Journal of Semitic Studies XLV/1 *Spring 2000*

HEBREW *TAḤAŠ*, AKKADIAN *DUḪŠU*, FAIENCE AND BEADWORK

STEPHANIE DALLEY

UNIVERSITY OF OXFORD

The word *taḥaš* in the Hebrew Bible occurs in Exodus 25:14 and elsewhere referring to the covering over the tent beneath which the tabernacle was set. *ʿōr taḥaš* 'leather of t.' was the top covering laid upon an inner covering of rams' skins dyed red. In Numbers 4:6 the same combination of *ʿōr taḥaš* laid over red-dyed leather is used to cover the table of offerings together with its foods. In Ezekiel 16:10 shoes of leather-of-*taḥaš* are part of the finery in which the fallen woman Jerusalem is clothed by her Lord.

Translations and Cognates

To trace the English translations of *taḥaš* from the Hebrew Bible we have to go back to around 1534, the date when Martin Luther's translation of the Old Testament into German was first published as a complete work. He translated the Hebrew words *ʿōr taḥaš* with the German word *Dachsfelle*, which means 'a badger-skin', deliberately ignoring the LXX *dermata huakinthina* and the Vulgate, both of which implied, apparently, that hyacinth-blue dyed leather was the perceived meaning.

In Luther's time Hebrew was thought to be the earliest language spoken by man; from it all subsequent languages were derived. The creation of the universe, and of the 22 consonants of the Hebrew alphabet, was described in the Sefer Yeṣira (the Book of the Creation), a work composed of material which may go back to the second century BCE and was authoritative in the sixteenth century CE. The Sefer Yeṣira also analysed the phonetics of Hebrew. From the basic themes of that book it followed that German was cognate with Hebrew. This view seemed to have clear support from the alphabet in which the languages were written. Greek might be a different language, but it shared more or less the same alphabet, and Latin and German obviously derived their alphabets from it too. Since many people (then as now) had trouble distinguishing script from lan-

guage, this was taken to imply that the various languages originally shared the same phonetics, although they had diverged with the passage of time; more specifically, the theory was proposed that perfect pronunciation of Hebrew was corrupted during the Exile. In the sixteenth century, when Luther was making his translation of the Old Testament, lists were available which gave Hebrew consonants with their Latin equivalents, with glosses added for imprecise equations.[1] It was therefore an academically respectable procedure to convert *taḥaš* into German *Dachs* 'badger', and to draw the required conclusion about its meaning. The Sefer Yeṣira gave good authority for the method.

In translating Hebrew Luther took advice from Jewish and other scholars. In this way he would have discovered that the word was discussed in the Babylonian Talmud, and far from being accepted as a word for a colour, as the Greek and Latin had it, the rabbis thought it represented an animal. But they were unable to decide whether it stood for a wild or a domesticated animal. It is a tribute to Luther's scholarship that he did not blindly follow the Greek and Latin versions.[2] In opting for 'badger', he would have thought he was making a brilliant discovery of a cognate which solved a long-standing problem. He may also have come across the opinion of Rabbi Meir, a great scholar of the second century CE, who maintained that *taḥaš* was a legendary creature with a multi-coloured skin, sometimes identified as a unicorn.[3]

The meaning 'badger' seemed to fit the likely meaning of the word as an exotic animal skin. The badger is indeed indigenous in the hills and woods of Palestine, although it reaches the southernmost limit of its distribution there, and is not found in Sinai, Egypt or northern Africa. Luther's understanding of the word is responsible for the translation in the *Authorized Version*, where *ʿōr taḥaš* is rendered 'badgers' skins'. The *Authorized Version*, in other words, regarded Luther's translation as more authoritative than the Septuagint or the Vulgate.

This translation was short-lived. The fashion for thinking that Hebrew and German were generically connected died away. A search for cognates among Semitic languages, duly recorded in the Hebrew–

[1] Kessler-Mesguich 1992, II: 251–70. I am grateful to Judith Olszowy-Schlanger for her help.

[2] According to Brecht (1986/90, II: 55) George Spalatin, secretary to Frederick the Wise, and a close friend of Luther, was asked for help especially in translating animal names.

[3] See Tadmor 1982, s.v. tahaš.

English dictionary of Brown, Driver and Briggs, turned up an Arabic word *tukhaš*, which means a porpoise. This seemed to fit the context almost as perfectly as the badger previously did. The skins of aquatic mammals became fashionable, and the unquestioned cognate resulted in the *Revised Standard Version*'s translation of 1952 as 'sealskin', perhaps made by those whose knowledge of mammalian species was vague enough to confuse the hair-covered seal of northern oceans with the hairless porpoise. The *New English Bible* of 1970, spearheaded by G.R. Driver, continued to favour the Arabic cognate, but in translating 'porpoise-hides', added a note to say: '*strictly*, sea-cow'. I have not discovered the reason for this change of species. It seems to have been an arbitrary extension of meaning for the Arabic word *tukhaš*, and may perhaps have been influenced by Rabbi Meir's legendary creature. As far as the animal is concerned, very strictly speaking the sea-cow is distinct from the dugong, and it is the dugong which is found in southern waters; the sea-cow proper inhabits northern seas. The manatee is slightly different from the sea-cow and the dugong, but some commentators were not aware of the biological differences, and gave translations indiscriminately. Similarly some translators gave 'dolphin' rather than 'porpoise', presumably supposing that they were two words for the same creature.[4]

Some translators, faced by the perplexing inconsistency in previous English versions, found a quite different cognate for *taḥaš*, this time from Egyptian. A word *ths*, meaning 'well-tanned leather', seemed as appropriate as the badger, the porpoise, the sea-cow and the seal had been. Relying on this cognate, the *New Revised Standard Version* of 1989 opted for 'fine leather'.[5]

The translation as sea-cow or dugong acquired a good following. The *New International Version* of 1978 gave 'hides of sea-cows', and the *Revised English Bible* of 1989 followed it with 'dugong hide'. This identification, sanctified by Brown, Driver and Briggs, followed Cooke's comment in the International Critical Commentary on Ezekiel of 1936, who noted that 'the skin of the Dugong was used by the Bedouin for sandals'. The same was restated by Cassuto in 1951 in his *Commentary on Exodus*, for he wrote: 'The skin of (the Dugong) is very strong, and till a few generations ago, the sandals of the Bedouin in the Peninsula of Sinai were mostly made of it.' The

[4] See Nowak 1991: 1294–6; also Bodenheimer 1960: 52.

[5] The vogue for finding Egyptian cognates for Hebrew can also be seen in the misguided translation of *ḥašmal* as 'brass', which was based on comparison with the Egyptian *hsmn* meaning 'bronze', and is no longer favoured.

Bedouin, who had at their disposal an endless supply of sheep- and goat-skin for making leather footwear, would probably have used dugong hide for soles only, for it is extremely thick and very hard-wearing; it cannot be folded, and would be more suitable for tough soles than for elegant uppers. It has no particular colouring or patterning that would make it desirable for luxury slippers for ladies.[6] Wisest of the commentary writers was Gray, whose commentary on Numbers in 1912 had translated 'tahash-skin', in which he was followed by the *Jerusalem Bible*. The *Lexicon* of Koehler and Baumgartner in 1953 followed the same path. In 1937 Dalman, writing on the crafts of ancient Palestine, sensibly pointed out that, whatever *taḥaš* might be, it must have been particularly resilient against rain, dust and sunshine. Both Gray and Dalman resisted the temptation to opt for a particular cognate, since the choice had to be made on such an arbitrary basis.

None of the options for selecting a creature tried to explain the Greek translation, or why Rabbi Meir thought it was multi-coloured. One might suppose that *huakinthinon* simply means a plain blue, dark blue, relying upon the use of the hyacinth-word to translate *tekeleth* in the Old Testament. *tekeleth* (Akkadian *takiltu*) is now established as the deep blue dye produced from a particular group of murex shells.[7] LXX *sappheiros*, on the other hand, normally translates Hebrew *sappir* and was used to mean lapis lazuli.[8]

Meanwhile, a word had come to light in Akkadian which seemed, like the Arabic word for porpoise, to be cognate with *taḥaš*. The ambiguities of the cuneiform sign which began the word allowed F. Delitzsch in 1896 to read it as *taḫšia*. Delitzsch thought the word stood for some kind of sheep and the leather made from its skin. This was partly because the word was often preceded by the sign for leather, (which he interpreted as a determinative, i.e. unpronounced), as *taḥaš* in the Bible is usually preceded by *ʿōr* 'leather' (but pronounced in Hebrew). The Akkadian word was interpreted as leather because it was also used to describe a river-going vessel on which the king embarked during campaigns on the middle Euphrates in the tenth–ninth centuries BCE. Assyrian relief sculptures showed people crossing rivers on rafts made by laying timbers across

[6] Levine (1993: 166) states that 'we know that dolphin skins were used quite extensively in Ancient Near Eastern cults'. I have been unable to find any evidence for it, unless an identification 'porpoise' is suggested for KUŠ *šinuntum* at Mari; see Durand 1983: 367. Durand suggests *šinuntum* is hippo, in Yon 1987: 295.

[7] Ziderman 1987.

[8] Evans 1922: 16: Kingsley 1992: 339.

inflated animal-skins, so there seemed to be a good match between text and iconography. Another word for such a raft was known, *kalakku*, which is cognate with modern Iraqi *kelek*, but the word *kalakku* was found only once, and people supposed that two different words were available to describe the same thing. Various reference books for Assyriology now state without reservation that the *elippi duhši* 'boat of *duhšu*-leather' is a raft of skins like the kelek.[9]

Although a connection between the Hebrew and Akkadian words was not revived by Old Testament commentators, Tadmor, writing the brief entry on *taḥaš* for the *Encyclopaedia Miqrait* in 1982, reverted to suggesting a link; but he did not support the suggestion with evidence or a particular interpretation of the Akkadian word, which he thought was ultimately of Hurrian origin.

The Hurrian, Akkadian and Sumerian Cognates

In Akkadian, as scholars proceeded painfully towards the correct reading of signs and words, Delitzsch's *tahšia* was modified to du_8*.ši.a*, which is a Sumerian word used as a logogram. It was thought that the middle consonant H was suppressed, because syllabic writings such as *du-še-e* referred to the same item. The word was sometimes found as a kind of stone. For these reasons scholars abandoned the attempt to link the Hebrew and Akkadian words. The syllabic writings seemed unambiguous and consistent enough to allow the dictionaries to normalize the word as *dušû*. But then, after both the *Chicago Assyrian Dictionary* and von Soden's *Handwörterbuch* had published the volume beginning with D, new evidence came to light which showed that this was a late form in which a medial H, clearly present in early writings of the word, had been absorbed by the adjacent consonant Š. From Mari came syllabic writings such as *du-uh-ši-im*, as well as a female personal name *du-uh-ša-tum*. The H was clearly there, and there was no trace of a long vowel or a weak root letter in the final syllable. This meant that the reading of the Sumerian du_8*.ši.a* needed to be changed to *duh.ši.a*. Whenever the DUH sign was found in a syllabic writing of the word, it should be read as *duh*, not du_8, whereas whenever the DU sign was found without a following *uh* signs, it represented a late spelling in Babylonian. In Assyrian, the spelling *duh-ši-i* / *duh-ši-e* in the seventh century BCE probably implied a slight difference between the north and

[9] Following Salonen 1939: 68.

south of Mesopotamia.[10] As a noun form, *duhšu* was very acceptable in Akkadian, as it resembled a common noun form comparable with *nuhšu* 'abundance'; indeed, the latter even had the same conjunction of H and Š.[11]

The Sumerian word *duh.ši.a*, spelt also *duh.šú.a* in Mari texts and in Hittite, had a very wide distribution by the early second millennium, and Lieberman in 1977 identified it as a Sumerian loanword in Akkadian of the Old Babylonian period.[12]

What did *duhšu* mean in Akkadian? It was an unusual word in that it was preceded sometimes by the sign for stone, at other times by the sign for leather, wool or linen. This sign, whether stone, leather, wool or linen, was taken to be a determinative, in other words it was not pronounced and did not affect the declension of the following *duhšu*. In this respect it was not comparable to *ʿōr taḥaš* in which the first word is in the construct before the second word in the genitive. But there is reason to question whether any of the Akkadian signs written in front of *duhšu* is a determinative, partly because so many different materials occur, and partly because *duhšu* always occurs in the genitive case when it is phonetically spelt. In other words, *duhšu* might be a description applied to different materials, and not the material itself.

In neo-Assyrian times there was a profession of very high status entirely dedicated to its production, the *ṣārip* (*KUŠ*) *duhši*. Since a word *ṣirpu*, derived from the same verb *ṣarāpum*, was known to mean 'red wool', it looked as if this was the dyer of specialist leather, such as Cordovan or Moroccan leather. But this posed problems. The 'stone' called *duhšu* did not seem to be red. According to its use for sun-disks (in the Qatna inventories, and in a year name of Samsu-iluna), a yellow or gold colour was preferred, with Lieberman taking the stone as '(gold-coloured) quartz', and Landsberger supposing that the leather described as *duhšu* had been dyed with saffron or sumach, to imitate the colour of the stone. Landsberger thought it was a 'culture word', a word of uncertain linguistic origin which referred to the object (whether as a stone or as a kind of leather) and had travelled with the object (presumably both the stone and the coloured leather?) from places unknown. The *Chicago Dictionary*, following his line of argument, translated it as 'yellow or orange (leather)', al-

[10] Fales and Postgate 1992: 118:3′, 119:12′.

[11] Hereafter we shall refer to the noun as *duhšu* regardless of its varied spelling in different texts.

[12] Lieberman 1977: 507, no. 675.

though von Soden's *Handwörterbuch*, abandoning colour altogether, opted for 'chamois-type leather'.

A new problem of misunderstanding arose at this stage. The *Chicago Dictionary* did not bring out its volumes in a particular order, and so volume Ṣ of 1962 was one of its earliest. It identified two separate roots or verbs, *ṣarāpum* A 'to dye red', and *ṣarāpum* B 'to melt, refine'. The profession *ṣārip (KUŠ) duhši* was related to A, and so the meaning was connected to dyeing. Nearly twenty years later, in 1981, von Soden produced his volume for the letter Ṣ. He correctly saw that there was only one verb with the two meanings, connected, presumably, by the tendency to redness that comes with heating minerals to a high temperature. But he still took the derived noun *ṣirpum* and the profession *ṣārip (KUŠ) duhši* to be connected to red-dyeing.

The colour red posed problems, however. Oppenheim, writing in 1948 on materials recorded in a craft archive from around 2000 BCE, thought the colour of stone-*duhšu* must be greenish-yellow, and invoked a complicated process of tanning and dyeing leather which sometimes involved copper or a copper compound.[13] He thought the Sumerians had borrowed the word from Hurrian *tuhšiwe*, since the latter was often found in texts from Nuzi, east of the Tigris, dated *c.* 1300 BCE. This introduced a new ethnic element into the tangle of words and languages. In opting for a greenish colour Oppenheim was followed by Stol, who wrote the entry on leather (*Leder*) for the *Reallexikon der Assyriologie* in 1983, because copper was supplied in lists of materials for craftsmen making leather-*duhšu*. This caused difficulties for the sun-disks which had prompted the identification as yellow-gold, and for the connection with the verb for dyeing red. There was a similar problem with *ṣirpum* as red wool, since a lexical entry gave the word with its equivalent as 'blue', *uqnâtum*. The colours red and blue are usually distinct in Akkadian vocabulary.

Twenty years after his first attempts to understand the word, Oppenheim published some Middle Assyrian and later recipes in cuneiform for making glass or faience.[14] 'Stone'-*duhšu* was one of the products, but he was perplexed to find it in eight or more hues. He was forced to conclude that *duhšu* essentially stood for a colour with a wide variety of shades. None of the known words for glass and faience[15] was used with the recipe for stone-*duhšu*, and it was supposed

[13] Oppenheim 1948: 108.
[14] Oppenheim 1970.
[15] *zukû, anzahhu, būṣu, huluhhu.*

that a natural stone, whatever it was, was being imitated chemically. It is generally accepted that faience and glass aimed to imitate the colours of real stones, and Akkadian texts often write of 'mountain' lapis lazuli, i.e. the real stuff, alongside (artificial) lapis lazuli, both types being preceded by the determinative for stone.

I am sure I am not the only Assyriologist whose heart has sunk every time any form of the word appeared. There seemed to be such a lot of information, but it did not allow a consistent translation or understanding. The word seemed determined to resist the repeated assaults of scholarship.

The Forms of the Word in Cuneiform

Since Lieberman in 1977 defined the word as a Sumerian loan in Akkadian, evidence has come to light which shows that there were important Hurrian kingdoms or city-states around the upper Tigris at least as early as *c.* 2200 BCE. Tadmor had good reason to follow Oppenheim's lead in suggesting that the word was Hurrian in origin. Hurrian does not distinguish voiced and unvoiced consonants, so D and T are not differentiated. Therefore it would be all right for Hebrew *taḥaš* to begin with T, but its Hurrian cognate with D.[16] At Nuzi the texts, which are written in Akkadian, treated *duhšu* as a Hurrian word, giving it the Hurrian genitive ending *-we* or *-iwe*, and spelling it *tuh/tu/du-uh-ši-we(-eh-he)*. Von Soden listed this as a separate word under T, but agreed that it was probably to be connected with the word he had given decades earlier as *dušû*. The form of the word at Nuzi seems good reason for taking the Sumerian word as a loan from Hurrian. I suggest that we account for the variety of spellings as follows:

On the one hand the Hurrian word was borrowed by Sumerian together with its Hurrian genitive ending, as *duhšuwa* / *duhšiwa*, represented by the writings *duh.šú.a* and *duh.ši.a*. This Sumerian form was borrowed by Akkadian, where it was treated, as many Sumerian loanwords were, as a noun with a 'weak' ending, *duhšium*. This implied that a weak consonant had been absorbed into the vowel. This form in Akkadian, as if ending in a diphthong, is found in southern Mesopotamia throughout time, and is also found in neo-Assyrian texts from the north.

[16] Sumerian voiced D normally corresponds to Akkadian unvoiced T.

On the other hand, among the Hittites and at Mari, also eventually in Hebrew, in the western reaches of the ancient Near East, the Akkadian form of the word, *duhšum*, bypassed the Sumerian, taking its loan straight from Hurrian without including the Hurrian genitive ending. The syllabic, phonetic writings clearly do not show a diphthong. By analogy with *nuhšum*, the word took on an entirely Akkadian form.

These two forms *duhšum* and *duhšûm* co-existed in Akkadian in the late third and early second millennia BCE. The medial H became assimilated in almost all areas during the mid-second millennium, and the form with the weak ending, borrowed from Sumerian, was favoured in all cuneiform texts that we have, from then onwards.

In Hebrew the first vowel is *a*, but in Sumerian, Akkadian and Hurrian it is consistently *u*. Akkadian *u* in a closed syllable regularly turns to *a* in words borrowed by Hebrew.[17] This vowel change is thus consistent with the Hebrew *taḥaš* being a loanword from Hurrian or Akkadian. In any case, since the word is attested in Sumerian as early as *c.* 2100 BCE, a borrowing from east to west seems certain. The sibilant is the same in Hebrew as in Akkadian, Hurrian and Sumerian; although loanwords travelling from Akkadian to Hebrew in the first millennium normally change their sibilant, as the examples we have just cited show, some loans, perhaps at an earlier period, preserve the same sibilant, such as Shemesh in placenames, cognate with Akkadian Shamash. For possibilities in dating linguistic loans such as this, it is appropriate to point out that the Akkadian word *zakukītum*, found in an Old Babylonian text from Mari discussed below, is attested in Job 28:17, virtually identical in Hebrew and in Akkadian, but is not known after the Old Babylonian period in cuneiform texts. That Akkadian words should have been borrowed in Palestine at that early date is consistent with the presence of cuneiform Akkadian texts in Palestine in the Middle and Late Bronze Age, which are gradually being excavated, increasing in number and scope. Hebrew *taḥaš* resembles Old Babylonian Akkadian *duhšum* more closely than the Sumerian or the later Akkadian forms of the word.

[17] Examples are *Šulman* — *Salman*, *tupšarru* — *tapsar*. I am grateful to Dr Paul Mankowski for this information.

The Range of Context for *duḫšu*

What were the uses of *duḫšu*-leather and *duḫšu*-mineral in cuneiform texts? The leather was used for sandals in the craft texts from Isin of the early second millennium BCE, and in Old Babylonian texts from Mari, among them the sandals of a deity.[18] It was used for equid harness[19] and for the chariot seats of kings and gods in Isin, Mari and among the Hittites. It could be preceded by the sign for leather, or for wool[20] or for linen.[21] It could take the form of a rectangular plaque, or of a cylinder seal, or of a lion's head. It was used for the royal boats of Tiglath-pileser I, Assurnasirpal II and Shalmaneser III, where the word alternated in a variant with *ki-bar-ri*. The word, with the sign for stone preceding it, was used for a headrest in a text from Amarna where it was contrasted, rather unexpectedly, with a headrest 'of stone', as if *duḫšu*, even with the stone sign preceding it, was not really a stone.[22] Also with the stone determinative, it was used in texts to describe necklaces and other items of jewellery, including as inlay in a gold sun-disk, and for the caps of cylinder seals, at Qatna; an artificial tamarisk was made of it.[23] It seems sometimes to qualify lapis lazuli.[24] With the mineral *duḫšu* at Qatna was found an unidentified material *ki-bi-ri* / *kib-ri* which looks like the variant *ki-bar-ri* for the leather-*duḫšu* of the Assyrian royal boat. The key to this can be found in the neo-Babylonian text which lists a leather cover, *kutummu*, of leather-*duḫšu*, for a boat.[25] In other words, the royal *elippi duḫši* is a boat with a cover or awning of leather-*duḫšu*. In a long list of stone and glass vessels from Mari a group of items is made of *ṣirpum*, *duḫšum*, *ṣirpum* again, and *zakukītum*.[26] The last-named is the word for translucent crystal and perhaps also glass, which occurs also in Job 28:17. It is clear from this context that *ṣirpum* cannot be red wool, but must be a hard material.[27] In the neo-Babylonian period *duḫšu* was used for 5,000

[18] Crawford 1954: no. 426. For other examples, see the dictionaries.

[19] Rouault 1977: 30.

[20] E.g. Rouault 1977: no. 30:5.

[21] E.g. at Isin, Crawford 1954: no. 460.

[22] Knudtzon (1915: no. 14 iii 68–9) spelled *tu-še-e*, which may imply Hurrian influence on the syllabary.

[23] Bottéro 1949.

[24] The translation misleads by adding '(and)', e.g. p. 177.

[25] Clay 1919: no. 145:10.

[26] Durand 1983: no. 222.

[27] See also Durand 1983: 362, collations to Bottéro 1957: no. 264.

arītu-shields,[28] and a military context seems also to be implied by the placing of *duhšu* between quivers and slings in the lexical list Hh XI.[29] Although the word is preceded by the sign for leather in these military contexts, the item could be taken to imply some kind of hardness that would protect the bearer. This may be why the *lullumtum*-garment, worn by the king as battledress at the Old Babylonian Ritual of Ishtar known from Mari, was made using *duhšu*-wool from Babylon.[30] Goatskin-*duhšu* is used for harnesses for a coat-of-mail (*siriam*) for horses, likewise suggesting a protective armour.[31]

In the Isin craft archive[32] it was particularly interesting that the word was found in connection with goat or sheep hide (not ox-hide) and is often listed together with madder-red-dyed hides, especially ox-hide. This is the same combination as we find for the covering of the tabernacle in Exodus, and the covering of the table of offerings in Numbers. This similarity, together with the use for sandals, gives substance to the idea of reviving a link between the two words.

Some further details are available from cuneiform texts. The profession which deals with this work in the Old Babylonian period is the *ašlakum*, lú.túg.du$_8$, for work on rein-rings and reins / bridles in *ARM* XVIII, 30, and so is probably the equivalent of the later profession in neo-Assyrian *ṣārip duhšim*. *ARM* XXIII, 597–605 list issues of *duhšu*-wool to women by weight, from one-third of a shekel to two shekels (*c.* 18 grams), and in one instance the issue takes the form of 'dust', *epiru*, apparently as a form of wool-*duhšu*.[33] In *ARM* XXI, 232 *duhšu*, without the sign for stone or leather preceding it, is issued to women in small weights, between one-third and five-sixths of a shekel, i.e. 3–7 grams.

Colour and Decorative Effects

We found from the uses of *duhšu* in cuneiform texts that the material was used in decorative contexts such as inlay in gold for the jewellery of deities. We have found many indications, often contradictory, for

[28] Wiseman 1967: 496, line 14f.
[29] Landsberger 1959: 127, line 107.
[30] Charpin et al. 1988: no. 285.
[31] Clay 1912: no. 99:4.
[32] E.g. Crawford (1954: no. 470) and van de Mieroop (1987b: no. 117), texts studied in van de Mieroop 1987a.
[33] E.g. Bardet et al. 1984: no. 603:6, 8.

colouring associated with it. We may now turn back to the translations in Greek as *huakinthos* and *huakinthinos* for biblical *taḥaš*. A flower of this name is supposed to have grown from the blood of Ajax or the youth Hyacinth. This presumably arises from the fact that the bulb of the hyacinth is often tinged with red even when the flower that grows from it is not that colour. The petals of the flower are said by Theocritus to have been inscribed, in other words they were not plain but patterned. Attempts to come up with an identification for the flower include cultivated hyacinth, wild hyacinth (or scilla), wild delphinium (or larkspur), and the spotted orchid, *Orchis quadripunctata* — all of them variable in colour.[34] But if we take the surface effect of the hyacinth flower rather than its colour, it is evident that it resembles a beaded surface. It is most commonly blue, varying in shade, but can also be white or pink. *Huakinthinos* in other Greek texts is used of fringes, selvedges and coats of mail, giving a range of context similar to that of Akkadian *duhšu*.

Matching Words in Texts with Excavated Objects

Dr Gillian Eastwood-Vogelsang in Leiden, working on the clothing in the tomb of Tutankhamun, has identified specific items imported from western Asia, by certain features of design. One of those items consists of beaded sandals which she describes as 'embellished with an intricate design of gold bosses and beadwork in carnelian, turquoise and possibly lapis lazuli'. In the Amarna letter *EA* 22 the Mittanian king sent to Akhenaten one pair of *duhšu*-shoes, studded with ornaments of gold, of *hiliba*-stone, etc. If *duhšu* here means some kind of beadwork, the description would match not only Tutankhamun's sandals but also certain beaded objects which have been found intact on excavations in Mesopotamia. In the royal tomb of queen Pu-abi at Ur in the third millennium BCE, a leather-based headdress had a background of tiny lapis lazuli beads attached, as a background to set off larger attachments which included gold animals, fruits and rosettes. Faience beads resembling dates have been found at El-Amarna, and they might be thought to correspond to the Akkadian lexical text listing stone *uhinnu*-dates of *duhšu*.[35] Several headrests, some of wood or ivory, but one of turquoise-coloured glass, and one of ivory with a beaded seat or 'cushion'; also one of

[34] Gow (1952), commentary to Idyll 10:28. I am grateful to Peter Kingsley for this information.

[35] Landsberger et al. 1970: line 50.

deep blue faience, were found in the tomb of Tutankhamun. They may correspond to the 'head-rest of "stone"' and the 'head-rest of *duhšu*-stone' that are itemized in the Amarna letter *EA* 14.

It is quite common for archaeologists to discover the crushed remains of tiny frit or decayed glass beads. Mostly they form a decomposed deposit like faintly coloured ash, and are not recorded, let alone recovered. In a few cases, however, it has been possible to show that they were originally attached to particular items, sometimes matching the items decorated with *duhšu* in texts.

In graves in Oman of the Jemdet Nasr period (*c.* 3000 BCE) tiny blue-green glazed beads were found in great numbers, and resemble those found in very early Mesopotamian graves.[36] We have already mentioned the beaded leather headdress of Pu-abi at Ur; we may add the discovery in the tomb of Meskalamdug, also at Ur, of a solid mass of hundreds of lapis lazuli and gold beads, in front of the king's waist. Some of the king's female attendants had cuffs at their wrists, consisting of beads that had been sewn on to textile. Further afield, at Troy in level II g, little biconical beads of green and yellow faience were found, and at Dendra in Greece near Mycenae in the Late Bronze Age, about 40,000 small faience beads were found which had been arranged in a five-colour, zig-zag pattern.[37] At Nippur in the Akkadian period a mosaic of faience had a red border and tiny squares making a pattern partly pale blue. At Ur in the mausoleum of Shulgi a wall may have been decorated with faience inlay.[38] At Mari, in the Old Babylonian period, a frit inlay with a carpet-type of multi-coloured pattern was found, perhaps from a box such as those listed in Hittite inventories.[39] What is perhaps important in these examples is that the background for the pattern, when it is known, seems often to be blue.

There are two excavations on which it was clear that faience or frit beads and pendants had been attached to the harness of horses, just as *duhšu* is connected with equid harness in texts. One is a Middle Assyrian hoard from northern Iraq, at the site of Khirbet Karhasan.[40] Another is a series of burials at Hasanlu in north-west Iran, from the early Iron Age, where the headstalls for horses had strings of frit

[36] Frifelt 1980: 275.

[37] See Barber 1990: 154–5 and 171–2.

[38] See Moorey 1985: 146–7.

[39] Parrot 1959: 105–7. See Košak (1982: 7) for boxes, GI/GIŠ PISAN in Hittite texts.

[40] Tucker 1992: 157–82.

beads, and there were small buttons which apparently had covered the leather straps.[41]

This semi-military use is not limited to harness, as we have seen from a text recording shields, and another which gave *duḫšu* between quivers and slings. Recalling the wise words of Dalman, that *taḥaš* had to be resistant to rain, dust and sunshine, we may add a further quality: that *duḫšu* acted like chain-mail or scale armour, and would deflect arrows from bridles and shields if the beads were sewn close together. The colours would also glisten in sunlight, and could be brushed free of dust and mud. This would be ideal for a top cover for the tabernacle; in addition, the weight of the beaded cover would prevent the wind whipping it off in gusty weather. Resistance to water and colour-fastness would have made it a good decoration to use for an awning on the royal boats mentioned in Assyrian campaigns. These royal boats need have no connection whatsoever with the *kalakku*-raft.

Ingots, LAGAB *duḫši*,[42] would correspond to the glass ingots which were carried on the ship wrecked at Ulu Burun.

As a result of these correspondences between vocabulary and excavated objects, it seems very probable that *duḫšu* is a general word which refers to coloured beads and inlays made of glass and faience in imitation of certain kinds of stone, perhaps in the first instance blue, and then perhaps more generally to multi-coloured beadwork. No word for such beadwork has been identified in Akkadian. Beads are most often sewn on to leather because it takes the weight better than a woven textile, but beads can also be used with woollen thread for embroidery work and for beaded fringes.[43] We know too that glass beads were intended to imitate precious stones, and that some plain stones such as steatite and chalcedony were chemically treated to give them banding and other markings that were admired when they occurred naturally. We have an example of a large bead dedicated by a king which had been improved chemically in this way, and cuneiform recipes are extant which seem to tell one how to do it.[44] Recently it has been suggested that the origin of faience lies in the dust which is produced when a stone is drilled for perforation using a copper bit; this residue, when heated, forms blueish fai-

[41] Dyson and de Schauensee 1983: 59–77.

[42] Landsberger et al. 1970, HAR.ra = hubullu XVI line 29.

[43] Leather was often painted too, perhaps as a cheap imitation of beadwork; see Dalley (1996–7: 80–81) for the identification of ŠE.GÍN as paint rather than glue in texts of various periods.

[44] Sollberger 1987: 379–82.

ence.[45] This interpretation would account well for copper as a regular ingredient, and for the occurrence of 'dust' in lists issuing *duhšu*. If ingots of faience were imported into Mesopotamia from different regions where initial drilling and shaping were done, we would have an explanation for why *duhšu*-'stone' may come from Marhaši / Parahšum.[46] Part of the processing consisted in grinding the hard material of the ingot to a powder and then adding water, shaping, and firing.

This profile gives us good ways to explain why Akkadian *duhšu* is preceded sometimes by the sign for leather, or stone, or wool, or linen, and why 'dust' is associated with it. If the word stands for a general type of work in which small gold and copper beads were used in addition to glass and stone, we can also explain why copper is listed among the materials required for making *duhšu*-work, and why more than one colour is sometimes explicitly involved. In Hittite lists of minerals *duhšu* comes after silver, gold and lapis lazuli, but before iron, copper, bronze and alabaster, implying that the material was categorized with stones and naturally occurring minerals.[47] In looking at the range of context and the various proposals for translating *duhšu*, one is struck by comparisons with early attempts to translate the Egyptian word TḤNT which has now been resolved as 'faience'.[48]

As a decorative technique with military as well as top ceremonial connections which are evident in the use of *duhšu* for royal chariots, divine chariots, and royal boats, the manufacture and design of *duhšu* would have been a specialist one with great prestige. It follows that the neo-Assyrian profession *ṣārip duhši* can no longer be interpreted by connection with a meaning of red-dyeing, but may be reassigned to the meaning to refine, heat to melting point — in other words, a chemist and craftsman of technical expertise. One may compare the term *ṣarrāpu* in neo-Assyrian, meaning the refiner of gold and silver, the gold- and silversmith.[49] At earlier periods, as mentioned above, the *duhšu* materials are assigned to the lú.túg.du$_8$ = *ašlakum*, often translated 'fuller', whose duties may have included assembling the pattern and attaching beads and pendants to leather or textiles, or as inlay, if not making them at the furnace. There is presumably a difference between *ṣirpu* and *duhšu*, since they occur together in a single list at

[45] Stocks 1997: 179–82.
[46] Moorey (1985: 196) gives examples of such ingots.
[47] Polvani (1988) especially 41, 132–3 and 135–6.
[48] Harris 1961: 135ff.
[49] Parpola 1988.

Mari. In Egyptian there is a well-differentiated vocabulary for different colours of frit and faience; for example *šsyt* seems to be a general word for frit, and *ḥmt* is specifically for green frit. The evidence collected here may indicate that *duhšu* began as a word for blue frit, faience and glass, which all have virtually the same chemical composition, and then became used more generally for decorative beadwork in many colours. This interpretation would accommodate the information from the lexical list which states that *duhšu* is blue, as well as the Middle Assyrian recipes that ascribe eight different colours to it.[50] In portraying sun-disks the material may have imitated the object in a patterned surface, and may have consisted of more than one colour.

The Recipes

Oppenheim's pioneering edition of the middle Assyrian glass-making recipes began with the assumption that *duhšu* was a stone of a particular colour rather than a word for faience and frit. He also wrote before the word *ašgiku* was identified from Achaemenid inscriptions as turquoise.[51] We may now suggest that the pair of recipes in his Tablet B are for making, respectively, deep blue faience *duhšu*, and turquoise-coloured faience, which are the two main colours used for glazes, for instance in the background for glazed bricks. Frit or faience vessels could themselves be inlaid with different colours of faience, namely blue, red, white, black and yellow, to which some of the technical vocabulary in the recipes presumably corresponds.[52]

In conclusion I suggest that Hebrew *taḥaš* is cognate with Hurrian / Akkadian / Sumerian *duhšu*. It denotes beading and attaching pendants, and inlaying in stone, metal, faience and glass, and is usually made on leather but sometimes also wool or linen, or as cloisonné in precious metals, timber, etc. The profession which manufactured them was not involved in dyeing leather, but was a refiner of frit, faience and glass, who shaped beads and inlays, and designed the iconography of ceremonial armour and harness, awnings for royal boats, ceremonial necklaces and headdresses, luxury sandals and

[50] Two questionable translations in Oppenheim's edition, it seems to me, are *zīmu* as 'colour' and *uppuq* as 'homogeneous'. It is doubtful whether Akkadian had a general abstract word meaning 'colour'; neither early Greek nor Biblical Hebrew do. The texts require a new edition, using the new understanding of *duhšu*.

[51] Vallat 1971: 58 and 1983: 63f.

[52] For the colours see Moorey (1985: 150)

royal headrests. His status was far higher than that of a mere dyer of leather, and the range of his expertise accounts for his high rank at the neo-Assyrian court. Background beads on many objects were of coloured stones or of the faience and glass that imitated real stones, and the fabric is so variable that we should probably interpret the so-called determinatives as pronounced words: stone-of-*duḫšu*, leather-of-*duḫšu*, wool-of-*duḫšu*, following the model of the Hebrew *ʿōr taḥaš*. The background to such patterned work was traditionally deep blue or turquoise. Both the colour and the surface effect of beading are taken up in the Greek translation of the Hebrew as *huakinthinos*. The covering for the tabernacle in the Pentateuch with its underlay of red, madder-dyed leather has its precise counterpart in craft materials from Isin and Mari around 2000–1800 BCE. The sandals in Ezekiel have their counterpart in the Amarna letters and in the grave goods from Tutankhamun's tomb. Therefore it is not simply a matter of proposing a new cognate, as has been done in the past, but of gathering together a range of evidence which confirms the proposal.

REFERENCES

ARM = *Archives Royales de Mari*. See Bardet, Bottéro 1957, Charpin, Durand and Rouault.

EA = *El-Amarna*. See Knudtzon.

Barber, E. 1990. *Prehistoric Textiles*. Princeton

Bardet, G. et al. 1984. *Archives administratives de Mari*, I: *Archives Royales de Mari*, XXIII. Paris

Bodenheimer, F.S. 1960. *Animal and Man in Bible Lands*. Leiden

Bottéro, J. 1949. 'Les Inventaires de Qatna', *Revue d'Assyriologie* 43, 1–40 and 137–215

—— 1957. *Textes économiques et administratifs: Archives Royales de Mari*, VII. Paris

Brecht, M. 1986. English translation 1990. *Martin Luther*. Philadelphia

Brown, F., Driver, S.R. and Briggs, C.A. 1972. *A Hebrew and English Lexicon of the Old Testament*. Oxford

Cassuto, U. Hebrew 1951, English translation 1967. *A Commentary on Exodus*. Jerusalem

Charpin, D. et al. 1988. *Archives épistolaires de Mari: Archives Royales de Mari*, XXVI. Paris

Chicago Assyrian Dictionary. 1956–. Ed. A.L. Oppenheim et al. Chicago and Glückstadt

Clay, A.T. 1912. *Documents from the Temple Archives of Nippur Dated in the Reigns of Cassite Rulers*. Philadelphia

—— 1919. *Neo-Babylonian Letters from Erech*. Yale Oriental Series: Babylonian Texts. New Haven

Cooke, G.A. 1936. *A Critical and Exegetical Commentary on Ezechiel*. Edinburgh

Crawford, V.E. 1954. *Sumerian Economic Texts from the First Dynasty of Isin. Babylonian Inscriptions in the Collection of J.B. Nies*, IX. New Haven
Dalley, S. 1996–7. 'Neo-Assyrian Tablets from Til Barsip', *Abr-Nahrain* 34, 66–99.
Dalman, G. 1928. *Arbeit und Sitte in Palästina.* Gütersloh
Delitzsch, F. 1896. *Assyrisches Handwörterbuch.* Leipzig, Baltimore and London
Durand, J-M. 1983. *Textes administratifs: Archives Royales de Mari*, XXI. Paris
Dyson, R. and de Schauensee, M. 1983. 'Hasanlu Horse Trappings and Assyrian Reliefs', in P.O. Harper and H. Pitman (eds), *Essays on Near Eastern Art and Archaeology in Honor of Charles Kyrle Wilkinson.* New York. 59–77
Evans, J. 1922. *Magical Jewels of the Middle Ages and the Renaissance.* Oxford
Fales, F.M. and Postgate, J.N. 1992. *Administrative Records: State Archives of Assyria*, VII. Helsinki
Frifelt, K. 1980. 'Jemdet Nasr graves in the Oman peninsula', in B. Alster (ed.), *Death in Mesopotamia.* Mesopotamia 8. Copenhagen
Gow, A. 1952. *Theocritus.* 2nd edn. Cambridge
Gray, G.B. 1912. *International Critical Commentary on Numbers.* Edinburgh
Harris, J.R. 1961. *Lexicographical Studies in Ancient Egyptian Minerals.* Berlin
Jewish Encyclopaedia. 1906. s.v. Yeẓira, Sefer. New York
Kessler-Mesguich, S. 1992. 'Les Grammaires occidentales de l'hébreu' in Sylvain Anroux (ed.), *Histoire des idées linguistiques.* Liège. 251–70.
Kingsley, P. 1992. 'Ezekiel by the Grand Canal', *Journal of the Royal Asiatic Society* 2/3, 339–46
Knudtzon, J.A. 1915. *Die El-Amarna-Tafeln.* Leipzig
Koehler, L. and Baumgartner, W. 1948–53. *Lexicon in Veteris Testamenti Libros.* Leiden
Košak, S. 1982. *Hittite Inventory Texts.* Heidelberg
Landsberger, B. 1959. *Materialen zum sumerischen Lexikon*, VII. Rome
Landsberger, B. et al. 1970. *Materialen zum sumerischen Lexikon*, X. Rome
Levine, B. 1993. *Anchor Bible Commentary on Numbers 1–20.* New York
Lieberman, S. 1977. *The Sumerian Loanwords in Akkadian.* Harvard Semitic Studies 22. Missoula
Mieroop, M. van de. 1987a. *Crafts in the Early Isin Period.* Leuven
—— 1987b. *Sumerian Administrative Documents from the Reigns of Išbi-Erra and Šu-ilišu.* Babylonian Inscriptions in the Collection of James B. Nies 10. New Haven and London
Moorey, P.R.S. 1985. *Materials and Manufacture.* Oxford
Nowak, R.M. 1991. *Walker's Mammals of the World.* 5th edn. Baltimore
Oppenheim, A.L. 1948. *Catalogue of the Cuneiform Tablets of the Wilberforce Eames Babylonian Collection.* New Haven
—— 1970. *Glass and Glassmaking in Ancient Mesopotamia.* New York
Parpola, S. 1988. 'The Reading of the Neo-Assyrian Logogram lú SIMUG.KUG.GI "Goldsmith"', *State Archives of Assyria Bulletin* 2, 77–80.
Parrot, A. 1959. *Mission archéologique de Mari*, II: *Le Palais.* Part 3, *Documents et Monuments.* Paris
Polvani, A.M. 1988. *La terminologia dei minerali nei testi ittiti.* Florence
Rouault, O. 1977. *Mukannišum: Archives Royales de Mari*, XVIII. Paris
Salonen, A. 1939. *Die Wasserfahrzeuge in Babylonien.* Helsingfors
Soden, W. von 1959–81. *Akkadisches Handwörterbuch.* Wiesbaden
Sollberger, E. 1987. 'A Bead for Sennacherib', in F. Rochberg-Halton (ed.), *Language, Literature and History: Philological and Historical Studies Presented to Erica Reiner.* New Haven. 379–82

Stocks, D.A. 1997. 'Derivation of Ancient Egyptian Faience Core and Glaze Materials', *Antiquity* 271, 179–82
Stol, M. 1983. *Reallexikon der Assyriologie* s.v. Leder. Berlin
Tadmor, H. 1982. *Encyclopaedia Miqrait*, s.v. taḥaš. Jerusalem
Tucker, D. 1992. 'A Middle Assyrian Hoard from Khirbet Karhasan', *Iraq* 54, 157–82
Vallat, F. 1971. 'Deux nouvelles "chartes de fondation" d'un palais de Darius I à Suse', *Syria* 48, 53–9
—— 1983. 'Un fragment de tablette achémenide et la turquoise', *Akkadica* 33, 63–8
Wiseman, D.J. 1967. 'A Late Babylonian Tribute List?', *Bulletin of the School of Oriental and African Studies* 30, 495–504
Yon, M. (ed.). 1987. *Le Centre de la ville.* Ras Shamra Ougarit 3. Paris
Ziderman, I. 1987. 'First Identification of Authentic Tekelet', *Bulletin of the American Schools of Oriental Research* 265, 25–34