André J. Veldmeijer

STUDIES OF ANCIENT EGYPTIAN FOOTWEAR. TECHNOLOGICAL ASPECTS. PART V. FIBRE SHOES FROM QASR IBRIM

Introduction

Since 1963 the EES has excavated Qasr Ibrim, a site 237 km south of Aswan. It is now an island in Lake Nasser. Over 40 years of excavation has resulted in the recovery of many pieces of footwear, of both fibre and leather in a great number of types: leather and fibre sandals (Veldmeijer 2006–2007; 2008–2009a; 2008–2009b) and shoes, wooden pattens (Veldmeijer 2005–2006) and combined wood and leather(?) slippers. The reader is referred to the catalogue (Veldmeijer forthcoming a, b) for the description and illustration of every individual piece, including the items not studied first hand.

The current paper presents the technological aspects of the only type of fibre shoes [*Fig. 1*] found at Qasr Ibrim on the basis of specimens which have been studied first hand. These are housed in storerooms of the Supreme Council of Antiquities, Egypt, the British Museum, London and the Roemer- und Pelizaeus-Museum, Hildesheim. More specimens of this type of footwear have been recovered over the years but these were sent to Cairo (Egyptian Museum) or re-buried on site, bringing the total number of examples to 36. Those not seen, however, have not been included in the present analysis.

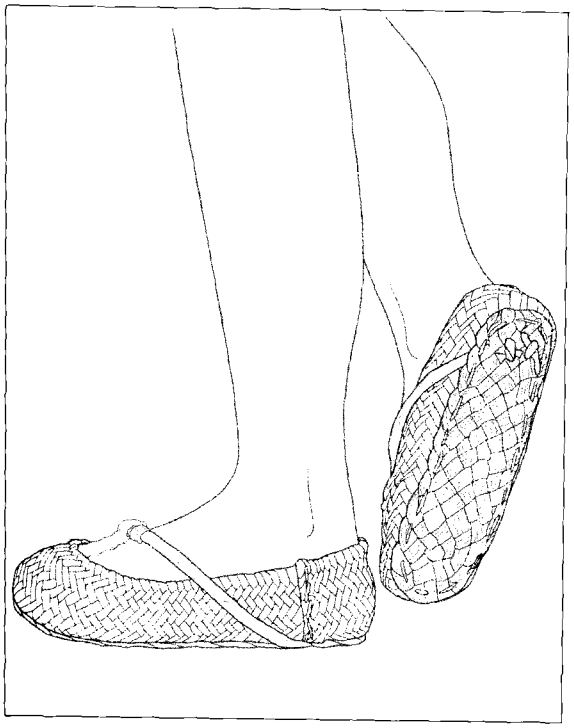


Fig. 1. Artist's impression of the most common type of fibre shoe found at Qasr Ibrim (Drawing M.H. Kriek)

Description

Soles: treadsole

The soles of the shoes consist of an insole and treadsole. There are four different types of treadsoles, one of which is a repair [*Fig. 2*]. The most common treadsole is made with bundles of unspun date palm fibre (*Phoenix dactylifera*) and plaited in a simple 1/1 pattern [*Fig. 2A*]. The width of the bundles in the example is about 11 mm. At the edges, the bundles are woven back into the fabric (arrow). The result is a slightly swayed treadsole, but without any indication of the foot's orientation. The insole is usually fastened to the treadsole, together with the upper [*Fig. 3*; see below] by means of long running stitches of fine palm fibre zS_2 string (in one case, asw-5008, additional stitches of plain palm leaf strips are used).

Another type of treadsole is made with zS_2 date palm fibre string [*Fig. 2B*]. Asw-5007 is one of the best preserved examples of this type. It consist of five zS_2 warps and over 37 wefts, woven alternating over one, under one (1/1). Although the number of warps is always five, the number of wefts varies in the various specimens. The sole was widened at the ball of the foot (the part of sandal that is widest) by inserting an extra warp. The exact way this was done is unclear: either inserting another warp or dividing the outer warp in two is possible, but this latter option would mean that the warps originally consisted of two parallel zS_2 strings (this is not uncommon in cordage soles; the warps in cam-0118 also

BIBLIOGRAPHIC REFERENCES

Adams, W.Y.
2005 *The West Bank survey from Faras to Gemai, 2. Sites of Meroitic and Ballaña age* [=*Sudan Archaeological Research Society Publication* 13], Oxford

Anderson, J.R.
2004 Statuette of a Kushite king [in:] Welsby and Anderson (eds) 2004, 128

Bowen, G.E.
2002 Textiles, basketry and leather goods from Ismant el-Kharab [in:] C.A. Hope, G.E. Bowen, *Dakhleh Oasis Project: Preliminary Reports on the 1994-1995 to 1998-1999 Field Seasons* [=*Dakhleh Oasis Project Monograph* 11], Oxford, Oxbow Books, 87-104

Dunand, Fr., Heim, J.-L., Henein, N., and Lichtenberg, R.
1992 *La nécropole de Douch (Oasis de Kharga). Exploration archéologique. Structures sociales, économiques, religieuses de l'Égypte romaine* [=*Institut français d'archéologie orientale, Documents de fouilles* XXVI], Cairo, Institut français d'archéologie orientale

Goubitz, O.
2001a Height standards [in:] O. Goubitz, C. van Driel-Murray, W. Groenman-van Waateringe, *Stepping Through Time. Archaeological Footwear from Prehistoric Times until 1800*, Zwolle, Foundation for Promoting Archaeology (Stichting Promotie Archeologie), 23-24
2001b Catalogue [in:] O. Goubitz, C. van Driel-Murray, W. Groenman-van Waateringe, *Stepping Through Time. Archaeological Footwear from Prehistoric Times until 1800*, Zwolle, Foundation for Promoting Archaeology (Stichting Promotie Archeologie), 135-316

Veldmeijer, A.J.
2005–2006 Studies of ancient Egyptian footwear. Technological aspects. Part II. Wooden pattens from Ottoman Qasr Ibrim, *JARCE* 42, 147-152
2006–2007 Studies of ancient Egyptian footwear. Technological aspects. Part I. Cordage sandals from Qasr Ibrim, *Jaarberichten Ex Oriente Lux* 39, 61-75
2008–2009a Studies of ancient Nubian footwear. Technological aspects. Part III. Leather or string-reinforced plaited sandals from Qasr Ibrim, *Jaarberichten Ex Oriente Lux* 41, 105-125
2008–2009b Studies of Ancient Egyptian footwear. Technological aspects. Part IV. Plain plaited sandals from Qasr Ibrim, *Jaarberichten Ex Oriente Lux* 41, 127-150
Forthcoming a *Ancient Egyptian footwear. A Catalogue*, Norg, DrukWare
Forthcoming b *Ancient Nubian footwear. A Catalogue*, Norg, DrukWare
Submitted Studies of ancient Egyptian footwear. Technological aspects. Part XII. Fibre shoes, *British Museum Studies in Ancient Egypt and Sudan* 11, 1-10

Wendrich, W.Z.
1991 *Who's Afraid of Basketry. A Guide to Recording Basketry and Cordage for Archaeologists*, Leiden, Centre of Non-Western Studies
1999 *The World According to Basketry*, Leiden, Centre of Non-Western Studies

BIBLIOGRAPHIC REFERENCES

Adams, W.Y.
2005 *The West Bank survey from Faras to Gemai, 2. Sites of Meroitic and Ballaña age* [= *Archaeological Research Society Publication* 13], Oxford

Anderson, J.R.
2004 Statuette of a Kushite king [in:] Welsby and Anderson (eds) 2004, 128

Bowen, G.E.
2002 Textiles, basketry and leather goods from Ismant el-Kharab [in:] C.A. Hope, G.E. B *Dakhleh Oasis Project: Preliminary Reports on the 1994-1995 to 1998-1999 Field S* [=*Dakhleh Oasis Project Monograph* 11], Oxford, Oxbow Books, 87-104

Dunand, Fr., Heim, J.-L., Henein, N., and Lichtenberg, R.
1992 *La nécropole de Douch (Oasis de Kharga). Exploration archéologique. Structures so économiques, religieuses de l'Égypte romaine* [=*Institut français d'archéologie oric Documents de fouilles* XXVI], Cairo, Institut français d'archéologie orientale

Goubitz, O.
2001a Height standards [in:] O. Goubitz, C. van Driel-Murray, W. Groenman-van Waate *Stepping Through Time. Archaeological Footwear from Prehistoric Times until* Zwolle, Foundation for Promoting Archaeology (Stichting Promotie Archeologie),
2001b Catalogue [in:] O. Goubitz, C. van Driel-Murray, W. Groenman-van Waate *Stepping Through Time. Archaeological Footwear from Prehistoric Times until* Zwolle, Foundation for Promoting Archaeology (Stichting Promotie Archeol 135-316

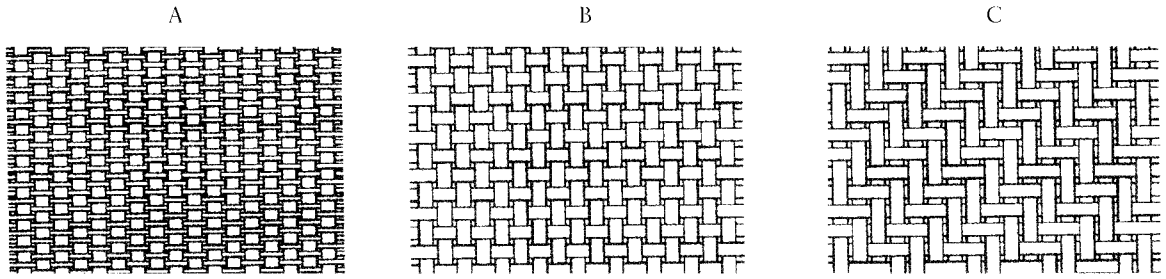
Veldmeijer, A.J.
2005–2006 Studies of ancient Egyptian footwear. Technological aspects. Part II. Wooden p from Ottoman Qasr Ibrim, *JARCE* 42, 147-152
2006–2007 Studies of ancient Egyptian footwear. Technological aspects. Part I. Cordage sandal Qasr Ibrim, *Jaarberichten Ex Oriente Lux* 39, 61-75
2008–2009a Studies of ancient Nubian footwear. Technological aspects. Part III. Leather or reinforced plaited sandals from Qasr Ibrim, *Jaarberichten Ex Oriente Lux* 41, 10
2008–2009b Studies of Ancient Egyptian footwear. Technological aspects. Part IV. Plain sandals from Qasr Ibrim, *Jaarberichten Ex Oriente Lux* 41, 127-150
Forthcoming a *Ancient Egyptian footwear. A Catalogue*, Norg, DrukWare
Forthcoming b *Ancient Nubian footwear. A Catalogue*, Norg, DrukWare
Submitted Studies of ancient Egyptian footwear. Technological aspects. Part XII. Fibre shoes, *Museum Studies in Ancient Egypt and Sudan* 11, 1-10

Wendrich, W.Z.
1991 *Who's Afraid of Basketry. A Guide to Recording Basketry and Cordage for Archaeol* Leiden, Centre of Non-Western Studies
1999 *The World According to Basketry*, Leiden, Centre of Non-Western Studies

Table A. Continued

IDENTIFICATION	DATE	FABRIC TREADSOLE	FABRIC INSOLE	FABRIC UPPER	EDGE UPPER	STRAPS
cam-3710 72/391	?	plaited 1/1	plaited 2/2, shift 1	plaited 2/2, shift 1	plied string core	plied core, clad
cam-3711 72.11.18/10#	Post Meroitic (X2 Group, c. AD 500-550)	plaited 1/1	plaited 2/2, shift 1	plaited 2/2, shift 1	plied string core	plied core, clad
Roemer- und Pelizaeus-Museum Hildesheim 6389 QI 84.1.18/46	Ottoman (AD 1570-1811)	plaited 1/1	plaited 1/1	plaited 2/2, shift 1	plied string core	plied string core, clad
British Museum London EA 72171 QI 78.2.9/8	?	plaited 1/1	plaited 2/2, shift 1	plaited 2/2, shift 1	plied string core	plied string core, plaited
British Museum London EA 71907 QI 78.3.22/70	Early Christian (c. AD 650-700)	plaited 1/1	plaited 2/2, shift 1	plaited 2/2, shift 1	plied string core	plied string core, plaited

Table B. Schematic drawings of techniques listed in Table A (Drawing E. Endenburg/A.J. Veldmeijer. Not to scale).



A = woven fabric; B = plaited 1/1 fabric. Wendrich (1991: 65) makes note of the hypothetical plait pattern 1/1 (over one, under one), shift 0, but because this does not occur in 1/1 fabric the shift-indication is left out); C = plaited 2/2, shift 1 fabric

Table A. Fibre shoes from Qasr Ibrim

IDENTIFICATION	DATE	FABRIC TREADSOLE	FABRIC INSOLE	FABRIC UPPER	EDGE UPPER	STRAPS
asw-5007 QI 18009/a11	Post-Meroitic to early Christian? (c. AD 400-850)	woven	plaited 2/2, shift 1	plaited 2/2, shift 1	?	–
asw-5008 QI 95.1.2/58	–	woven	plaited 1/1	plaited 2/2, shift 1	plied string core?	plied string core, clad
asw-5010 QI 12450/a4a,b	–	–	–	2/2, shift 1	?	–
asw-5011 QI 95.1.2/148	Post-Meroitic to early Christian? (c. AD 400-850)	plaited 1/1	plaited 2/2, shift 1	plaited 2/2, shift 1	plied string core	plied string core, clad
asw-5012 QI 95.1.2/149	Post-Meroitic to early Christian? (c. AD 400-850)	woven	plaited 2/2, shift 1	plaited 2/2, shift 1	plied string core	plied string core, clad
asw-5013 QI 95.1.2/57	Post Meroitic to early Christian? (c. AD 400-850)	plaited 2/2, shift 1*	plaited 2/2, shift 1	plaited 2/2, shift 1	plied string core	plied (?) string core, clad
asw-5014 QI 85.12.28/60	Post-Meroitic (c. AD 400-650)	plaited 1/1	plaited 2/2, shift 1	–	?	–
asw-5015 QI 86.2.6/36	Pre-Ottoman (before AD 1570)	plaited 1/1	–	–	?	–
cam-0112 QI 72/591	Post-Meroitic (XC1 Group, c. AD 550-600)	plaited 1/1	plaited 1/1	plaited 2/2, shift 1	plied string core	plied string core, clad
cam-0113 QI 72/595	Post-Meroitic (X2 Group, c. AD 500-550)	plaited 1/1	plaited 1/1	plaited 2/2, shift 1	plied string core	–
cam-0114 QI 76.2.18/10	Meroitic – Post-Meroitic transitional (c. AD 350-400)	plaited 1/1	plaited 1/1	plaited 2/2, shift 1	plied string core	plied string core, clad
cam-0115 QI 80.3.14/41	Ottoman (AD 1570-1811)	plaited 1/1	plaited 2/2, shift 1	plaited 2/2, shift 1	plied string core?	–
cam-0116 QI 78.1.18/56a, b	Post-Meroitic (XC1 Group, c. AD 550-600)	plaited 1/1	plaited 2/2, shift 1	plaited 2/2, shift 1	plied string core	plied string core, clad
cam-0117 QI 80.3.14/47	Post-Meroitic to early Christian (c. AD 400-850)	plaited 1/1	plaited 2/2, shift 1	plaited 2/2, shift 1	plied string core?	unspun string core, clad
cam-0118 QI 80.3.14/42c	Ottoman (AD 1570-1811)	woven	plaited 2/2, shift 1	plaited 2/2, shift 1	plied string core	–
cam-0119 QI 72/390	–	plaited 1/1	plaited 1/1	plaited 2/2, shift 1	plied string core	–
cam-0120 QI 78.2.16/28	Meroitic– Post Meroitic transitional (c. AD 350-400)	plaited 1/1	plaited 1/1	plaited 2/2, shift 1	plied string core	plied (?) string core, clad
cam-3226 QI 72.11.15/14**	Post Meroitic (XC1 Group, c. AD 550-600)	plaited 1/1	plaited 1/1	plaited 2/2, shift 1	plied string core	?

reason for the differences. It is certainly true that this is a popular type of shoe, judging by the numerous specimens from Ismant el-Kharab and Qasr Ibrim.

The Nubians had during this period of time and probably in other periods as well, a preference for the double-toe strap, as various specimens from Qasr Ibrim and other Nubian sites such as Qustul and Ballaña demonstrate (Adams 2005; personal observation; see for examples from Qasr Ibrim, Veldmeijer 2006–2007; 2008–2009a; 2008–2009b). The fact that there is a substantial group of sandals from Qasr Ibrim with a double front strap, and a much smaller group with one front strap reflects therefore a strong focus on Nubian customs; the shoes presented here, however, might have been popular with the non-Nubian part of the society, as the single front strap was the only type of front strap in Egyptian footwear.

In summary, it is not possible to explain the differences between the assemblages from Douch, Ismant el-Kharab and Qasr Ibrim, except that Qasr Ibrim was more of a Nubian settlement and Ismant el-Kharab and Douch Egyptian. Chronology may also account for (some of) the differences, the material from Qasr Ibrim being younger than the examples from Dakhleh Oasis. The exact relationship between the early shoes and the ones described here is still unclear. On the other hand, footwear seems a commodity of which new types might have been invented without having a true precedent.



Fig. 9. Child's shoes are technologically the same, but smaller. Note the reinforced edge of the heel as well as the way the thread (palm leaf strip) is finished by inserting it in the fabric of the upper. (Photo E. Endenburg/A.J. Veldmeijer. Courtesy of the Egypt Exploration Society)

Acknowledgements

I thank P.J. Rose for allowing me to work with the material from Qasr Ibrim, as well as her all-round support. I am also grateful to her for upgrading the English text. I am grateful to the Egypt Exploration Society for permission to publish the photographs as well as for their support in working with the material from their excavations. The British Museum (Department of Ancient Egypt and Sudan) is acknowledged for their help in working with their collection, especially A.J. Spencer, W.V. Davies and T. Brandon. I thank the British Museum for financing the photography of the footwear collection. The Roemer- und Pelizaeus-Museum Hildesheim, especially B. Magen, B. Schmitz and K. Lembke, are thanked for admittance to the collection under their care and the permission to publish photographs. A. 't Hooft is thanked for photography and M.H. Kriek for offering his artistic skills. E.N.A. Heirbaut helped me out with some French texts and E.H.C. van Rooij is acknowledged for her expertise on the textile fabrics. Finally, I would like to thank E. Endenburg for photographing as well as for his all-round help and support. Visits to various Egyptological collections in the UK and Germany were financed by a grant from the Netherlands Organization for Scientific Research (NWO).

Appendix

The table shows the identification number and current location (first column), context dates (second column), manufacturing techniques of the tread- and insoles (third and fourth column respectively), manufacturing techniques of the upper (fifth column), the construction of the edge of the upper (sixth column) and the construction of the straps (last column). Objects with specialist identification number that starts with 'asw-' are stored in SCA magazines, Egypt; the ones prefixed with 'cam-' are housed in the British Museum, London.

Schematic drawings of techniques which are listed in Table A are shown in Table B, below. For 'string core edge', 'plied string core strap', 'clad, unspun string core strap, clad' and 'string core strap, plaited', see the details presented in [illegible].

upper or part of upper. Footwear with an upper is to be referred to as a slipper, shoe or boot. Some types of footwear have only part of uppers: slippers, for instance, have an upper covering only the front of the foot (and sometimes the sides as well) and an open heel. Footwear with only a closed heel also exists. Goubitz (2001b: 269) refers to these as 'sandal', and although they might have a front strap, this footwear fundamentally differs and should therefore not be regarded as a sandal. The closed heel might have evolved from a combination of back straps and heel straps, which are fused into a closed heel, a suggestion which cannot be supported by data yet. It is interesting though that this type of footwear is common on reliefs from ancient Mesopotamia (personal observation BM 2005/2006) and is known from Nubian Meroitic statuary (Anderson, 2004: 128), but is not seen in Egyptian reliefs (in fact, shoes in general are almost never depicted in contrast to sandals) or known from excavations and collections. In summary, a shoe has an upper that covers the foot at all sides but to varying extent: sometime the vamp covers only a small part of the toes, in other examples the upper covers even the ankle. The height of the upper is important for typology: shoes are separated into low-cut, ankle-length and high-cut shoes. If the upper extends approximately to the calf, the footwear is usually referred to as a 'boot' (Goubitz 2001a: 24; note the overlap between the high-cut shoe and boot).

Wendrich (1999: 243) reports that the instep could be pulled tight by means of a piece of string. The string around which the fabric of the upper was plaited cannot be pulled like laces, because the plaiting around it is far too tight, and furthermore, the width of the strips of the fabric leaves no space to compress and pull the upper closer to the foot. Moreover, none of the studied examples showed traces of movement and pulling tight of the string and in complete specimens, no loose ends were observed. The string in the edge of the upper may be inserted to reinforce the edges, making it better resistant against the in- and out movement of the foot. This type of shoe does not need laces, as it has a back and front strap.

In the necropolis of Douch, Kharga Oasis, a pair of shoes with woven cordage treadsoles was found in tomb 8 (Dunand *et alii* 1992: 33, Pl. 90) and in tomb 53 a pair of shoes was found (Dunand *et alii* 1992: 118, Pl. 91), but no details were given of the shoes. According to the authors (Dunand *et alii* 1992: 33), tomb 8 can be dated probably to late Roman times. No exact date was given for tomb 53 (which had two phases of occupation but was much disturbed). Most likely, the shoes are late in date. The instep of the shoes from Douch are more open than in the shoes from Qasr Ibrim.

According to Bowen (2002: 101, Pls 16 and 17) numerous specimens of this type of shoe were excavated from Ismant el-Kharab, and they occurred in a coarser and finer variant, the coarser of which is more comparable to the ones from Qasr Ibrim. Bowen noted that the coarser ones were found in various sizes, but the finer ones mainly had small soles and were therefore interpreted as children's or women's shoes. The shoes from Qasr Ibrim are all of about the same size; only one child's shoe was recovered [cf.]. This lack of children's shoes is remarkable as almost all types of footwear, fibre and leather alike, occur in children's sizes, too.

All shoes from Ismant el-Kharab had a woven cordage treadsole [cf.], unlike the Qasr Ibrim examples; here, most of the treadsoles were made of plaited unspun palm fibre [cf.]. Also, the alternating "light and dark fronds" described by Bowen (2002: 101) are not present in the material from Qasr Ibrim. Remarkably, Bowen mentions that the uppers consisted of a double thickness, not visible in the pictures and not attested in the Qasr Ibrim material. The Ismant el-Kharab corpus also showed some shoes without the insole.

The apparent preference at Qasr Ibrim for unspun palm fibre treadsoles might be due to usage; it is easier to replace the worn soles or even insert bundles of palm fibre into worn areas. On the other hand, the soles of woven plied string possibly last longer. A matter of preference maybe or are these differences due to chronological or spatial differences?

The shoes from Ismant el-Kharab are dated, according to Bowen (2002: 101) to the 3rd and 4th century AD whereas the material from Qasr Ibrim presented here is all from contexts later than this, i.e., from about AD 400 onwards. Two examples originate from the late, i.e., Ottoman layers. The material from Douch is the most northerly encountered so far, but unfortunately badly dated.

It is tempting to suggest that the type of shoes found its way from north to south, evolving from an earlier type of shoe (such as, for example, BM EA 4463 and 36203, which possibly date to New Kingdom times, see Veldmeijer, submitted), even though the upper of the Douchshoes, in being much more upright and thus having a more open instep, suggests a closer connection with the older, technologically superior shoes than the examples from Ismant el-Kharab and Qasr Ibrim. The, in the technological sense, simple shoes presented here could easily have been independently invented, which may, in its turn, be the

shoe. Instead, it seems more plausible that the textile was used to insolate the shoe.

Straps

The strap complex consists of a front strap and back strap [Fig. 5]. Most commonly, they consist of a core, clad with a date palm leaf strip (only the cladding of asw-5013 was made of doam palm leaf, *Hyphaene thebaica,* the different material strongly suggesting that the strap was not original but a repair) which is wound around the core in either the s- or z-direction [Fig. 5A] or sometimes, as in the case of cam-0114 in both directions. The core can be unspun fibre [Fig. 8B], but more commonly it consists of a plied string [Fig. 8A, C, zS_2 palm fibre string]. The single front strap is inserted through the sole, slightly off centre, to go between the first and second toe. This thus indicates the orientation of the foot. The fastening under the treadsole is done either by means of a single, large knot, usually an overhand knot (for example cam-0112) or the string core is stitched once through the entire sole (asw-5011).

The front strap is connected to the back strap by tying the palm leaf cladding. The back strap is a u-shaped construction that also consists of a cladded core. Usually, the front strap is the more robust; in the case of asw-5011 [Fig. 3A], the front strap core is a'a' string (diameter of 6.2 mm), whereas the back strap core is made of a zS_2 string (diameter 5.5 mm). The ends are inserted between the treadsole and insole, and fastened by stitching the core once through the treadsole.

One example shows a more fragile but more decorative set of straps [Fig. 5C]. A zS_2 palm fibre string is clad with three narrow palm leaf strips, which are plaited around it in a 1/1 pattern. The fact that two of these strands function as one front strap is because each one originates as a back strap, coming from both sides towards the front where they are held together with a decorative knob. This knob is made of a coiled, flat strip of plaited fabric made with three strands in a 1/1 pattern, through which the back straps are pulled, re-appearing at the front side as the front strap. In this, the construction differs fundamentally from the strap complex seen in the other specimens, as well as from the double front strap described for cordage (Veldmeijer 2006–2007) and basketry sandals (Veldmeijer 2008–2009a). Another shoe shows a strap with a core, but here the core consists of only one narrow stick, resulting in a flat strap (BM EA 72171).

Production

Despite the simple layout, the production of these shoes consisted of a sequence of actions. First, the material was harvested and prepared. In her ethnoarchaeological studies of basketmakers Wendrich (1999: 273-282) describes this process in detail. The preparation involved thorough drying of the young date palm leaves and pulling the leaflets from the midrib by hand. The fibre could be used after a short period of soaking in water.

The sole layers were made separately from each other. This seems obvious, but in some footwear, soles seem to have been cut in their form together rather than independently. In the case of the woven cordage soles, the string was made before weaving could be done.

The upper is made either as a strip of roughly the length needed for one shoe, or as a random length produced to be used for multiple uppers, to be cut off as required. The straps were made separately.

After the preparation of the various parts, the two sole layers and upper were stitched together. The attachment of the back strap could have been done as the sole layers were put together, but the rather loose construction would have left enough space to insert it after the shoe was put together.

Wear and Repair

Most of the specimens are incomplete or worn. However, the palm fibre woven treadsoles do not often show much sign of wear, even though occasionally the insoles do. In some cases, dirt still adheres to the fibres. The shoes with plaited treadsoles all show wear at the heel. One shoe had a repaired treadsole, the repair consisting of a piece of reused basketry (asw-5013); thus, the shoes were apparently judged too expensive to discard after the soles were worn through. Remarkably, the insole often does not show much wear, although there are examples of worn-through heel parts (the Hildesheim specimen, for example); this suggests that the wear of the insole was only slight.

The stitches just below the edge of the instep seen in asw-5013 [Fig. 4], made of palm leaf strips, suggest that these are a repair, because the overlap usually is placed at the heel rather than at the toe. This, in its turn, suggests that a piece of fabric was placed against the broken one.

Often wear at the heel of the upper is visible and most of the time damage around the straps occur, since this is a weak part of the shoe, and obviously also the part that had to withstand the most stress.

Comparison and Discussion

Wendrich (1999: 241-242) refers to the described fibre shoes as sandals. The current author, however, in his work on cordage sandals from Qasr Ibrim (Veldmeijer 2006–2007), uses a definition of sandals that excludes everything with an

a seam at both the lateral and medial sides of the shoe. This difference in overlap suggests that the length of fabric made was estimated rather than measured. An extra fastening is seen at the double thickness of the heel, where the two are whip-stitched with a strip of palm leaf at the edge [arrow in Fig. 4A, Fig. 6].

One shoe [Fig. 7] is remarkable in that it is entirely covered with cloth, the sole as well as the upper. Three layers of cloth were used: a plain tabby is covered with pieces of an extended basket weave with multi-stranded weft at irregular intervals. A half-basket weave is sandwiched between them. Sewing to the shoe was done very crudely with large and various types of stitches (running and whip stitches). It is unlikely that the layers of cloth were added separately: the first layer shows no substantial wear at the heel, whereas the outer layer is worn through. It is hard to believe the cloth was used to reinforce the



Fig. 7. One shoe was entirely covered with three layers of cloth, which most likely served as insulation. (Photo E. Endenburg/A.J. Veldmeijer. Courtesy of the Egypt Exploration Society)

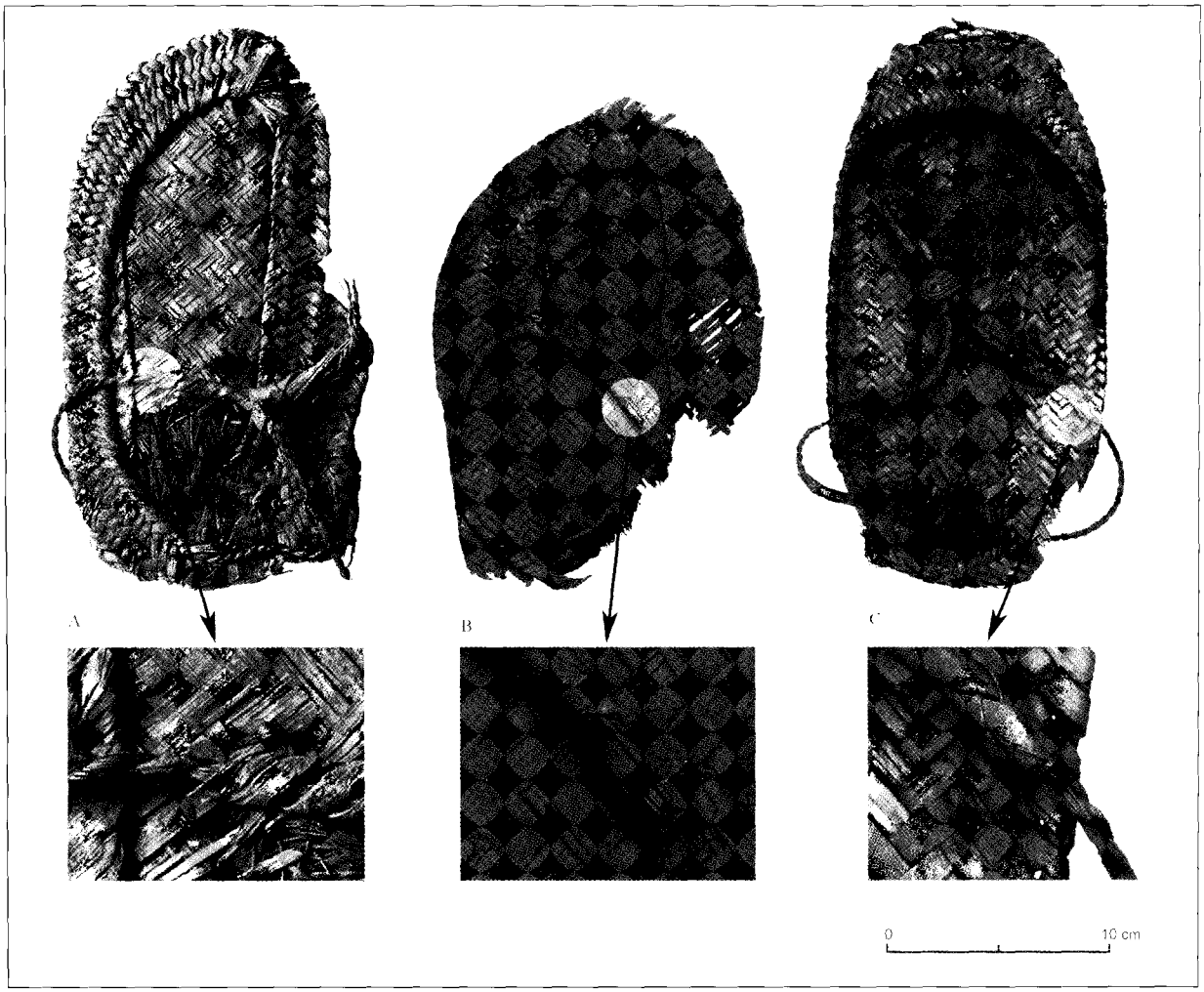


Fig. 8. Three different types of straps. A – zS_2 string clad with strips of palm leaf (asw-5011); B – unspun material (palm leaf?) clad s-wise with strips of palm leaf (cam-0117); C – zS_2 string core around which small strips of leaf are plaited (BM EA 71907) (Photo E. Endenburg/A.J. Veldmeijer. Courtesy of the Egypt Exploration Society (7A, B); A. 't Hooft. Courtesy of the British Museum, London (7C))

A common type is shown in Fig. 4A and consists of a 1/1 plaited fabric. The fabric is plaited tightly and the eight (?) palm leaf strips are very regular in width and rather wide (10-12.5 mm). However, sometimes the fabric is plaited loosely, as, for instance, in cam-0112 and also the differences in width of the strips can vary quite substantially, as seen in, again, cam-0112 where the measurements vary from 6 to 11.5 mm.

The most commonly encountered insole, however, is shown in Fig. 4B and 4C. Again this is a plaited fabric but the pattern is 2/2 with a shift of one, which results in a decorative herring-bone pattern. These insoles are put in the shoe with the pattern at right angles to the shoe length [Fig. 4b] or, but this is less common, parallel with the length (this insole is made with as many as 18 strips of leaf) [Fig. 4C].

In general, there is only a slight difference in the plaiting of the insoles among the various shoes. Cam-0116, for instance, has a coarser insole than most of the others but this results mainly from the greater width of the strips, rather than tightness of plaiting. Compared to the 1/1 fabric, the 2/2, shift one insoles are much more tightly plaited and use smaller strips (the width of the strips in the example in Fig. 4B is 5.0 mm). Moreover, the width of the strips is much more regular within the same insole.

The edges of the insoles are often obscured, but two examples (asw-5014 and cam-0115) show that the strips of at least one edge were plaited back into the fabric.

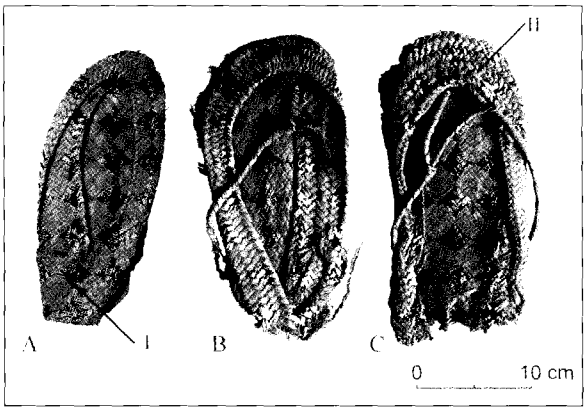


Fig. 4. Two different insoles (the third one was not an original sole). A – 1/1 plaited fabric (cam-0119). Marked with I, whip stitches to fasten the two layers of the heel, which are the overlapping ends of the upper's fabric; B – 2/2, shift 1 plaited fabric (cam-5012); C – also a 2/2, shift 1 plaited fabric but placed at a 90-degree relative to the one in 4B (asw-5013). Marked with II, the stitches that fasten a repair on the front of the upper (Photo E. Endenburg/A.J. Veldmeijer. Courtesy of the Egypt Exploration Society)

Upper

The fabric of the uppers of all shoes, again made exclusively of date palm, show the same pattern: 2/2, with a shift of one, and are exclusively made with 13 strands. The width of the palm leaf strips varies between 4.0 and 5.0 mm, although the upper of one shoe (asw-5013) is made with slightly narrower strips (3.5-4.0 mm), and cam-0112 and cam-0114 with slightly wider strips (5.5-6.0 mm). A long strip of plaited fabric is made and it is often reinforced at the dorsal edge: here, the strips that are folded back into the fabric are looped around a core of (zS_2) string [see piece of string stickig out in Fig. 4C].

The upper is located at some distance inwards from the edge of the sole and attached with a running stitch of palm fibre string [Fig. 5; the palm leaf strips at the front of the upper in asw-5013, see arrow in Fig. 4C, are a repair]. The stitches always go through all sole layers. The fabric at the edge that is in contact with the sole is not reinforced with string around which the fabric is plaited, as seen in the edge at the instep. At the point where the two ends of the upper meet, usually shortly before the heel, they overlap and are stitched from top to bottom. In some examples, the overlap is large, which results in

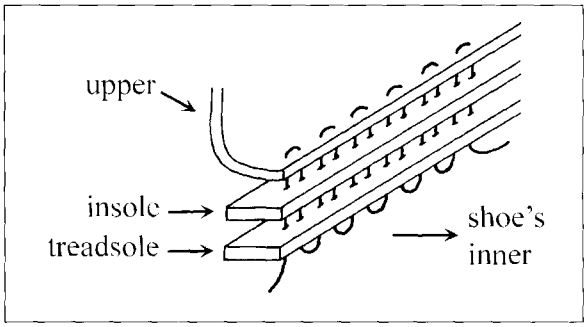


Fig. 5. Construction drawing of the upper and soles. The upper is sewn to the insole and treadsole by means of running stitch. Not to scale (Drawing E. Endenburg/A.J. Veldmeijer)

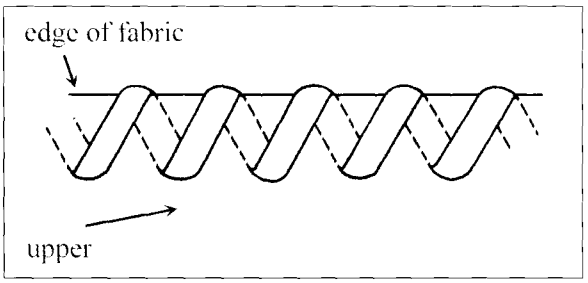


Fig. 6. Construction drawing of the heel of cam-0119, fastened at the instep edge with whip stitch. Note that the parts of the stitch, indicated by an unbroken line, run behind the fabric and cannot be seen; it is shown here to enhance clarity. Not to scale (Drawing E. Endenburg/A.J. Veldmeijer)

consist of two parallel zS_2 strings)[1] or the extra warp consisted of only the z-spun yarn. The outer warp formed the outer edge to which the inner ones were looped at the toe and heel; the sides showed the loops of the wefts. This resulted in a thicker edge relative to the rest of the treadsole. The diameter of the string in asw-5007 is 3.8 mm for the yarn and 6.0 mm for the ply. This kind of sole was also used as a sandal by itself (Veldmeijer 2006–2007).

A less frequently encountered type of treadsole consists of a plaited fabric in a simple 1/1 pattern, made of nine(?) strips (width 10-12.5 mm) of date palm leaf [ ]. The two sandals showing this type of sole are likely a pair, cam-0119 being the left one and cam-0120 the right. The swayed sole (the only swayed soles thus far observed in this type of fibre shoe) has a square heel, but ends in a distinctly pointed toe. Besides being stitched with a running stitch of zS_2 string that fastened the upper to the soles (see below and), the insole and treadsole are also stitched lengthwise down the centre from just before the heel's edge to about three quarters of the total length with a back stitch of unspun palm leaf strip [ ]. This stitch appears large on the ventral[2] surface of the treadsole and short on the dorsal surface of the insole. The only difference between cam-0119 and cam-0120 is the fact that these lengthwise rows of stitches are missing in the latter. Instead, there are some coarse, isolated running stitches. In contrast to the other shoes, cam-0119 (and perhaps cam-0120, too) does not have a separate insole but instead, the fabric of the sole is folded, thus creating a double thickness. The edges are plaited back into the fabric.

The midsole of specimen asw-5013 [ ], which is most likely the original treadsole, is also made of wide (relative to the insole) strips of date palm leaf (width about 7.5 mm). Most likely, this treadsole consists of a double layer, but nevertheless another sole layer of coarse plaited fabric was attached under it. This is certainly a repair, as it is just a rectangular piece of which the corners protrude from the original shape of the sole. The fabric (various five strand plaits sewn together) was cut from a discarded basket or mat and is attached to the rest of the shoe by means of running stitches of palm leaf strips that fasten the upper to the soles.

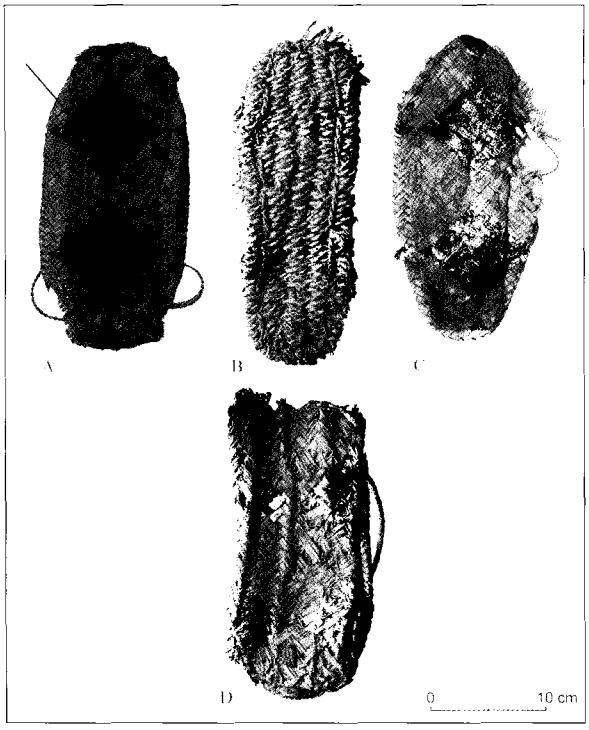


Fig. 2. Four different treadsoles. A – 1/1 plaited sole of unspun palm fibre bundles (BM EA 71907); B – woven treadsole of zS_2 string of palm fibre (asw-5007); C – 1/1 plaited sole of strips of palm leaf (cam-0120); D – reused basketry consisting of various five strand plaits sewn together (asw-5013). The arrow is explained in the text (Photo A. 't Hooft. Courtesy of the British Museum, London (2A); E. Endenburg/A.J. Veldmeijer. Courtesy of the Egypt Exploration Society (2B-D))

Soles: insole

All the studied specimens have a plaited insole, which is always slightly shaped with a rounded heel and pointed toe. Although few different plaiting patterns can be distinguished, the insoles were always made of strips of date palm leaf.

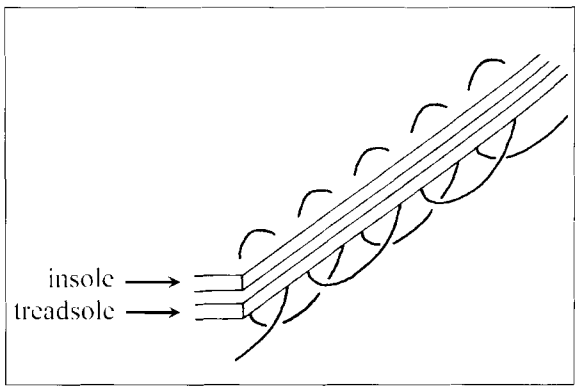


Fig. 3. Construction drawing of the back stitches lengthwise down the centre of cam-0119 (see Fig. 4A). Not to scale (Drawing E. Endenburg/A.J. Veldmeijer)

[1] For examples in cordage sandals, see Veldmeijer 2006–2007.

[2] The ventral surface is the surface that faces the ground; the dorsal surface is the surface that faces upwards.