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LEATHERWORK

أعمال الجلود

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André Veldmeijer

Lederhandwerk
Cuir et Tannage

Leather was used throughout Egypt's history, although its importance varied. It had many applications, ranging from the functional (footwear and wrist-protectors, for example) to the decorative (such as chariot leather). Although leather items were manufactured using simple technology, leatherworking reached a high level of craftsmanship in the New Kingdom. Among the most important leather-decoration techniques employed in Pharaonic Egypt, and one especially favored for chariot leather, was the use of strips of leather of various colors sewn together in partial overlap. In post-Pharaonic times there was a distinct increase in the variety of leather-decoration techniques. Vegetable tanning was most likely introduced by the Romans; the Egyptians employed other methods of making skin durable, such as oil curing.

أستخدم الجلد عبر تاريخ مصر و لكن تفاوتت أهميته. كان له العديد من التطبيقات، تتراوح من الاستخدامات العملية (حماة الرسغ والأحذية، على سبيل المثال) إلى الاستخدامات التزيينية (مثل جلد العربات). بالرغم من أن المواد الجلدية صنعت باستخدام تقنية تصنيع بسيطة، وصلت مهارة الصناعة إلى مستوى عالي أثناء الدولة الحديثة. من ضمن تقنيات الزينة الجلدية الأكثر أهمية في مصر الفرعونية كانت استخدام أشرطة جلد بألوان مختلفة تم تنفيذها (أو حياكتها) بأسلوت متداخل جزئياً، و هذا الطراز كان المفضل لجلد العربات. بعد العصور الفرعونية كان هناك زيادة في تشكيلة تقنيات الزينة الجلدية. في الغالب أدخل الرومان استخدام الخضراوات في الدباغة إلى مصر و استخدم المصريون طرق أخرى لجعل الجلد متين، مثل معالجته بالزيت.

The term “leather” (as explained by Van Driel-Murray 2000: 299) refers to skins that have been tanned or tawed—that is, converted into white leather by mineral tanning, as with alum and salt—rather than cured. In Egypt it appears that skins were not tanned or tawed in the Pharaonic Period; however, thus far we lack detailed, systematic chemical analyses from which to make a conclusive determination (Schwarz 2000: 276 - 277; Van Driel-Murray 2000: 304, 317; Veldmeijer and Laidler 2008).

Skins and leather were used throughout Egyptian history, but their importance and quality varied. According to Van Driel-Murray (2000: 307), skins were widely used in the Badarian and Amratian (Naqada I) periods but were largely superseded by cloth (Petrie 1940: 128) in the Gerzean (Naqada II).

In the Old and Middle kingdoms the use of leather declined in favor of the use of fiber and textiles; skins seem to have been of secondary importance to meat and the production of glue (Van Driel-Murray



Figure 1 Fragment of a finely made leather loincloth consisting of panels with cut-out rectangles, from Tomb 9 (C-Group) at Hierakonpolis.

2000: 300 - 301). The Nubian “pan-grave” cultures, however, introduced decorated leather garments (fig. 1), including the loincloth (fig. 2), and containers and pouches of high quality, not dissimilar to those of Predynastic traditions and comparable to leatherwork recovered from other Nubian sites, such as Kerma (Reisner 1923: 303 - 305). During the New Kingdom leather was much more widely used. New weapons technology—such as the introduction of the chariot by Asiatic peoples—was partially responsible for this (Van Driel-Murray 2000: 309).

Contact with foreign cultures might also have been the reason for the introduction of the leather shoe (fig. 3). Although the context and date of the shoe in figure 3 are unknown, comparable examples date to the New Kingdom (Montembault 2000: 194). It



Figure 2 Artist's impression of the individual buried in Tomb 9 (C-Group, Hierakonpolis), wearing a leather loincloth.

is difficult to say whether the use of leather continued to the same extent into the Third Intermediate Period. The situation in the Late and Ptolemaic periods is as enigmatic. Better attested is leather from the Roman Period, during which the use of vegetable-tanned leather became widespread and in which innovations in technology are apparent.

Our overall picture is nevertheless distorted due to the lack of research as well as to large biases in the archaeological record. For example, the amount of material that survives from the New Kingdom is largely due to the fact that elite burials of this period were generally rich and elaborate. Since much of the Pharaonic Egyptian archaeological record is constructed from tomb goods, burial practices are thus a major contributing factor toward what has survived. Furthermore, many Roman sites have been excavated, largely accounting for the numerous leather

finds. Moreover, the preservational circumstances are far better in the more arid southern regions; very little organic material survives from northern Egypt.



Figure 3 Leather shoe, unknown provenance (EA 4411).

The processing of skins into leather is virtually universal and is well documented (Forbes 1966: 1 - 21; Schwarz 2000: 16 - 64; Van Driel-Murray 2000: 299 - 306). Scenes from the tomb of Rekhmira (Davies 1943; fig. 4) provide especially useful information. According to Forbes's analysis of leather processing (1966: 1 - 21), after a skin was flayed, underlying fat and hair were removed by rubbing urine, ash, or a mixture of flour and salt into the haired surface. Next, the skin was cured, arresting the degenerative process.

Curing in oil seems to have been the preferred method in Pharaonic Egypt, although mineral curing was probably practised, particularly in the Predynastic Period. After having been soaked in oil, the skin was staked to make it supple and the remaining oil was worked into the skin. Finally, the skin would be dried. Although vegetable tanning is the only means of producing chemically stable leather, current scholarly opinion maintains that tanning was unknown in Egypt before the Greco-Roman Period (Van Driel-Murray 2000: 299, 305). An explanation for this may be that the Romans, who had experienced a comparatively wetter environment that required them to adopt the use of vegetable-tanned leather, brought the technique to Egypt, where the arid climate had not rendered tanning a necessity (Veldmeijer and Laidler 2008). However, Nubian leatherwork (for example, Reisner 1923; Wainwright 1920), including leatherwork of the Nubian C-Group at Hierakonpolis (Friedman 2004: 24), differs from Egyptian leatherwork in many respects, one of which seems to be its processing methods, which possibly included vegetable tanning. Indeed the results of a field test for vegetable tanning (Leach 1995; Van Driel-Murray 2002a, 2002b) were convincingly positive (Veldmeijer 2007a). Problems with the test have been noted, however (Thomson 2006: 59; Trommer 2005: 40 - 42; author's study of leather from Elephantine and Hierakonpolis in 2007, and Qasr Ibrim from 2005-2008, see also Van Roode and Veldmeijer 2005:4-5); its further analysis, currently in progress, is needed. Furthermore, the question as to why vegetable tanning may have been employed in Nubia remains to be answered.

In Egypt leather was most commonly made from the skins of cow, sheep, goat, and gazelle, although those of more exotic species such as lion, panther, cheetah, antelope, leopard, camel, hippopotamus (Reed 1972: 86), crocodile (Van Driel-Murray 2000: 302; Wills 2000), and possibly elephant (author's observation: Museum of Fine Arts, Boston, 2006) have been identified.

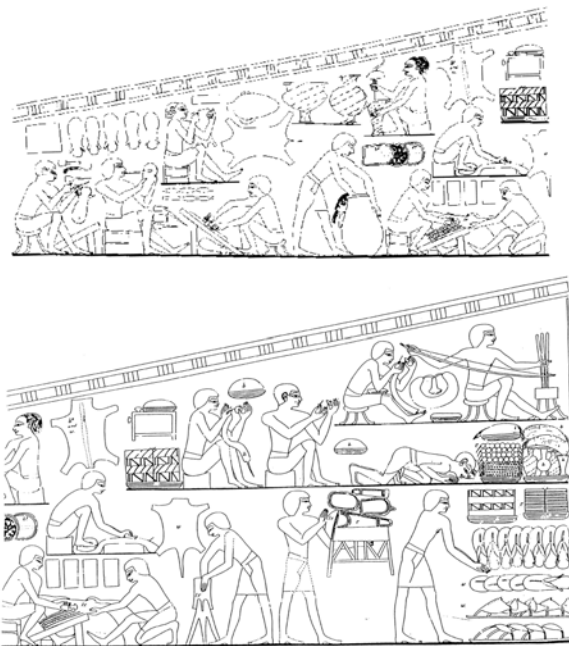


Figure 4 The tomb of Rekhmira has one of the most complete scenes of leather processing and the manufacture of leather objects

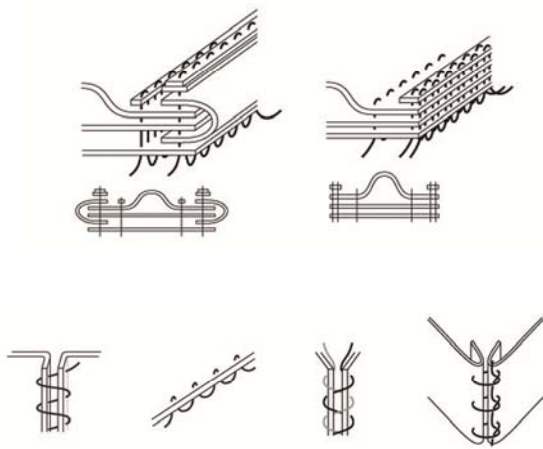


Figure 5 Top: Two examples of the construction of composite leather sandals of the Pharaonic Period: a series of layers sewn with sinew in a running stitch. Bottom: four types of stitching featured in Egyptian leatherwork. Not to scale.

Leather was used in a wide variety of items, ranging from clothing, footwear, and cordage, to furniture and (parts of) musical instruments.

Leather-manufacturing techniques were basic: leather goods were sewn with simple, but varied, seams (fig. 5), using flax, sinew, or narrow leather thongs. Rawhide (unprocessed skin) was generally used for lashing, as it shrinks upon wetting and thus tightens the components of the object being fastened. Rawhide was therefore employed to fasten ax blades onto their shafts (fig. 6) and to form the “joints” of furniture. Because of its hardness and durability, it was sometimes used to provide the soles of footwear. Despite the simplicity of manufacturing techniques, some Egyptian leatherwork reached a high level of craftsmanship.

Before the New Kingdom, mineral dyes were used to color leather. The complete palette of colors used is hard to establish, as some shades are more susceptible to discoloration than others—such as blue, apparently, given its few surviving examples. Abundantly used were bright red and green, often in combination (fig. 7). Shoes very similar to the one depicted have been found in Deir el Medina and date to the New Kingdom (Veldmeijer and Endenburg 2007:



Figure 6 Example of rawhide ax-binding from Amarna, 18th Dynasty. Scale bar in cm.

36). White may have been obtained by manipulation of the skin surface, already pale due to processing, with pastes of chalk mixed with fats (Van Driel-Murray 2000: 303). Vegetable dyes, such as madder (red), indigo (blue), and pomegranate (yellow and black), with alum as a mordant, appeared after the 18th Dynasty. Gilding came into use as late as the Coptic Period. Several other techniques of

staking, and the low stools and platforms upon which much of the processing was carried out. Needles of bone and probably copper were used for stitching leather from the earliest times. Leather may have been pricked prior to stitching in order to facilitate penetration with a needle; awls of bone (later of metal) and marlin spikes would have been used for this purpose.



Figure 7 Bright red and green were the most popular colors featured in leatherwork, especially footwear. Unprovenanced. Scale bar in cm.

leather-decoration were also used: decoration with beads is known from as early as the Predynastic Period; cutting (incision) was featured from the Old Kingdom onward; and stamping and multicolor appliqué (fig. 8) are known starting from the New Kingdom.

Leatherworking tools included large pots for dipping, the trestled beams used for

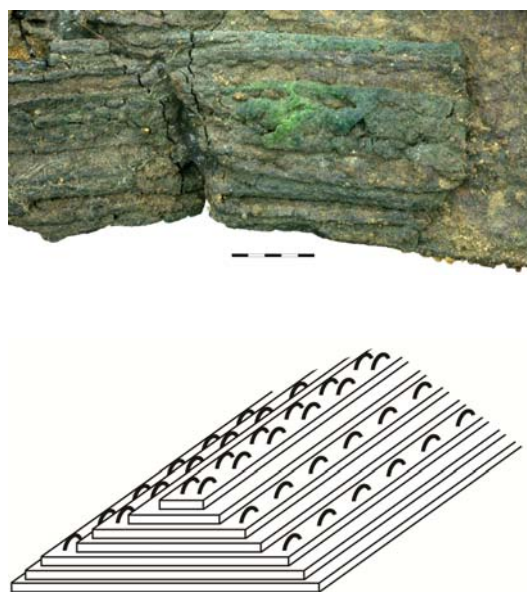


Figure 8 A technique of leather-decoration, favored in chariot leather: strips of colored leather sewn together in partial overlap, the top ones slightly narrower. Amarna, 18th Dynasty. Scale bar in mm.

Most leather cutting was performed using curved knives with either broad or narrow blades (Schwarz 2000: 81 - 94; Stocks 2001: 283). Pounders for smoothing, depilation, and working in oils and fats would also have been widely used. Slickers—that is, blades with triangular anti-clogging holes—may have been used for any of the above-mentioned purposes and would have been preceded by the flint scraper (Davies 1943: 50; Stocks 2001: 283; Van Driel-Murray 2000: 303). Tools for incised decoration would have been necessary: there are many examples of

pointed tools that could have served this purpose. Stamps would probably have been cast from metal or carved from stone, or possibly wood, although no such examples have been identified as yet. It is archaeologically difficult to confirm the presence of tanning pits (fig. 9). A possible leather workshop from the Greco-Roman Period was excavated at Akoris (Hanasaka 2004).



Figure 9 Tanning pits (left). Pits with red paint (right). Sudan, Almyaelik area.

Schwarz (2000) discusses at length the linguistic evidence related to leatherworking, showing, for example, that there was a wider variety of terminology for “skin” than for leather, and indicating how terms related to the Egyptian leatherworker changed over time (p. 165): “Im Alten und Mittleren Reich sind mehrere Berufsbezeichnungen für verschiedene Arbeitsfelder zu belegen, die die Vielfalt des Handwerks deutlich machen [...]”

Little is known about the status of leatherworkers in ancient Egypt—an important source, if biased, is *The Satire of the Trades* (Lichtheim 1973)—or the value of leather items themselves, although research in progress suggests a difference in quality between the objects meant for the lower and upper classes, respectively. The only community from which price lists survive is the New Kingdom workmen’s village at Deir el-Medina, which is probably not representative of the rest of the country (Janssen 1975: 562). Moreover, leather is not mentioned in these lists in sufficient detail to be useful (ibid.: 526).

Egyptian Terminology

Words for leather in Egyptian are *msk3/msk* and *dh3/dhr*, which are both general words for animal hide with ‘leather’ as a derived meaning. Alternatives are *jnm*, which refers to both human and animal skin, and *h3r*, which is only attested for the later periods. Possibly *h3wt* and *hnt* could also be used as words for leather. All words are written with the cow’s skin determinative (F27); *jnm* can also be written with the hair determinative (D3) when referring to human skin.



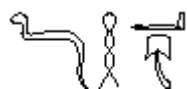
msk3

Pyramid Texts-New Kingdom



msk

New Kingdom and later



dh^c

Middle Kingdom



dhr



Middle Kingdom and later



jnm



all periods



h^cr

not before Greco-Roman Period

Bibliographic Notes

Several general works are of special importance. Forbes (1966), if dated, remains a good overview. Van Driel-Murray (2000) contains a wealth of information and relies predominantly on fieldwork and the study of the leather artifacts themselves; moreover, this study clearly pinpoints the problems and priorities of the research. Schwarz (2000) focuses on texts and iconography but nevertheless discusses the artifacts and their manufacturing in some detail and compares them to traditional European and African leathercrafts; the study's many illustrations of leatherwork and related objects make it an important reference work. Montembault (2000) discusses leather footwear and various works are in preparation. Roman leatherwork is much better studied: important works are Leguilloux (2006), Veldmeijer (2007b), and Winterbottom (Winterbottom 1991, 2001). There are several studies of leatherwork (mainly Coptic); these, however, often focus on a single object. In preparation are works on leather finds from Qasr Ibrim (Veldmeijer *fc.*; Veldmeijer and Van Driel-Murray *fc.*). A good general resource for leather is the Archaeological Leather Group (website: <http://www.archleathgrp.org.uk/>). Finally, Kite and Thomson (2006) is one of the most comprehensive recent sources on the conservation of leather.

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- Figure 1 Fragment of a finely made leather loincloth consisting of panels with cut-out rectangles, from Tomb 9 (C-Group) at Hierakonpolis. Photograph by Renée Friedman. Courtesy of the Hierakonpolis Expedition.
- Figure 2 Artist's impression of the individual buried in Tomb 9 (C-Group, Hierakonpolis), wearing the loincloth. Drawing by Mikko Kriek.
- Figure 3 Leather shoe, unknown provenance (EA 4411). Scale bar in cm. Photograph by Adri't Hooft. Courtesy of the British Museum London.
- Figure 4 The tomb of Rekhmira has one of the most complete scenes of leather processing and the manufacture of leather objects (after Davies 1943).
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Erratum

Due to an unwarranted intervention by the editor the article was originally published mentioning a sandal, rather than shoe on page 2 and Figure 3. This has been corrected in the present document.