Bereneke: Archaeological fieldwork at a Ptolemaic-Roman port on the Red Sea coast of Egypt 2008-2010

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Introduction

The University of Delaware (USA) and the University of Warsaw Polish Center of Mediterranean Archaeology continued fieldwork at Berenike on Egypt’s Red Sea coast (Fig. 1) in 2008 with a short season of geophysical surveying, which continued in 2009 (Sidebotham & Zych, 2008) and 2010. A brief two week excavation season took place in winter 2009.
and a four week season in winter 2010. Study periods followed both the
2009 and 2010 excavations. This fieldwork built on eight previous sea-
sons conducted from 1994 to 2001 by the University of Delaware (USA),
Leiden University (the Netherlands) and UCLA (USA) [Sidebotham
Sidebotham et al., 2008; Bagnall et al., 2000, 2005; Cappers, 2006].

**Topographic survey**

During the 2010 field season a total station survey located all trenches
excavated since 1994 on a base plan of the site (Fig. 2). This placed the
trenches more precisely than had been possible with earlier theodolite
and transit surveys conducted between 1994 and 2001.

**Geophysical surveys**

The geophysical surveys expanded upon one initiated in 1999 [Herbich,
2007] and covered most of the western part of the site and much of the
harbor located south and east southeast of the Ptolemaic industrial
quarter (Fig. 3). The results have borne out, yet again, the usefulness
of the magnetic method in providing clues about the location of subter-
ranean features to depths of approximately one meter as well as the
overall makeup of specific areas of the site. This adds some precision
to the excavation process. Much of the present work was done in areas
where little if anything on the surface indicated the presence of man-
made features hidden under the sand. According to T. Herbich mapping
inside the harbor basin revealed long parallel anomalies following the

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shape of the crescent-like ridge; these may show the receding shoreline as the basin slowly silted up. Structures seen at the southern end of the prospected area (trenches BE-10-61, 70 and related features) appear to be located in the middle of a magnetically “quiet” area, which most likely reflects that part of the harbor that remained under water until the end of occupation. The structures in trenches BE10-61, BE10-70 and related features, therefore, must have stood on a low island or dredge heap at the port entrance. Equally so, images of magnetic anomalies extending just inside the harbor ridge can now, following the present excavations, be interpreted as various equipment storage facilities which sprang up around the harbor as silting progressed. The most distinct images on the magnetic map are those corresponding to the urban architecture on the eastern shore of the harbor bay. The location of these buildings had been previously known from a topographic survey of the site; magnetic mapping has demonstrated a satisfactory concordance between the few architectural features seen in the original ground survey and the anomalies imaged on the magnetic map. More importantly, the anomalies, which reflect the magnetically-susceptible fill (containing most likely ashes and burnt sand) of buildings constructed of material entirely devoid of magnetic properties have delineated individual buildings with such precision that it is possible to read from the map the edifices’ internal divisions, including doorways between particular rooms and courtyards, as well as streets that ran between structures. Plans are, eventually, for the geomagnetic survey to cover the entire town. More geoarchaeological testing with other methods will be conducted in the harbor area in order to determine a sedimentological history of this feature.

West of the harbor the survey mapped anomalies that can be interpreted as the corners of a homogeneous architectural complex measuring roughly 50-55 m (E-W) by 70 m (N-S). Part of this enclosure had already been noted in 1999 and subsequent excavation has left no doubt that the architecture is of Ptolemaic date. North of the harbor basin, in
an area dotted with mounds covered with coral heads, potsherds, broken glass and copper alloy fragments, mapping has not brought very distinct results, although there are features reminiscent of buildings, which analysis of satellite images of this part of the site corroborates. Finally, a survey of a section of the mound around trench BE01-44, where a fourth to fifth century necropolis had been discovered, indicated the location of several other putative sepulchral structures.

**Excavations**

Excavations in 2009 and 2010 expanded our knowledge of the fresh water supply to the city, of small-scale industrial activities in both the early and late Roman eras, of contacts with Mesopotamia/the Persian Gulf, of the religious proclivities and ethnicities of some of the settlement's inhabitants, and of maritime activities in the harbor area itself. The brevity of the field seasons, however, permitted only limited surveying of the Eastern Desert hinterland.

**Ptolemaic industrial area**

Excavations continued in the Ptolemaic industrial area in the extreme western part of the site. Three trenches excavated in 2010 (BE10-66, BE10-68 and BE10-69) (Fig. 2 & 4) near BE01-42 revealed ditches, which were extensions of that V-shaped ditch first uncovered during the 2001 season (Sidebotham & Wendrich, 2001-2002: 26-27 & Fig. 4). Initial speculation held that this ditch was part of a retaining pen for pachyderms imported by sea from more southerly reaches of the Red Sea during the reigns primarily of Ptolemy II and Ptolemy III and, perhaps, later for use by the army (Sidebotham et al., 2008: 162, 164-165 & Fig. 7.13; cf. Kistler 2006). Although part of an elephant tooth was recovered from this area in an earlier excavation season and also during fieldwork in 2010 as a surface find, nothing definitive came from the excavations this season bearing on the original/primary function of this enigmatic ditch. Never-
theless, the presence of a large piece of folded lead 22.4 cm in diameter x 2.2-2.4 m thick with a hole 2.2-2.5 cm in diameter in the center and weighing 1.01 kg as well as a pottery dump containing a very limited repertoire of storage amphoras of Ptolemaic date (adding to a similar assemblage already known from various trenches in the vicinity) suggest that industrial activities took place in the immediate neighborhood.

Two trenches (BE10-63 and BE10-65) north of the harbor and east of the aforementioned “ditch” trenches were placed to understand the nature of high-amplitude anomalies revealed by magnetic surveying. Surprisingly, excavations encountered the skeletons of four dogs (Fig. 5). The skeletons had no artifacts associated with them and they appear to have been early Roman intrusive burials into an otherwise early Ptolemaic area. Nothing that could explain the presence of the magnetic anomalies was discovered, leading to the assumption that the cause of the mapped disturbances in the Earth’s magnetic field was some kind of natural ground formation rather than anything man-made.

**Urban water supply**

Approximately 240 ostraca excavated from the early Roman-era trash dump north of the city center (trenches BE09-56 & 57 and BE10-58 & 60) recorded details about fresh water supply to Berenike in the first century AD (Fig. 6). The archive reveals the importance of the Roman military in the entire process (personal communication from R.S. Bagnall and R. Ast). Use of infra-red photography enhanced readings of some of the texts (Fig. 7-8) [cf. Bülow-Jacobsen, 2008]. A detailed study of these documents is underway.
Inhabitants of Berenike: commercial activities and ethnicities

Documentation of graffiti of some pre-Islamic South Arabian language scratched on sherds of South Arabian provenance from a first-second century AD context (Fig. 9 & 10) confirmed contacts between Southern Arabia and Berenike; one graffito had a close parallel with an early Roman specimen recorded from British excavations at Myos Hormos, about 300 km north of Berenike [Tomber, 2008: 75, Fig. 13 left; Tomber et al., forthcoming]. These graffiti represent the twelfth written language recorded thus far from excavations at Berenike. Wood from the genus Boswellia, the tree that produces frankincense, also derived from an early Roman context (personal communication from J. Zieliński). Excavations (trench BE10-59) in a late Roman trash dump deposited atop, inside and outside abandoned buildings in the late Roman commercial-residential area recorded a small bronze coin whose identification remains unknown. The obverse bust had a lunate-shaped crown, which has parallels with some Aksumite issues, but the reverse had no discernable parallels with either South Arabian or Aksumite coins (Fig. 11 & 12).² Perhaps this is a barbarous copy of some Aksumite coin or other prototype. This unusual specimen represents only one of a handful of non-Ptolemaic/non-Roman coins documented from ten seasons of excavations at Berenike. In addition, analysis of samples of vesicular basalt undoubtedly used as ships’ ballast from the harbor area

Fig. 9. South Arabian graffito of early Roman date. Each black and white increment on the scale = 1 cm. Photo by S.E. Sidebotham.

Fig. 10. South Arabian graffito of early Roman date. Scale = 5 cm. Photo by S.E. Sidebotham.

Fig. 11. Obverse of an aes coin from late Roman trash dump trench BE10-59. Each black and white increment on the scale = 1 cm. Photo by S.E. Sidebotham.

Fig. 12. Reverse of an aes coin from late Roman trash dump trench BE10-59. Each black and white increment on the scale = 1 cm. Photo by S.E. Sidebotham.

of Berenike (Fig. 13) indicated a provenance of Qana’ [Peacock et al., 2007: 59; personal communication from J.A. Harrell], an important Indian Ocean emporium on the southern coast of Arabia (modern Yemen) active from at least the first century BC to the seventh century AD [Sedov, 2007]. Clearly, at least some ships sailed between Berenike and Qana’ in the early Roman period; Qana’ was a primary destination to acquire frankincense [cf. Periplus Maris Erythraei 27] as well as an intermediate stop en route to/from India or, less likely, the Persian Gulf.

Small-scale industrial activities took place in abandoned areas of the western part of the harbor (trench BE10-55) in the first and second centuries AD. These included manufacture of items made of mother-of-pearl, mica, beryl, sard and obsidian. A late Roman (late fourth through late fifth/sixth century) trash dump located in the late Roman commercial-residential part of the city and immediately northeast of trenches BE99-28/BE00-38 was substantial and excavations there (trench BE10-59) produced a bonanza of ecofacts, and both organic and inorganic artifacts. Sizeable quantities of scraps of discarded and clearly worked leather, wood, animal horn and turtle shell (Fig. 14) signaled the presence of small scale industries using these materials at that time in this part of the city.

The Periplus Maris Erythraei (3, 4, 7, 10, 13, 15, 16, 17, 30, 33, 56, 61, 63) indicates that tortoise/turtle shell was an item commonly available and traded at emporia throughout the Red Sea and Indian Ocean [cf. Casson, 1989: 101-102] in early Roman times and Berenike must now be added to that list of ports, at least in the late Roman period.

Excavations in late Roman trash dump trench BE10-59 produced over 1000 beads, many of which were the Indo-Pacific type. There were also beads of local origin, as well as noticeable amounts of gold beads from the early Roman period and beads made of various semiprecious stones (carnelian, garnet, and crystal) (Pl. A1 - A2 - A3). The late Roman trash deposit also produced banded agate cameo blanks imported likely from the Barygaza region of India [Gupta et al., 2004: 32] and found elsewhere in India [Francis, 2004: 492 (Fig. 7.31) for Arikamedu and personal observations of S.E. Sidebotham at Pattanam]; those from the late Roman trash deposit were, however, much smaller than had been found during earlier excavation seasons at Berenike [cf. Harrell, 1998: 143-144; Harrell, 1999: 112]. Documentation of peppercorns, coconut husks and resist-dyed Indian textiles (Fig. 15) from the late Roman trash amply illustrate continued and vibrant contacts with South Asia at that time. A coarse ware sherd had been incised prior to firing with
a swastika (Fig. 16), a symbol prevalent throughout South Asia for some millennia. Close parallels for this swastika appear on pottery and coins documented from early historic sites in South Asia (especially southern India and Sri Lanka) and these have trade-related implications [Rajan, 2008: 28, 29 (Fig. 3), 30, 31 (Fig. 5), 32, 139 (Plate 3, bottom)]. A similar swastika had been carved into a late Roman-era Aswan bowl fragment, but that sherd was, unfortunately, a surface find. Excavations in late Roman trash dump BE10-59 also documented additional outstanding examples of hand-made and burnished Eastern Desert Ware (Pl. A4 & Fig. 17) and portions of a circular wooden box lid painted in red, black, yellow and green (Fig. 18); the latter has parallels from various Coptic sites in Egypt, including Naqlun in Fayum Oasis (I. Zych personal observations).

Both early and late Roman trash dumps contained a number of examples of early Roman millefiori glass (vessels, inlays and beads) and other types of fine glassware including significant amounts of sophisticated cast and facet cut colorless examples (goblets, beaters, dishes and bowls). There were also enameled specimens (cups and beaters), as well mould-blown vessels (beakers and toilet flasks). Luxury techniques of gilding and cameo glass (both early and late Roman, as well as blanks) were present in this material. Ordinary household wares in the shape of thick-walled containers (some with molded bases), unguetaria of various shapes, and late Roman conical lamps, many with blue glass attachments, were also recorded (Pl. A5 & Fig. 19-20); also documented were samples of lapis specularis (windowpane stone) (personal communication from R. Kucharczyk). Glass, both raw and fine finished products, was among the important export items from the Roman world to other areas of the Red Sea and Indian Ocean [Periplus Maris Erythraei 6, 7, 17, 39, 49, 56; cf. Casson, 1989: 20-23, 40-41, 111-112, 126-127].

An oval-shaped finger ring gemstone incised with a seated female winged sphinx was a surface find near the early Roman trash deposit (Pl. A6); it dates to the second half of the first century BC (personal communication from G. Platt-Horster). Identification of fragments of Mesopotamian-made “torpedo” jars from the late Roman trash dump indicates interaction with the Persian Gulf at that time (personal communication from R.S. Tomber; cf. Tomber, 2007). While this contact was likely by sea via Indian Ocean ports in southern Arabia such as Qana’ or Sumhuram/Khor Rori, their arrival at Berenike by some overland route cannot be ruled out.
Religious activities

Sometime in late 2007 or early 2008 vandals dug robber holes in the Serapis Temple and its environs. As a result, during the 2009 and 2010 seasons, the project initiated a study of the temple (Fig. 21 & 22) the only previous and incomplete records of which had been made in the nineteenth and early twentieth centuries when the sanctuary was “cleared” on a number of occasions [cf. Meredith, 1957]. Our on-going project aims to produce as complete a plan, elevation drawings and photographic record as possible of this important edifice.

Excavation of a structure in what appeared to be the middle of the harbor south and east southeast of the Ptolemaic industrial area identified a late Roman-era temple (Trench BE10-61 complex) (Fig. 23 & 24). The structure had at least two phases of use. Fieldwork identified an earlier phase that included rows of benches parallel to the interior eastern and western walls of the temple; this remained unexcavated at the conclusion of the 2010 season (Fig. 25). Excavations in trenches BE98/99-23/BE99-32 revealed a late fourth/early fifth century AD religious shrine that also had rows of low benches parallel to the interior walls [Sidebotham, 2007: 79 (Figure 4-45, Plate 4-46), 80 & Plate 4-47; 81 (Figure 4-48, Plate 4-49, 83)] very similar to those that began to appear in the harbor temple complex.

The latest phases of this harbor temple were, according to the ceramic finds, fourth to sixth centuries, with most activity undoubtedly occurring in the fifth century. The presence of a late Roman-era temple in this location suggests, and the geomagnetic survey described above seems to corroborate, that the edifice had been constructed on an island or dredge heap. The temple, built of coral heads and ashlars of gypsum/anhydrite, preserved a single portal at the southern end. The interior dimensions of this edifice were 8.5 m N-S x 4.0 m E-W. Excavations also recorded approximately 50 cowry shells 31 of which lay clustered at the single narrow entrance on the southern side of the building (Fig. 26). Many of these
shells had either been pierced, probably to be strung and hung on a wall, from the ceiling or from one of the other decorative features of the cult center; many of those in the doorway had the longitudinal portions of their tops deliberately removed. The goddess Isis was known as a powerful magician-healer who regularly cast spells and used charms [McCabe, 2008: 20]; the most obvious and powerful demonstration of these powers was her resurrection of Osiris [Wilkinson, 2003: 147]. Isis' followers used cowry shells in divination/prognostication so the discovery of the shells here suggests that such activities took place in this harbor temple. Undoubtedly, those about to venture to sea would have wanted to know what lay in store for them and prognostication in a harbor temple close to where they would be embarking for their dangerous voyages would have alleviated, to some extent, the angst many felt prior to departure. That this non-Christian religious facility would still be operational long after the issuing of several Theodosian decrees in the later fourth century ordering closure of such pagan facilities [Frankfurter, 1998: 23-27] is not at all unusual. Throughout Berenike pagan temples remained open in this later period [Sidebotham & Wendrich, 1998b: 93-95; Sidebotham & Wendrich, 2001-2002: 29-35]. Elsewhere in Egypt Isis temples also continued to operate after the Theodosian fiats had been issued [Frankfurter, 1998: 40-41, 104-106].

Bones found inside the temple were ovicaprid and all indicated that they had been sacrificed by the age of four weeks (personal communication from M. Osypińska). Likely, those setting out on or returning from long and dangerous voyages paid homage to this multi-faceted deity in a variety of ways.

Ashlar blocks made of white gypsum/anhydrite formed the outer face of the northern wall of the temple exposed in trench 61 complex with fossilized coral heads comprising the inner face (Fig. 27). This unique building style has been documented nowhere else in excavations at Berenike. White gypsum ashlar blocks also formed the wall at the extreme north-eastern interior corner of the harbor temple. Excavations in trench 70, adjacent to and northwest of the temple in trench 61 complex, documented numerous sizable tumbled white gypsum/anhydrite ashlers (Fig. 28). Some of the ashlers preserved the remains of wooden clamps originally used to “tie” the blocks together. Immediately west of this tumble was an open area rectilinear in plan surrounded by numerous white gypsum/
anhydrite blocks (Fig. 29). Excavations documented only the uppermost/latest surface loci of trench 70 and the adjacent area; dates of these strata were late Roman, fifth possibly into the sixth centuries AD. Yet, the white gypsum ashlars here appear to date much earlier than late Roman times; they may have been originally part of a Ptolemaic or early Roman edifice. It is likely that the Isis temple in its latest phases made some use of an earlier structure comprising white gypsum/anhydrite ashlars.

The only other structure thus far recorded at Berenike made almost entirely, if not completely, of white gypsum/anhydrite ashlars is the Serapis temple at the highest part of the site. The similarity in building materials and construction techniques of the Serapis temple and the structure/s adjacent to the harbor temple suggest a contemporary date for both. Perhaps these structures were part of the same building project initiated, likely, sometime during the Ptolemaic-early Roman period. The reigns of Ptolemy VI-VIII (180-116 BC) witnessed much temple building throughout Egypt [Hölbl, 2001: 257, 259]; perhaps the Serapis temple and structure in trench 70 and environs were originally erected as part of a widespread Ptolemaic construction project at that time.

Immediately inside and in the extreme southwestern corner of the late Roman-era harbor temple excavations documented a small closed-form coarse ware jar that had a lid comprising the base of another coarse ware vessel. The small container preserved the remains of about 50 thin curved and repoussé-decorated pieces of silver resembling *lunulae* in shape (Fig. 30); many of these preserved the remains of nail holes and some of the small bronze nails were still extant in the holes (Fig. 31). The material adhering to some of the nails and interiors of the silver pieces was neither wood (personal communication from J. Zieliński) nor bone (personal communication from M. Osypińska). The holes for the nails were made from inside out, while the nails were inserted from the outside in. One double-piece appeared to be connected together. A careful study of the sizes of these silver pieces should reveal whether they were three-dimensional ornaments and if the material inside them was a type of adhesive or filling substance designed to give the ornaments some weight. Perhaps these delicate pieces of silver once adorned the shrine.

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This harbor shrine contained a recycled inscription of Trajan dedicated to Isis, Tyche and perhaps Serapis (personal communication from R.S. Bagnall: Fig. 32) during the emperor’s first year on the throne (98 AD). The emperor’s name had been misspelled. Unfortunately, the right hand portion of the text had been destroyed by exposure to excessive amounts of moisture after the inscription had been reused. Excavations in trench BE00-37 also documented an inscription dedicated to Isis made by a secretary and translator, also during the reign of Trajan [Sidebotham, 2007: 126, 127 (Plate 4-100 & Figure 4-101), 128, 129; Bagnall et al., 2005: 27-28 (no. 121)]; it had also clearly been recycled from its original context. This stone from trench BE00-37 was, however, too large to have been from the “harbor temple” and must derive from some other shrine dedicated to Isis located elsewhere in the city that has yet to be identified.

Additionally, there were stone temple pools (Fig. 33), close parallels for which had been excavated in Berenike previously in Trenches BE95-6 [Sidebotham, 1996: 86 (Figure 3-63), 87 (Figure 3-64), 88 (Figure 3-65), 92, 93 (Figure 3-68)] and BE98-23 [Sidebotham, 2000: 137, 138 (Figure 2-92), 139 (Figure 2-93), 140 (Plate 2-94), 141 (Plate 2-95), 142 (Plate 2-96)].
Both trenches BE95-6 and BE98-23 were late Roman religious cult centers. The larger of two temple pools from the harbor shrine excavated in 2010 appeared abutting the aforementioned Trajanic inscription while a smaller one in poor condition had been recycled upside down and propped up one of the stone altars found at the extreme northwestern interior of the edifice. Water played an important role in the cults of both Isis and Serapis [Wild, 1981] and the documentation of miniature stone temple pools from this edifice fits nicely with the cult/s honored here.

The harbor temple in the trench BE10-61 complex also preserved stone altars (Fig. 34), one of which contained ashes and a bone from the final sacrifice; it had clearly been in use for some time as it had been cut down and its original base was missing. This particular altar had carved on its sides decoration forming a “V” shaped motif (Fig. 34, altar in foreground). This may be a stylized representation of bull or ibex horns. Other finds included a terracotta incense burner (Fig. 35), “Frog” type terracotta oil lamps (Fig. 36), a bronze patera/phiale with traces of an iron tripod attached (Pl. A7), a pair of extremely thin, decorated bronze handles (Fig. 37) and remains of wooden bowls (Fig. 38); numerous parallels for the latter have been documented from early and late Roman pagan cult centers in Berenike in previous seasons [Sidebotham, 1999].

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**Fig. 32.** Inscription recording dedication to Isis, Serapis and perhaps Tyche in first year of the reign of Trajan. Scale = 50. Photo by S.E. Sidebotham.

**Fig. 33.** Stone temple pool from the harbor temple. Scale = 20 cm. Photo by S.E. Sidebotham.

**Fig. 34.** Stone altars in the northwestern corner of the harbor temple. Note bronze patera/phiale in situ. View looking northwest. Scale = 20 cm. Photo by S.E. Sidebotham.

**Fig. 35.** Terracotta incense burner from the harbor temple. Scale = 5 cm. Photo by S.E. Sidebotham.

**Fig. 36.** “Frog” type terracotta oil lamps from the harbor temple. Scale = 20 cm. Photo by S.E. Sidebotham.

**Fig. 37.** Thin bronze handles from the harbor temple. Scale = 5 cm. Photo by S.E. Sidebotham.

**Fig. 38.** Remains of wooden bowls (outlined in white) in the harbor temple. View looking north northeast. Scale = 50 cm. Photo by S.E. Sidebotham.
A column, still upright (Fig. 39), but leaning slightly, stood at the central northern-most interior end of the harbor temple immediately east of the aforementioned stone altars. The top of the column was not preserved, but may originally have been used as an altar. Previous excavations recorded a similar type of column-altar, with burning extant, in the late fourth/early fifth century shrine in trenches BE98/99-23/BE99-32 [Sidebotham, 2000: 136 (Figure 2-90), 137, 138 (Figure 2-92), 139 (Figure 2-93), 140 (Plate 2-94), 141 (Plate 2-95), 142 (Plate 2-96); Sidebotham 2007: 79 (Figure 4-45 no. 7, Plate 4-46, Plate 4-47, Figure 4-48 no. 9].

Ostrich eggshell fragments found throughout the trench, but especially near the leaning column, preserved apparent magic/religious incantations in red paint (Fig. 40). The quantities of shell fragments suggested the presence of two eggs, which, since prehistoric Egyptian times, represented eternal life, rebirth and resurrection, and this religious and funerary affiliation continued into the Christian and Islamic eras [Green, 2006]. A pentagram/five pointed star appeared painted on one of the eggshell fragments and scratched as a graffito on the bottom of a terracotta lamp fragment from the temple (Fig. 41); these pentagrams likely represent the Dog Star Sopdet/Sothis/Sirius, another symbol identified with Isis [Witt, 1971: 15, 19; Plates 63-64; Pinch 2002: 151; Wilkinson, 2003: 147, 167-168]. The appearance of Sirius in the heavens marked the start of the New Year and the beginning of the Inundation season in Egypt, both associated with Isis [Witt, 1971: 15, 19; Pinch, 2002: 151; Wilkinson, 2003: 147, 168]. An anchor-like design, also painted in red, appeared on one of the ostrich eggshell fragments (Fig. 42), an allusion, perhaps, to the maritime commerce that was Berenike’s raison d’être. Isis was protectorress of sailors and harbors, and the Navagium Isidis/Ploiaphesia ceremony, which opened the sailing season each year in the Mediterranean in Roman times [Witt, 1971: 101, 179; Dunand, 1973: 223-230], must also have resonated in the Red Sea maritime environment.

Ships and the long distance trade

There has been much speculation about the appearances, sizes, materials and methods of construction of Ptolemaic and Roman ships that sailed in the Red Sea. New data has recently been recorded about Middle and early New Kingdom ships sailing between Egypt and Punt, es-
especially from excavations conducted at ‘Ain Sokhna just south of Suez [personal observations of authors; Abd el-Raziq et al., 2006] and at Wadi Gawasis [personal observations of authors; Bard and Fattovich, 2007], which lies between Safaga and Quseir. Several ancient authors describe local and regional ship building traditions in more southerly areas of the Red Sea and in the Indian Ocean in the early and late Roman eras.

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**Fig. 43.** Ship timbers from near the Serapis temple. Photo by S.E. Sidebotham.

**Fig. 44.** Ship timbers, ropes and other maritime-related gear from the harbor area. View looking northeast. Scale = 50 cm. Photo by S.E. Sidebotham.

**Fig. 45.** Ship timbers, ropes and other maritime-related gear from the harbor area. View looking northeast. Scale = 50 cm. Photo by S.E. Sidebotham.

**Fig. 46.** Ship timbers from the harbor area. View looking southwest. Scale = 5 cm. Photo by S.E. Sidebotham.

**Fig. 47.** Detail of ship timbers showing mortise-and-tenon construction, from the harbor area. Scale = 5 cm. Photo by S.E. Sidebotham.

**Fig. 48.** Drawing of ship timbers showing mortise-and-tenon construction, from the harbor area. Drawing by M. Hense.
[Periplus Maris Erythraei 15-16, 27; Procopius, History of the Wars 1.19.23-26]. Yet, for the Ptolemaic and Roman period ships sailing the Red Sea we have only very brief descriptions of ancient classical writers [cf. Periplus Maris Erythraei 10] and speculation from specialists in the field [cf. Casson, 1989: 35, 291]. No Ptolemaic or Roman shipwreck has ever been scientifically excavated in the Red Sea [cf. Pedersen, 2000]. Ptolemaic or Roman ship timbers had been recorded previously at Berenike, but these comprised recycled teak timbers with dowel holes, likely evidence of mortise-and-tenon construction, used to stabilize walls of structures in the late Roman city [Sidebotham, 1999: 26; Vermeeren, 1999; Sidebotham, 2000: 21; Vermeeren, 2000]. The project found some cedar timbers of unknown date (one of which measured 2.33 m long) with apparent dowel holes and iron nails, recycled in some architectural function near the Serapis temple (Fig. 43). While lead sheathing for merchant ships, so typical of the Mediterranean, sails, brailing rings and other maritime-related gear had previously been recorded from excavations at Myos Hormos [Whitewright, 2007] and Berenike [Sidebotham, 2008], nothing of the timbers from early Roman vessels had been documented from anywhere in the Red Sea region until the 2010 season at Berenike. Field analysis of first to second century AD timbers (Fig. 44-46) excavated in the harbor area, some measuring as long as 3.15 m, indicated that they were cedar, originating from Lebanon, and that they were joined together using a close fitting mortise-and-tenon construction technique very typically found in the Mediterranean at that time (Fig. 47 & 48). In addition, large ropes made of palm fiber averaging 6-6.5 cm in diameter with individual lengths up to 13 m long, and clearly used in a maritime capacity, lay strewn among the timbers (Fig. 49 & 50). Also among the finds were baskets and matting. Some of the latter had clearly been used in a ground insulating capacity. Slightly over 11 kg of obsidian, clearly imported, perhaps from a more southerly region of the Red Sea, were found strewn among the ropes, ship timbers, baskets and matting. The Periplus Maris Erythraei (5) [cf. Casson, 1989: 109; De Romanis, 1996] notes obsidian as an article for trade, but does not indicate what function it served. The precise cutting qualities of sharpened obsidian tools are well known and it may have been that the obsidian from the harbor was destined for cutting in the leather, bone, turtle/tortoise shell and wood industries that were part of Berenike’s economy.

A bollard ca. 66 cm visible height x 24-31 cm in diameter made of cedar lay just northwest of the ship timbers (Fig. 51), ropes and other maritime paraphernalia indicating that ships or lighters still tied up to this more easterly portion of the harbor in the first and second centuries AD. Remains of a resinous material covered much of the matting and stones in the area adjacent to the bollard suggesting an attempt to waterproof or stabilize those surfaces. Near the bollard excavations documented two blocks of Syrian fir tree resin (Abies cilicica) (personal communication from J. Zieliński). One block weighed 190 g and the other 339 g. This resin, produced in areas of greater Syria and Asia Minor, and its oil were used extensively in antiquity for mummification, as an antiseptic, a diuretic, to treat wrinkles, extract worms and promote hair growth [Manniche, 1999: 64-65].
Desert hinterland survey

The project’s Eastern Desert survey recorded several sites (Fig. 1). One, located near Berenike in Khor Wadi Lahami at (24° 12.34.6’ N/35° 24.34.4’ E), lay west of the asphalt highway and opposite the entrance to the Lahami Bay Hotel. Ruins here comprised the foundations of a small structure built of white porous limestone obtained from near the Red Sea coast. This architectural feature was rectangular/trapezoidal in plan with outside measurements of ca. 4.70 m N-S x 8.80 m E-W (Fig. 52). The structure had been dismantled down to its foundations. Those ashlars remaining in situ formed walls ranging in thickness from ca. 0.35 to 0.45 m. Much of the stone from this structure had been recycled into nearby cairns, which were adjacent to a camel track. The associated sherds were few and mostly non-diagnostic; fragments of Late Roman Amphora 1 could be dated fifth century AD according to project ceramologist R.S. Tomber. Several graves, apparently ancient in date and undisturbed, lay to the east of the dismantled structure; the best preserved of these was at 24° 12.34.6’ N/35° 24.37.3’ E.

Another site, first recorded by J.A. Harrell, lay at 24° 32.26.9’ N/34° 44.41.3’ E (approximate middle of the site) ca. 750 m SE of the center of the major settlement at Kab Marfu’a and overlooking Wadi Gemal (Fig. 53 & 54). The survey named this settlement Kab Marfu’a East. Analysis of surface ceramics by R.S. Tomber indicated activity here between the second and fifth century AD, contemporary with Kab Marfu’a [cf. Sidebotham et al., 2005]. In addition to sherds, the survey also gathered pieces of beryl and bi-valve shells, indicating some contact with the Red Sea. Kab Marfu’a East comprised approximately 60-70 structures ranging from single-roomed to multiple-roomed edifices. Maximum preserved wall height was ca. 2.0 m; walls were ca. 0.50-0.70 m wide with outer
faces comprising larger cobbles and the cores of smaller cobbles and pebbles, a construction style typical of the Eastern Desert. Building methods included both free-standing and those that had large boulders as at least one of their walls. A number of the rooms had extant niches and alcoves (Fig. 55) similar to those at Kab Marfu’a, Sikait and Shenshef. In approximately the center of the site was a large circular grave built of stacked cobbles and small boulders measuring approximately 1.25 m high x ca. 4.8-4.9 m in diameter (Fig. 56). The internal chamber was visible, but too filled in with fallen stones to determine if it was for a single or multiple burials. The function of Kab Mafu’a East was not obvious, but may have been analogous to Kab Marfu’a, viz. as a beryl/emerald processing center; certainly, there was no evidence of mining at this site. The survey intends to draw a detailed plan of Kab Marfu’a East during a future field season.

J.A. Harrell alerted the survey to the existence of a small settlement at Rikez Allah at 24° 17.912’ N/34° 26.216’ E. Comprising 14-15 structures, some with multiple rooms, courtyards and interior walls preserving niches, the buildings at Rizek Allah had maximum extant wall heights of 1.50 m and widths varying from about 60 to 70 cm (Fig. 57 & 58). The presence of quartz hand grinders suggested some type of ore processing though the survey documented no mines in the vicinity. R.S. Tomber dated the surface pottery collected here from the late fourth into the fifth century AD.

J.A. Harrell also reported his discovery of an ovoid-shaped feature in Wadi Khashab. The Berenike survey visited the site, which measured about 19 m N-S x 21 m E-W (at 24° 19.396’ N/34° 31.477’ E) and comprised a series of sharp pointed, relatively long, but narrow upright stones (maximum preserved height 1.40 m) enclosing a core of smaller cobbles and boulders. Entrances to this ovoid feature appeared on the
southeastern and northern sides and the interior comprised a series of burials (Fig. 59). Five sizeable robber holes appeared inside the enclosure, one of which revealed the large bones of longhorn cattle (personal communication from M. Osypińska). The specimen, whose bones had been exposed by robbing, is estimated to have weighed one and a half tons. Other apparent unrobbed burials remained. Outlying and much smaller concentrations of thin, long, sharp pointed stones acted as satellites to the main ovoid enclosure, but the function of these smaller satellites remains unknown. One of the stones measured 3.23 m long; others were shorter, but nearly as impressive. These perhaps had been erected as obelisk-like dedications surrounding the main ovoid burial enclosure. Clearly, the stones used to construct the enclosure and smaller satellite features derived from rock outcrops about 100 m south of the large ovoid-shaped structure. Two extensive visits to the site recorded no pottery from the enclosure. Thus, only C14 analysis of the cattle bones will provide some date for this highly unusual desert architecture. The closest parallels functionally are Neolithic cattle burials seen elsewhere in Egypt and Sudan [Murray, 1926; Brass et al., 2003; Brass, 2007].

The survey recorded a small mining site, complete with an oval-shaped processing area (approximately 10.8-11 m N-S x 14.8 m E-W) in Wadi Siqdit at 25° 26.484' N/34° 02.479' E: Fig. 60 & 61). Project ceramologist R.S. Tomber could not identify the pottery collected here, but it was not recognizably Ptolemaic, Roman or Islamic.

Fig. 59. Wadi Khashab ovoid enclosure containing cattle bones. View looking north. Photo by S.E. Sidebotham.

Fig. 60. Mining and working area in Wadi Siqdit. View looking south. Photo by S.E. Sidebotham.

Fig. 61. Working area near mine in Wadi Siqdit. View looking west. Photo by S.E. Sidebotham.
Conclusion

The documentation of a new ostraca archive dealing with Berenike's water supply in the early Roman period taken together with the partial excavation of a temple area in the harbor and of maritime-related artifacts including ship hull planking, ropes, etc. provides new evidence about important activities at the port. The putative dog cemetery found north of the harbor may offer new insights into the relationship some of the city's residents had with their canine companions. The plethora of finds from the late Roman trash dump are evidence of small scale industrial activities in Berenike at that time and also corroborate data recovered from earlier seasons about the extensive commercial contacts Berenike had with South Asia in the latter fourth, fifth and into the sixth centuries AD. Some, albeit probably quite limited, contacts between Berenike the Persian Gulf were also maintained during late Roman times. Finally, the documentation of a thriving cult dedicated to Isis and other deities in the late Roman period in the harbor area attests continued and robust religious and commercial activities in Berenike at that time.

Continued surveying in the desert hinterland indicates that many more sites remain to be identified and studied and that these are from a wide range of chronological periods.

References


Berenike: Archaeological fieldwork at a Ptolemaic-Roman port. Beads from late Roman trash dump trench BE10-59. Scale = 5 cm. Photo by S.E. Sidebotham.

Imported and Egyptian-made beads from late Roman trash dump trench BE10-59. Scale = 5 cm. Photo by S.E. Sidebotham.

Faience, glass and semi-precious stone beads from the late Roman trash dump trench BE10-59. Scale = 5 cm. Photo by S.E. Sidebotham.
**Pl. A4. S. Sidebotham and I. Zych.**
Eastern Desert Ware from late Roman trash dump trench BE10-59. Scale = 5 cm. Photo by S.E. Sidebotham.

**Pl. A5. S. Sidebotham and I. Zych.**
*Millefiore* glass fragments. Scale = 5 cm. Photo by S.E. Sidebotham.

**Pl. A6. S. Sidebotham and I. Zych.**
Finger ring gemstone depicting winged and seated sphinx. Photo by S.E. Sidebotham.

**Pl. A7. S. Sidebotham and I. Zych.**
Bronze *patera/phiale* with traces of iron tripod attached (after conservation) from the harbor temple. Scale = 5 cm. Photo by S.E. Sidebotham.