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Eastern desert ware : traces of the inhabitants of the eastern desert in Egypt and Sudan during the 4th-6th centuries CE

Barnard, H.

Citation

Barnard, H. (2008, June 4). *Eastern desert ware : traces of the inhabitants of the eastern desert in Egypt and Sudan during the 4th-6th centuries CE*. Retrieved from <https://hdl.handle.net/1887/12929>

Version: Not Applicable (or Unknown)

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CHAPTER TWO

The Macroscopic Description of Eastern Desert Ware and its Comparison with Associated Pottery

Eastern Desert Ware (EDW) refers to a corpus of hand-made cups and bowls, found at sites in the Nile Valley between the Fifth and First Cataracts, and in the desert to the east, between the Nile and the Red Sea (the Eastern Desert, Chapter 1). No sites have (yet) been found that yielded Eastern Desert Ware exclusively, or even predominantly. Instead, sherds of Eastern Desert Ware vessels are usually found among many more sherds of wheel-thrown vessels of relatively well-described types dating to the 4th-6th centuries CE. This date has been confirmed with the find of a coin (at the cemetery of Wadi Qitna, Strouhal 1984) and several radiocarbon dates (for an isolated grave in Wadi Alaqi, Sadr 1995, and the settlement of Tabot, Magid 2004).

Sondage	Diagnostic sherds		EDW	
	number	weight	number	weight
BE97-Sh.1	206	4557	14 (7%)	160 (4%)
BE97-Sh.2	221	7199	5 (2%)	83 (1%)
BE97-Sh.7	258	4197	20 (8%)	265 (6%)
Total	685	21 271	39 (6%)	508 (2%)

Table 2-1 (after Tomber 1999b): Quantification of the amount of Eastern Desert Ware (EDW) compared to all diagnostic sherds (rims, bases and handles) excavated in three *sondages* in Shenshef.

An impression of the quantity of Eastern Desert Ware compared to other sherds can be obtained from the carefully recorded data on the excavations at Shenshef, a settlement of unknown purpose in the Eastern Desert, close to the Red Sea coast (Table 2-1; Sidebotham and Wendrich 1999). At Shenshef and most other sites, Eastern Desert Ware represented only a small minority of the diagnostic sherds, and obviously an even smaller percentage of all the ceramic sherds that were unearthed. That even small sherds of Eastern Desert Ware vessels are usually recognized, and are therefore diagnostic, is not only because they are hand-made, but also because of their decoration or their surface treatment. Most sherds are burnished (polished) or slipped and many preserve incised or impressed decorative patterns. This makes them stand out among contemporary sherds, most of which are wheel-thrown and either undecorated or painted. No comparable quantified data are available for other sites where Eastern Desert Ware has been found, but these would have produced similar figures, as can be inferred from less detailed reports.

The study of Eastern Desert Ware is not just hampered by the small numbers of sherds recovered from each site, but also by the limited accessibility of the region. Since the closing of the High Dam at Aswan in the 1960's, Lower Nubia (the Nile Valley between the Second and First Cataracts), apart from Qasr Ibrim high above the former Nile Valley, is lost under the water of Lake Nasser. Most of the Eastern Desert Ware found in the Nile Valley was from Lower Nubia, but no new material or new sites can now be discovered and no further examination can take place of known sites. The only material available for study is kept by the *Náprstek Muzeum* in Prague (Barnard and Strouhal 2004), the *Kunsthistorisches* Museum in Vienna (Barnard et al. 2005), and by the Oriental Institute of the University of Chicago, to which it was donated by the Egyptian authorities. Unfortunately, the collection of the University of Chicago was boxed to be moved when the data for this chapter was collected (but see Figure 2-17).

Since 2001 the Egyptian authorities no longer grant permission for archaeological research in the Egyptian part of the Eastern Desert. The information presented here was either collected before that date, or in the storerooms of the Supreme Council of Antiquities in Qift, just north of Luxor, where most of the archaeological finds from the Eastern Desert are kept. Political instability and an international boycott hamper work in the Sudanese part of the Eastern Desert. The sherds presented here were either made available by the Sudan Program (Phase II: Archaeology Project) of the Committee for Development Research and Education (NUFU) of the Norwegian Council of Universities, or studied in the National Museum in Khartoum or the British Museum (London).

In this chapter the macroscopic features of Eastern Desert Ware will be discussed. A comparison of 290 sherds and vessels from 18 sites with contemporary ceramic finds from the same region shows that Eastern Desert Ware is a discrete corpus, distinct from other ceramic traditions. Analysis of selected macroscopic features of 248 sherds and vessels, from four selected regions (the *Mons Smaragdus* area, Berenike, Tabot-Nubt and Wadi Qitna-Kalabsha South), shows that this corpus is dominated by cups and bowls, especially at the cemetery sites of Wadi Qitna and Kalabsha South. There appears to be no correlation between the fabric of the vessels and their shape or the decoration, indicating that their appearance was dictated by tradition rather than by the available raw materials. The records of the vessels and their context shed

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precious little light on their place of manufacture, their producers or their users.

Material

For this study 290 sherds or vessels appearing to be Eastern Desert Ware were available (Table 2-2; Appendix 5): 89 from five sites in the Nile Valley and 201 from 13 sites in the Eastern Desert proper (including 66 from five sites in the Mons Smaragdus area). Kalabsha South, Wadi Qitna and Sayala were excavated during the UNESCO Nubian Monuments Salvage Campaign in the early 1960's. Material from these sites was donated by the Egyptian authorities to the home countries of the excavators out of gratitude for their support during the UNESCO campaign. Kalabsha South and Wadi Qitna are large cemeteries of tumulus graves in the desert just west of the Nile Valley dated to the 3rd-6th centuries CE (Strouhal 1984; Barnard and Strouhal 2004). Eastern Desert Ware was found here among X-Group (Ballana Culture) cups and goblets as well as Egyptian white ware amphorae and jugs (Figures 2-6 through 2-8). Sayala comprises a small, late 3rd century CE settlement, on the west bank of the Nile (Barnard et al. 2005; Kromer 1967), and a contemporary, but not necessarily directly related cemetery, on the east bank of the Nile (Badawi 1976). The excavators identified the buildings in the settlement as a 'rest house' (*Weinstube* or *locanda*). Both sites yielded Eastern Desert Ware among Meroitic cups and Egyptian ribbed amphorae.

Qasr Ibrim and Kurgus are fortified settlements with a long history, located on the east bank of the Nile (Rose 1992; Welsby-Sjöström 1998; 2001). Eastern Desert Ware was found at both sites in domestic layers dated to the 4th century CE. During the 1st century CE, Qasr Ibrim was at the southern border of the Roman Empire, which may explain the origin of the modern name. *Primis* (Latin for 'the first') may have been corrupted into the proper name Ibrim, and subsequently been preceded by the Arabic word for 'castle' or 'fortress' (قصر). At the end of the 3rd century CE, Emperor Diocletian moved the border of the Roman Empire from *Hiera Sycaminos* (Maharaqa), just north of Sayala, to Aswan, the traditional southern border of Egypt. It remains unclear exactly when this border had shifted from Qasr Ibrim to Sayala (Barnard et al. 2004; Eide et al. 1998; Kromer 1967; Rose 1992).

The Mons Smaragdus area comprises a series of settlements associated with the main source of beryl (a semi-precious stone) within the Roman Empire. The main settlement in the area, which preserves a rock-cut temple, is in Wadi Sikait at 24°N 37'54" / 34°E 47'44" (Rivard et al. 2002; Sidebotham et al. 2004). The settlements vary in date from the 1st-6th centuries CE. Eastern Desert Ware was found in some of the

settlements, among sherds of Late Roman Amphora type 1 (LRA 1) and Egyptian red-slipped bowls, produced in the Aswan region (ERSA) and in the Nile Valley north of Aswan (ERSB). These wheel-thrown vessels were produced during the 4th-6th centuries CE (Figures 2-9 through 2-11). Kab Marfu'a is remarkable for the large number of sherds from vessels imported from ancient *Mauretania*, roughly corresponding with present-day Morocco and Algeria, as well as from so-called 'costrels' or 'pilgrim flasks', small jugs with flattened sides (Sidebotham et al. 2005). Most Eastern Desert Ware from Kab Marfu'a was found on a single platform in the southwest of the settlement.

Site	No.	
<i>EDW from the Nile Valley</i>		
Kalabsha South	Ka	10
Wadi Qitna	WQ	54
Sayala (near <i>Hiera Sycaminos</i>)	Sa	16
Qasr Ibrim (<i>Primis</i>)	QI	7
Kurgus	Ku	2
	Total	89
<i>EDW from the Mons Smaragdus area</i>		
Gebel Zabara	GZ	1
Wadi Sikait	WS	42
Kab Marfu'a (Wadi Gamal North)	KM	14
Umm Heiran	UH	1
Gelli (Wadi Gamal South)	Ge	8
	Total	66
<i>EDW from the rest of the Eastern Desert</i>		
Quseir al-Qadim (<i>Myos Hormos</i>)	QQ	2
Bir Minih	BM	1
Wadi Abu Qreiya South	AQ	4
Marsa Nakari (<i>Nechesia?</i>)	MN	9
Bir al-Murayr	BM	1
Berenike	Be	52
Nubt	Nu	3
Tabot	Ta	63
	Total	135

Table 2-2: Provenance of the 290 Eastern Desert Ware (EDW) sherds in this study, 248 were selected for detailed comparison: 64 from Kalabsha South and Wadi Qitna (identified as *Qitna*), 66 from the Mons Smaragdus area (*Smaragdus*), 52 from Berenike (*Berenike*) and 66 from Nubt and Tabot (*Tabot*).

Quseir al-Qadim (ancient *Myos Hormos*), Marsa Nakari (possibly ancient *Nechesia*) and Berenike are three of the Graeco-Roman harbours on the Red Sea that facilitated the trade between Alexandria and Rome, on the one hand, and sub-Saharan Africa, *Arabia Felix* and India on the other. In Ptolemaic times (332-30 BCE), a number of harbours were founded at the Red Sea. Existing and newly established routes through the Eastern Desert were outfitted with way-stations to connect these harbours with the many gold mines in the desert and

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ultimately with the Nile Valley. The driving force behind this development program was the on-going war of the Ptolemaic rulers with the Seleucids, who dominated the region east of Egypt, and the subsequent perpetual need for gold, war elephants and safe trade routes. Although the efforts to use African elephants for warfare failed, the infrastructure of harbours, mines, quarries and desert routes was used intensively until the Arab conquest of Egypt in the 7th century CE (Sidebotham and Wendrich 1995; 1996; 1998; 2000). In Berenike, which has so far been the best published of these harbour sites, Eastern Desert Ware was found in residential areas and household debris, among sherds of Late Roman Amphora type 1 (LRA 1) and Egyptian red-slipped bowls, produced in the Aswan region (ERSA) and in the Nile Valley north of Aswan (ERSB), as well as less well-known vessels from Axum, Arabia and India. The contexts yielding Eastern Desert Ware in Quseir al-Qadim and Marsa Nakari are most likely very similar, judging from the less detailed reports. Bir Minih, Wadi Abu Qreiya South and Bir al-Murayr are small settlement sites in the Egyptian part of the Eastern Desert in some way associated with the mines, quarries and roads in the area. The few sherds presented here were collected from the surface during cursory visits to these sites.

Tabot, 19°N 00'50" / 35°E 55'22" in the Sudanese part of the Eastern Desert, is a 3rd-4th century CE way station along the desert route between modern Berber (in the Nile Valley just north of Atbara) and modern Suakin (on the Red Sea coast just south of Port Sudan). Given the relatively large size of the settlement, compared to other way stations, it most likely served other functions as well, although these have not yet been identified (Barnard and Magid 2006; Magid 1998; 2004; Magid et al. 1995). Tabot yielded a relatively large quantity of Eastern Desert Ware sherds that were found among sherds of wheel-thrown ribbed amphorae from the Nile Valley. Nubt is a cemetery close to, and most likely associated with Tabot and apparently still in use after the arrival of Islam in the area. An overview of all sites where Eastern Desert Ware has been described can be found in Appendix 2.

Recording Methods

Each sherd received an identification number and its weight (in g) and average thickness (in mm) were measured. Next, one or more digital photographs were taken and a pencil drawing, scale 1:1, was prepared (Figures 2-1 and 2-2). The approximate original diameter of the vessel was established by placing the remaining part of the rim on a series of concentric circles (a rim chart) after which the preserved percentage (the radius or estimated vessel equivalent) was noted as a measure for the accuracy of the reconstruction. A section was drawn to the right of a straight-on side view to enable easy

comparison with previously published material, which mostly followed the same convention. These pencil drawings were later traced in ink, with a Rotring 0.03 technical drawing pen, the results of which can be found in Appendix 5. These drawings could also be used to find parallels for each sherd in the available archaeological literature (Figure 2-4), a list of which can also be found in Appendix 5. Of twelve whole or reconstructed vessels, 18 additional photographs were taken; each new one after the vessel had been turned 20° around its vertical axis. These images were combined into an animated representation, showing the vessel from all sides. These animations were added to the website dedicated to this project (www.barnard.nl/EDWdata/).

Following these relatively objectively features, a series of more subjective and interpretative attributes were also recorded. First was the comparison of the colour of the inside, the outside and a fresh break with the standard colours of the Munsell Color Chart. This is not advocated by all archaeological ceramologists as the results vary greatly between two observations and certainly between two observers (Giardino et al. 1998). It was done here to give an indication of the colours of vessels about which, until now, precious little information is available. The finishing of the surfaces was also noted. Most vessels preserved traces of wiping (with a wet cloth or finger), smoothing (with an abrasive), burnishing (polishing with a hard object) or slipping (the application of a suspension of clay with a different colour). Some vessels were mottled, because of uneven firing, or burnt, which probably occurred during the use of the vessel or after it was discarded. All data was entered into a relational database, built in FileMaker Pro, for easy retrieval and analysis.

Classification of Form, Decoration and Fabric

The incised or impressed decorations are among the main characteristics of Eastern Desert Ware. These decorations are often remarkably asymmetric and sometimes augmented with a white inlay or a partial red slip. Less frequently, the shapes of the vessel appeared designed to enhance the decoration, here classified as 'plastic', or were decorations applied after the vessel was fired. Decorations were most often found on the outside of the vessels, but occasionally also on the rim or inside. Many consisted of simple patterns of straight or wavy lines, possibly skeuomorphs from basketry or textiles; others were more intricate. Often encountered were bands of interlocking S-shaped incisions known as 'running dogs' (Sidebotham et al. 2002; Strouhal 1984), others motifs included circles, crosses, rhomboids, spirals, triangles, X-shapes and zigzags; but also simple drawings of suns, birds or fish (Strouhal 1984).

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The lay-out of these motifs on the vessel, as well as the shape of the vessel were classified using a system based on that first used at Wadi Qitna and Kalabsha South

(Barnard and Strouhal 2004; Strouhal 1984). An overview of this system is presented in Table 2-3, more details and some examples are given in Appendix 4.

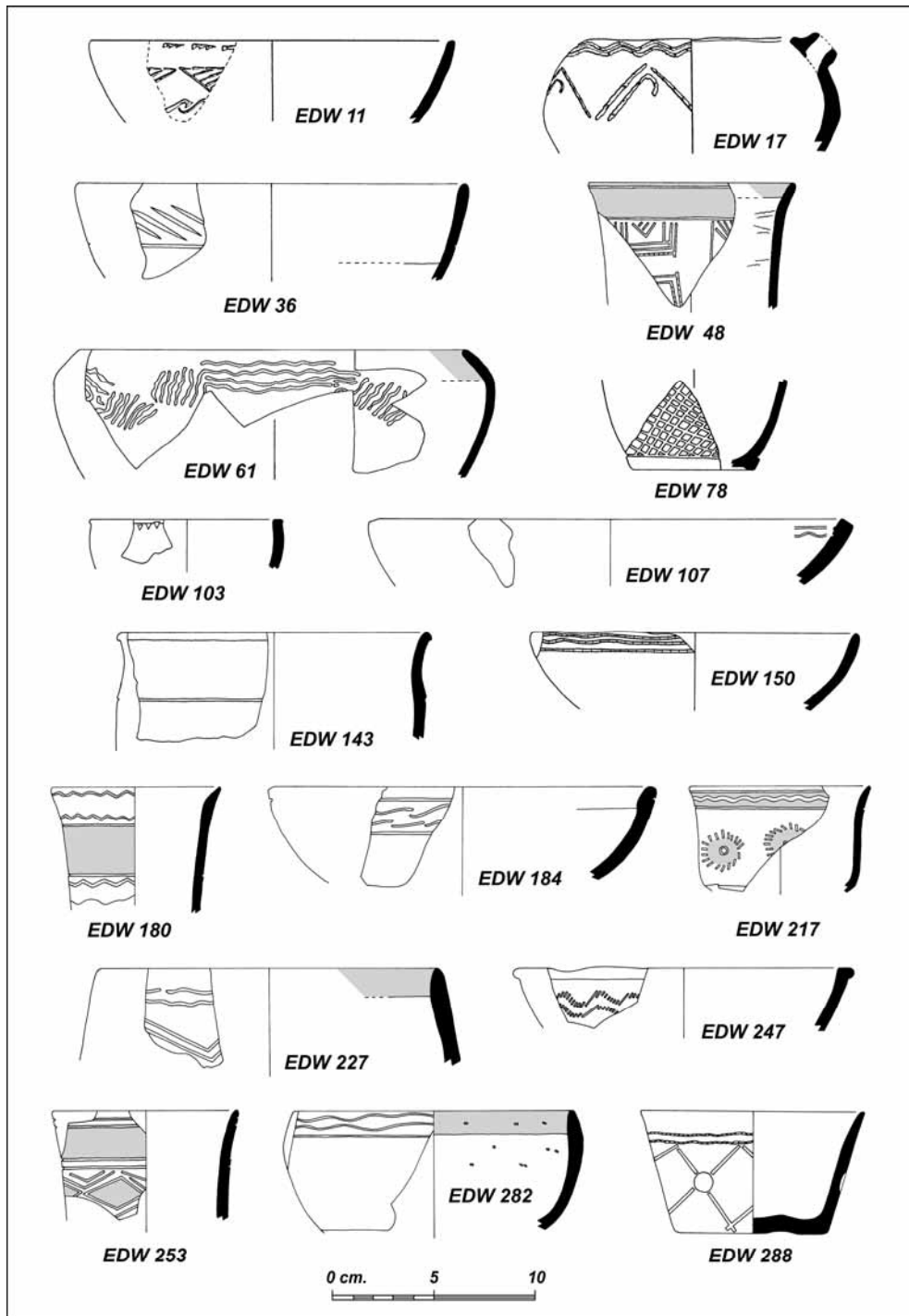


Figure 2-1: Examples of Eastern Desert Ware from Berenike (EDW 11, 17, 48 and 61), Kab Marfu'a (EDW 36), Wadi Sikait (EDW 78 and 247), Tabot (EDW 103, 107, 143 and 150), Wadi Qitna (EDW 180 and 184), Kalabsha South (EDW 217), Kurgus (EDW 227), Gelli (EDW 253) and Sayala (EDW 282 and 288). Some of the decorations may be skeuomorphs from basketry or textiles. Drawings by P.J. Rose and H. Barnard, see Appendix 5 for additional information and acknowledgements.

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Figure 2-2: Examples of Eastern Desert Ware from Berenike (EDW 17 and 48) and Wadi Sikait (*Mons Smaragdus*, EDW 232 and 234). Photographs by H. Barnard, courtesy of the Berenike Project and the Mons Smaragdus Conservation Project.



Figure 2-3: Complete vessels attributed to the C-Horizon (around 2300-1500 BCE) found in Lower Nubia, otherwise unprovenanced, now in storage in Aswan, Egypt (photographic copies of the records of the Aswan Museum, courtesy of the Aswan Museum).

Eastern Desert Ware

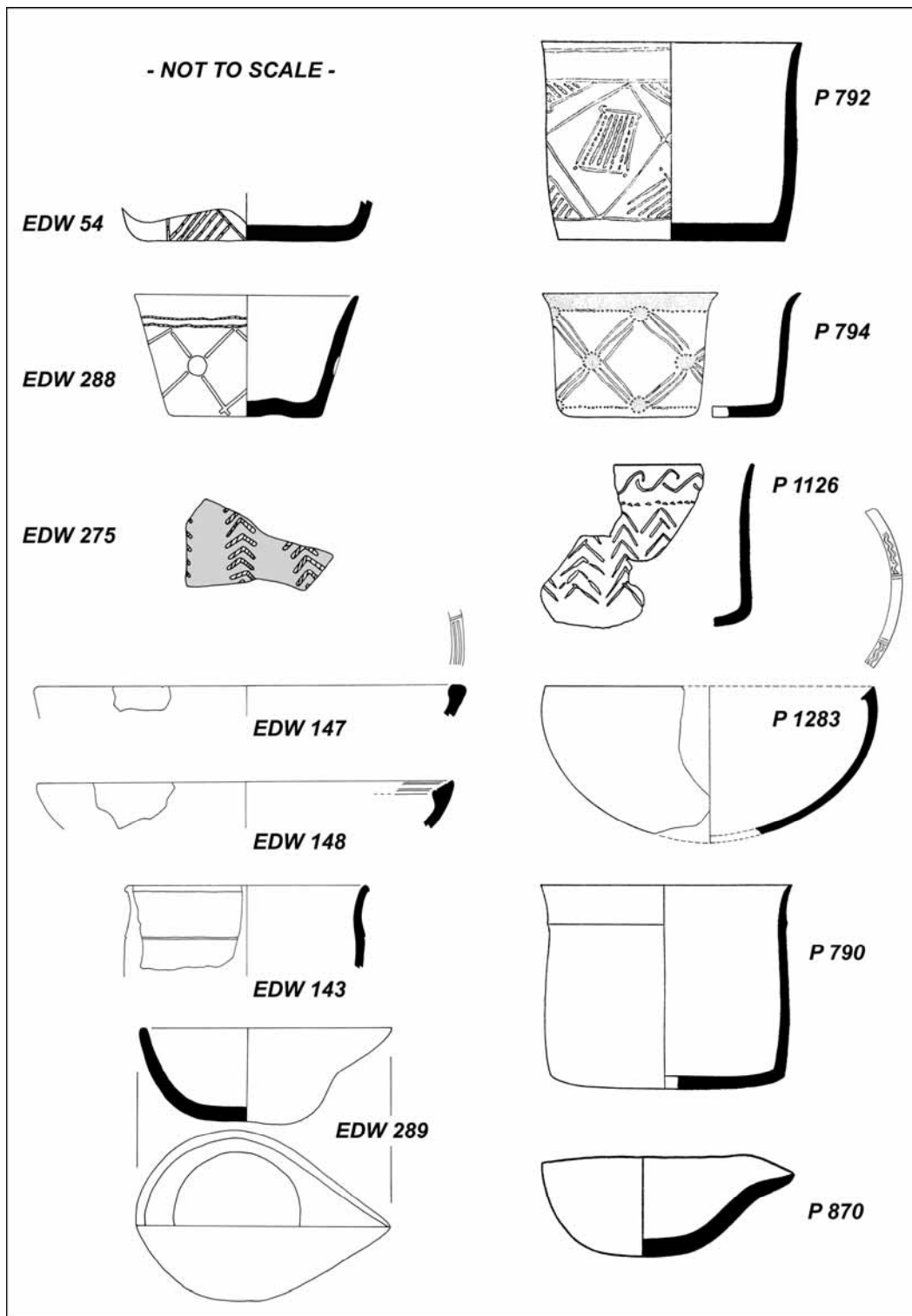


Figure 2-4: Parallels between Eastern Desert Ware sherds and vessels in this study (left, drawings by H. Barnard) and 'H-Ware' excavated in Wadi Qitna and Kalabsha South (right, after Strouhal 1984). See Appendix 5 for additional information on these and other parallels (Barnard 2007).

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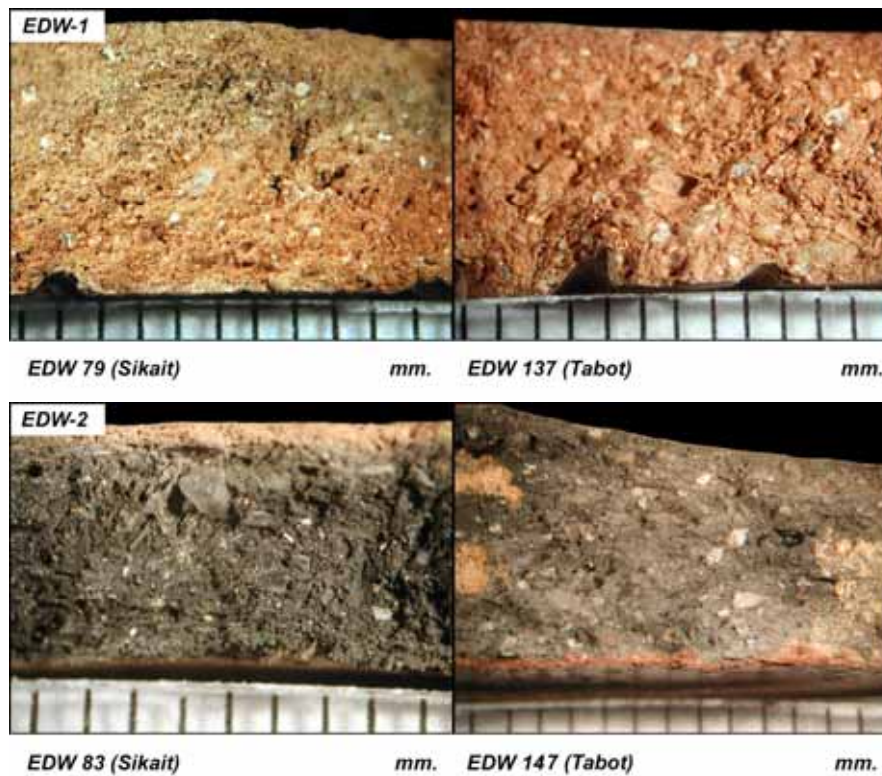


Figure 2-5: Examples of fabric EDW-1 (top) and EDW-2 (bottom) seen in fresh breaks at low magnification (the scale is in mm). Photographs by H. Barnard, courtesy of the Mons Smaragdus Conservation Project, the Norwegian Council of Universities (NUFU) and *Archéologie du Nil Moyen*.

<i>H-classification (form)</i>		<i>D-classification (lay-out)</i>	
0	Unknown	0	Unknown / No decoration
1	Cup	1	Exclusively on rim
2	Bowl	2	Narrow, single band
3	Jar / Pot	3	Multiple, horizontal bands
4	Goblet	4	Vertical with metopes
5	Miniature	5	Vertical without metopes
6	Beak-spouted	6	Horizontal and vertical
7	Tubular-spouted	7	Continuous diagonal
8	Ladle	8	Unarticulated / Asymmetric
9	Dish	9	Zoomorphic
10	Other	10	Other

Table 2-3: Overview of the classification system for Eastern Desert Ware by the shape of the vessel (H) and the lay-out of the decoration (D). See Strouhal 1984 or Appendix 4 for more details and examples (Barnard 2006).

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The decorations showed marks made by different tools, amongst which was one with a round point, another with a triangular point and a chisel-shaped tool. Sometimes it could be established in which direction the decoration must have been applied. This was recorded with the vessel upright and the tool moving from either left-to-right or from right-to-left.

Finally the fabric of each sherd was established by examining a fresh break with a 16x hand lens. About 90% of the vessels appeared to have been made of an orange to rusty-red fabric with many, poorly sorted white inclusions (later identified as quartz and feldspar, Chapter 3). One typical arrangement was identified as fabric EDW-1 (Figure 2-5). A very similar fabric with a reduced, and therefore very dark to black interior, was labelled EDW-2. Other vessels had additional small, well sorted, sparkling flakes (later identified as mica), better visible on the surface of the vessel rather than in the break. The fabric of these was labelled EDW-3. Two vessels, EDW 196 from Wadi Qitna and EDW 269 from Qasr Ibrim (both in the Nile Valley), preserved fragments of unmixed clay in their fabric. This rare fabric was labelled EDW-4. Fabrics that could not readily be assigned one of these categories, but were obviously of a similar fabric type were identified as 'unclassified EDW'. Two final fabric categories, apart from those fabrics that remained 'unknown' for various reasons, are a grey fabric with fewer and smaller inclusions, compared to typical Eastern Desert Ware fabric, tentatively identified as 'Nile silt' (actually Quaternary Nile clay, but see Chapter 3) and a 'catch-all' category of all other fabrics named 'atypical'. The information thus collected, including drawings of all sherds, can be found in Appendix 5, some of the more revealing data will be discussed below.

Comparison with Associated Pottery

Small quantities of Eastern Desert Ware have been found at several sites separated by an arid landscape, always mixed with much larger numbers of sherds of wheel-thrown vessels known to originate in the Nile Valley or to be imported from further afield. This associated pottery allowed the dating of most contexts with Eastern Desert Ware to the 4th-6th centuries CE. The variation between the vessels now identified as Eastern Desert Ware is substantial (Figures 2-1 and 2-2), but they share enough properties to assume they belong to a single corpus. Apart from the narrow time period and interconnected region in which they appear to occur, most of the vessels have analogous forms (cups and bowls), made with similar techniques (formed by hand and subsequently burnished and decorated) of comparable raw materials (clay and sand). A number of close parallels in vessel form and decoration were seen among the 290 vessels in this study, as well as between

those and previously published vessels. A selection of parallels with H-Ware vessels (now identified as Eastern Desert Ware) from Wadi Qitna and Kalabsha South is illustrated in Figure 2-4, the remainder is listed in Appendix 5.

There are remarkable similarities between Eastern Desert Ware and the hand-made bowls typical for the C-Horizon (Figure 2-3), the rather enigmatic culture of Lower Nubia around 2300-1500 BCE, roughly contemporary with the Middle Kingdom in Egypt (Adams 1984). Like most Eastern Desert Ware vessels, the vessels of the C-Horizon are hand-made globular bowls that are partially burnished and decorated with incised or impressed geometric patterns, often also on the rim of the vessel and frequently filled in with a white substance. The fabric of the different Eastern Desert Ware vessels is remarkably similar, a red to orange firing clay with abundant mineral inclusions and little organic remains (Figure 2-5; Chapter 3), and at the same time very different from that of contemporary pottery found in the same region.

All in all the appearance of Eastern Desert Ware vessels must have been strikingly different from that of other vessels from associated contexts (Figures 2-6 through 2-11). This can be illustrated with examples from Wadi Qitna and Kalabsha South, as well as from Shenshef. This last site is a large settlement in the Eastern Desert, close to the Red Sea, with an unclear function (Sidebotham and Wendrich 1999). Excavation of middens with household refuse at Shenshef has unearthed many sherds of Eastern Desert Ware vessels (Table 2-1). These sherds were unavailable for study for reasons mentioned above. The wheel-thrown vessels from Shenshef, however, are well published (Tomber 1998; 1999b) which allows their inclusion here. The ceramic finds from Shenshef are more or less comparable with many contemporary sites in the Eastern Desert.

In the tumulus graves of Wadi Qitna and Kalabsha South, contexts with Eastern Desert Ware were typified by W-Ware (Figure 2-6), C-Ware (Figure 2-7) and R-Ware (Figure 2-8). W-Ware are wheel-thrown amphorae, made of a fine-grained ochre-firing clay and white-washed after firing. Many vessels were decorated with black paint, sometimes combined with red paint, most often depicting grapevines or grapes (Strouhal 1984). W-Ware amphorae were made in Egypt in specialized workshops during the 4th century CE (Adams 1984). W-Ware is obviously very different from Eastern Desert Ware in raw materials, technology, vessel shape and decorations.

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C-Ware are mostly cups and bowls, wheel-thrown on a fast wheel out of a white-firing marl clay and slipped in the same colour. Some vessels were decorated with horizontal lines in black paint (Strouhal 1984). C-Ware vessels are attributed to the Ballana Culture or X-Group, the inhabitants of Lower Nubia around 350-500 CE, and thought to be the continuation of Late Meroitic egg-shell ware (W 26) as one of the X-Group white wares (W 29, Adams 1984). Production probably took place in large quantities in specialized workshops.

R-Ware are also mostly cups and bowls that were wheel-thrown in large quantities. They are made of a fine grained, ochre- to brown-firing clay with small organic inclusions. The vessels are sometimes cursorily polished and usually slipped orange to red. Some vessels were decorated with vertical or curved lines in black paint (Strouhal 1984). R-Ware is thought to be typical for the X-Group (Adams 1984), and to represent the same cultural tradition as Egyptian red-slipped ware type A (ERSA, Figure 2-11) (Hayes 1995; 1996; Tomber 1998; 1999b). The vessel forms of C-Ware and R-Ware are reminiscent of Eastern Desert Ware, but there are important differences in raw materials, technology and decorations.

Like many of the contexts in the Eastern Desert that produced Eastern Desert Ware, those at Shenshef were characterized by Late Roman Amphora type 1 (LRA-1, Figure 2-9), a vessel made in Cilicia (in present-day southern Turkey), Cyprus and other places around the Mediterranean during the late 4th-early 5th centuries CE (Tomber 1998). Many other sherds were of Egyptian red-slipped ware type A (ERSA, Figure 2-10). This comprises wheel-thrown bowls and goblets made of the typical pink clay of the Aswan region, although sometimes with a slightly more granular texture. Some vessels were decorated with tear-shaped blobs of black paint. ERSA is thought to represent the same cultural tradition as R-Ware (Figure 2-8, Hayes 1995; 1996; Tomber 1998; 1999b).

A final type of pottery that often accompanied Eastern Desert Ware is Egyptian red-slipped type B (ERSB, Figure 2-11). The vessels of this corpus are wheel-thrown bowls and plates made north of the First Cataract, of Nile clay (Chapter 3). As with the C-Ware and R-Ware vessels in the Nile Valley, the shapes of the ERSA and ERSB vessels may be reminiscent of Eastern Desert Ware, but differences in the raw materials, the technology and the decorations clearly separates them. This is obviously even more so with the Late Roman amphorae, which have nothing in common with Eastern Desert Ware.

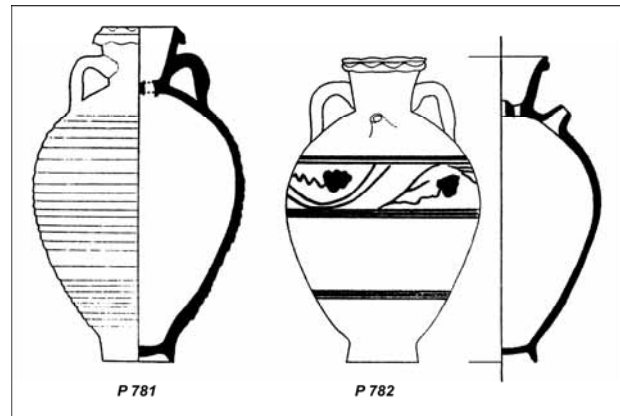


Figure 2-6 (after Strouhal 1984): Examples of W-Ware (Egyptian white washed amphorae) frequently found in Wadi Qitna and Kalabsha South.

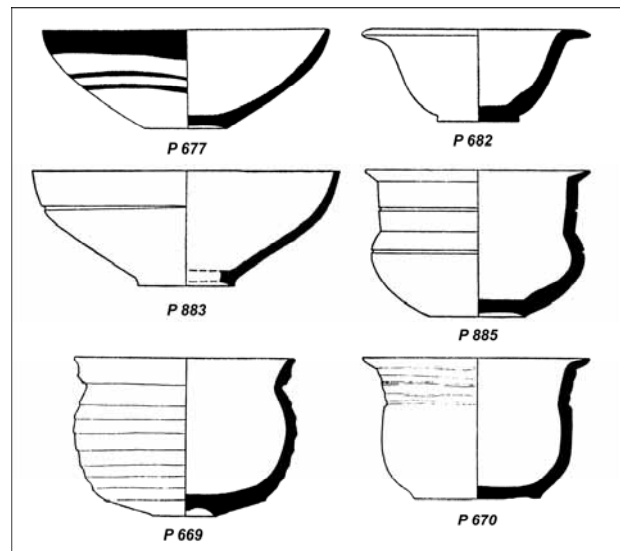


Figure 2-7 (after Strouhal 1984): Examples of C-Ware (cream Late Meroitic or X-Group cups and bowls) frequently found in Wadi Qitna and Kalabsha South.

Eastern Desert Ware

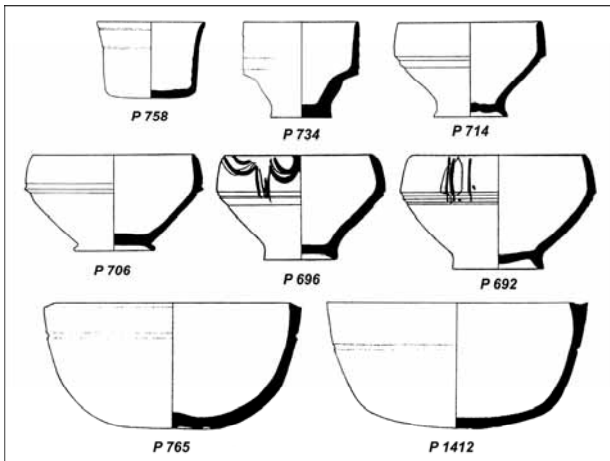


Figure 2-8 (after Strouhal 1984): Examples of R-Ware (red to brown X-Group cups and bowls) frequently found in Wadi Qitna and Kalabsha South (Figure 2-11).

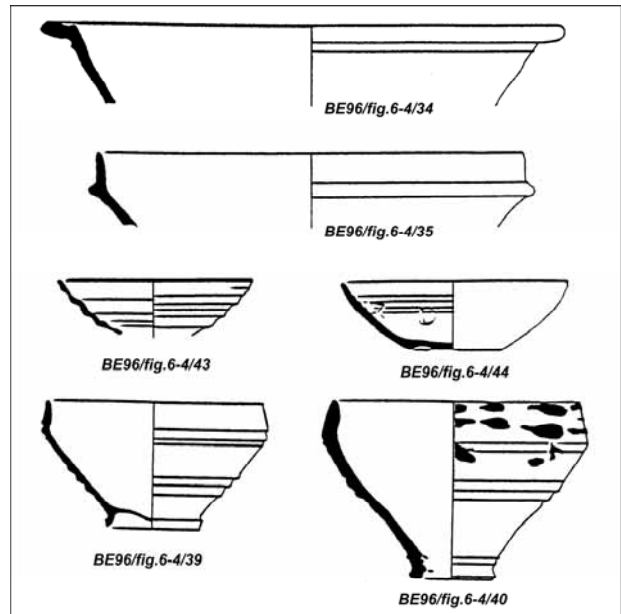


Figure 2-10 (after Tomber 1998): Examples of Egyptian red-slipped ware type A (ERSA) frequently found at Shenshef and contemporary sites in the Eastern Desert (Figure 2-8).

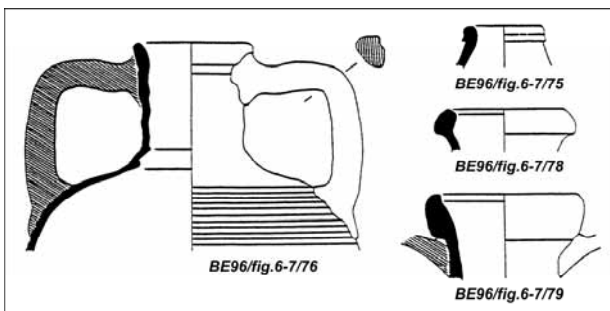


Figure 2-9 (after Tomber 1998): Examples of Late Roman amphora type 1 (LRA-1, numbers 75 and 76) and North African cylindrical amphora (number 78 and 79) frequently found at Shenshef and contemporary sites in the Eastern Desert.

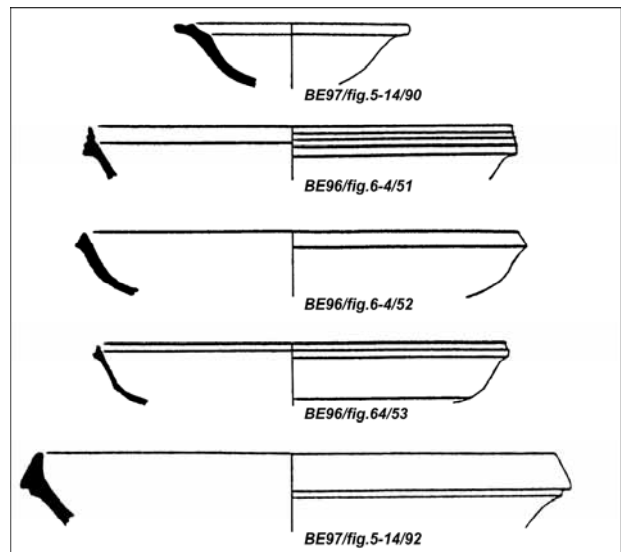


Figure 2-11 (after Tomber 1998; 1999b): Examples of Egyptian red-slipped ware type B (ERSB) frequently found at Shenshef and contemporary sites in the Eastern Desert.

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Nubian Hand-made Pottery

The wheel-thrown vessels of which the remains were found in association with Eastern Desert Ware (W-Ware, C-Ware, R-Ware, LRA-1, ERSA and ERSB) had all been made and kiln fired in professional workshops in the Nile Valley or further afield. In Egypt north of the First Cataract, the forming of vessels by hand, partially or completely without a potter's wheel, has been almost entirely limited to the production of large, undecorated cooking and storage vessels since very early times onwards (Arnold 1993). In the Nile Valley south of the First Cataract (Kerma, Kush, Napata, Meroe or Nubia), on the other hand, there was until very recently a long standing tradition of forming also smaller, decorated vessels by hand. This was probably done mostly, but not exclusively, by women for house-hold consumption or for the local market (Adams 1967-1968; 1986; Adams et al. 1979). There are indications that at times specialization took place, with specific vessels only made by a few households or in certain villages (such as Umm Barakat, near Aswan, at the end of the 19th century CE, Randall-MacIver 1905). Between 300-1300 CE, around 5-15% of the pottery in the archaeological record appears to be hand-made (Figure 2-12). After 1300 CE there was a quick and dramatic rise in the hand-made production of pottery, until it reached 100% around 1600 CE where it would remain until the 20th century CE (Adams 1986; Randall-MacIver 1905).

Conservatism is the hallmark of the Nubian hand-made wares (Adams 1986). The vessels are made of Nile clay with sand (quartz), either naturally present or added as filler, and abundant organic temper (chopped straw). This raw material was fired red on the outside with a black core (reduced organic material). Firing temperatures apparently remained low and firing most likely took place in an open fire with dung as the most likely fuel. Most vessels are rounded bowls (shaped like the section of a circle) and bag-shaped jars (Tables 2-4 and 2-5). Shaped rims and bases are almost entirely absent, as are handles, spouts and lids (Adams 1967-1968). Many vessels were left untreated; others received a red, black or white slip and were subsequently burnished. Decorations consisted of geometric patterns, either incised or painted in black (Table 2-4). Apart from being hand-made, the Nubian vessels are therefore quite different from Eastern Desert Ware, with respect to raw materials (no organic temper), vessel forms (cups and bowls, often with a shaped rim or base) and decoration (incised or impressed asymmetric patterns).

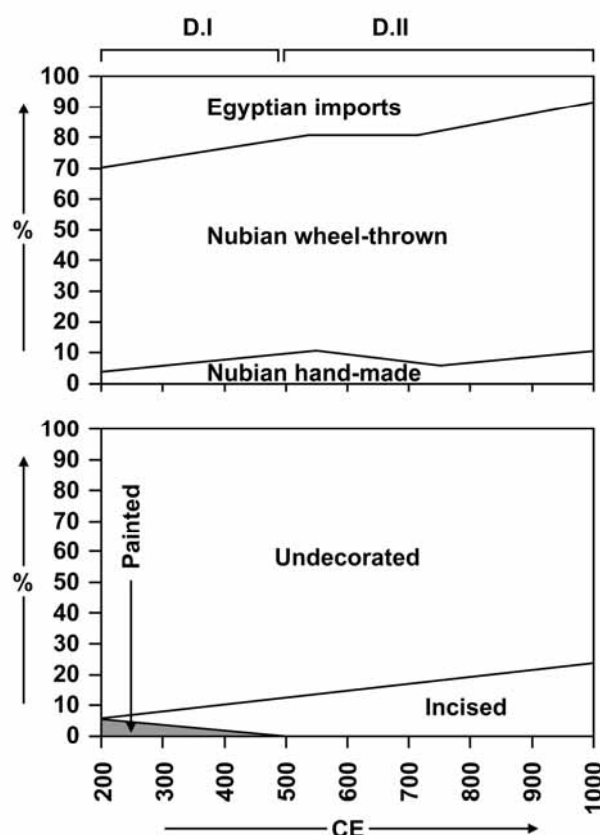


Figure 2-12: The relative percentages of wheel-thrown and hand-made pottery found in archaeological contexts in Medieval Nubia (top, after Adams 1986:38) and the methods of decoration of the hand-made vessels (Family D, Table 2-4) (bottom, after Adams 1986:229).

Eastern Desert Ware




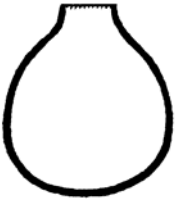


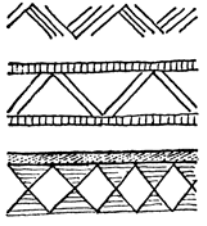

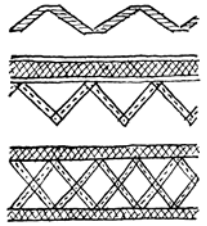
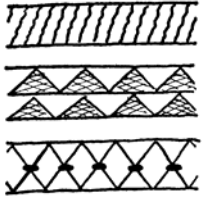
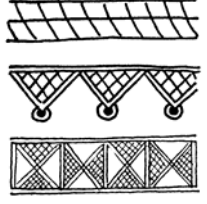
Century CE	3 rd	4 th	5 th	6 th	7 th	8 th	9 th	10 th	11 th	12 th	13 th	14 th
Eastern Desert	?	Eastern Desert Ware			???							
Lower Nubia	Meroitic and X-Group (Ballana Culture)			Early and Classic Christian						Late Christian		
Nubian hand-made	D.I			D.II						D.III		
Bowls												
Jars												
Incised decoration (Figure 2-12, Table 2-5)												
Painted decoration (Figure 2-12, Table 2-5)				None								
Surface treatment	Uncoated brown wares as well as slipped and burnished red wares			Brown and red wares (as D.I), as well as red-topped wares (H 2)						Brown and red wares (as D.I), as well as black burnished wares (H 8)		
Wall thickness	6.0 - 9.4 mm. (thin to thick)			7.6 - 9.4 mm. (proportionally thin)						9.6 - 13.2 mm. (proportionally thick)		
Fabric	Nile clay, with sand (quartz) and abundant organic temper (chopped straw), relatively soft and crumbly due to the firing at low temperatures (open fire)											

Table 2-4 (after Adams 1967-1968:37; Adams 1986): The characteristics of Nubian hand-made pottery (Family D) in Medieval times. Some of the decorations may be skeuomorphs from basketry or textiles.

Macroscopic Description

Group	Ware	Description
D.I	H 1	Thin-walled, undecorated, bag-shaped storage jars
	H 9	Thick-walled, red, black or (rarely) white slipped and burnished bowls
	H 11	Thin-walled, highly burnished black cups and bowls with incised or impressed decorations filled in with a white substance (reminiscent of the C-Horizon, Figure 2-3)
	H 12	As H 1, but with painted decorations on the neck and shoulder (Table 2-4)
D.II	H 2	Jars with burnished red slip on the neck and shoulder (red-topped ware) and red slipped and burnished griddles (<i>dokas</i>)
	H 3	Thin-walled, undecorated, neck-less jars reminiscent of H 1
D.III	H 4	Unslipped jars with course incised decorations
	H 5	Red slipped bowls
	H 6	Red slipped ware with fine incised decorations (Table 2-4)
	H 7	Red slipped ware with decorations painted in black (Table 2-4)
	H 8	Black burnished ware (reminiscent of H 9 rather than H 11)

Table 2-5: Common ware types of Nubian hand-made pottery (Family D, Adams 1986).

Analysis of the Macroscopic Data

Parts of the catalogue of the 290 sherds and vessels in this study have been published previously, but the data appear here for the first time completed and corrected. This enables additional analysis of the macroscopic data. Obviously the number of sherds is too small to allow statistical analysis, but rearranging the data and looking at various frequency plots does indicate some interesting trends. In many cases only 248 of the sherds were included to create four large groups, each with a comparable number of sherds from four different regions (Table 2-2). The 64 sherds from the cemeteries at Kalabsha South and Wadi Qitna form the group *Qitna*, the 66 sherds from the settlements associated with the beryl mines in the Mons Smaragdus area form the group *Smaragdus*, the 52 sherds from the Red Sea harbour town Berenike form the group *Berenike*, and the 66 sherds from the way-station and cemetery at Tabot and Nubt form the group *Tabot*.

The average wall thickness and the diameter were selected to represent the physical properties of each vessel. The area enclosed by the vessel rim was calculated and taken as the measure for the size of the vessel:

$$\text{Size} = \left(\frac{1}{2} \times \text{Diameter (cm)} \right)^2 \times \pi$$

in which π (pi) = 3.14159... For each vessel a 'robustness' index was calculated combining the measured thickness and diameter (or the calculated size):

$$\text{Robustness} = \frac{\text{Thickness (mm)} \times 1000}{\left(\frac{1}{2} \times \text{Diameter (cm)} \right)^2 \times \pi}$$

The range of the thickness of all 290 Eastern Desert Ware vessels in this study is 3.0-8.8 mm, with an average of 5.5 mm \pm 1.2. This is less than the Nubian hand-made vessels from the same time period (Table 2-4). The range of the size of all 290 vessels is 38-491 cm², with an average of 169 cm² \pm 109. The range of robustness of all 290 vessels is 7-169 with an average of 44 \pm 24; a robustness of 7 (EDW 62 from Berenike) denoting the most fragile vessel, a robustness of 169 (EDW 87 from Wadi Sikait) the most robust. When thickness, size and robustness are divided into nine categories of equal width, most vessels are in thickness category 4 (5.0-5.6 mm), in size category 1 (38-88 cm²) and in robustness category 2 (26-43). These data are represented in various ways in Table 2-6 and Figure 2-13 (top-left and bottom-left).

With regard to these few simple indicators of the physical properties of the vessels the *Qitna* group appears to differ from the other groups. The vessels from Wadi Qitna and Kalabsha South are generally thinner and smaller, yet more robust than vessels found at other sites. This is even more obvious when the data are represented by region as is shown in Figure 2-14. The graphs for the *Smaragdus*, *Berenike* and *Tabot* groups are quite similar and follow the pattern of all vessels combined (Figure 2-13, top-left). The pattern for the vessels in the *Qitna* group (Figure 2-14, bottom-right) is distinctly different. Most vessels are in thickness category 2 (3.7-4.3 mm) rather than 4. Relatively more vessels are in size category 1 (38-88 cm²) and in robustness category 4 (62-79). This again indicates that the vessels in the *Qitna* group are thinner, smaller and more robust than the other vessels in this study.

Eastern Desert Ware

	Thickness		Size		Robustness	
	\bar{x}	σ	\bar{x}	σ	\bar{x}	σ
All	5.5	1.2	169	109	44	24
Smaragdus	5.6	1.1	184	97	41	28
Berenike	5.5	1.1	193	109	39	24
Tabot	6.1	1.3	249	129	33	21
Qitna	4.6	0.8	108	78	55	22
<i>Top</i>	Berenike		Smaragdus		Smaragdus	
<i>Tail</i>	Qitna		Qitna		Tabot	

Table 2-6: Average (\bar{x}) and standard deviation (σ) of the thickness (mm), the size (cm²) and the robustness of all Eastern Desert Ware vessels compared to those in the Smaragdus, Berenike, Tabot and Qitna groups (Table 2-4). Those in the Smaragdus group are twice closest to the average (*Top*), while those in the Qitna group are twice furthest from the average (*Tail*). These data are also represented graphically in Figure 2-13 (bottom-left).

The thickness of the sherds in the *Smaragdus* and *Berenike* groups seems to have a normal distribution (in a statistical sense: the distribution appears to be bell-shaped). The thickness in the *Tabot* group seems to be positively skewed (more thicker sherds), while the thickness in the *Qitna* groups appears negatively skewed (more thinner sherds).

The appearance, and in a way the intentions of the potter (and even more indirectly also the wishes of the users of the vessels), are characterized here by the classification of the vessels (H-classification for form and D-classification for the lay-out of the decoration, Table 2-3) and their surface treatment. Three types of surface treatment were identified: type 1 = no obvious red slip or burnishing; type 2 = clear traces of red slip or burnishing; and type 3 = red slip or burnishing with clear demarcation lines between treated and untreated surfaces (Figure 2-13, top-right). Around half the vessels in the *Qitna* group appeared to be burnished or slipped, a much higher proportion than in other groups.

The decorative incised or impressed patterns on Eastern Desert Ware vessels are applied with several tools, none of which has ever been found. Their character can only be inferred from the marks that they have left on the vessels. The most obvious marks are left by a tool that evidently had a triangular point as it left triangular impressions and V-shaped incised lines. Other tools had a round or a chisel-shaped point; rarely an instrument was used that left circular impressions (for instance EDW 218 and 224 from Kalabsha South, see Appendix 5). Three types of use of a triangular tool were identified: type 1 = no obvious use of a triangular tool;

type 2 = clear marks of a triangular tool among marks of other tools; and type 3 = all tool marks appear to be of a triangular tool (Figure 2-13, bottom-right). Type 3 appeared to be more common than type 2; a combination of different tools on one vessel was more often seen in the *Qitna* group.

Because of the large number of small sherds among the 290 in this study, about a third of the forms (H-class) and decorative lay-outs (D-class) remain unclear (Figure 2-15, top-left). Of those cases in which the vessel form could be inferred, about a third were cups (H 1, Table 2-3) and another third were bowls (H 2). These are both open forms, cups being smaller with more vertical walls, most often used as serving vessels. Of those cases in which the lay-out of the decoration could be determined, about a quarter of the vessels were decorated in multiple horizontal bands (D 3).

The distribution of the different fabrics among the 290 sherds and vessels in this study is represented in Figure 2-15, bottom-left. About 90% of all vessels are of typical Eastern Desert Ware fabrics, as described above and in more detail in Chapter 3. Of the 26 vessels not made of typical Eastern Desert Ware fabrics, four appeared to be made of Nile clay (but see chapter 3), three of these were found in the Nile Valley (EDW 190 and 207 from Wadi Qitna, EDW 271 from Qasr Ibrim) and one in the Mons Smaragdus area (EDW 44 from Kab Marfu'a). Fourteen vessels (5%) were made of atypical fabrics. Only one of these was found in the Nile Valley (EDW 85 from Wadi Qitna), another was found at Tabot (EDW 128) and two more at Berenike (EDW 5 and 21). Five sherds of a dark fabric with reduced organic remains and few mineral inclusions were found in the Mons Smaragdus area (EDW 231, 233, 235, 239 and 245) together with four sherds of a rather open brown fabric with abundant mineral inclusions (EDW 240, 247, 250 and 257). A sherd of a fabric remarkably similar to these last four was found at Bir Minih (EDW 228). There appears to be no correlation between fabric and vessel form (Figure 2-15, top-right) or robustness (Figure 2-15, bottom-right). The large number of sherds of atypical fabrics from the Mons Smaragdus area is obvious when fabric, vessel form (H-class) and lay-out of the decoration (D-class) are plotted for each of the four regions (Figure 2-16, top-left). Vessels in the *Tabot* group appear more often made of unclassified EDW fabrics and less often of fabric EDW-1.

Macroscopic Description

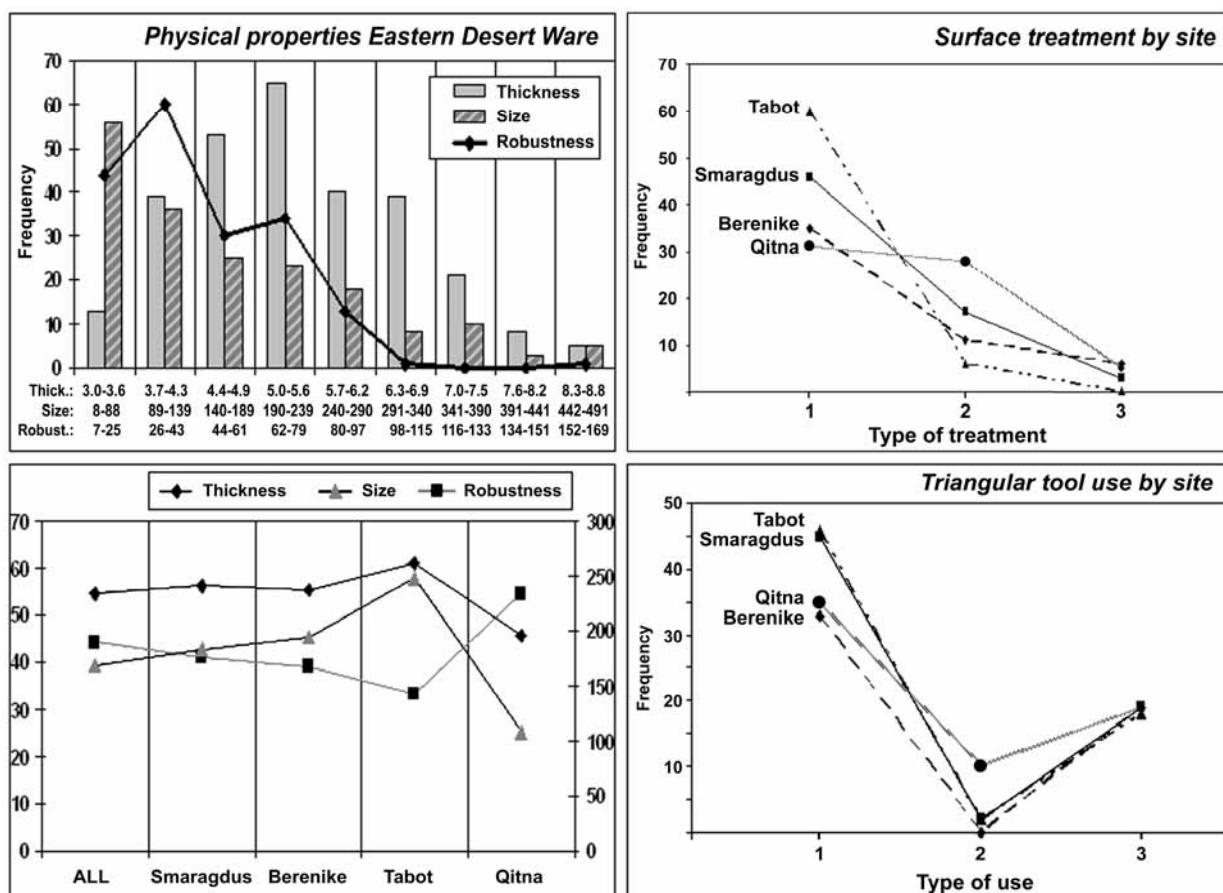


Figure 2-13:

Top-left: the distribution of average thickness, size and robustness among all 290 Eastern Desert Ware vessels in this study.

Thickness categories (left to right): 3.0-3.6; 3.7-4.3; 4.4-4.9; 5.0-5.6; 5.7-6.2; 6.3-6.9; 7.0-7.5; 7.6-8.2; 8.3-8.8 mm.

Size categories (left to right): 38-88; 89-139; 140-189; 190-239; 240-290; 291-340; 341-390; 391-441; 442-491 cm.²

Robustness categories (left to right): 7-25; 26-43; 44-61; 62-79; 80-97; 98-115; 116-133; 134-151; 152-169.

Bottom-left: average thickness, size and robustness by region (Tables 2-2, 2-4 and 2-6). The scale on the left is in 0.1 mm for average thickness and without dimension for average robustness; the scale on the right is in cm² for the average size.

Top-right: surface treatment by region (Table 2-2):

- 1 = no obvious red slip or burnishing;
- 2 = traces of red slip or burnishing;
- 3 = red slip or burnishing with clear demarcation lines.

Bottom-right: triangular tool use by region (Table 2-2):

- 1 = no obvious triangular tool marks;
- 2 = marks of a triangular tool in combination with marks of other tools;
- 3 = all tool marks are of a triangular tool.

Eastern Desert Ware

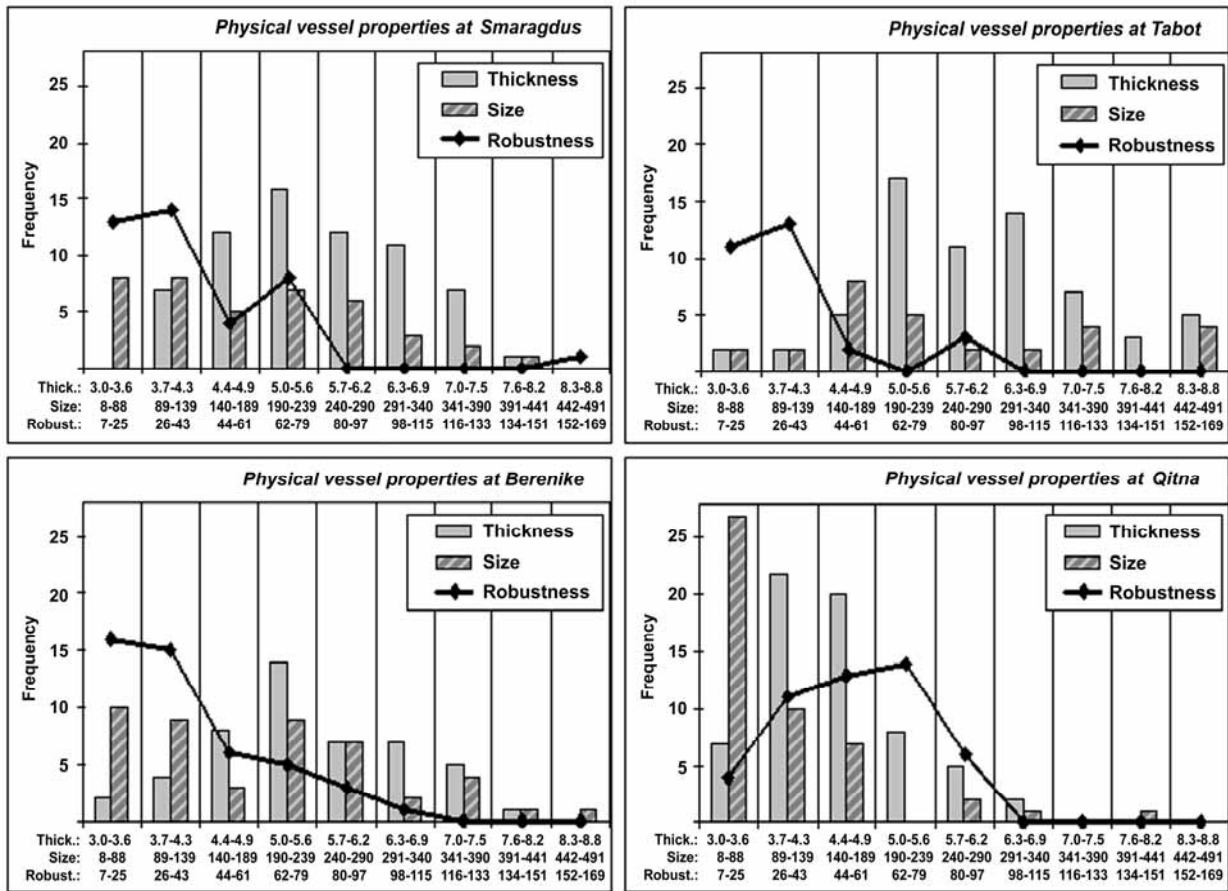


Figure 2-14: Vessel properties by region (Table 2-2).

Thickness categories (left to right): 3.0-3.6; 3.7-4.3; 4.4-4.9; 5.0-5.6; 5.7-6.2; 6.3-6.9; 7.0-7.5; 7.6-8.2; 8.3-8.8 mm.
 Size categories (left to right): 8-88; 89-139; 140-189; 190-239; 240-290; 291-340; 341-390; 391-441; 442-491 cm.²
 Robustness categories (left to right): 7-25; 26-43; 44-61; 62-79; 80-97; 98-115; 116-133; 134-151; 152-169.

Macroscopic Description

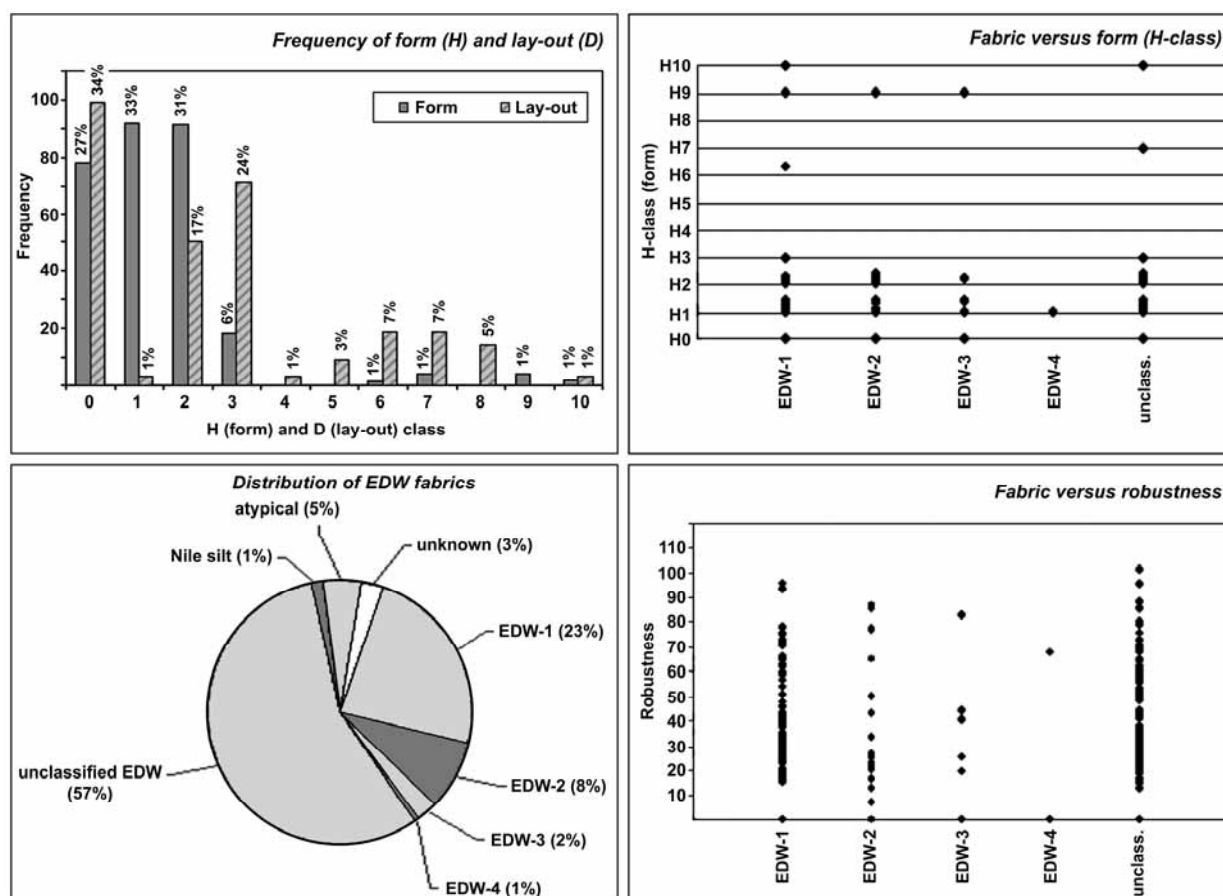


Figure 2-15:

Top-left: distribution of Eastern Desert Ware vessel forms (H-classification) and lay-out of the decoration (D-classification) among all 290 Eastern Desert Ware sherds and vessels in this study (Table 2-3).

Bottom-left: distribution of the fabrics among all 290 Eastern Desert Ware sherds and vessels in this study.

Top-right: the H-class (vessel form) of Eastern Desert Ware vessels (Table 2-3) plotted against their fabric.

Bottom-right: the robustness of Eastern Desert Ware vessels plotted against their fabric (the maximum robustness of 169 is off-scale; this was a vessel of an unclassified EDW fabric).

Eastern Desert Ware

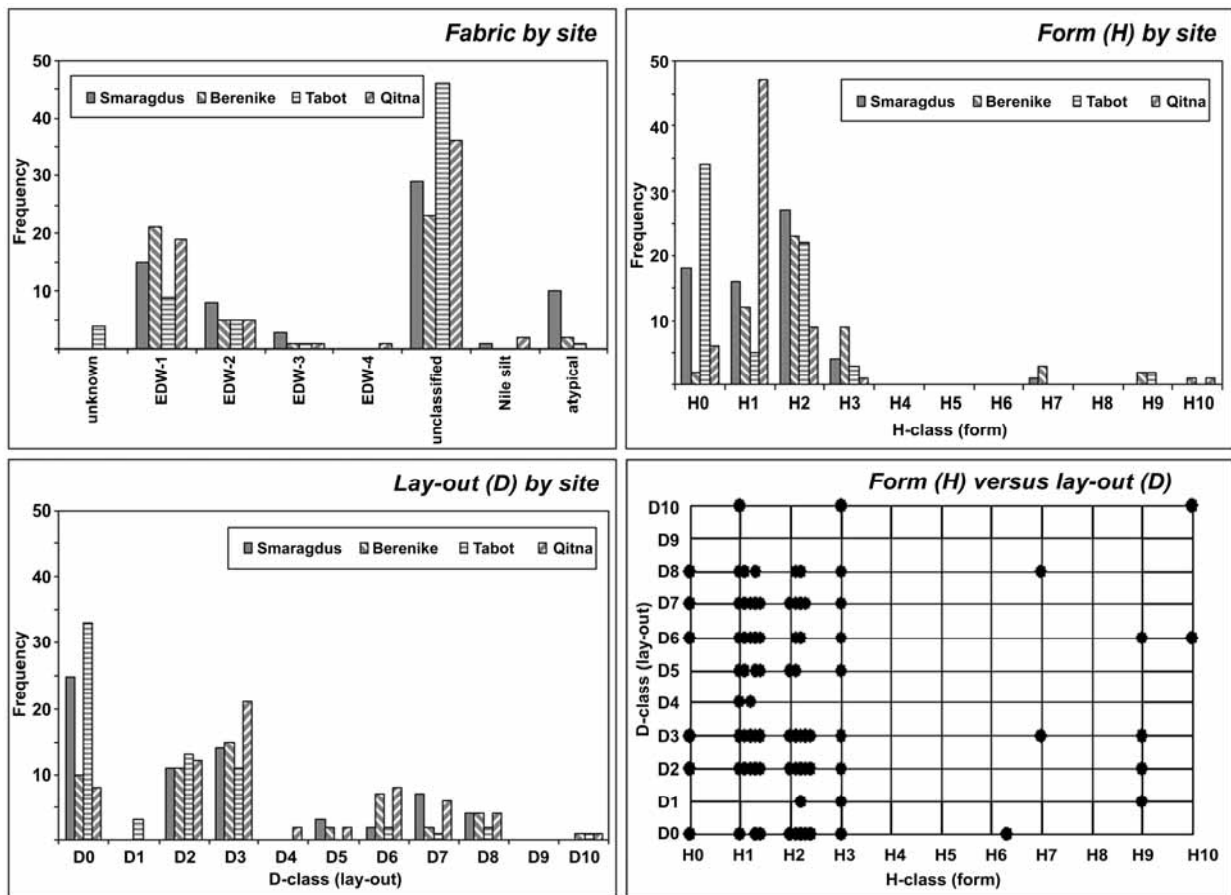


Figure 2-16:
 Top-left: distribution of the Eastern Desert Ware fabric by region (Table 2-2).
 Top-right: distribution of Eastern Desert Ware H-classes (vessel form) by region (Tables 2-2 and 2-3).
 Bottom-left: distribution of Eastern Desert Ware D-classes (lay-out of the decoration) by region (Tables 2-2 and 2-3).
 Bottom-right: D-class (lay-out of the decoration) plotted against H-class (vessel form, Table 2-3).

Figure 2-16 (top-right) shows that the usual pattern of more bowls (H 2) than cups (H 1) is reversed in the *Qitna* group, while most of the larger vessels (H 3) appear to have been found in Berenike. The large number of sherds in the H 0 class (unknown) in the *Smaragdus* and *Tabot* groups is due to the larger number of fragmented sherds from the sites contributing sherds to these groups. The same can be seen in Figure 2-16, bottom-left, where the lay-out of the decoration is plotted for each of the four regions. The sherds in the *Qitna* group stand out as they appear to be more frequently decorated in multiple horizontal bands (D 3, Table 2-3), making an important contribution to this class being the largest for all 290 vessels in this study, apart from 'unknown' (Figure 2-15, top-left). Finally, there appears to be no correlation between the lay-out of the decoration and the form of the vessel (Figure 2-16, bottom-right).

It is remarkable that no sherds in this study were classified as H 4 (goblet), H 5 (miniature), H 8 (ladle) or D 9 (zoomorphic), categories originally identified after the excavation of the cemeteries at Wadi Qitna and Kalabsha South (Strouhal 1984) and entered in the classification system for Eastern Desert Ware (Table 2-3; Appendix 4; Barnard and Strouhal 2004). That such sherds occur at sites other than Wadi Qitna and Kalabsha is proven by a sherd from Lower Nubia, now kept by the Oriental Institute of the University of Chicago, which is decorated with an inscribed depiction of a cow of an elephant (Figure 2-17). Although this collection could not be included in this study, for reasons mentioned above, it almost certainly belongs to the same corpus.

Macroscopic Description

Special Features

Next to the more general characteristics of Eastern Desert Ware discussed above, a number of more specific properties were observed, seven of which will be briefly discussed here (Table 2-7). Apart from the 13 vessels with a decorated rim (EDW 21, 22, 30, 52, 107, 115, 116, 128, 147, 148, 225, 240 and 246), the rims of 29 vessels were squared off with some care, but without any decoration. Eight sherds preserved small holes, some probably made before and some after firing. These could have been utilized to suspend the vessel (category H 2d, Appendix 4) or facilitate the 'stitching' of broken vessels. This was a common repair technique in Egypt, and elsewhere, which allowed the re-use of broken vessels, albeit probably for different purposes as such repaired vessels would not longer have held liquids. The holes in EDW 60 are remarkable as they are in the spout of a tubular-spouted bowl. Their purpose is enigmatic as they are unlikely to have been meant for suspension or repairs, and would have caused the vessel to leak when pouring liquids. Four vessels preserved small 'lug handles' (Strouhal 1984, 163, Fig. 129/P 834; Sidebotham et al. 2002, 24, Fig. 20/51). EDW 46 is part of a larger handle, reminiscent of the handle on a skillet, but without any remains of the vessel. EDW 186 preserved a scar where, most likely, a handle was once attached.



Figure 2-17: Putative Eastern Desert Ware sherd from Lower Nubia in the collection of the Oriental Institute, University of Chicago, decorated with an incised depiction of a cow or an elephant (photograph by Bruce Beyer Williams, courtesy of the Oriental Institute).

Part of the decoration on four vessels appeared to have been applied after the firing of the vessel. On EDW 276 and 278 this was likely done to enhance the decorative pattern, the marks on EDW 167 and 207 are more reminiscent of symbols to indicate ownership or

intended use of the vessel. Four vessels were cups with walls flaring outward to an extent that probably interfered with the use of the vessel. Three sherds were of atypically large vessels when compared with the rest of the corpus, these could have been from storage vessels or cooking pots (category H 3). Of the eight better preserved vessels with a size larger than 350 cm², six were bowls (EDW 39, 62, 115, 147, 148 and 208), while two could have been storage vessels or cooking pots (EDW 51 and 139). Finally, two vessels preserved an unusual decoration, here identified as a 'pearl chain', consisting of a line of small impressed circular points.

Feature	no.	EDW numbers
Squared rim	29	EDW 13-16, 19, 35, 37, 62, 77, 94, 103, 123, 126, 132, 150, 192, 208, 235, 237, 240, 242, 256, 266, 268, 278, 282, 283, 287 and 288
Hole(s)	8	EDW 32, 41, 60, 109, 135, 229, 250 and 252
Handle(s)	4 (6)	EDW 15, 59, 131 and 139 (EDW 46 and 186)
Post-firing decoration	4	EDW 167, 207, 276 and 278
Flaring cups	4	EDW 179, 180, 189 and 204
Large vessels	3	EDW 164, 186 and 241
Pearl chain	2	EDW 182 and 209

Table 2-7: Distribution of 'special features' among the 290 Eastern Desert Ware sherds and vessels in this study (Appendix 5).

Tools

The incised or impressed decorations are among the most recognizable features of Eastern Desert Ware (Figure 2-1). Judging by their appearance, these are applied with a number of different tools, none of which have so far been found. Incisions and impressions were made with tools that left marks of a chisel-shaped point, a round point and a triangular point. Another less frequently used tool left circular impressions and was labelled 'hollow probe' (Appendix 5). As these marks are rather non-specific, there are a large number of objects imaginable that could have been used. Potters sometimes use specialized tools to achieve the effect that they desire (potters combs, *roulettes*), or readily available household items, such as knives or shells (Rye 1981; Shepard 1976). If Eastern Desert Ware was decorated with specialized tools, their identification will only be possible after such tools are found in an archaeological context.

Eastern Desert Ware

The technically simple decorations on Eastern Desert Ware, however, do not require specially designed tools. The chisel-shaped marks could be from a knife or a blade, and the round-pointed tool could have been a needle, a nail or a thorn. In the region where Eastern Desert Ware is found acacia trees, such as *Acacia nilotica* and *A. raddiana*, commonly occur. The wood of these trees makes excellent firewood and charcoal, while their branches carry long thorns (Vermeeren 2000). If the potters did use acacia wood to fire Eastern Desert Ware, such thorns would be readily available. But they would most certainly also have had access to needles, awls and a variety of other implements with a rounded point.

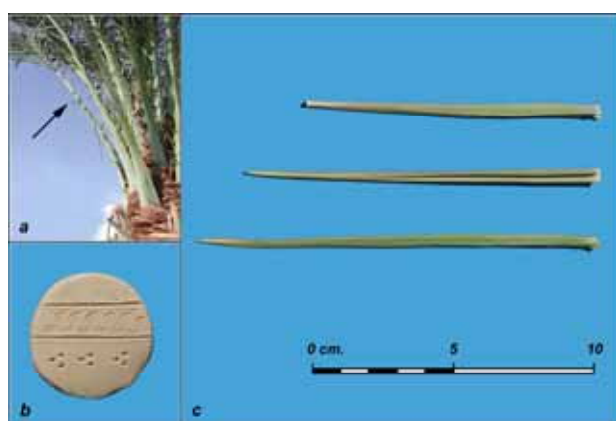


Figure 2-18: Photographs showing the thorns at the base of a date palm frond (a), the incised and impressed patterns left by such thorns in a piece of *placticine* (b), and the thorns, used for this experiment (photographs by H. Barnard, courtesy of the Journal of the American Research Center in Egypt).

More specific tool marks are left by the hollow probe (clearly visible on, for instance, EDW 218 and 224) and the triangular tool (clearly visible on, for instance, EDW 203-206). Strouhal (1984) suggested the hollow probe to be a cut bone of a small animal, which seems the most likely identification. Not many household or natural items have a triangular section able to leave marks as seen on Eastern Desert Ware. The most likely candidate is the thorn of the date palm (*Phoenix dactylifera*, نخل). Such thorns are actually underdeveloped leaflets at the base of the large, feather-shaped fronds at the top of the tree (Figure 2-18a). In the Nile Valley, such fronds are often used as fuel, also in pottery kilns, and the thorns would be readily available to the potters. In experiments to imitate Eastern Desert Ware, described in more detail in Chapter 5 (Barnard 2008; in press), date palm thorns were shown to leave marks very similar to those seen on the ancient pottery (Figure 2-18c). Obviously a special tool could have been constructed to leave similar

impressions, but date palm thorns would have been readily available, also in the desert where some of the dwellings were made of palm fronds. Many of the current inhabitants of the Eastern Desert live, at least part of the time, in dwellings made of rugs and mats over a dome-shaped wooden frame (بيت البرش, Chapter 5; Magid 2008; Wendrich 2008). These mats are made of palm leaflets *Phoenix dactylifera* or *Hyphaene thebaica*, (نوم), to which the dwellers of the desert obviously have access, held together by wooden pegs not unlike date palm thorns (Magid 2008; Wendrich 2008). Such dwellings appear to be mentioned in Egyptian Middle Kingdom and Late Kingdom texts while Strabo reports, in the first century CE, that the nomads in the desert live in dwellings made of interwoven split pieces of palm leaflets (Chapter 5). Thorns of date palms were evidently part of the daily life of the dwellers of the Eastern Desert for at least two millennia.

Other tools needed to produce Eastern Desert Ware would have been the tools necessary to achieve the observed surface treatment, including wiping, smoothing and burnishing. Wiping and smoothing can be done with a wet piece of textile or leather, or with an abrasive like sand or pumice. Burnishing is the polishing of the pre-ceramic surface (the surface before firing) with a hard object, usually a pebble although the back of a spoon or fossilized gizzard stones of dinosaurs are also used (LeFree 1975; Rye 1981; Shepard 1976; Wisner 1999). A variety of items to perform these tasks would have been available to the potters that made Eastern Desert Ware. Apart from the containers to hold the raw materials (clay, water and possibly temper) they would not have needed any additional equipment.

Macroscopic Description

Discussion

Based on the evidence presented above, it seems safe to assume that Eastern Desert Ware forms a distinct corpus of pottery, internally coherent and different from other contemporary traditions in the region. The shape and elaborate surface treatment of most vessels strongly suggest that they were meant to be serving vessels. Tubular-spouted vessels (category H 7), such as EDW 17, 60 and 192, were probably used to pour fat, oil or sauce on a meal, while beak-spouted vessels (category H 6), such as EDW 289, were either used for the same purpose or to feed infants (Strouhal 1984). Cups and small bowls could have been used by individuals, as suggested by the marks on EDW 167 and 207, or to present smaller side-dishes; larger bowls could have been meant for communal use or to present a prepared dish.

Storage and cooking vessels appear largely absent from the corpus, although a few handles and sherds from larger vessels have been identified. The low proportion of larger vessels could be due to the fact that some of the small sherds among the 290 in this study are actually of such large vessels; that more vessels have yet to be included as Eastern Desert Ware; or that the users of Eastern Desert Ware utilized vessels now attributed to other traditions for cooking and storage. Cooking pots are often non-descript vessels that tend to lose much of their limited characteristics during use and not all food preparation or storage requires ceramic vessels. Many foodstuffs are eaten raw, such as fruits and nuts, or are prepared directly in the fire (Barnard and Eerkens 2007; Barnard et al. 2007). Meat and fish can be roasted and the bread that is the staple food of the present-day inhabitants of the Eastern Desert is cooked in the hot sand below a charcoal fire (Chapter 5). Both solid and liquid materials can be stored in leather bags or in baskets, such as the milking baskets currently used in Sudan and Ethiopia (Wendrich 2008). These containers have the advantage of a lighter weight and a greater durability, compared to heavy and breakable vessels like amphorae (Eerkens 2008).

The most obvious conclusion from the analysis of the macroscopic data is the difference between the vessels from Wadi Qitna and Kalabsha South and those from other sites. The vessels in the *Qitna* group are thinner, smaller and more elaborately decorated in terms of slipping, burnishing and use of tools. There is also a larger number of feeding bowls (H 6) found in tumulus graves than in other contexts (Strouhal 1984). These differences are most likely due to the fact that Wadi Qitna and Kalabsha South are cemetery sites, while Tabot, Berenike and the sites in the Mons Smaragdus area are settlements. Grave gifts are most likely part of the personal belongings of the owner of the grave, including the cup and bowl that the deceased once used

to eat and drink. The two putative owner marks, on EDW 167 and 207, were both found in Wadi Qitna. The feeding bowls were usually found associated with female skeletons, with or without the remains of children or infants (Strouhal 1984), but sherds of such vessels are difficult to identify and may have escaped recognition at other sites. Larger vessels, such as big bowls and cooking pots, would not have been associated with an individual, but rather be owned by the household.

Alternatively, the vessels that were interred may have been selected specifically to serve the dead in the afterlife. Cups and small bowls would have been a more obvious choice than cooking pots or serving bowls. In either case, the choice of vessels will have been biased towards vessels for personal use (cups), rather than larger vessel meant for communal use, and towards the more delicate vessels with more elaborate decorations. Storage vessels will have been entered into the grave to provide supplies to the deceased. It is possible that some of the vessels were especially produced as grave goods and were never actually used for food or drink.

A different explanation for the observed difference between the *Qitna* and the other groups may be the location of Wadi Qitna and Kalabsha South very near the Nile Valley, while the other sites are in the Eastern Desert. Obviously it is only known where the sherds were found, not where the vessels were made or even where they were primarily used. If we assume that the vessels were produced and used close to where they were discarded, the Nile Valley obviously provided more resources to the potters than the desert, including the tools and other materials needed to produce Eastern Desert Ware. They will probably also have had a larger, wealthier and more critical circle of customers, encouraging them to produce more elegant vessels (more fragile vessels with more elaborate decorations).

Research into the provenance of the sherds, presented in Chapter 3, indicated that the fabric macroscopically identified as Nile clay of four sherds probably did not originate in the Nile Valley. The remarkable similarity between the fabrics of vessels from different sites, including a sherd found at Bir Minih made of an atypical fabric very much like several sherds found in the Mons Smaragdus area, seems to indicate contacts across the desert that may have played a role in maintaining the ceramic tradition resulting in Eastern Desert Ware. Both the consistency in form and decorative patterns (Figures 2-2, 2-4 and 2-13, bottom-left; Table 2-6) and in the choice of the raw materials (Figures 2-5 and 2-16, top-left) shows that this tradition was strong throughout the desert. The lack of a relation between fabric and form, or between fabric and robustness points in the same direction: the shape of the vessel seems to have been the result of the intentions of the potter, rather than dictated by the available raw materials.

Eastern Desert Ware

The apparent use of date palm thorns on many Eastern Desert Ware vessels seems indicative of production in the Nile Valley. However, this is not concurrent with the origin of the clays, outside the Nile Valley, as suggested by the analysis of the fabric of the vessels (Chapter 3). We must therefore assume that either the clay for Eastern Desert Ware was brought into the Nile Valley, where the vessels were subsequently made and fired, or that palm thorns were taken from the Nile Valley into the desert, to be used for the decoration of Eastern Desert Ware but probably primarily other chores. The use of a triangular tool to apply decoration on pottery is one of the similarities between Eastern Desert Ware and the vessels of the C-Horizon (Figure 2-3, cf. EDW 47). Other similarities include the shape of the many of the vessels (globular bowls, H 2a) and their surface treatment, partial slipping and burnishing. There is no evidence to suggest a continuous tradition over the 2000 years that separate the C-Horizon with Eastern Desert Ware, but the apparent revival of certain aspects of the C-Horizon in the early centuries CE is also demonstrated by the vessels identified as Family D.I, Ware H 11. The exact interpretation of these similarities remains unclear. They may be purely coincidental, but also be another indication of the cyclic nature of Nubian history as well as contacts between the potters that produced the Nubian hand-made ware and those that produced Eastern Desert Ware.