(MI)), less than 7%) is a confirmation that the two standard sheep types, the 'fat-tailed' (49%) and the normal 'Sumerian' sheep (44%) were of white or light colour. The least valuable type of wool, 'black' or 'dark' wool was always put at the end of lists. Wool was usually 'white, light'; wool was often not dyed in this period.⁴⁸ The grouping of the governor's herds according to color impressively demonstrates that obtaining and keeping white sheep was an aim of the control of the herds and their breeding. Among the two types of sheep, the 'Sumerian' and the 'fat-tailed' or 'mountain' sheep, the latter provided more and better wool.⁴⁹ As the designation indicates, the 'mountain' sheep, opposed to the 'native' or 'Sumerian' sheep, came from the eastern hilly flanks and mountains (called kur in Sumerian). The designation as 'fat-tailed' explains that these were the typical sheep of migrating pastoralists. The price of their wool also differs: a talent of 'Sumerian wool' (siki (eme)-gi) was worth only around

⁴² Heimpel 1993, Steinkeller 1995

⁴³ Stępień 1996a

⁴⁴ Waetzoldt 1972

⁴⁵ Jacobsen (1970, 423 footnote 10 [reprint of 1953 article]) proposed the reading uli-gi for eme-gi, followed e.g. by Waetzoldt 1972, 6, based on Nabnitu XXIII 231 (MSL 16, 218) EME⁶¹-GI = [...]. Whether /uli/ applies to EME or to EME.GI, it is a unique reading, not repeated e.g. in the Ea group and other lexical lists (see *MesZL*, Borger 2003, 58 = sub no. 61), where the only reading for EME is /eme/. The Akkadian entry is not preserved, but according to the context it should be a word including the sequence š - r, so eme-gi = Šumerum is possible. Should the reading /uli/ refer to ulu₃ 'South (wind)'?

⁴⁶ The reading of the word written with the sign GUKKAL, Akkadian *k/gukkallu*, remains unknown in Ur III Sumerian, since the word ends in -n; the etymology *kuḫ₂-gal* 'big tail' thus does not apply for the Ur III word. In German this sheep type is called *Fettsteißschaf* (oral information kindly provided by Joris Peters).

⁴⁷ Heimpel 1993, 137–138 and 152, tables 15–16; Stępień 1996a, 51; *ibid.* 1996b, 172–175.

⁴⁸ Waetzoldt 2010a, 201–202.

⁴⁹ Waetzoldt 1972, 4–6; for the identity of the two designations at Umma see Heimpel 1993, 137–138.

six shekels (from 4.75 to 7.5) for, while a talent of 'mountain wool' (siki kur-ra) was sold for c. eight shekels (6 to almost 9.97).⁵⁰

As the unique document YOS 4, 237 shows, the governor's flocks of sheep were held by the temples of the province (Table 6.7).⁵¹ This information is of crucial importance for the historical dimension: the temples cared for the subsistence economy, farming, and animal husbandry. In this way, the economy of Sumer remained stable despite political changes and turmoils. Thus the Ur III state mainly

represented a new overlying structure, which despite its general influence left the base intact.⁵² In YOS 4, 237, one and the same overseer could be responsible for herds in various temples, indicating that the actual management by the province and the governor (ensi₂) did not simply duplicate the grouping of animals through the temples.

The distribution of animals among Umma's temples (Table 6.7) leads to two interesting observations. The majority of fat-tailed sheep, 1,520 heads, or 78%, belonged to Ninura, the wife of Umma's patron god Šara. This breed provided wool of higher quality, and the textile industry was usually situated within the lady's organization, here apparently represented by the temple of Ninura. Secondly, it is noteworthy that black sheep are kept separate by the temples of Inana and of Ninḫilisu, apparently an Inana figure, although the consequences of this distribution remain unclear to me.

Temple	Fat-tailed sheep	Sumerian sheep	Black sheep	Foremen (ugula)
Šara	147	945	–	Kaš
Ninura	1,520	1,120	–	Ure'e
Sulgi	–	56	–	
Inana of Zabalam	–	–	205	
Gula of Umma	–	29	–	
Inana of Ibgal	–	–	68	
(Nin-)E'e	–	–	–	
Ninḫilisu	–	–	16	
– (directly under governor, ensi ₂ ?)	272	–	–	Urnungal

Table 6.7. Distribution of types of sheep according to the temples of the province of Umma in YOS 4, 237 (§S 7). Herds of goats listed in the same text are not included.

⁵⁰ Pomponio 2010, 194–195 gives the following prices: siki eme-gi: 4.75, 4.98, 6.66, 7.5 shekels/talent, siki kur-ra: 6, 7, 7.5, 9, 9.97 shekels/talent.

⁵¹ Stępień 1996b, 172 points to the fact that the last group of sheep headed by Seskala under the foreman Urnungal does not belong to a temple. BPOA 6, 1274 (Umma, §S 2) notes mountain (sheep) wool (siki kur-ra) from Seskala collected by Urnungal from the 'sheep of Urlisina', probably referring to the former governor (ensi₂) of Umma. Seskala and Urnungal appear together also e.g. in Nisaba 11, 6 ii-iii ([§S 7?], see the comments by al-Rawi and Verderame ad v. i 18): Seskala, the 'shepherd' (sipa), delivers wool from fat-tailed and [black?] sheep (iii 15–17), which are then said to be 'at Urnungal, the "accountant"' (ki ur-^dnun-gal bešeḡ-dub-ba); so the 'foremen' of YOS 4, 237 are those collecting the wool from their shepherds, who care for flocks under various temples. For other documents on the role of the temples in the organization of animal husbandry at Umma see Stępień 1996a, 40–63.

⁵² This view of the Ur III state as a supra-structure on existing political, social and economic organizations is gaining ever greater acceptance. The mass of administrative documents from the Ur III period formerly led to the impression of a dominant state that introduced the general management of the land's resources; this view led to various problems also in understanding animal husbandry, as exemplified by Adams 2006. Adams implicitly assumes that the Ur III administration was always and only state administration, and that this was built up from scratch; so he speaks of 'shepherd-agents as the interface between the elite and pastoral sectors' (*ibid.* 149), and for example formulates that 'we have no information or [sic] how shepherds were recruited'. The document YOS 4, 237, describing the control of the governor's herds by the temples, well explains the organization of animal husbandry. Thus there is not such a large gap between a managerial 'elite' and 'pastoralists', as Adams assumed; the so-called 'pastoralists' are the herdsmen listed as caring for the sheep of the various temples.

ASJ 18, 159 no. 3: 16–18 (undated): Document about the ‘possession of the governor’s son within Girsu’ (ni₂-gur₁₁ dumu ensi₂-ka ša₃ njir₂-su^{ki}), including:

Fat-tailed sheep	udu GUKKAL ħi-a	1,059
Sumerian sheep	udu eme-gi ħi-a	2,607
Fattened sheep and goats	udu maš, niga	36

TUT 27: 10’-r.8 (section dated to AS 2): Sheep in Girsu, subscript not preserved

‘Within Girsu’	Ewes (u ₈)	Rams (udu ninta ₇)	Female lambs (kir ₁₁)	Male lambs (sila ₄ ninta ₇)	Judas goats (maš, sa ₇)	Total:
Fat-tailed sheep (udu GUKKAL)	21,308	18,999	5,595	5,588	861	Total: 52,351
Sumerian sheep (udu eme-gi)	8,362	6,928	2,640	3,605	647	Total: 22,182

BPOA 2, 1882 (Šulgi 43): ‘Total of fat-tailed sheep stationed and their wool, within Girsu; overseer: herding controller Luduga’ (kilib₃-ba udu GUKKAL gub-ba u₃ siki-bi, ša₃ njir₂-su^{ki}, ugula lu₂-du₁₀-ga šuš₃). The percentage of losses corresponds to an average lifetime of sheep of 4–5 years.

‘stationed’	gub-ba-am ₃	47,716 sheep
‘their wool’	siki-bi	1,480.3 talents = 44,409 kgs
‘dispensed’	zi-ga-am ₃	2,196 sheep
losses (lit. ‘collected’)	de ₅ -de ₅ -ga-am ₃	11,158 sheep
‘outstanding’	la ₂ -ni-am ₃	1,008 sheep

Table 6.8. Examples for ‘Sumerian’ and ‘fat-tailed’ sheep and the control of flocks of sheep in Girsu documents

4.3. Ur III Girsu

The distribution of the two types, ‘Sumerian’ and ‘fat-tailed’ sheep, is similar in the province of Girsu, although this is rarely explicitly noted (see the two examples in Table 6.8). The control of these types and the production of wool seem to be largely comparable to Umma.

Documents from Girsu mention ‘herding assistants for the fat-tailed sheep’ (gab₂-us₂ (udu) GUKKAL) relatively often. They also receive grain rations (e.g. ASJ 3, 176 no.177), again indicating that employees of the communal organization cared for the fat-tailed sheep.

4.4. Ur III Ur

From Ur III Ur come two large tablets listing a complete income for what must have been a royal textile administration, as suggested by the role played by Ešnuna and other state centres as well as by the appearance of the royal ladies Abī-simtī and Bizua in the texts (Table 6.9).⁵³ The total amount of wool delivered in one year is around 8,000 talents, which must have been collected from c. 320,000 sheep.⁵⁴ The two documents name the two standard breeds of sheep, namely ‘Sumerian’ and ‘fat-tailed’ sheep. The difference in wool quality is reflected in their hierarchical listing, with the shepherds of fat-tailed sheep delivering more than twice or even thrice the sum of those of the Sumerian sheep.⁵⁵ Since they were called ‘shepherds’, the herdsmen themselves were directly subject to the royal administration. These texts indicate that most wool was already sorted at the spot where the plucking took place.

⁵³ UET 3, 1504, IS 2, and 1505, IS 1.

⁵⁴ 8,024 talents = 240,720 kg of wool plucked; with 0.75 kg/sheep, this amounts to 320,960 sheep.

⁵⁵ UET 3, 1505; in 1504 even more.

	UET 3, 1505 ([IS 1])		UET 3, 1504 ([IS 2])	
'Capital' (total)	saḡ niḡ ₂ -gur ₁₁ -ra-kam	13,751+	[...]	16,000+
a) Remainder from previous year	(of ŠS 9)	5,727	[...]	[...]
b) 'From the shepherds of the fat-tailed sheep'	ki sipa udu GUKKAL-[na]-ke ₄ -ne-ta	3,603	ki sipa udu GUKKAL-[na]-ke ₄ -ne-ta	c. 3,000 ²¹
= b1) 'sorted at the plucking place'	igi saḡ-ḡa ₂ ki zu ₂ -si-ka	3,527		
+ b2) 'sorted in Ur'	igi saḡ-ḡa ₂ ša ₃ urim ₅ ^{ki} -ma	66		23
c) 'From the shepherds of the Sumerian sheep'	ki sipa udu eme-gi-ke ₄ -ne-ta	1,424	ki sipa udu eme-gi-ra-ke ₄ -ne-ta	867
d) 'wool of the highland fat-tailed sheep'	siki udu GUKKAL igi-nim-ma	688	udu GUKKAL igi-nim-ma	870
e) 'wool in Ešnunna, from the governor Ituraya'	siki ša ₃ aš ₂ ^l -nun-na-ka, ki [i]-tu-ra-a ensi ₂ -ta	9	siki udu aš ₂ ^l -nun-na ^{ki} -ta, ki [i]-tu-ra-a ensi ₂ -ta	8
f) 'wool from sheep of Girsu'	siki udu ḡir ₂ -su ^{ki}	33		
= f1) 'at the plucking place'	ša ₃ zu ₂ -si-ka	2		
+ f2) 'in Ur'	ša ₃ urim ₅ ^{ki} -ma	31		
g) 'wool brought from the palace' or 'wool for cultic mašdaria-deliveries and from the palace of (the predecessor) Šu-Suen'	siki e ₂ -gal-ta de ₆ -a (via 6 persons)	8	siki maš ₂ -da-ri-a and e ₂ -gal ^d š ^u - ^d zuen-ta (via various persons)	5
h) 'royal dedication, from various legacies'	a-ru-a lugal e ₂ -du ₆ -la dili-dili-ta	206+ ² 46		[...]
including h1) 'sorted in Ur'	igi saḡ-ḡa ₂ ša ₃ urim ₅ ^{ki} -ma	46		
i) 'various dedications' or 'dedications for Suen'	a-ru-a dili-dili-ta	18	a-ru-a ^d zuen	47
j) 'from the fattening pen'	e ₂ gurušta-ta	11		
k) 'from the overseers of the weavers'	ki ugula uš-bar-ke ₄ -ne-ta	275	ki ugula uš-bar-ke ₄ -ne-ta	276
l) from various organizations		6		172

Table 6.9. Wool from various sources according to UET 3 1504 (IS 2) and 1505 (IS 1).

The designation 'wool from fat-tailed sheep from the highlands' (siki udu GUKKAL igi-nim-ma) deserves special attention. Would this hint at wool from foreign pastoralists? Evidently in this context the term 'highlands' (igi-nim-ma) does not refer to the place where the animals were kept, but to the special type of 'highland sheep' (udu igi-nim-ma).⁵⁶ Such wool was, for example, plucked in the region (ma-da) of Adab.⁵⁷ Furthermore, flocks of Ur were sometimes stationed at various places, but as far as one can see, only in the floodplain. Documents from Girsu also attest to the local care of royal herds.⁵⁸ All this evidence thus suggests that, despite the term 'highland sheep', the wool listed in the two major accounts from Ur (and in similar documents) was never plucked in the highlands.

⁵⁶ Also UET 3, 1538:2, Š 46.

⁵⁷ UET 3, 1537, Š 46.

⁵⁸ For royal herds at Girsu see MTBM 257.

To summarize the evidence, the picture from various Ur III provinces is fairly consistent: the flocks of sheep under their shepherds stayed on the alluvial plain, they were strictly controlled by the standard organizations of Sumer, primarily the temples, and fat-tailed sheep were the more prominent type in wool production.

5. The absence of other pastoralists, ‘nomads’ or Mardu in the wool business

The textual sources demonstrate that the wool used in Sumer came from the herds of sheep controlled by the communal organizations. Wool was not bought from outside, and although animals were sent from the periphery,⁵⁹ the hills and mountains in the east, a region most suitable for animal breeding, there is no textual hint that wool was imported. On the contrary, wool was still exported from Sumer in the Ur III period.

This is all the more surprising since the Amorites, called Mardu in Sumerian, were at the same time present in regions stretching from the east to the north of lowland Mesopotamia. Booty from the ‘Mardu land’ (kur mar-du₂) included animals,⁶⁰ but they did not deliver wool. The designation of an ethnic group as Mardu must have had a basis in reality for the inhabitants of Sumer. The characterizations of the Mardu in the literary texts together with various other features shows that the term ‘Mardu’ had a very general meaning, oscillating between the meanings ‘westerner’ and ‘nomad’.⁶¹ This vague term certainly implies different regions of habitation or various forms of nomadism. The specialized lifestyle also influenced the ethnic culture, including language as a most notable feature. To avoid misunderstandings: my main intent in translating Mardu as ‘nomads’ is not to give a modern description, but to paraphrase the ancient term in a meaningful way so that most contexts are aptly covered. It is less important if the Mardu also lived a sedentary life, whether their language was the same as that of the city-dwellers and farmers or not, but apparently their social and economic independence of the urban institutions and organizations led to a perception of ‘nomads’ as different ethnic groups in the eyes of the urban population, the social group to which we owe the written documentation.

The appearance of the Mardu at the end of the 3rd millennium can, in my view, still be best described as an ethnogenesis, intrinsically linked to the large-scale transformations in land-use well documented for Upper Mesopotamia.⁶² The states of Upper Mesopotamia never recovered from the struggles at the end of the Presargonic period, many settlements in the Balikh and Habur plains and adjacent regions were reduced in size or deserted, and by the end of the millennium, fewer and smaller settlements were left in Northern Mesopotamia.⁶³ The substantial

⁵⁹ ‘Periphery’ as used by Steinkeller 1987, corresponding to the ‘defense zone’ of Maeda 1992.

⁶⁰ Sallaberger 2007, 447; Michalowski 2011, 100–104. Other recent summaries on the Mardu include Verderame 2010 and Porter 2012.

⁶¹ The translation is the one given by Sallaberger 2007, 444–445, who argues explicitly in the spirit of Verderame 2010, 252–253, namely that the term does not represent an objective description, but a perception by the urban culture. The stereotypes that Mardu know no grain and no cities, and thus live in the steppe on animal herding, are conveniently summarized by Porter 2012, 290. This semantic approach was not accepted by Michalowski 2011, 82–121, who instead referred to various facets of the Mardu (‘Amurru’) in the textual record.

⁶² Sallaberger 2007, 444–450 for a synthesis of textual and archaeological evidence; Verderame 2010 and Michalowski 2011, 82–121 concentrate on the Mesopotamian textual sources.

⁶³ Latest description by Schmidt 2013, 105–112, who presents a new ceramic chronology based on the Tell Mozan stratigraphy; level C7 there dates to the Ur III period, contemporary levels are found only in Chagar Bazar, Tell Barri,

transformations become evident by mapping the political centres of Upper Mesopotamia and Syria in the Ur III period: no first rank centre was any longer situated in the Upper Mesopotamian plains, a region that had still been of importance for the kings of Akkade. This is the region that was inhabited by sheep-breeding pastoralists early in the 2nd millennium.

In the administrative documents of the Ur III period, the Mardu appear as persons who predominantly deliver a special type of sheep to the royal organization at Puzriš-Dagan, namely fat-tailed sheep – the type that was kept for wool in the temples and other communal organizations of Sumer (see Section 4 above). This agrees nicely with the charges of animals designated as *gun₂ ma-da* ‘tribute of the land’, which arrived at Drehem from the eastern hilly and mountainous regions, the main area inhabited by the Mardu. But why did comparatively few fat-tailed sheep arrive from the herds held at Sumer?⁶⁴ The answer lies in the specific use of the animals: at Puzriš-Dagan animals were most often ear-marked for slaughter, a fact that may have saved the wool-bearing sheep from Babylonia. Perhaps the fat-tailed sheep from the Amorites were considered as gifts from outside that were then integrated into the herds of sheep?

Although it can reasonably be assumed that groups of pastoralists, living a nomadic, semi-nomadic or sedentary life to the north and east of lowland Mesopotamia, obtained wool in large quantities, neither Mardu nor other foreigners are attested as producers or suppliers of wool in the Ur III corpus.⁶⁵ Some Mardu also served Ur III institutions and took over various functions in the control of persons, animals, and farming,⁶⁶ like other persons designated as *lu₂-neš-tukul* ‘weapon-bearer’, *sugal₇* ‘assistant’, or *aga₃-us₂* ‘gendarme’.⁶⁷ This set of data thus also excludes that Mardu were producers of wool in Mesopotamia.

In conclusion, the wide-spread opinion that pastoralists inhabiting the steppes and mountains around the Mesopotamian lowlands lived on the sale or barter of their products, including wool, to the farming regions cannot be confirmed by the textual evidence from the Ur III period. In reaching this conclusion, we concentrated on the ethnic group designated as Mardu, since this offered the best chances of finding relevant data. The absence of such an exchange in the sources may lead to two conclusions: either there existed no such specialized pastoralists living off their

Tell Arbīd and Tell al-Rimah, furthermore in other sites in Western Syria, the Middle Euphrates region and Mesopotamia. This distribution agrees with the mapping of the political centres of the Ur III period by Sallaberger 2007, 433–441.

⁶⁴ Sallaberger 2007, 448, based on a count of respective documents (38 deliveries by Mardu, but only 34 by all other persons, whereby Mardu appear only rarely in the records); cf. Michalowski 2011, 89. Although fat-tailed sheep were also controlled by the Sumerian organizations (see section 4 above), the high proportion of this breed in Puzriš-Dagan is noteworthy, since the royal administration primarily deals with meat for consumption. In this context, inhabitants of Babylonia usually did not deliver fat-tailed sheep.

⁶⁵ This is based on a search in BDTNS (<http://bdtns.filoil.csic.es/>) on the combination of ‘siki’ and ‘mar-tu’ in the same documents (January 2013 and July 2013) and on a review of relevant literature on animal husbandry in the Ur III period (see some references below). It is possible, however, that I may have overlooked some traces of wool sold or bartered by Mardu or other independent groups to Mesopotamia.

⁶⁶ Michalowski 2011, 107–109 speaks of a ‘military’ function exercised by Mardu (‘Amurru’) in Sumer. He underlines the fact that some Mardu served as guards or in the military, ‘but there are other occasions in other times [and also in the same period – W. S.] when the term referred to an area, ethnic groups, as well as to a language, and while ultimately these meanings are all related, they are not the subject of the present investigation’ (*ibid.* 109–110). The service of the Mardu in (para)military functions agrees well with their general designation as ‘nomads’ v.s., for which see the comparative examples provided by Michalowski 2011, 108.

⁶⁷ Notizia 2009, 109–184 gives a very useful catalogue of the reasons for travels in the Ur III messenger texts from Girsu. However, before using these tablets one should be aware of the fact that Notizia only notes Mardu, but no other designations or professions in the commentary column (‘altro’).

herds in the regions adjacent to the Ur III empire, or the exchange was restricted to areas that were not covered by written documentation. Both conclusions agree in that independent pastoralists did not play an important role in the institutional economy of the Ur III state.

6. Control and organized labour for high quality wool

Finally, how can we explain the economic success of the Early Bronze Age cities in the production of wool? Their flocks of sheep yielded enough wool (Sections 3 and 4) so that instead of receiving it from pastoralists or neighbouring regions, at least at the end of the 3rd millennium (Section 5), the merchants of Sumer sold locally produced wool (see Section 2).

Two factors may at least partly explain this phenomenon:⁶⁸

- 1) the control of the flocks of sheep
- 2) the labour invested in sorting wool

Ad 1) The strict control of the flocks of sheep by the urban organizations is attested in documents such as those presented above in sections 3 and 4.⁶⁹ The control of the herds included cross-breeding with wild sheep,⁷⁰ and certainly led to the best breeding results, most notably the control of the white colour (see above 4.2).

The flocks of sheep of the communal organizations in the city-states and provinces were kept by their shepherds, who apparently migrated to find suitable pasture. Ur III documents from Girsu indicate that some central control of these flocks was necessary, since officials received a free meal when they were on the way to the sheep; this disbursement of bread and beer is registered in the so-called messenger texts. In particular, the transfer of herds of sheep or the crossing of a river required additional workforces throughout the year.⁷¹ Attention was paid to the plucking of wool, which according to these documents mostly was prepared and took place in the 10th to 12th months of the local calendar, i.e. around January to March (Table 6.10). The people commissioned with plucking and in charge of the wool included armed men and people of high status, even a prince, Etel-pû-Dagān. The value of the collected wool called for special care, and most references to the transport of wool date to the second and third months, i.e. after harvest around May to June.⁷²

Plucking usually took place in springtime, around harvest, so the animals may also have returned from their winter pastures to stay in the harvested fields.

Ad 2) As Waetzoldt has pointed out,⁷³ women undertook the laborious task of plucking the sheep. They may be called simply '(working) women' (geme₂), but are sometimes specifically designated as 'female weavers' (geme₂ uš-bar), as, for example, in a Girsu document that lists 816 female weavers under their overseers.⁷⁴ As the large accounts of the income of wool from Ur (Table 6.9)⁷⁵ show, most of the wool was 'sorted' (igi saṅ-ṅa₂) either in Ur or at the place of plucking. The

⁶⁸ As already acknowledged in footnote 1, Antoinette Rast-Eicher and Eva Andersson Strand (see also her paper in this volume) made me aware of the importance of these two aspects.

⁶⁹ Note, e.g., the studies of Heimpel 1993, Steinkeller 1995, Stepień 1996a, or Sallaberger 2004.

⁷⁰ Steinkeller 1995.

⁷¹ The control of sheep is conveniently tabulated by Notizia 2009, 146–149.

⁷² Notizia 2009, 157–159.

⁷³ Waetzoldt 1972, 14–15.

⁷⁴ TUT 164¹⁹, AS 5/11.

⁷⁵ UET 3, 1504 and 1505.

Task: 'gone ...'		month(/day) (01 ≈ April)		
'... to pluck sheep'	udu ur ₄ -de ₃ ηjen-na/tuš-a*		10, 10/19	11*
'... to pluck fat-tailed sheep'	udu GUKKAL ur ₄ -de ₃ ηjen-na		10	
'... to pluck(!?) sheep'	udu ur-ra-de ₃ ^{sic?!} ηjen-na			11/13, 11/26
'... to pluck sheep; ... way(?) to the fields(?)'	udu ur ₄ -de ₃ ηjen-na DU u ₂ -gara ₃ -še ₃ ηjen-na	06		
'... to pluck sheep, to Uru'a'	udu ur ₄ -de ₃ ^{u₂URU×A^aki} -še ₃ DU-...	07		
'way of plucking'	ηjiri ₃ zu ₂ -si		10	
'... to the plucking'	zu ₂ -si-še ₃ ηjen-na v.s.			11, 11/15, 11 ² /21, 12, 12/25
'... to the plucking of fat-tailed sheep'	zu ₂ -si udu GUKKAL-še ₃ v.s. ηjen-na		10	12
'... to count sheep'	lu ₂ udu šid-de ₃ im-ši-ηjen-na-me			12
'... to the fat-tailed sheep'	udu GUKKAL-še ₃ ηjen-na v.s.	06	09	11 ² /26, 12/12

Table 6.10. Sheep-plucking in messenger texts from Girsu. For references see Notizia 2009, 147–149.

inspection and sorting of wool requires technical skill and a large workforce. Most instructive is the list of people stationed between Girsu and Guaba 'to inspect wool' (siki igi kara₂-de₃): 600 'female weavers' (geme₂ uš-bar), 12 'textile workers' (LU₂.TUG₂), 8 'overseers of the weavers' (ugula uš-bar), and 8 'drivers, skippers' (ra₂-gaba).⁷⁶

Wool was sorted according to various grades of quality. The large Ur accounts (Table 6.9), for example, enumerate a total of ten different grades, including 'black wool'.⁷⁷ Some documents prove that provisionally sorted wool was then, in a second process, more carefully assigned to various grades, and again the women active here are sometimes explicitly designated as 'female weavers'.⁷⁸

The sorting of wool apparently was a normal task for the female weavers, so it is little wonder that relatively few documents explicitly mention this process. The treatment of the wool required skill and experience and a perfect organization of the workforce. In my opinion this is – besides the control of the herds – the main factor relevant to the quality of the wool from lowland Mesopotamia: the long tradition of organizing the urban workforce and the acquired experience and skills led to a perfect handling of the raw material plucked from the sheep.

*

The documentation demonstrates that in the second half of the 3rd millennium urban inhabitants of Mesopotamia sold wool even to those who imported gold or bitumen, thus coming from the mountainous regions. Despite the delivery of sheep to Sumer, neither mountain dwellers nor pastoralists in the steppe nor Mardu bartered their wool on the markets against grain – at least in the sectors of the economy that are reflected in the preserved documents.

Thus, for the 3rd millennium, it is a false assumption that pastoralists, specialized in animal husbandry and independent of the urban organizations, played a major role in the import of wool. The evidence from Nabada/Tell Beydar, discussed in Section 3, leaves no place for nomads in that region, which differs substantially from the later Middle Bronze Age situation. Even at

⁷⁶ DAS 255, ŠS 1/02.

⁷⁷ Tabulated by Waetzoldt 1972, 66.

⁷⁸ Waetzoldt 1972, 40–44 and Waetzoldt 2010b, 247–249.

the end of the 3rd millennium, the presence of Mardu, Amorites, who may have been of nomadic background, and exchange with the eastern regions did not lead to an import of wool.

Secondly, one may implicitly have assumed that wool was a raw material to be transformed into high-quality textiles in the workshops of the cities. The evidence presented with some examples above demonstrates that wool was a *product*, and not just a raw material, whose quality depended on a careful control of the animal herds and breeding and on the input of a skilled and organized workforce to sort the wool. These two aspects are amply attested in the 3rd millennium archival documents, since the organization of the workforce is one of the main characteristics of the Early Bronze Age city-states and their successors, the provinces in the empires of Akkad and Ur. This system did not stop completely at the end of the 3rd millennium: the state still controlled herds of sheep in the Old Babylonian period, and the wool obtained was sold by merchants – just as in the preceding 3rd millennium.⁷⁹

The texts do not permit an exact identification of the types of sheep and their wool, except for the very general designation of ‘fat-tailed’ and ‘Sumerian’ sheep. But one may suppose a high quality of the wool at that time, if one considers successful breeding strategies in the well-guarded and assorted sheep herds and the organization of the work necessary to pluck and sort wool. In this way, wool became an export product of lowland Mesopotamia that may have substantially contributed to its economic wealth in the Early Bronze Age.

Abbreviations

References to textual sources correspond to the abbreviations given by the *Reallexikon für Assyriologie und Vorderasiatische Archäologie*.

AS	Amar-Suena
IS	Ibbi-Suen
Ledgers	Snell 1982
Š	Šulgi
ŠŠ	Šu-Suen
JESHO	<i>Journal of the Economic and Social History of the Orient</i>

Bibliography

- Adams, R. McC. (2006) Shepherds at Umma in the Third Dynasty of Ur: Interlocutors with a World Beyond the Scribal Field of Ordered Vision. *JESHO* 49, 133–169.
- Biga, M. G. (2010) Textiles in the Administrative Texts of the Royal Archives of Ebla (Syria, 24th century BC) with Particular Emphasis on Coloured Textiles. In C. Michel and M.-L. Nosch (eds), *Textile Terminologies in the Ancient Near East and Mediterranean from the Third to the First Millennia BC*, 146–172. Ancient Textiles Series 8. Oxford.
- Borger, R. (2003) *Mesopotamisches Zeichenlexikon*. Alter Orient und Altes Testament 305. Münster.
- Brunke, H. and Sallaberger, W. (2010) Aromata für Duftöl. In A. Kleinerman and J. Sasson (eds), *Why Should Someone who Knows Something Conceal It? Cuneiform Studies in Honor of David I. Owen on his 70th Birthday*, 41–74. Bethesda, Md.
- Charpin, D. (1982) Marchands du palais et marchands du temple à la fin de la Ière dynastie de Babylone. *Journal asiatique* 270, 25–65.
- Deimel A. (1926a) Die Viehzucht der Šumerer zur Zeit Urukagina's. *Orientalia* [Series Prior] 20, 1–61.

⁷⁹ Stol 2004, 922–926, summarizing the work of Charpin 1982 on the sale of wool at Sippar to the merchants (also De Graef in this volume), and *ibid.* 972 on evidence for the sale of wool from Babylonia, including exports to Mari. But the purchase of wool at Emar points to import of wool as well. See also Michel in this volume.

- Deimel, A. (1926b) Produkte der Viehzucht und ihre Weiterverarbeitung (Produkte der Molkerei; Schlachtfleisch; Schweinefett; Wolle; Weberei; Leder). *Orientalia* [Series Prior] 21, 1–39
- Deimel, A. (1931) *Šumerische Tempelwirtschaft zur Zeit Urukaginas und seiner Vorgänger. Abschluß der Einzelstudien und Zusammenfassung der Hauptresultate*. *Analecta Orientalia* 2. Roma
- Foxvog, D. A. (1994) A New Lagaš Text Bearing on Uruinimgina's Reforms. *Journal of Cuneiform Studies* 46, 11–15
- Garfinkle, S. (2012) *Entrepreneurs and Enterprise in Early Mesopotamia. A Study of Three Archives from the Third Dynasty of Ur*. CUSAS 22. Bethesda, Md.
- Heimpel, W. (1993) Zu den Bezeichnungen von Schafen und Ziegen in den Drehem- und Ummatexten. *Bulletin on Sumerian Agriculture* 7, 115–160
- Ismail, F., Sallaberger, W., Talon, P. and Van Lerberghe, K. (1996) *Administrative Documents from Tell Beydar (Seasons 1993–1995)*. Subartu 2. Turnhout
- Jacobsen, Th. (1970) *Toward the Image of Tammuz and Other Essays on Mesopotamian History and Culture*. Ed. by W. L. Moran. Cambridge, Mass.
- Lebeau, M. (2004) Le contexte archéologique et stratigraphique des documents épigraphiques découverts entre 1996 et 2002. In L. Milano et al., *Third Millennium Cuneiform Texts from Tell Beydar (Seasons 1996–2002)*. Subartu 12. Turnhout. 1–11.
- Lyonnet, B. (2004) Le nomadisme et l'archéologie: problèmes d'identification. Le cas de la partie occidentale de la Djéziré aux 3ème et début du 2ème millénaires avant notre ère. In C. Nicolle (ed.), *Nomades et sédentaires dans le Proche-Orient ancien. Compte rendu de la XLVIe Rencontre Assyriologique Internationale (Paris, 10–13 juillet 2000)*, 25–50. Amurru 3. Paris.
- Maeda, T. (1992) The Defense Zone during the Rule of the Ur III Dynasty. *Acta Sumerologica* 14, 135–172
- Maekawa, K. (1987) Collective Labour Service in Girsu-Lagash: the Pre-Sargonic and Ur III Periods. In M. A. Powell (ed.), *Labor in the Ancient Near East*. American Oriental Series 68. New Haven, 49–71.
- Marti, L. (2008) *Nomades et sédentaires à Mari: la perception de la taxe-sugâgûtum*. *Florilegium marianum* 10. Paris.
- Michalowski, P. (2011) *The Correspondence of the Kings of Ur. An Epistolary History of an Ancient Mesopotamian Kingdom*. Mesopotamian Civilizations 15. Winona Lake, IN.
- Michel, C. and Nosch, M.-L. (eds), (2010) *Textile Terminologies in the Ancient Near East and Mediterranean from the Third to the First Millennia BC*. Ancient Textiles Series 8. Oxford.
- Michel, C. and Veenhof, K. (2010) The Textiles Traded by the Assyrians in Anatolia (19th–18th Centuries BC). In C. Michel and M.-L. Nosch (eds), *Textile Terminologies in the Ancient Near East and Mediterranean from the Third to the First Millennia BC*. Ancient Textiles Series 8. Oxford, 210–271.
- Milano, L., Sallaberger, W., Talon, Ph. and K. Van Lerberghe (2004) *Third Millennium Cuneiform Texts from Tell Beydar (Seasons 1996–2002)*. Subartu 12. Turnhout.
- Notizia, P. (2009) *I testi dei messaggeri da Girsu-Lagaš della Terza Dinastia di Ur*. Nisaba 22. Messina.
- Ouyang, X. (2013) *Monetary Role of Silver and its Administration in Mesopotamia During the Ur III Period (c. 2112–2004 BCE): A Case Study of the Umma Province*. BPOA 11. Madrid.
- Pomponio, F. (2010) New Texts Regarding the Neo-Sumerian Textiles. In C. Michel and M.-L. Nosch (eds), *Textile Terminologies in the Ancient Near East and Mediterranean from the Third to the First Millennia BC*. Ancient Textiles Series 8. Oxford, 186–200.
- Porter, A. (2012) *Mobile Pastoralism and the Formations of Near Eastern Civilizations*. Cambridge.
- Powell, M. A. (ed.) (1987) *Labor in the Ancient Near East*. American Oriental Series 68. New Haven.
- Prentice, R. (2010) *The Exchange of Goods and Services in Pre-Sargonic Lagash*. *Alter Orient und Altes Testament* 368. Münster.
- Pruß, A. and Link, Ch. (1994) Zoomorphe Terrakotten. In J.-W. Meyer and A. Pruß, *Ausgrabungen in Halawa 2: Die Kleinfunde von Tell Halawa A*, 111–155. Schriften zur Vorderasiatischen Archäologie 6. Saarbrücken.
- Pruß, A. and Sallaberger, W. (2003/04) Tierhaltung in Nabada/Tell Beydar und die Bilderwelt der Terrakotten als Spiegel von Wirtschaft und Umwelt, *Archiv für Orientforschung* 50, 293–307.
- Sallaberger, W. (2004) A Note on the Sheep and Goat Flocks. Introduction to Texts 151–167. In L. Milano, W. Sallaberger, Ph. Talon and K. Van Lerberghe (2004) *Third Millennium Cuneiform Texts from Tell Beydar (Seasons 1996–2002)*, 13–21. Subartu 12. Turnhout.
- Sallaberger, W. (2005) The Sumerian Verb *na de₃(-g)* 'to clear'. In Y. Sefati et al. (eds), "An Experienced Scribe Who Neglects Nothing". *Ancient Near Eastern Studies in Honor of Jacob Klein*, 229–253. Bethesda Md.

- Sallaberger, W. (2007) From Urban Culture to Nomadism. A History of Upper Mesopotamia in the Late Third Millennium. In C. Kuzucuoğlu and C. Marro (eds), *Sociétés humaines et changement climatique à la fin du troisième millénaire: Une crise a-t-elle eu lieu en Haute Mésopotamie? Actes du Colloque de Lyon, 5-8 décembre 2005*, 417-456. *Varia Anatolica* 19. Paris.
- Sallaberger, W. (2013) The Management of the Royal Treasure: Palace Archives and Palatial Economy in the Ancient Near East. In J. A. Hill et al. (eds), *Cosmos and Politics in the Ideology of Kingship in Ancient Egypt and Mesopotamia*. 000-000. Philadelphia.
- Sallaberger, W. and Pruß, A. (in print) Home and Work in Early Bronze Age Mesopotamia: 'Ration Lists' and 'Private Houses' at Tell Beydar/Nabada. In P. Steinkeller (ed.), *Labor in the Ancient Old World*.
- Schmidt, C. (2012) *Die Keramik der Früh-Ĝazira V- bis Alt-Ĝazira II-Zeit*. Studien zur Urbanisierung Nordmesopotamiens A, 4. Wiesbaden.
- Schrakamp, I. (in print) Geographical Horizons of the Presargonic and Sargonic Periods. In W. Sallaberger and I. Schrakamp (eds) *ARCANE. Associated Regional Chronologies for the Ancient Near East and the Eastern Mediterranean 3: History and Philology*. Turnhout.
- Selz, G. (2010) "He put in order the accounts ..." Remarks on the Early Dynastic Background of the Administrative Reorganizations in the Ur III State. In L. Kogan et al. (eds), *City Administration in the Ancient Near East*. Proceedings of the 53e Rencontre Assyriologique Internationale Vol. 2, 5-30. Babel und Bibel 5. Eisenbrauns.
- Snell, D. C. (1982) *Ledgers and Prices. Early Mesopotamian Merchant Accounts*. Yale Near Eastern Researches 8. New Haven.
- Steinkeller, P. (1987) The Administrative and Economic Organization of the Ur III State: The Core and the Periphery. In McG. Gibson and R. D. Biggs (eds), *The Organization of Power: Aspects of Bureaucracy in the Ancient Near East*, 19-42. SAOC 46. Chicago.
- Steinkeller, P. (1995) Sheep and Goat Terminology in Ur III Sources from Drehem. *Bulletin on Sumerian Agriculture* 8, 49-70.
- Stepień, M. (1996a) *Animal Husbandry in the Ancient Near East. A Prosopographic Study of Third-Millennium Umma*. Bethesda, Md.
- Stepień, M. (1996b) The Organisation of Animal Pasturing in the Light of Balanced Accounts, Inventories of Sheep and Goat Herdsmen from Umma. In Ö. Tunca and D. Deheselle (eds), *Tablettes et images aux pays de Sumer et d'Akkad. Mélanges offerts à Monsieur H. Limet*, 161-177. Liège.
- Stol, M. (2004) Wirtschaft und Gesellschaft in altbabylonischer Zeit. In P. Attinger et al. (eds), *Annäherungen 4: Mesopotamien. Die altbabylonische Zeit*, 641-975. *Orbis Biblicus et Orientalis* 160/4. Fribourg and Göttingen.
- Stol, M. (2012) Bitumen in Ancient Mesopotamia. The Textual Evidence. *Bibliotheca Orientalis* 69, 48-60.
- Streck, M. P. (2002) Zwischen Weide, Dorf und Stadt: Sozio-ökonomische Strukturen des Nomadismus am Mittleren Euphrat. *Baghdader Mitteilungen* 33, 155-209.
- Van Lerberghe, K. (1996) The Livestock. In F. Ismail, W. Sallaberger, P. Talon and K. Van Lerberghe (1996) *Administrative Documents from Tell Beydar (Seasons 1993-1995)* 107-117. Subartu 2. Turnhout.
- Volk, K. (1999) Imkerei im alten Mesopotamien? In H. Klengel and J. Renger (eds), *Landwirtschaft im Alten Orient. Ausgewählte Vorträge der XLI. Rencontre Assyriologique Internationale. Berlin 4.-8.7.1994*, 279-290. Berliner Beiträge zum Vorderen Orient 18. Berlin.
- Waetzoldt, H. (1972) *Untersuchungen zur neusumerischen Textilindustrie*. Roma.
- Waetzoldt, H. (2010a) The Colours and Variety of Fabrics from Mesopotamia during the Ur III Period (2050 BC). In C. Michel and M.-L. Nosch (eds), *Textile Terminologies in the Ancient Near East and Mediterranean from the Third to the First Millennia BC*, 201-209. *Ancient Textiles Series* 8. Oxford.
- Waetzoldt, H. (2010b) Die Bedeutung von $igi-sar_3/sar_3/sag_9/sag_{10}$. In A. Kleinerman and J. Sasson (eds), *Why Should Someone Who Knows Something Conceal It? Cuneiform studies in Honor of David I. Owen on his 70th birthday*, 245-255. Bethesda, Md.
- Wilcke, C. (2008) Der Kauf von Gütern durch den 'staatlichen' Haushalt der Provinz Umma zur Zeit der III. Dynastie von Ur: Ein Beitrag zu 'Markt und Arbeit im Alten Orient am Ende des 3. Jahrtausends vor Christus'. In P. Michalowski (ed.), *On the Third Dynasty of Ur. Studies in Honor of Marcel Sigrist*, 261-286. *JCS Suppl. Series* 1. Boston.
- Wu, Y. (2006) Sheep, Goats, Pigs, Calves and Ducks in the House of the Lady in Girsu (2400 BC). *Journal of Ancient Civilizations* 21, 1-27.