Some Ptolemaic and Roman Sites in the Central Eastern Desert

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Abstract

The University of Delaware conducted numerous surveys in the Eastern Desert between 1987 and 2015. This contribution examines eight sites studied between 1990 and 1999 that lay east of the Nile city of Qena in Upper Egypt. They include mines, quarries, and road infrastructure (forts and accommodations for transport animals) that supported these mineral extraction activities. Sites throughout the region range from pre-historic to Islamic and modern, but this study focuses only on those from the Ptolemaic and Roman periods.

Examination of sites presented here expands our knowledge of the economic importance of this area of the Eastern Desert, dominated by mines and quarries and the infrastructure that facilitated exploitation of mineral resources and their transport to the Nile valley city of Qena.

Introduction

Small teams under the aegis of the University of Delaware conducting archaeological surveys in the Eastern Desert between 1987 and 2015 recorded numerous examples of petroglyphs, cleared road sections, and graves and settlements from all periods with a special focus on the Ptolemaic and Roman eras. Time free for fieldwork, availability of suitable personnel, adequate funding, and requisite permits limited which areas could be exam-
ined and in what detail they could be recorded during these nearly three decades. Surveys ranged as far north as GPS 28° 16.77' N/31° 53.96' E (an Early Roman and perhaps Early Islamic site at Umm Suwagi on the Via Nova Hadriana), as far south as 22° 34.07 N/35° 15.86' E. (a pre-dynastic animal cemetery at Bir Asele/Esila), up to the Red Sea coast on the east and the Nile valley on the west. It is clear from discussions with Bedouin informants and guides that there are many more sites to be recorded.

This article presents eight sites documented between 1990 and 1999 during these surveys in the central part of the Eastern Desert east of the Nile city of Qena (ancient Kainopolis/Maximianopolis) in Upper Egypt. This area of the desert witnessed extensive and intensive activity in the Ptolemaic and especially the Roman eras. The similarity of function and relative proximity of these sites to one another, and their reliance on Qena for logistical support warrants their separate study.

The sites examined included mines, quarries, and road stations supporting traffic between locations in the Eastern Desert and the Nile. All were interconnected.

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1 The authors thank J. Harrell for his useful comments on this manuscript and also thank the various offices and officers of the Egyptian Antiquities Organization (predecessor of the Supreme Council of Antiquities) for granting permits and assistance.
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Fig 3. Coordinates of the sites under discussion.

Fig 4. Schematic overview of survey methods using polar coordinates (left) and tacheometry (right).
by roads, whose ultimate western terminus was Qena. The sites presented are Fatireh al-Beida, (Wadi) Abu Shuwehat, (Wadi) Abu Greiya, Gidami, Abu Gerida, Bukhalug, (Bir) Sirbakis, and Eridiyah. Since the surveys took place, a team from the Mission archéologique française du désert Oriental (MAFDO) has recorded more accurately and partly excavated the Ptolemaic gold mining settlement and Roman fort at al-Ghuzzah. As a result, discussion of that site is not included here although the Delaware teams originally surveyed it during the same period.

Saleh Ali Suelim, the project’s Ma ‘aza Bedouin guide, introduced the teams to all the sites and assisted with the work. The survey teams used tape measures, a hand-held compass, a Wild T2 theodolite, a stadia rod, and a Magellan NAV 1000 hand-held GPS receiver to plot sites and draw the plans. Until May 2000, GPS accuracy for civilian receivers was limited by the US Department of Defense Selective Availability Program to a resolution of around 100 m. As a result, the sites were relocated on Google Earth in late 2021 and the more accurate coordinates resulting from this are presented here.

Depending on the layout of extant structures, survey teams calculated dimensions either directly by measuring tape or measuring to a temporary baseline or established from observations taken with a theodolite and stadia-rod, a survey method known as tacheometry (fig. 4).

Sites Surveyed

Fatireh al-Beida

The survey visited Fatireh al-Beida in June 1993 and drew a plan in August 1997. The site is about 200 m south of the modern al-Gesh-Safaga highway, which did not exist in 1997. Aside from relatively small-scale quarrying activities, Fatireh al-Beida may also have occasionally served as a stop linking quarrying operations at Mons Claudianus, ca. 23.3 km away towards the northeast via various wadis—with Qena.

The maximum size of Fatireh al-Beida was ca. 85 m N-S x 135 m E-W with the densest concentration of structures in the center of the site measuring ca. 65 m N-S x 50 m E-W (fig. 5). Edifices at Fatireh al-Beida were primarily rectilinear in plan with walls ca. 0.6-0.9 m high x 0.4-0.6 m wide (figs. 6–7). There were at least three dif-
ferent types of stone used in wall construction, which comprised stacked cobbles and boulders. While many extant buildings were free-standing, others used natural rock faces for one or more of their walls. There was a quarry ca. 80 m northwest of the center of the main settlement that provided some of the building stone used for constructing the temple/shrine (discussed below).

Structures throughout the site appeared to be roughly contemporary except for a semi-circle of stones (fig. 5.1) towards the southwestern side, which seemed to be a later addition. There was a staircase (fig. 5.2) leading to features on a hilltop in the center of the site, one of which may have been a watchtower. There was a putative temple/shrine immediately below and west of the hilltop with the staircase (fig. 5.3). The function of other structures could not be positively identified, but these likely included residential facilities, storage rooms and, just
northwest of the temple/shrine (figs. 8–9), probably an administrative center (fig. 5.4), an identification based on its prominent location and multiple rooms.

The most noteworthy structure at Fatireh al-Beida was, likely, a temple/shrine built of locally quarried quartz diorite. Its overall dimensions were about 3.2 m N-S x ca. 3.5 m E-W x ca. 2.70 m high. \(^7\) The outer walls comprised large boulders and cobbles. There was a niche at its eastern end (fig. 9.4) cut into the natural rock, which measured about 1.2 m wide x 0.8 m deep. Some roof slabs (fig. 9.6) from the nearby quarry remained in situ and preserved quarry wedge marks. Some of these blocks were quite large (2.9 m x 0.9 m). The single entrance on the western wall measured ca. 0.75–0.80 m wide and had been narrowed (fig. 9.7) on its northern side. On the external northern face of the temple wall was a triangular-shaped platform (fig. 9.8). There were two upright slabs of stone (fig. 9.5) flanking the niche on its northern and southern sides, which wind-blown sand partly covered (fig. 9.9). There was no evidence of who might have been venerated here.

The survey did not document any animal tethering lines at Fatireh al-Beida, which suggested that supporting logistical operations to and from Mons Claudianus was not an important function for this site. Surface sherds dated predominantly to the second half of the first to early second centuries AD with a small sampling dating from the fourth to fifth centuries AD. \(^8\) If the dates of the sherds were an accurate reflection of periods of use, Fatireh al-Beida was a short-lived site.

**Pottery**

Fig. 10.1. Carinated dish with everted rim. Sandy purple-brown (10R 5/4) alluvial matrix, elsewhere orange (10R 6/6) throughout or internal margins and red-brown (10R 5/6) surfaces, part blackened on the underside. Dull matt wash or slip. Parallel: Imitation of ESA Hayes Form 34, mid-first century AD.

Fig. 10.2. Large hemispherical bowl with exterior groove below rim. Sandy marl with gray-green core and dull orange-red margins. Discolored surfaces. Parallel: Mons Claudianus bowl type 16, second century AD in

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\(^8\) R. Tomber completed field recording of this material in 1997. Descriptions are based on her field notes and drawings.

**Fig. 10.3.** Overhanging ledge-rim krater or basin. Sandy marl with pale green to gray core and dull pink margins. Characterized by poorly sorted clay, sometimes as lumps, common large quartz sand, and some lime and organics, particularly visible as white, flat plates. Red-brown surfaces, discolored. Parallel: Mons Claudianus jar type 90, first–second century AD, in Tomber, “The Pottery,” fig. 1.36.

**Fig. 10.4.** Strainer jug with internal ledge and angled rim. Calcareous fabric. Dull brown margin with pink external lense and white slip outside and to base of rim inside. Parallel: al-Ghuzzah, late first century AD, in Gates-Foster et al., “Early Imperial fortress of Berkou,” fig. 19.8.

**Fig. 10.5.** Wide-mouth cooking pot with slightly everted upper rim. Traces of square handle at shoulder and below rim (not illustrated). Orange-brown alluvial fabric with red-brown core and surfaces. Fine, with rare organic and limestone impurities. Parallel: Mons Claudianus cooking pot type 32, first-second century AD, in Tomber, “The Pottery,” fig. 1.29.

**Fig. 10.6.** Wide-mouth cooking pot with squared-off handle joined to sharply everted rim. Brown alluvial fabric with pink core and red-brown surfaces. Slightly sandy. Parallel: Al-Ghuzzah, late first century AD, in Gates-Foster et al., “Early Imperial fortress of Berkou,” fig. 17.13.

**Fig. 10.7.** Wide-mouth cooking pot with sharply everted broad, flat rim. Fine brown alluvial fabric with some visible inclusions. Brown with slightly red-brown external surface. Parallel: Mons Claudianus cookpot type 59, first-second century AD, in Tomber, “The Pottery,” fig. 1.32.

From Fatireh al-Beida there were two options to reach the Nile. The shorter one—ca. 119 km long—left Fatireh al-Beida, headed southwest for ca. 31 km to the sizeable facilities at (Wadi) Abu Shuwehat and then ca. 47 km towards the south-southwest crossing the Naq’ at-Ter (plain) to reach the station at Abu Greiya, discussed below, which is currently ca. 41 km from Qena via the modern highway. The sizeable distance between Abu
Shuwehat and Abu Greiya may suggest that there was an intermediate stop, which has never been located. Alternatively, the large animal accommodations at Abu Shuwehat may reflect intense efforts to water and feed animals prior to departing for the long journey to Abu Greiya and/or their feeding and watering after a lengthy and somewhat uphill trip from Abu Greiya.

A slightly longer route, totaling about 124 km, had stops better placed to accommodate traffic to and from Mons Porphyrites than that associated with Mons Claudianus. Nevertheless, a track from Fatireh al-Beida might also have used this route servicing traffic from Mons Porphyrites. It headed southwest and then west and northwest across the Naq’ at-Ter to reach the station at al-Saqqia, about 49 km away. The great distance between Fatireh al-Beida and al-Saqqia suggests that there may have been an intermediate stop, but one has never been

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Fig. 11. Coordinates of selected sites mentioned in the text.
documented. From al-Saqqia, the route proceeded southwest and then south via Wadi Qena to the station at al-Heita, about 22 km away. The route from al-Heita to the next station at al-'Aras (now destroyed) was about 29 km. From al-'Aras it was only about 24 km to reach Qena.9

(Wadi) Abu Shuwehat

University of Delaware surveys visited the facilities in (Wadi) Abu Shuwehat in July 1990, late July 1992 and early June 1993.10 The site primarily served traffic between Mons Claudianus and Qena. Additionally, this route had support facilities at Abu Zawal (also a gold mine) and (Wadi) Abu Greiya (see below), all of which provided protection and resting places to feed and water draft animals. Abu Shuwehat lay ca. 31 km southwest of Fatireh al-Beida and ca. 47 km northeast of the facilities at (Wadi) Abu Greiya.

The site at Abu Shuwehat is an important example of a Roman watering station in the Eastern Desert, but it seldom appears in the literature that discusses routes and stops in the region. T. Barron and W. Hume noted it.11 D. Meredith and L. Tregenza suspected that there was a station in this general area between Abu Zawal and

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10 Sidebotham, Hense, and Nouwens, The Red Land, 319–20 for brief description, photo and drawing; Klemm and Klemm, Gold Mining, 78–79 call it “Abu Shehat” and believe it (erroneously) to have been a Ptolemaic gold processing center; see H. Cuvigny, Rome in Egypt’s Eastern Desert, vol. 1 (New York, 2021), 57, 259 and note 119. See also https://desertnetworks.huma-num.fr/sites/DN_SIT0029.
Abu Greiya, which Tregenza eventually located. R. Klemm and D. Klemm also reported the facilities here though they misunderstood their function and its date of operation.

The station comprised extensive animal tethering lines, plastered water troughs, a walled water source and a terracotta pipeline to convey water from the well to the troughs. Yet, there were only two small permanent structures that humans could have used; to supplement these they may have erected temporary structures such as tents.

The overall dimensions were ca. 155 m N-S x ca. 115 m E-W. At the southwestern part of the site there was a large well surrounded by a rectilinear to ovoid-shaped wall of stones stacked without mortar (fig. 12.1), likely to keep animals out. This wall enclosing the well measured ca. 38 m N-S x 33.0 m E-W while within this area was an additional circular-shaped stone wall approximately 18.2 m in diameter x about 1 m high x ca. 0.9 m to

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13 L. Tregenza, “Notes on a Recent Journey from Abu Zawal to the Greiya Station, II,” Bulletin of the Faculty of Arts, Fouad I (Cairo) University/Mağallat Kulliyat al-Ādāb 11.1 (1949), 130-33.
14 See note 10.
1.8 m wide (fig. 12.2) to protect further the well from intrusive animals and encroaching sand. Stone wall 12.2 had an outer diameter of about 19.5 m x between 0.9-1.8 m wide x ca. 1 m high. It had an exterior opening on its southern side ca. 1.7 x 3.5 m, which likely provided another access to the well with, perhaps, stairs leading to the water. Mounds of sand on the eastern and southern sides were evidence of clearing to maintain access to the well after its original construction.

Between the northern side of the well and the outer wall was a rectangular accumulation of broken stone, possibly a platform, measuring ca. 3.7 m x 4.0 m. Perhaps it supported a water lifting device such as a shadoof.\footnote{See Sidebotham, Hense, and Nouwens, \textit{The Red Land}, 320 (fig. 13.8).} This putative platform might also have accommodated a basin where water dumped by hand then flowed by gravity through the terracotta pipeline from the basin to the animal watering troughs.

Connected to this platform was a ca. 53 m-long base constructed of stones stacked without mortar extending to the north-northeast (fig. 12.3). This was a foundation for the terracotta pipeline set in mortar that ran its length. No sections of the pipeline at Abu Shuwehat survived \textit{in situ} nor did the survey observe any complete circular sections of the pipe, though there were numerous pipe fragments that verified the existence of a pipeline. Pipe fragments had slight corrugations and inside diameters of ca. 110 mm and wall thicknesses of ca. 11 mm. Part way along base 12.3 and connected to it on its eastern side were the bare outlines of a room measuring 4.4 m x 3.75 m (fig. 12.4). This room appeared to have been built after the foundation for the pipeline; it may or may not have been used by quarry-related traffic using the facility. There was a similar pipeline supplying water to the late Roman Red Sea fort at Abu Sha’ar\footnote{S. Sidebotham, “University of Delaware Fieldwork in the Eastern Desert of Egypt, 1993,” \textit{Dumbarton Oaks Papers} 48 (1994), 269–68 and figs. 3, 13, 14 (between pp. 264–65).} and at the nearby praesidium at Abu Sha’ar al-Qibli, though the latter was not terracotta, but made of stones mortared together.\footnote{Sidebotham, “University of Delaware,” 266 and fig. 12 (between 264–65).}

The elevated pipeline at Abu Shuwehat emptied into plaster-lined troughs. No evidence of a transition structure was evident. These water troughs, running approximately north-northwest to east-southeast, were badly damaged at the two ends and the total length could not be determined, though 53 m were evident with a width of ca. 3.3 m. Fired bricks, varying in color from red to orange to light green, supported the troughs. At its inlet from the pipeline, the first trough had a single channel, but it then transitioned into two parallel channels each ca. 0.85 m wide. The divider wall was constructed of stones and the outer wall of the channels of fired brick. There were breaks in the divider wall to allow water to flow from one channel to the other and equalize the flow. Although the survey did not note this at Abu Shuwehat, D. Meredith mentioned that troughs at various animal tethering lines elsewhere in the region likely had plug holes at the bottom and overflow runnels at the top to regulate water flow.\footnote{D. Meredith, “The Roman Remains in the Eastern Desert of Egypt,” \textit{JE} 38 (1952), 96.} This may have been the case at Abu Shuwehat as well.

Within the semi-enclosed area formed by the stone support for the pipeline and the water troughs, about 6.5–7.0 m east of the room along the N-S structure, was a two-roomed hut measuring 6.0 m N-S x and 6.9 m E-W (fig. 12.6). This may have monitored activities at five approximately north-south parallel animal tethering lines (fig. 12.7), the extant lengths of which varied from 25.2 to 56.4 m. North of the watering troughs (fig. 12.5) were six additional roughly parallel tethering lines (fig. 12.8) running approximately N-S. Flash floods had removed the northern ends of the four western-most lines. The extant remains of these northern lines varied in length from 20.0 to 35.7 m. The animal lines had a gravel base ranging from 1.0 to 2.4 m wide. Several of the animal tethers also had two parallel lines of boulders sitting atop the gravel bed. The animal lines were randomly laid out. The northern lines ranged from 8.1 m to 14.3 m apart and the southern ones 11.6 m to 28.1 m apart. Several of these lines were curved. Animals were tethered to these lines and brought to the water troughs in some organized fashion and then returned to their tethers.

The numbers and lengths of the tethering lines indicated that the facilities here accommodated large numbers of animals. The complex of animal tethering lines at Abu Shuwehat was substantially larger than those documented anywhere else in the Eastern Desert as figure 16 indicates.
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<th>Dimensions (approximate)</th>
<th>Area</th>
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<td>Badia</td>
<td>65 m N-S x 46.0 m E-W</td>
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<td>Qattar</td>
<td>66 m N-S x 46 m E-W</td>
<td>3,036 m²</td>
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<td>Deir al-Atrash</td>
<td>57 m N-S x 37 m E-W</td>
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<td>21.5 m N-S x 34.5 m E-W</td>
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<td>al-Heita</td>
<td>43 m N-S x 61 m E-W</td>
<td>2,623 m²</td>
</tr>
<tr>
<td>al-‘Aras</td>
<td>Destroyed</td>
<td>---------</td>
</tr>
<tr>
<td>Mons Claudianus</td>
<td>44.50 m N-S x 56 m E-W</td>
<td>2,492 m²</td>
</tr>
<tr>
<td>(Wadi) Abu Greiya</td>
<td>26/32 m N-S x 93/96 m E-W</td>
<td>2,418/3,072 m²</td>
</tr>
<tr>
<td>Abu Zawal</td>
<td>too damaged to measure</td>
<td>---------</td>
</tr>
<tr>
<td>Umm Sidri</td>
<td>too damaged to measure</td>
<td>---------</td>
</tr>
</tbody>
</table>

Others: See text below for other examples on the Marsa Nakari-Edfu and Berenike-Nile roads.

There are animal tethering lines elsewhere in the Eastern Desert. Some of those recorded by the Delaware surveys farther south (e.g., at Rod Umm al-Farraj, Rod al-Baram, Bezah West) were much smaller than those noted above and lacked enclosure walls. Two other sites are noteworthy. One at the juncture of Wadis Nuqrus/...
Sikait and Wadi Gimal had an enclosure wall, but lacked the actual lines inside, contrary to those noted farther north in the Eastern Desert. There was another nearby at Wadi Gimal East that resembled those at the juncture of Wadis Nuqrus/Sikait and Wadi Gimal, viz., there was an enclosure wall and water troughs, but no evident tethering lines inside the enclosure walls.

The substantial size and overall appearance of the Abu Shuwehat animal tethering lines and watering facilities compared to those found elsewhere in Eastern Desert are noteworthy. Figure 16 indicates that the facilities at Abu Shuwehat were almost six times larger than the next largest complexes at Wadi Abu Greiya and at Qattar. In addition to the massive size difference, the Abu Shuwehat facility also lacked an enclosure wall, which other animal tethering lines in the central Eastern Desert had, where they are well enough preserved to make that determination. The surface pottery collected and examined from Abu Shuwehat dated from the first to second centuries AD.

There are several possible reasons for the unusual size and appearance of the Abu Shuwehat facilities. It may be that some animals passing in both directions (from Qena to Mons Claudianus and from Mons Claudianus to Qena) at the same time were held here until facilities at Mons Claudianus had sufficient room to handle inbound traffic. It might be, during peak periods of activity at Mons Porphyrites and Mons Claudianus in the first and second centuries, that Abu Shuwehat occasionally handled traffic between both sites and Qena, which would explain, at least in part, its massive size. The presence of the watering troughs (fig. 12.5) between two sets of lines (fig. 12.7 to the south and fig. 12.8 to the north) might indicate an administrative attempt to control traffic; one set of lines might have handled traffic to Mons Claudianus and the other set from Mons Claudianus.

The extant animal tethering lines at Mons Claudianus date no earlier than the reign of Antoninus Pius (AD 138–161) and are likely later and not contemporary with the ones at Abu Shuwehat. Perhaps the earlier ones at Mons Claudianus, mentioned in several ostraca excavated at the site, were larger.

Those animal tethering facilities with enclosure walls also had only single and relatively narrow entrances. This suggests that officials responsible for them limited access for administrative purposes to monitor and, perhaps, record what numbers and what kinds of animals were fed and watered. The lack of such an enclosure wall at Abu Shuwehat may indicate less emphasis on bureaucratic procedures and more concern with feeding and watering animals as quickly and efficiently as possible.

Abu Greiya

Abu Greiya is about 47 km southwest of the installation at (Wadi) Abu Shuwehat and ca. 41 km east of Qena via the modern asphalt highway. J. Wilkinson visited Abu Greiya in the early nineteenth century and drew a sketch plan of the installations. The Delaware survey visited in May 1992, June 1993, and in June 1999, and drew plans of the two praesidia and animal tethering lines. It would be useful to compare the two sets of plans separated in time by approximately 170 years.

The eastern fort at Abu Greiya was rectilinear in plan with overall measurements of ca. 38–39 m N-S x 38–39 m E-W. Contrary to Wilkinson (fig. 17), the southern wall was not parallel with its northern counterpart (fig. 18), but headed slightly north of parallel to the northern wall so that the interior eastern end of the fort was narrower.

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34 Sidebotham, Wright, Gates-Foster et al., “Gazetteer,” 111, likely Roman at 24° 34.49′ N/34° 49.47′ E.
36 J. Riley examined surface pottery from Abu Shuwehat during field seasons in 1990, 1992, and 1993. His field notes offer only a brief statement of general dates for the collected sherds and no catalogue or drawings.
37 Cuvigny, Rome in Egypt’s Eastern Desert, 186 (water for the guard of the stables), 188.
38 Cuvigny, Rome in Egypt’s Eastern Desert, 186, 188 (inv. 1538 + 2921) dated ca. 110 AD (= H. Cuvigny, “L’organigramme du personnel d’une carrière impériale d’après un ostracon du Mons Claudianus,” Chron 35 (2005), 309–53). H. Cuvigny reports (personal communication) that inv. 4155 is a small unpublished fragment that belongs to the same series as inv. 1538 + 2921. A third unpublished Trajanic-era ostracon mentions a guardian of the stables (inv. 3069). The animal lines, in their present state, are built on sebakh containing ostraca dating to Antoninus Pius.
39 Meredith, “The Roman Remains, 1952,” 102–03 (fig. 4) for Wilkinson’s plan (now Ms. Wilkinson dep. D. 48), a brief description of the site (which he spells Krēyah) and a list of earlier visitors.
than the western portion. The perimeter walls were about 2.0 m thick, but very damaged, making precise measurements impossible. Perimeter walls comprised stacked cobbles and boulders. Wilkinson drew no towers at this fort’s corners, but identified two rounded ones at the fort’s single entrance about midway along the western perimeter wall (fig. 17 compare with fig. 18.9). The interior preserved a modern circular well (fig. 18.1), constructed after Wilkinson’s drawing of its ancient predecessor. Northwest of this well was an unfired mudbrick tower roughly square in plan with an entrance about 1 m wide on its southern side (fig. 18.2). Abutting the interior faces of the northeastern corner of the fort were barrel vaulted rooms measuring approximately 4 m x 8 m (fig. 18.3a), smaller versions of which were present along the interior face of the fort’s eastern perimeter wall (fig. 18.3b). All were made of unfired mudbrick. Towards the southeastern corner of the fort interior was a 3 m x 3 m cistern with a pipeline running for about 6 m towards the northwest (fig. 18.4). On Wilkinson’s plan, this pipeline terminated in a basin south of the well (fig. 18.1). Immediately east of the cistern (fig. 18.4) was a staircase abutting the southeastern corner of the fort interior (fig. 18.5) that led to the only putative tower noted by the Delaware survey; possibly square in plan and measuring 2.5 m x 2.5 m (fig. 18.6). Wilkinson indicated no external towers except, as noted above, flanking the single entrance (fig. 18.9) on the western perimeter wall. The Delaware survey estimated this portal to be ca. 2 m wide. There were two other rooms, one west of the cistern (fig. 18.7) measured about 3.0 m x 5.5 m with an entrance on its eastern wall. There was destruction from a bulldozer or front-end loader (fig. 18.14a) immediately west of this room and that separated it from another room (fig. 18.8), whose eastern end had been obliterated by some earth-moving machine. Wilkinson’s plan indicated that this room had a narrow entrance about midway along its eastern wall (fig. 17). This latter room (fig. 18.8) abutted the southwestern corner of the fort interior.

It is difficult to determine if the unfired mudbrick was contemporary with the stone architecture or formed a later addition. While unusual throughout much of the Eastern Desert, the use of unfired mudbrick to supplement stone architecture has been documented in other Roman-era fortifications in the central part of the desert. Examples include the fort at Abu Sha’ar, noted above.40 Towers and internal wall sections of the installation at Deir al-Atrash, on the road linking Abu Sha’ar and Mons Porphyrites to the Nile, comprised large quantities of unfired mudbrick.41 Both the upper and lower forts at al-Heita,42 on the Abu Sha’ar/Mons Porphyrites-Nile road, also made extensive use of unfired mudbrick for walls and vaulted structures.

Approximately 8–9 m west and northwest of the eastern-most fort at Abu Greiya were extensive animal lines with overall measurements of ca. 26/32 m N-S x 93/96 m E-W.43 The interior of the enclosure was wider towards the west and narrower towards the east (fig. 18), though Wilkinson did not note this (fig. 17). The enclosure walls were about 1.0 m thick. There was an entrance about midway along the southern wall that measured approximately 2.5 m wide (fig. 18.13). There was damage from a bulldozer or front-end loader (fig. 18.14a) towards the eastern end of the southern perimeter wall. Within the enclosure were eight or, possibly, nine low parallel

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43 Maxfield, “The Central Complex,” 91 (fig. 2.55) = Maxfield and Peacock, “Infrastructure,” 208 (fig. 5.26 bottom right for sketch of these animal tethering lines); in general: Sidebotham, Hense, and Nouwens, The Red Land, 88–89, 319; Sidebotham, Berenike and the Ancient, 118–22.
Fig. 18. Abu Greiya, animal tethering lines and eastern-most praesidium. Drawing by H. Barnard.

Fig. 19. Abu Greiya, animal tethering lines and eastern-most praesidium looking south. Scale = pickup truck (circled). Photo by S. Sidebotham.

Fig. 20. Abu Greiya, western-most praesidium. Drawing by H. Barnard.
walls oriented roughly N-S (fig. 18.12) where animals could be tethered and from or near which they were then fed and watered. Wilkinson’s plan indicated eight tethering lines with three additional lines in ruinous condition east of those visible to him. These varied in length from about 15 to 18 m. There were unfired mudbrick additions to the eastern exterior side of the animal tethering lines (fig. 18.10), which preserved two narrow entrances that did not lead to the animal lines themselves; there were also unfired mudbrick additions along the interior of the northern wall (fig. 18.10). There was shelving on the interior face of the eastern wall (fig. 18.11a) and along the interior of the northern wall towards its western end (fig. 18.11b).

The animal tethering lines at Abu Greiya were similar in appearance to those at Mons Claudianus,45 Abu Zawal46 and, leading to/from Mons Porphyrites, those at Umm Sidri,47 Badia’,48 Qattar, where the tethering lines are now washed away,49 Deir al-Atrash,50 Bab al-Mukhenig,51 al-Saqqia,52 al-Heita,53 and perhaps at al-'Aras54 (fig. 16). Ostraca from Mons Claudianus also mention stables/animal tethering lines,55 though it is uncertain if those are the ones currently extant, or an earlier set that is no longer visible (see above). The proximity of the animal tethering lines to the eastern-most fort at Abu Greiya, especially to that installation’s western gate, is similar to that at Mons Claudianus though the animal lines at that large quarry site are somewhat southwest of the fort and its entrance.56 This similarity between the two sites suggests that the initial installations at both Mons Claudianus and Abu Greiya may have been planned and built at the same time with the animal tethering lines at both locations probably constructed after their associated forts.

West of the animal tethering lines at Abu Greiya was another fort, now partly destroyed by construction of the asphalt road and a railway (fig. 20). Wilkinson’s plan (fig. 17) indicated the layout of this installation. Its center lay approximately 440 m west of the southwestern-most corner of the animal tethering lines. Possibly as much as half or more of the southern end was missing in 1999. Surviving at the time of the 1999 survey were very ruinous eastern portions of the northern perimeter wall (fig. 20.1) (ca. 37.5-40.5 m long E-W x ca. 2 m wide) and the northern end of the eastern perimeter wall (fig. 20.2) (ca. 8-10.2 m. long N-S x ca. 2 m wide). Abutting the internal faces of the perimeter wall were rooms of varying dimensions (fig. 20.3).

Wilkinson’s plan of this more westerly fort (fig. 17) indicated that the southern portion, which is now lost, once consisted of a large open area separated from the northern section by an east-west partition wall. Yet, even in Wilkinson’s day that partition wall had been partially destroyed in the central area as had central portions of the southern perimeter wall and a section at the fort’s southwestern corner. Wilkinson’s plan also depicted a water conduit adjacent to and east of this western praesidium, but there is no indication from his plan that this pipeline entered the fort. There was no evidence for this hydraulic feature during the June 1999 survey. Sherds from both praesidia and animal tethering lines dated from the first to second centuries AD.57

These installations at Abu Greiya serviced traffic between Mons Claudianus and Qena and also provided an intermediate stop between the Nile and other desert settlements involved in mining and quarrying that lay to

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46 Abu Zawal animal lines, west of praesidium and now mostly washed away; Tregenza, The Red Sea Mountains, 39–47 (“Abu Zawel:” not very informative); Sidebotham, Hense, and Nouwens, The Red Land, 321 briefly note it; Klemm and Klemm, Gold Mining, 70–78 date gold mining activities here to the New Kingdom, Ptolemaic, and Roman periods.
55 See note 38.
56 Maxfield, “The Central Complex,” 21 (fig. 2.3).
57 J. Riley examined surface pottery from Abu Greiya during field seasons in 1992 and 1993. His field notes offer only a brief statement of general dates for the collected sherds but no catalogue or drawings.
the east, in an area south of Mons Claudianus. The latter probably included the quarries at Umm Wikala\textsuperscript{57} and Wadi Maghribiya\textsuperscript{58} as well as others.

In general, the large-scale movement of draft and pack animals between major quarries in the Eastern Desert—and perhaps some mining sites—on the one hand and the Nile on the other, and the need to accommodate them during their journeys across the desert with installations specifically designed for their maintenance, seem to be a Roman innovation developed in the late first century BC and which blossomed in the first century AD and thereafter.\textsuperscript{59} There is no conclusive evidence for such accommodations before this time or in the Islamic period.

Traffic between Mons Claudianus and the Nile might have occasionally stopped at Fatireh al-Beida and certainly at (Wadi) Abu Shuwehat, as noted above,\textsuperscript{60} and then reached Abu Greiya before descending to Qena. Traffic between the Nile and Mons Claudianus might also have used several of the same stops with animal tethering lines from al-Saqqia westward and southward (al-Heita, al-'Aras) that accommodated traffic between Mons Porphyrites and the Nile.

Gidami

The survey first visited Gidami, in a wadi of the same name, in July 1993 and returned to draw a plan of the praesidium there in August 1997.\textsuperscript{61} The praesidium at Gidami was quadrilateral, nearly rectangular, in shape. The remains of the fort consisted solely of perimeter walls with the eastern wall generally missing although all four corners of the fort could be identified. The interior lengths of the northern (fig. 21.1) and southern walls (fig. 21.3) were 37.2 m and 35.4 m respectively. The interior lengths of the eastern (fig. 21.2) and western walls (fig. 21.4) were 22.7 and 22.5 m respectively. The interior area of the fort was approximately 802 m\textsuperscript{2}.

The southwestern (fig. 21.6) and northwestern corner towers (fig. 21.7) were constructed contempora neously with the perimeter walls as there were no construction joints visible. Instead, the exterior walls smoothly transitioned into the towers at a ca. 0.3 m radius and the two interior corners were skillfully shaped with an angular fill. Including this fill, the southwestern tower was ca. 3.5 m deep x 2.2 m wide. The southwestern tower was 2.4 m wide, but had collapsed and was missing stones from the exterior curve.


\textsuperscript{59} See discussion of animal lines as a special feature of these installations, unique among Roman quarries, in A. Hirt, \textit{Imperial Mines and Quarries in the Roman World. Organizational Aspects 27 BC – AD 235} (Oxford, 2010), 22, 24, 32.

\textsuperscript{60} Sidebotham, Heuse, and Nounneus, \textit{The Red Land}, 319–20 for brief description, photo and drawing. Klemm and Klemm, \textit{Gold Mining}, 78–79 call it “Abu Shehat” and believe it (erroneously) to have been a “Ptolemaic processing plant.”

The extant walls were substantial and relatively well preserved. They were constructed of two outer faces of large cobbles or boulders laid in horizontal lifts. The stones were usually roughly rectangular in shape; none appeared to be water-worn. Crumbled stone filled the interval between these facing stones, a common construction technique in the Eastern Desert.\(^{62}\) The wall on the southern side was 2.5 m high and on the western side, 2.4 m high. The height of the northern wall near the northwest corner was 2.5 m x 1.3 m wide at the top. As the eastern wall was mostly missing, with only remnants at the corners extant, the survey took no measurements of wall heights there. The perimeter walls were generally ca. 1.5 to 1.7 m thick at the base and tapered to 1.3-1.5 m at the top. The front gate (fig. 21.5) was midway along the western wall; this was the obvious choice for an entrance as it faced upstream and the two corner towers flanked it. Due to wall collapse, the width of this opening was unclear, but was estimated as 2.7 m. There was no indication of parapets as the walls were relatively flat on top (fig. 23). There was a grayish water-consolidated material, probably lime mortar, used as binder in the middle of the wall on the western side of the *praesidium*. This binder was likely used in all the perimeter walls of the fort, but has since disappeared due to erosion.

The survey observed a scant amount of crumbled mortar, which may have come from a water basin. Some of the surface debris, appearing to be a gravel conglomerate, likely represented subsurface material suggesting that a well may have been dug here, although the survey observed no obvious surface evidence for one. Moreover, it is unknown whether this putative water supply was contemporaneous with the original construction. This facility at Gidami exhibited a better construction technique compared to most of the forts in the Eastern Desert observed by the University of Delaware surveys. However, the lack of any surface evidence of interior walls, the fact that some of the perimeter walls did not have their interior fill, and perhaps the missing eastern wall, suggested that this

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The atypically small number of sherds documented from this site date to the late first–second century AD, which suggests a relatively short period of use. Traffic from the praesidium headed east along Wadi Gidami for approximately 10.8 km where, in the later Roman period, travelers passed by the sizeable “enigmatic” community near Bir Gidami. Thence, one followed the wadi towards the southeast for about 7.3 km to the settlement at (Bir) Sirbakis (discussed below), which would have been abandoned by the time of the construction and use of the fort at Gidami and the enigmatic settlement near Bir Gidami.

Pottery


Fig. 26.3. Lid with poorly-made small knob handle. Tan-pink alluvial fabric with occasional limestone impurities. Soft and powdery.

A Rare Surface Find

One other noteworthy find was a Greek ostracon discovered on the surface near the northwestern tower (figs. 21.8 and 24). The sherd was broken at the top, left and perhaps at the bottom, and the ink was very worn and faint. Parts of twenty-five lines were preserved, but not well enough to give a good idea of the precise content. The text, perhaps a letter, was written in the first person and refers in several places to the goddess Aphrodite (lines 4, 12, 19, 23), more specifically to a possible shrine of Aphrodite (lines 11–12). An unusual feature of the text is the three numerals—4 (δ), 2 (β), and 2 (β)—which appear in oversized script in lines 7, 8, and 12, which lack clear referents. After photography the survey buried the ostracon adjacent to the tower.

Abu Gerida

The survey first visited the site at Abu Gerida in July 1993 and returned to study it in more detail and draw plans in August 1997. There was another visit in June 1999. The immediate environs preserved gold and iron mines

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63 R. Tomber recorded this material in the field in 1997. Descriptions are based on her field notes and drawings.
64 Sidebotham, Barnard, and Pyke, “Five Enigmatic Late Roman Settlements,” 198–201.
65 R. Ast (Heidelberg University) read, translated and commented on the ostracon based on photographs.
66 Sidebotham, Hense, and Nouwens, The Red Land, 223 for a brief description and photo (fig. 9.4).
and a rhyolite porphyry quarry. There was also evidence of copper mining and smelting activities in the area. Study of surface sherds (see below) indicated Ptolemaic and Early Roman activity. Not all the mineral wealth available here was, however, exploited throughout both periods of the site’s occupation.

The main settlement in the wadi lay approximately 34 km west-southwest of (Bir) Sirbakis (discussed below), though the wadi system between Abu Gerida and Sirbakis would not have been convenient for regular commu-

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communications between the two sites. An undetermined portion of the Abu Gerida wadi settlement had been washed away by floods over the centuries and it had also been badly looted, apparently in more recent times. In August 1997 the extant site in the wadi bottom measured ca. 350 m WNW-ESE x ca. 96 m N-S. Many of the walls of this main site comprised recycled ore grinding stones/querns made from locally available rhyolite porphyry from the nearby quarry.

The wadi settlement preserved mounds of debris (fig. 27.1) scattered around and in its center there was a spread of hydraulic plaster (fig. 27.2) indicating that a water tank or cistern originally lay in this area, undoubtedly for both domestic as well as industrial use. There were small, cleared work areas in the central portion of the extant site (fig. 27.3) and grinding stones nearby (fig. 27.4), south and east of the hydraulic plaster. The grinding stones were aligned in two separate groups suggesting that these arrangements had taken place rela-
tively recently. A large area of grinding stone chips at the northern edge of the site suggested that some, likely final, phase of their manufacture took place there (fig. 27.5). These grinding stones for gold ore derived from the quarry ca. 500 m northwest of the wadi settlement. These were deep saddle querns similar to those found at other Ptolemaic-era gold mining sites in the Eastern Desert. There was relatively recent damage by a front-end loader or bulldozer at the southeastern and eastern parts of the main settlement (fig. 27.6). Between the two areas of destruction by modern earth-moving equipment was a small, heavily damaged structure of unknown function (fig. 27.7). There were mounds of iron slag at the northeastern edge of the site (fig. 27.8) and, adjacent to the immediate north, there was a metal working area (figs. 27.10 and 28.10). Stone molds found elsewhere in the area, discussed below, confirmed the repair or manufacture of metal tools.

A possible residential zone (figs. 27.9 and 28.9) lay south-southeast of the metal working area. It likely originally extended farther south and east. A large and relatively modern robber pit lay south of the putative residential area (figs. 27.11 and 28.11) and east of some of the damage inflicted by modern earth-moving equipment. Stone working concentrated west of the residential zone, in the approximate center of the site (fig. 28.12). Towards the northwestern edge of the site there was a large structure with remains of a tower in its southwestern corner and with a midden immediately to the east (fig. 28.13). South of 28.13 were mounds of debris (fig. 28.14) from which the survey recorded part of a statue, likely of a sphinx, discussed below. There were platforms of unknown function that survived immediately south of the mounds of debris (fig. 28.15). South of the extant main site, and separated from it by wadi wash, was another midden (fig. 28.16). East of that midden and southeast of the area marked “C” on the site plans were disturbed working areas (fig. 28.17).

Approximately 250 m southwest of the main settlement atop a hill was a working area. There was another such area and some petroglyphs at the edge of the wadi about 200 m south of the main settlement. About 500 m east-northeast of the settlement was another working area and a small cemetery.

Varying from ca. 285 to 340 m south of the wadi settlement and atop a nearby hill was a roughly hexagonally-shaped enclosure built of poorly erected low walls comprising stacked cobbles and boulders. Overall maximum measurements of this enclosure were 10 m N-S x 24.6 m E-W and it sloped from higher ground in the west to a lower point in the east. Maximum extant wall height was 1.47 m x ca. 0.40-0.75 m wide. The single entrance (fig. 31.20), ca. 1 m wide, lay midway along the eastern perimeter wall. There was a semi-circular-shaped niche or alcove along the southern wall (fig. 31.22), which measured about 3 m wide E-W x 1.2 m N-S deep, extending outward from the southern perimeter wall. There were few internal structures within the enclosure, though there was the rectilinear-shaped outline of a possible room ca. 3.9 m N-S x 3.30 m E-W (fig. 31.21) abutting the interior face of the southern wall towards its eastern end, not far from the single entrance (fig. 31.20) and just east of the niche (fig. 31.22). The interior of this walled hilltop structure preserved some evidence of robbing. There was a cairn ca. 0.50 m in diameter (fig. 31.23) inside this enclosed feature approximately midway along and very close to the enclosure’s northern perimeter wall. There was also a knoll in the interior of the enclosure (fig. 31.18) towards the western and northwestern perimeter walls. Outside the northern and northwestern walls were remains of two stone-cut trenches (fig. 31.19). The trench parallel to the northern wall measured about 2.10 m long E-W x 0.20 m wide N-S, while that parallel to the exterior face of the northwestern wall measured about 1.10 m long SW-NE x 0.20 m wide SE-NW. An approximately 6.5 m-long portion of the northwestern circuit wall (fig. 31.24), starting just southwest of the smaller of the extramural cut trenches, was also badly dilapidated and missing in places. The perimeter walls of this large roughly hexagonally-shaped enclosure would have been ineffective for any defensive purposes; what function this feature served, aside from observation, remains unknown.

In addition to gold mining operations in the area, iron and copper mining also took place.69 The main mining area lay ca. 5.8 km east-southeast of the wadi settlement.70 Gold was probably no longer mined in the Early Roman period, but the quarry continued to produce stone at that time for use as smaller adornments or as small architectural elements. This stone has been identified in monuments from that period from elsewhere in the Mediterranean world.71

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70 Measured by Harrell, “Porfido Rosso,” 40 (fig. 3).
71 Harrell, “Porfido Rosso,” 42, 46.
The settlement in Wadi Abu Gerida lay about 30 km east of the two adjacent stations and large animal tethering lines at Abu Greiya, noted above. Abu Gerida’s proximity to other mining and quarrying endeavors in the region, such as those at (Bir) Sirbakis (discussed below), Maghrabiya, about 19 km southeast of Abu Gerida, and al-Merkh, also suggested that it may have functioned as an administrative center for other mining and quarrying operations during some phase of its occupation.

**Pottery**

Study of surface sherds documented primarily from the wadi settlement\(^{72}\) indicated occupation from the third to second centuries BC with a handful of sherds (not illustrated) dating to the Early Roman era, with, apparently, considerably less activity in the latter period.\(^{73}\)

Fig. 32.1. Shallow bowl with beveled rim. Pale orange (2.5YR 7/6) with slightly darker (2.5YR 6/6) margins. Some limestone impurities, probably a calcareous fabric. Parallel: Karnak, second half of third-first half of second century BC in N. Licitra and R. David, “L’évolution des céramiques ptolémaïques à Karank d’après la

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\(^{72}\) Which Abd El-Rahman, Surour, el Manawi et al., “Ancient Mining,” 1069, refer to as Hamama.

\(^{73}\) R. Tomber recorded this material in the field in 1997. Descriptions are based on her field notes and drawings.

Fig. 32.3. Double-handled flagon or jar with flanged rim. Calcareous fabric discolored to muddy brown color, white surface outside. Handle section not provided. Parallel: al-Ghuzzah Ptolemaic village, second half of third-early second century BC.74

Fig. 32.4. Jar with collared rim and at least two handles. Calcareous fabric, overfired and discolored to brown-gray, with faint vestiges of a cream surface inside. Parallel: Karnak, second half of third century-first half of second century BC, in Licitra and David, “L’evolution des céramiques ptolémaïques,” fig. 14.77.

Fig. 32.5. Large basin with everted, thickened rim and lightly ribbed walls. Hard and smooth. Fine, dense alluvial fabric with abundant small, well sorted inclusions. Dull gray-green (10YR 6/2) core with orange (2.5YR 6/6) margins and surfaces.

Fig. 32.6. Carinated dish with everted rim, but fairly large and crude. Coarse alluvial or mixed fabric with varied impurities. Dull gray core with pale red margins and slightly darker surfaces.

Fig. 32.7. Short open stand with thickened rims. Dense, vesicular alluvial fabric with some black organic inclusions, particularly on core which is dark to light gray. The break is brown and surfaces red-brown. Parallel: Copitos, early third to mid-second century BC, in S. Herbert and A. Berlin, “The excavation: occupation history and ceramic assemblages,” in S. Herbert and A. Berlin (eds.), *Excavations at Copitos (Qift) in Upper Egypt, 1987‒1992*, Journal of Roman Archaeology Supplementary Series 53 (Portsmouth, 2003), fig. 53.H2.32.


Fig. 32.9. Egyptian amphora (AE1) with flatter bead. Handle scar indicates broad, strap-type handle. Pink-tan sandy fabric with no visible limestone, but slight vestiges of cream on the surfaces. Alluvial or mixed fabric.

Fig. 32.10. Banded amphora toe with central internal concavity. Sandy alluvial fabric, brown with a slightly pinker core. Parallel: See discussion of AE1-3.1 in Dixneuf, *Amphores égyptiennes*, 79-87, esp. fig. 57, and discussion of this type in the Eastern Desert in Gates-Foster, “Third Century BCE Supply Networks.”

Fig. 32.11. Amphora toe with shallow underside concavity. Pitted and abraded alluvial fabric with sparse limestone impurities. Brown with purple tinge inside, outside red-brown. See discussion of AE1-3.3 in Dixneuf, *Amphores égyptiennes*, 79-87, esp. fig. 59.

Fig. 32.12. Amphora toe with rounded, solid spike. Pitted and abraded alluvial fabric with classic pale gray (or gray-green) (2.5YR 7/0) core and orange (2.5YR 6/6) inside to orange-red (2.5YR 5/4) outside, some limestone.

Other Small Finds

In addition to surface potsherds collected primarily from the wadi settlement, the survey recorded other small finds. These included, from the northwestern part of the site (fig. 28.14). a fragment of a crude representation of a human head, perhaps part of a sphinx, made of sandstone, a rock indigenous to the area (fig. 33).75 It preserved the right side of the head, an ear, an eye, part of a nose and mouth, hair and a headdress. Its extant dimensions were 0.16 m high x 0.14 m wide x 0.065 m thick. From this same wadi settlement the survey also recorded a slab.

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74 Semi-complete and restorable examples of this type were documented in the Ptolemaic village at al-Ghuzzah in abandonment deposits dating to the late third or early second centuries BC. These examples will be published by Gates-Foster as part of the MAFDO reports.

75 Abd El-Rahman, Surour, el Manawi et al., “Ancient Mining.” 1069.
of sandstone 0.24 m long x 0.26 m wide x 0.08 m thick, decorated with a motif that resembled the anchor of a ship. In the adjacent wadis the survey documented two stone molds for metal tool manufacture or repair. The larger and more complete one had a preserved length of 0.15 m x preserved width 0.14 m x 0.09 m thick. The survey did not obtain measurements of the smaller broken stone mold. The survey left all finds on site. On the western side of the site, against a natural rock outcrop, the survey documented another irregularly shaped sandstone block measuring 0.275 m high x 0.24 m wide x 0.10 m thick and decorated with:

Γ ● Γ

K ●

Bukhalug

The survey first visited Bukhalug in July 1993 and drew a plan of the site in July 1996 and August 1997. Bukhalug lay in a narrow side wadi that stretched roughly west to east with buildings on both the northern and southern sides of the wadi and ascending the adjacent hills (figs. 34, 35). Structures were rectilinear to oval in plan and built of locally available cobbles and boulders. There was no extant evidence of binder in the walls. Walls varied from about 0.6-0.9 m high x 0.4-0.6 m wide. R. Klemm and D. Klemm briefly published the site and several others in the immediate environs, which they dated to the New Kingdom and Arab periods. Bukhalug was about 6.65 km east-north-
east of Bir Sirbakis via a convenient wadi. Communication between the two sites would have taken, at most, only a few hours on foot.

When the survey visited, Bukhalug comprised approximately 35 structures spread over an area about 120–130 m N-S x 250 m E-W; there were also mining shafts on both sides of the wadi and, although the surveys did not investigate this, likely elsewhere in the area. While many structures were free-standing, a number used natural rock faces for one or more of their walls. Structures were rectilinear, polygonal and ovoid in plan. One building on the southern side of the wadi may have served some administrative function (fig. 34.1). On the northern side of the wadi was a platform (fig. 34.2), likely for working gold ore. A pentagonal-shaped structure atop a hill on the northern side of the wadi just northwest of figure 34.2 was probably a large watchtower. Also, on the northern side of the wadi was a naturally occurring doorway (fig. 34.3) into a polygonal-shaped room that was part of a larger complex. At the edge of the northern side of the wadi (fig. 34.4) the survey documented a faience scarab, described below. This find spot was adjacent to and immediately west of a structure with multiple rooms filled with debris (fig. 34.5) and with an ancient terracotta pipeline leading to it. Its central location on the site together with the pipeline suggested that it served a hydraulic function, likely for the storage and distribution of water to the settlement for domestic and industrial purposes.

On the northern side of the wadi, east of most buildings in the settlement and at the southern entrance of a large mining shaft, was an area covered by quartz chips, undoubtedly the by-product of gold mining operations (fig. 34.6). On the southern side of the wadi were cleared areas (fig. 34.7), perhaps for ore processing. Also, on the southern side of the wadi may be the remains of a dog or jackal cemetery (fig. 34.8) as the survey’s Ma’aza Bedouin guide indicated, but that the survey could not independently confirm. The survey was less certain about the identifications of most other structures, but these would have included living accommodations, work and storage areas, and corrals or pens for keeping a few animals, likely goats.

Surface sherds collected throughout the site were almost entirely third-second centuries BC with a small number dating to the later Ptolemaic period (figs. 36.1 and 36.3). In 1993, J. Riley noted, but did not draw or otherwise describe, a small number of sherds which he dated first to second century AD, but later surveys did not find evidence of this phase. Pottery from Bukhalug was quantitatively less than that recorded from (Bir) Sirbakis, but the cataloged sherds and bulk of the surface finds were, for the most part, contemporary with those from that site.

**Pottery**

Fig. 36.1. Carinated dish with splayed rim. Pale pink-tan calcareous or mixed fabric and surfaces with pale gray core. Occasional large quartz visible, but no limestone. Parallel: Karnak, first century BC, in Licitra and David, “L’evolution des céramiques ptolémaïques,” fig. 29.152.

Fig. 36.2. Small jar with slightly everted rim and handle joined to upper surface of the rim. Pink-tan margins, medium gray core and surfaces mottled tan-pink to red-brown. Alluvial or mixed fabric, poorly-sorted with sand and some lime. Parallel: Karnak, second half of third century-first half of second century BC, in Licitra and David, “L’evolution des céramiques ptolémaïques,” fig. 20.105.


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79 As indicated by Klemm and Klemm, Gold Mining, 96–101.

80 R. Tomber recorded the material presented here in the field in 1996 and 1997. Descriptions are based on her field notes and drawings. She did not observe the Early Roman pottery recorded by Riley during the survey’s earlier visit.
Fig. 36. Pottery from Bukhalug. Scale = 1:4. Drawings by J. Gates-Foster.
Fig. 36.4. Jar with everted rim, double handled (<50%), with ribbed belly, below handle. Dull brown calcareous fabric with cream surface outside.

Fig. 36.5. Large krater or basin with grooved, squared rim. Sandy, coarse poorly mixed calcareous or mixed fabric with common flat shell-like inclusions. Fabric has medium to dark gray core and pale pink margins. Surfaces discolored tan to pink to red-brown. Parallel: Elephantine, third century BC, in D. Aston, Elephantine XIX: Pottery from the late New Kingdom to the Early Ptolemaic period. AV 95 (Mainz, 1999), no. 2621.

Fig. 36.6. Large krater or basin with grooved, squared rim. Sandy, coarse poorly mixed calcareous or mixed fabric with common flat shell-like inclusions. Purple-pink core with red-brown margins and duller surfaces.


Fig. 36.8. Hole-mouth jar or amphora. Likely to be double-handled. Elegant, slightly curved everted rim of varying sizes. Hard-fired silt with gray core and dull brown-orange margins, in a smooth fabric similar. Orange surfaces.

Fig. 36.9. Large, likely double-handled jar or whole-mouth amphora with a more prominent, squared-off rim, and broad girth. Dark gray (N4/0) core with orange-brown (2.5YR 5/6) margins and surfaces, although the surfaces are light in part. Common limestone impurities and organics. Likely to be an alluvial or mixed fabric. Parallel: Tebtunis, third century BC, in Ballet and Południkiewicz, Tebtynis V, pl. 69.656.

Fig. 36.10. Double-handled jar. Hard, smooth and fine fabric with some visible alluvial inclusions and salt, with gray break and orange-red margins and surfaces. Black painted decoration. Parallel: Tebtunis, third century BC, in Ballet and Południkiewicz, Tebtynis V, pl. 65.631, unpainted.

Fig. 36.11. Keg with tall, narrow neck and bead rim. Overfired brown/purple with external orange-brown margins, red-brown surfaces and internal surface brown-gray.

Fig. 36.12. Keg with relatively wide diameter and double-lip rim. Distinctive orange (2.5YR 7/8) clay and brown-gray (2.5YR 4/2) external surface. Poorly mixed with common ill-sorted to 1.0 mm red argillaceous matter, sometimes angular. Aswan or oasis. Parallel: Elephantine, third century BC, in Aston, Elephantine XIX, no. 2754.

Fig. 36.13. Egyptian (AE1 variant) amphora with slightly thickened rim, slightly everted, and very broad, flat strap handle. Fine alluvial fabric with abundant sand. Pink-brown (2.5YR 6/6), with darkened surfaces (2.5YR 5/6).

Fig. 36.14. Egyptian (AE1) bead-rim amphora, fairly ovoid in section. Dull pale pink (2.5YR 6/4) with slightly darker margins and discolored surfaces mottled from pink to orange to red. Likely calcareous fabric. See discussion of AE1-2.5 in Dixneuf, Amphores égyptiennes, 79–87, esp. fig. 56, in Gates-Foster, “Third Century BCE Supply Networks,” figs. 7–8.

Fig. 36.15. Egyptian amphora (AE1) with triangular rim, imitation of Rhodian or Cnidian import. Pale green calcareous fabric with sparse large quartz, dull pink external margin and brownish to pink surfaces where not concreted. See discussion of AE1-2.1, in Dixneuf, Amphores égyptiennes, 79–87, esp. fig. 52.

Another Surface Find

An important find was an intact faience scarab with a cartouche bearing the name Nefer-ib-re, “Beautiful is the heart of Re,” which was the throne name of the 26th Dynasty pharaoh Psamtik II/Psammethicus II, who reigned 595–589 BC (fig. 37). This scarab measured 140 mm × 82 mm × 49 mm. While the surface sherds studied from Bukhalug did not indicate activ-
ties here prior to the Ptolemaic era, the scarab might suggest otherwise. Equally, the scarab might have been an heirloom as the production of scarabs virtually ceased in the Ptolemaic era.  

(Bir) Sirbakis

The survey first visited (Bir) Sirbakis in July 1993 and returned in July 1996 and August 1997 to draw a plan of the site and collect additional potsherds for study. Most of the ancient settlement lay at the northern edge of the juncture of three wadis (figs. 38–40), with a decreasing number of structures scattered towards the northwest. The survey identified a watchtower atop a mountain on the eastern side of the site from which excellent views of the settlement and beyond were possible. South of the largest concentration of structures, across the wadi, was a smaller cluster of buildings (figs. 38.6 and 39.6). Structures throughout the site varied in plan from rectilinear to oval with walls comprising stacked cobbles and boulders; there was no evidence of mud or clay binding material. Construction style and dimensions were typical of contemporary remains found elsewhere in the Eastern Desert.

Northwest of the main settlement were working/cleared areas (fig. 38.1). Also on the northern side of the wadi were graves, most of them circular in plan (figs. 38.2 and 38.8). Farther west were small dams across at least three gullies (fig. 39.9). These unusual features may have provided ephemeral, supplementary water supplies when it rained, or they may have been designed to catch water-born soil to create plots for small gardens, as seen elsewhere in the Eastern Desert.

Fig. 38. Bir Sirbakis, central plan. Drawing by H. Barnard.


82 Brief preliminary publication in Sidebotham, “Newly Discovered,” 182 (fig. 1), 190, pl. XIX.1.

spoil heaps (fig. 39.10) and one or more damaged structures (fig. 39.11). Inside one oblong structure were raised areas (fig. 39.3), perhaps platforms for sleeping (mastabas). At the northeastern edge of the settlement was an ancient structure with modern repairs (fig. 39.4) perhaps associated with the reopening of the mines, apparently in the late nineteenth or early twentieth centuries. In the wadi entering the site from the northeast was modern damage made with a front-end loader or a bulldozer (fig. 39.5).

On the southern side of the wadi entering the site from the northeast was a major ancient structure (figs. 38.6 and 39.6). Its large open courtyard and associated rooms suggested an administrative function. Also west, south of the wadi entering from the northwest, was a platform cut into the natural rock face (figs. 38.7 and 39.7). A modern well lay approximately 150 m south of the site in the bottom of a wadi. It may have been here or in the wadis entering the site from the northwest and northeast that ancient wells were located. If so, these have long since been filled in by wind-blown sand and floods, which occasionally pass through the area. Modern, but now abandoned, roofless and somewhat dilapidated, stone buildings lay on the hillside west of the well; the survey also noted ruins of modern structures north of the main site. Ancient grinding stones had been incorporated into some walls of these modern buildings (fig. 41). There was an elaborate graffito/inscription “RES 1904” carved into the natural rock face on the eastern side of the wadi, about 100 m south of the main site and 50 m north of the well (fig. 42). It was, very likely, related to gold mining operations that took place here and associated with the now abandoned modern structures found north and mainly south of the ancient site. This graffito had been looted and removed by persons unknown between the survey’s visits in July 1996 and August 1997.

East of the main settlement were remains of what appeared to have been a shrine or a sanctuary that measured about 12.0 m N-S x 5.5 m E-W (fig. 43). It was similar in appearance to that documented at the Ptolemaic-early Roman amethyst mining settlement at Wadi Umm Diyeiba (in Wadi al-Gamashtat). Another Delaware survey recorded a structure similar in appearance at Wadi Hatim/Hateem just east of the major gold mining settlement at Sukkari.

There were structures that had or may have had religious functions at sites and settlements throughout the Eastern Desert. One example, discussed above, was that at Fatireh al-Beida. Another may have been the el-

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elevated structure accessed by two staircases at the quarry settlement at Umm Huyut, while there was a temple erected on an artificial platform built part way up a mountainside at Kab Marfu’a. Although uncertain of its function, Klemm and Klemm published a photograph of a structure at the gold mining settlement at Hamesh that was also similar in appearance to the shrine at Bir Sirbakis. Much has been published about gods, religion, and shrines and temples in the Eastern Desert, in mining and quarrying settlements, and military installations in all historical periods.

During the survey’s work at the site, Ma’aza Bedouin men, women, and children herding numerous goats and donkeys visited the well. The survey team also sparingly used water from this well for bathing. The survey noted Bedouin children playing with toys and observed abandoned toys, evidence of longer-term occupation, or at least frequent visits to, and use of, the well here by these indigenous people.

Communications between (Bir) Sirbakis, and Bukhalug and the Nile would have headed west via the area of the later built praesidium at Gidami, about 17.5 km, partially through a winding wadi, west of Bir Sirbakis. From Gidami the route stretched westward and joined with one emanating from Mons Claudianus. West of Gidami, the route passed Abu Greiya, noted above, about 33 km (via the various wadis) west of Gidami, and westward, about 41 km from Qena (via the modern highway). This route eventually joined with that coming from Mons Porphyrites terminating at or near Qena. It is evident that Roman-era routes made use of earlier Ptolemaic ones in this part of the central Eastern Desert, a practice that has been documented throughout this entire area between the Nile and the Red Sea over the millennia.

Pottery

There was a relatively abundant scatter of surface sherds at (Bir) Sirbakis suggesting extensive activity predominantly in the third-second centuries BC with two sherds possibly dating to the mid-second to first centuries BC (figs. 44.8 and 44.17), and three sherds indicating later Roman activity, likely in the first-second centuries AD (figs. 44.1, 44.2, and 44.9).

Fig. 44.1. Carinated cup with broad rim, sloping inwards. Alluvial fabric, possibly ERSB. Dull red matrix with common ill-sorted limestone impurities, and red-brown dull matt slip all over.

Fig. 44.2. Saucer with rounded rim. ERSA. Brown-yellow with pink-purple core, slightly sandy fabric. Good quality glossy red slip on the rim, same color wiped slipped surface elsewhere.

Fig. 44.3. Saucer with grooved rim. Fabric red-brown with a thin brown slightly pink core. Lime impurities, but likely to be alluvial fabric based on surface appearance. Red-slip surface on interior. Parallel: Tebtunis, third to second century BC, in Ballet and Południkiewicz, Tebtynis V, pl. 13.177.

Fig. 44.4. Black-glazed bowl with outturned rim, with double-rouletting on the floor. Pale orange (5YR 6/6) clean fabric with good quality black slip all over. Import. Parallel: Athens, third to second century BC, in S. Rotroff, Hellenistic Pottery: Athenian and Imported Wheelmade Table Ware and Related Material. Athenian Agora, vol. 29 (Princeton, 1997), figs. 59–60.

Fig. 44.5. Small shallow, flanged-rim bowl. Sandy coarse fabric with brown-pink core and red-brown margins. Cream-pink slip remains on the outside surface, below the flange and on the wall, but probably originally covered entire vessel.

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89 Klemm and Klemm, Gold Mining, 265 (fig. 5.207).


92 R. Tomber recorded this material in the field in 1996 and 1997. Descriptions are based on her field notes and drawings.
Fig. 44.6. Hemispherical bowl with inturned rim. Red-brown with brown-purple core. Surfaces classic alluvial color, but fresh break has common large quartz and sparse limestone inclusions, suggesting mixed fabric. A general Hellenistic type, for discussion, see Ballet and Południkiewicz, Tebtynis V, 24–39.

Fig. 44.7. Large hemispherical bowl with inturned rim. Pink Aswan fabric with good quality red-brown slip outside, dull pink, but discolored in part inside.

Fig. 44.9. Carinated bowl with plain rim. Sandy dull red calcareous fabric with white surfaces. Parallel: al-Ghuzzah, second half of first century AD in Gates-Foster et al., “Early Imperial fortress of Berkou,” fig. 14.11.

Fig. 44.10. “Koan-Cnidian” bowl. Applied horizontal handle, fine slightly sandy alluvial fabric, red brown throughout with wiped surfaces. Parallel: Coptos, third to mid-second century bc, in Herbert and Berlin, “The excavation: occupation history and ceramic assemblages,” fig. 43.H2.15.


Fig. 44.12. Lid with plain, slightly squared-off rim, and knob handle. Coarse sandy calcareous fabric with common impurities, including some limestone. Pale pink with dull orange margins and surfaces. Wire marks on handle.

Fig. 44.13. Cookpot with everted lid-seat rim. Gray-green (10YR6/1) with dull red to pink (10R5/6) margins and surfaces. Lime rich fabric, possibly a mix or marl.

Fig. 44.14. Cookpot with internal beveled lip and lid seat rim of moderate height. Pronounced interior flange. Dull pale red sandy calcareous or mixed fabric with pink core and surfaces.

Fig. 44.15. Cookpot with internal beveled lip and tall lid-seat rim. Double wide, flat vertical handles. Fine alluvial fabric with rare limestone impurities. Brown with pink core and discolored pink surfaces. Parallel: Karnak, second half of third-first half of second century bc, in Licitra and David “L’évolution des céramiques ptolémées,” fig. 8.35.

Fig. 44.16. Cookpot with internal beveled lip and tall lid-seat rim. Sandy calcareous fabric with dull pink-brown core and darker margins and internal surface. The external surface has a thin, cream-colored skin.

Fig. 44.17 Globular, double-handled cookpot with everted rim. Shallow ribbing beginning just below the handle. Coarse, mottled alluvial fabric with brown break and orange to pink margins. Dull brown surface. Parallel: Coptos, third to mid-second century bc, in Herbert and Berlin, “The excavation: occupation history and ceramic assemblages,” fig. 51.H2.39.

Fig. 44.18. Casserole with lid-seat, offset rim and applied, round horizontal handle. Alluvial fabric with rare large quartz. Red-brown with occasional gray-green core and red-brown surfaces, wiped. Parallel: Coptos, mid-second to mid-first century bc, in Herbert and Berlin, “The excavation: occupation history and ceramic assemblages,” fig. 69.H3.35.

Fig. 44.19. Dinos with thickened, grooved rim. Red-brown (10R 5/6) throughout. Sparse large sand and common limestone inclusions. Probably an alluvial mixture. Parallel: Coptos, third to mid-second century bc, in Herbert and Berlin, “The excavation: occupation history and ceramic assemblages,” fig. 46.H2.25.

Fig. 44.20. Dinos with thickened rim with a groove from finger wiping. Coarse sandy, poorly mixed calcareous clay. Dark purple with orange lenses and white surfaces.

Fig. 44.21. Egyptian amphora (AE1) with narrow bead rim and ovoid strap handle. Red-brown calcareous fabric with brown-gray external margin and white to green surface outside. Abundant limestone inclusions, small and well-sorted. See discussion of AE1-2.5 in Dixneuf, Amphores égyptiennes, 79–87, esp. fig. 56, and Gates-Foster, “Third Century BCE Supply Networks,” figs. 7–8.

Fig. 44.22. Egyptian amphora (AE1) with narrow bead rim and ovoid strap handle. Red-brown silt throughout with some larger sand and lesser limestone inclusions. Darkened core near rim.

Eridiyah

There were few architectural remains visible at Eridiyah during the survey’s visit in July 1993 (fig. 45). The structures, mainly rectilinear in plan, comprised walls built of stacked stones. The survey did not plot these buildings and made no measurements of them. Among the structures, and to the south, were numerous, shallow,
open pits, evidence of gold mining or prospecting efforts. Nearby was a cemetery, but the survey could not determine its age.

Eridiyah lay approximately 6.4 km southeast of (Bir) Sirbakis via a wide wadi. The distance between them required about a two-hour walk but, based on analysis of the surface sherds, these two sites were not contemporary. Any communication between Eridiyah and the Nile would then have used the same route as that from (Bir) Sirbakis via either Gidami or Abu Gerida westward.

The few permanent structures at Eridiyah suggested that operations here were neither large-scale nor perennial. Perhaps the area was exploratory with teams of prospectors sent from elsewhere as needed. Surface sherds dated to the second-third centuries and possibly fourth-fifth centuries AD.95

**Conclusion**

The results of the Delaware surveys indicated, unsurprisingly, that gold mining and stone quarrying occurred throughout the central Eastern Desert in Ptolemaic-Roman times. This report does not consider earlier or later efforts to extract and transport mineral wealth in the region, though these took place.96 It is also evident that a single site, such as Abu Gerida, had multiple mining and quarrying functions and produced some of the tools, such as grinding stones and metal implements, used in those endeavors. It was likely also an administrative center for other activities in the region.

Gold ore grinding stones/querns made of rhyolite porphyry, very similar in appearance to those recorded at Abu Gerida, have been documented at other Ptolemaic-era mining facilities in the Eastern Desert. These include Wadi al-Naba and Umm Howeitat al-Qibli;97 there may be others. There has been no chemical analysis conducted on these grinding stones to determine if they derived from the same quarry, i.e., that at Abu Gerida, and it is possible that they do not. However, if future analysis determines a common source for these grinding stones, then this may shed some light on Ptolemaic administrative control over aspects of gold mining operations at different sites in the Eastern Desert.

The appearance, numbers, sturdiness of construction and locations of the stone-built structures at sites examined here, except at Eridiyah, indicated that operations were, likely, conducted perennially, with, perhaps, some periods of reduced activities with populations probably increasing or decreasing throughout the year depending on a host of factors. This may not have been the case at Eridiyah, which preserved few extant stone structures. Operations here

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95 J. Riley examined surface pottery from Eridiyah during a field season in 1993. His field notes offer only a brief statement of general dates for the collected sherds and no catalogue or drawings.

96 Klemm and Klemm, Gold Mining, and Klemm and Klemm, Stones and Quarries. Many of the dates they propose for activities at sites are inaccurate while others should be used with great caution. J. Harrell, Archaeology and Geology of Ancient Egyptian Stones (Toldeo, OH, forthcoming).

may have taken place only occasionally and not perennially. The scanty architectural remains suggested that few, if any personnel, stayed here throughout the year. They may have traveled here as needed. Of course, workers might have lived in tents or other structures that have left no trace in the archaeological record.

The state of preservation of stone structures at most sites examined here and dearth of wall tumble adjacent to them indicated that they were not much higher in antiquity. One must, therefore, conclude, as has been the case at other ancient sites throughout the Eastern Desert, that portions of upper walls, as well as any roofing, probably comprised perishable organic materials, such as wood and matting.98

There was little evidence for the presence of women and children as regular residents at any of these sites. Nor can it be determined if any of the population comprised servile or convict labor. Despite the well-known passage in Agatharchides’, On the Erythraean Sea (copied in part, for example, by Diodorus Siculus and Photius) that discusses slave labor at Ptolemaic-era gold mines, including the abominable working and living conditions,99 no archaeological evidence pointed conclusively to their presence or use—or that of convicts100—at any of the sites studied here. The surveys identified no fortifications at the mining and quarrying settlements. There were few watch towers and no facilities that appeared to have been places of confinement for slaves or convicts at any of the sites. The relative proximity of these settlements to the Nile would have allowed anybody who desired to escape to do so. Of course, this does not preclude the presence of slaves as private property in the study area.101

The relatively few graves recorded at the sites likely do not accurately reflect the numbers living in these settlements. This suggested that at least some of the deceased were returned from the desert to locations along the Nile for burial. While there is little or no evidence for this practice in the Ptolemaic era, it seems to have taken place at least in the early Roman period.102 This Roman-era practice likely represented a long-standing Egyptian tradition.

Furthermore, the proximity of (Bir) Sirbakis to Bukhalug—no more than a few hours walk—and the contemporary pottery studied from those locations, suggested that there was probably regular official and unofficial communications between them. Fatireh al-Beida may have had multiple functions: as a quarry and potentially, though probably not officially, providing some very limited logistical support for teams moving between the Nile and Mons Claudianus. As Fatireh al-Beida was slightly off the main route between Mons Claudianus and the Nile and appeared to have been occupied only briefly in the Early and Late Roman periods, it would not have been a regular stop for this traffic.

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100 See Cuvigny, Rome in Egypt’s Eastern Desert, 608–10 for possible convicts.
101 Cuvigny, Rome in Egypt’s Eastern Desert, 211 and note 96; however, see also p. 604.
Emerging archaeological evidence from excavations at settlements such as Samut, Samut North, and al-Ghuzzah and that from other sites, such as Abu Bokari, Dunqash, Hangaliya, Sukkari, Umm Howeitat al-Qibli, Vadi Ghadir, and yet others, indicates that there was an uptick in gold mining activity in the Eastern Desert in the Ptolemaic period. In some cases this took place at sites that had been previously exploited and in other instances these appear to have been areas only first mined in Ptolemaic times. These efforts resulted in the transformation of the desert landscape through the creation of a network of stations and transportation hubs designed to intensify exploitation across the entire region. This appears to have been part of an overarching plan by the Ptolemaic state to augment its resources to support military and diplomatic efforts elsewhere in the Red Sea and throughout the Aegean/eastern Mediterranean regions, particularly during the third century BC when continual warfare and expansion strained the state’s resources on many fronts.

Increased activities in the Eastern Desert in the Roman period beginning in the first century AD, especially in the central portion containing the sites under study, were most evident in the opening of massive quarrying operations at Mons Porphyrites, Mons Claudianus, and, to a lesser extent, at Umm Wikala. The recent French excavations at central portion containing the sites under study, were most evident in the opening of massive quarrying operations signed to intensify exploitation across the entire region. This appears to have been part of an overarching plan by the Ptolemaic state to augment its resources to support military and diplomatic efforts elsewhere in the Red Sea and throughout the Aegean/eastern Mediterranean regions, particularly during the third century BC when continual warfare and expansion strained the state’s resources on many fronts.

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