

THE BIR UMM FAWAKHIR SURVEY PROJECT

Carol Meyer

The Bir Umm Fawakhir Project of the Oriental Institute completed a third season of archaeological survey in January 1996. The site of Bir Umm Fawakhir, in the rugged Precambrian mountains of the central Eastern Desert of Egypt, can now be identified as a fifth/sixth-century Coptic/Byzantine gold-mining town (fig. 1). The team consisted of Dr. Carol Meyer, field director; Dr. Lisa Heidorn, archaeologist; Mohamed Badr el-Din

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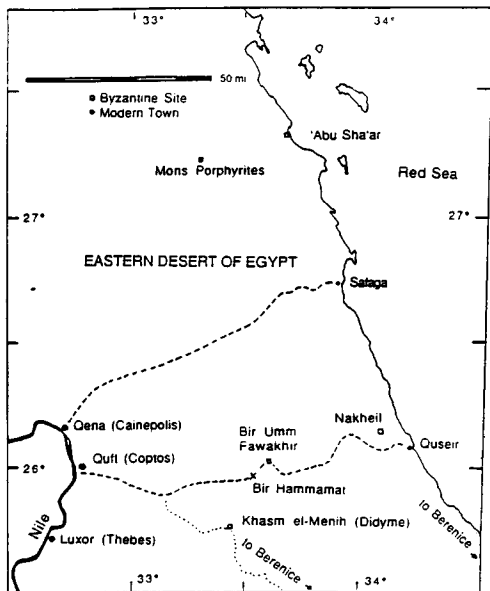


Figure 1. Map of Eastern Desert of Egypt

same date identified so far (fig. 2). The main settlement lies in a long, narrow, steep-sided wadi not visible from the modern road. The sandy wadi bottom serves as the main street and houses are laid out on both sides, up to the point where the cliffsides become too steep for construction (fig. 3). The houses are remarkably well preserved, in places standing over 1.5 m high, and many have internal features such as wall niches for storage and benches. We can thus map an entire Byzantine/Coptic town, house by house, detail by detail, without excavation.

The previous two seasons mapped 105 buildings, out of an estimated 216, plus some of the surrounding topography, and the 1996 project mapped 47 more houses (fig. 4). Work began in 1992 at the extreme southeastern end of the site, but as the survey moved northwest down the wadi

Omar, geologist; Dr. Steven Cole, Assyriologist and photographer; Alexandra O'Brien, Egyptologist; Mohammed Rayyan, inspector; and Abdu Hassan, driver. Due to delays in obtaining final security clearance in Cairo, the start of the season had to be postponed from December 30, 1995 to January 9, 1996 and then continued through January 18. Thanks and acknowledgments are always due to many people and patrons, but under the difficult circumstances of the 1996 season, special measure goes to Amira Khattab of American Research Center in Egypt in Cairo and to Professor Peter Dorman, Dr. W. Raymond Johnson, and Ahmed Harfoush of Chicago House in Luxor.

As in the 1992 and 1993 seasons, our efforts concentrated on mapping the main settlement, so termed to distinguish it from the eight clusters of outlying ruins of the

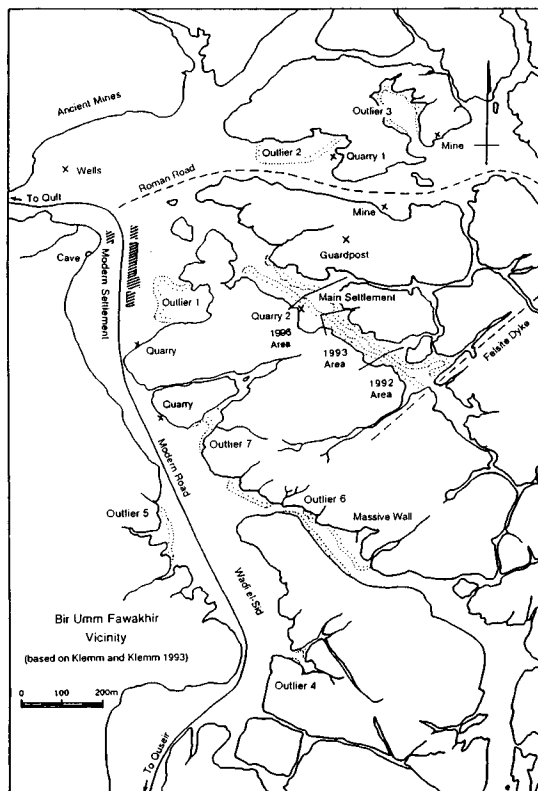


Figure 2. Bir Umm Fawakhir vicinity (based on Klemm and Klemm 1993)

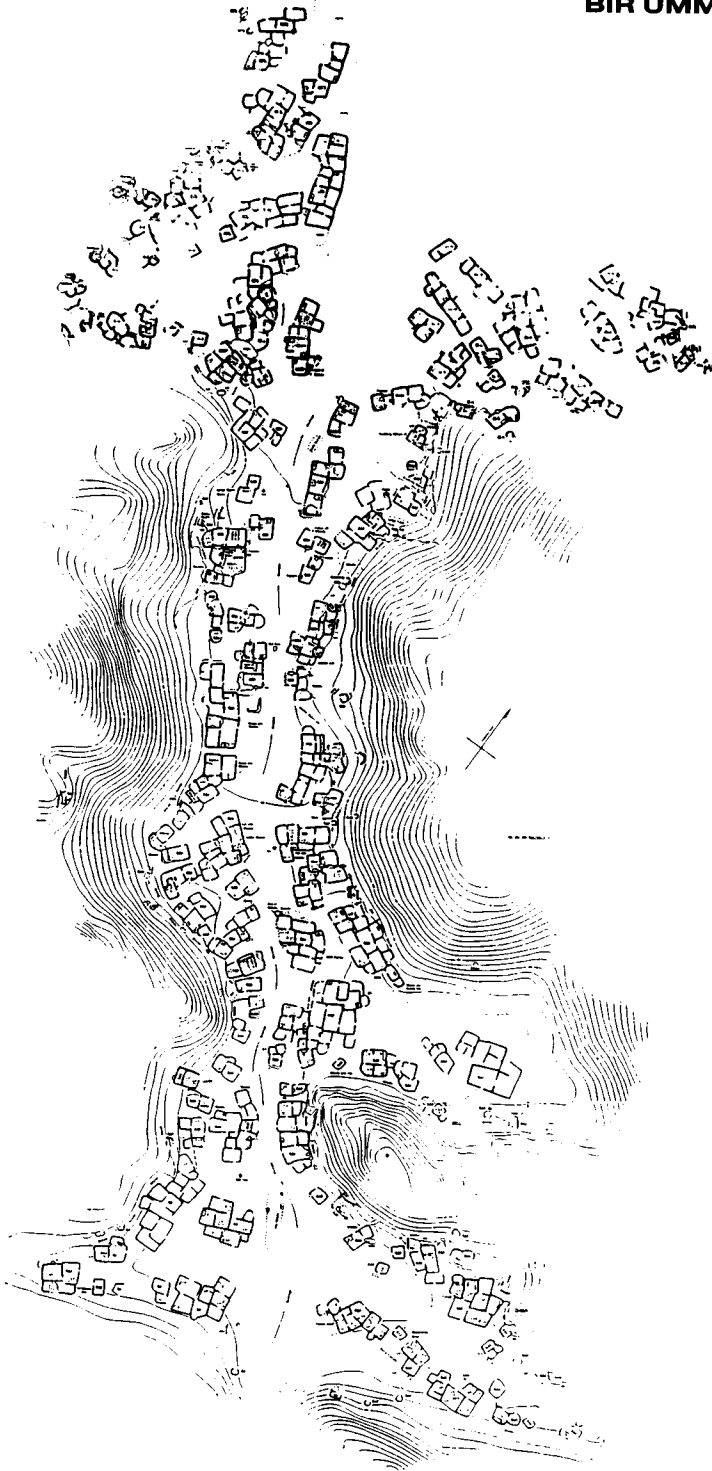


Figure 3. Map of Bir Umm Fawakhir Main Settlement, 1992, 1993, and 1996 seasons

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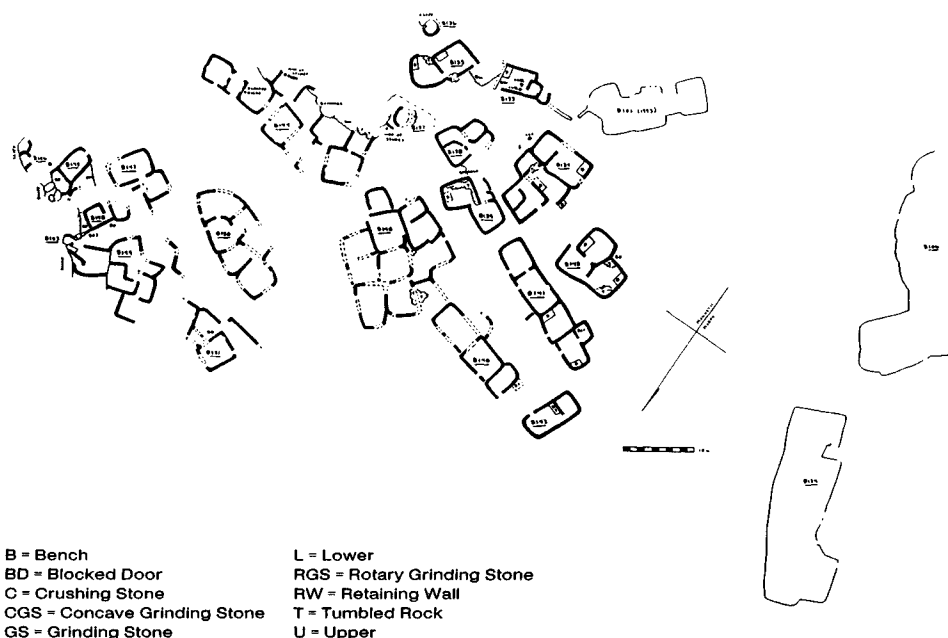


Figure 4. Bir Umm Fawakhir 1996 Season (larger scale; eastern area)

street, the buildings were more poorly preserved, more tumbled by wadi wash, and harder to interpret (fig. 5). Although the individual character of the buildings generally remained clear, in many cases doors could only be interpolated. As in the previous two seasons, all the buildings appeared to be domestic. They have a basic pattern of two or three rooms, e.g., Building 122, but in many cases two or more houses were stuck together in larger agglomerated units. The largest mapped in 1996, Building 106, had 22 rooms, outstripping Building 50 with 19 rooms. Scattered around the multi-room houses were a number of one-room outbuildings, both the larger squarish ones, e.g., Building 108, and small rounded ones, such as Building 136. Without excavation we cannot know whether these were used for storage, cooking, animals, workshops, latrines, or yet other purposes.

Several especially thick-walled houses (Buildings 112, 113, 116, and 117) were built against or under boulders on the cliffside behind Quarry 2. In this area rotary grinding stones and dimpled crushing stones were abundant, but apparently in secondary context. In particular, it seemed as if someone had collected a score or more of the crushing stones and set them up on the slope alongside the entrance to Building 117, perhaps as steps (fig. 6).

The corpus of dipinti, dockets painted in red on the shoulders of wine jars, increased by ten, but unfortunately they are fragmentary and illegible. Systematic sherd collection was, given the brevity of the season, limited to two samples, augmented by some special pieces such as imported North African red ware and a painted fish, a popular Coptic motif. Lisa Heidorn had charge of the collections, recording and drawing, and will prepare the final pottery analysis. Apart from sherds and crushing and grinding stones, other surface finds were rare.

Steven Cole located two more cemetery areas on the surrounding cliffside. One of them, on a natural path across the ridge to the Roman road, was quite extensive. All

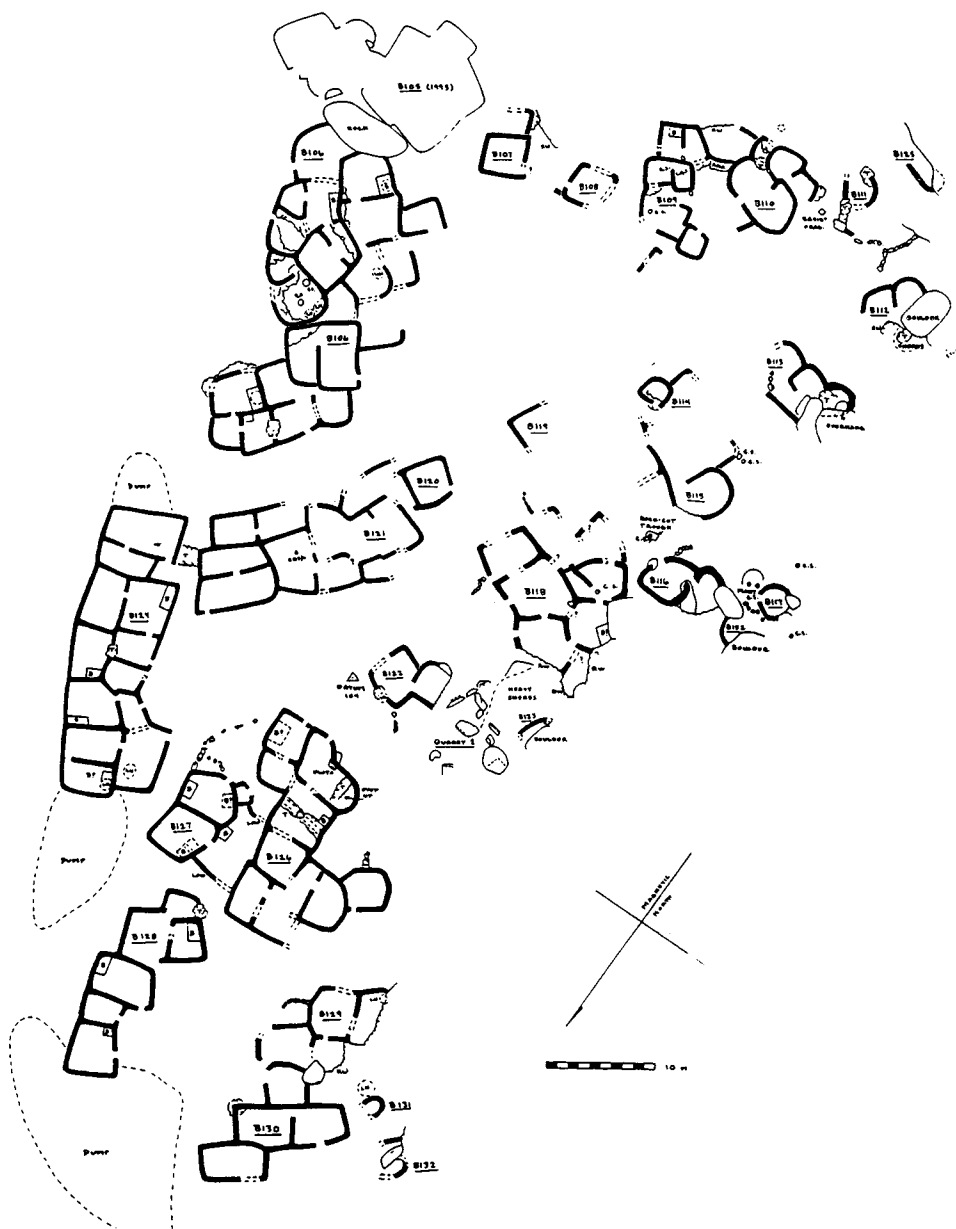


Figure 4 (cont.). Bir Umm Fawakhir 1996 Season (larger scale; western area)

graves located so far were simple clefts in the bedrock or cists built up of granite slabs, and all were thoroughly looted.

Quarry 2, inspected but not plotted in 1993, has now been incorporated in the site map. Judging from a handful of Roman amphorae sherds, the type of wedge slots in the

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granite, and the fact that at least one partly quarried block is built into a house, the quarry appears to be a minor Roman activity, smaller even than Quarry 1 on the old Roman road to the west.

In 1992 and 1993 the project identified seven outlying clusters of ruins, now numbered Outliers 1 through 7, ranging in size from a few huts in Outlier 4 to over sixty in Outlier 6. Just across the road from the modern mining camp in the Wadi el-Sid, the survey found an eighth outlier surviving just to one side of a huge modern deposit of crushed quartz tailings. There could be more outliers still, particularly around the modern mine and in the uninvestigated area to the west of the wells.

Outlier 2, lying between the wells and Quarry 1 on the Roman road, was remarkably intact, and Steven Cole began to document some of the best-preserved buildings. One house in particular could be preserved to its original height of about 2 m (fig. 7). Furthermore, two houses had grain silos outside. They were cylindrical, now roofless constructions of granite cobbles and thick mud plaster. Both silos had internal partitions

and a small hole at ground level for extracting grain (fig. 8). They were of particular interest because silos had not been detected at other parts of the site and because their association with individual houses did not suggest central management of grain stores.

One specific question the project addressed concerned the ancient gold mines and mining techniques. Although the site could be identified as a mining town, further research revealed that there were virtually no archaeological studies of mines and mining in this period in Egypt, or for that matter in the



Figure 5. Overview of the eastern part of the Bir Umm Fawakhir 1996 Survey Area. Buildings 147, 150, and 144 in the foreground, Buildings 134–140 in the background

entire Byzantine empire. The one literary source for ancient Egyptian gold mining, versus gold working, is Diodorus Siculus of the first century B.C., citing Agatharcides of the preceding century. One problem was that Diodorus was writing over half a millennium earlier than Bir Umm Fawakhir and it could not be assumed that nothing changed, especially in regard to the political and economic milieu. Another problem was that Agatharcides might have based his account wholly or in part on Spanish mines.

First of all, Diodorus says that “the kings of Egypt gather together and condemn to the mining of gold such as have been found guilty of some crime, and captives of war, as well as those who have been ... thrown into prison because of their anger, and ... occasionally all their relatives as well” (III.12). The Ptolemaic kings had long been supplanted by distant rulers in Rome or Constantinople. Diodorus dwells at length on the extreme misery of the workers, because “all without exception [are] compelled by blows to persevere in their labors, until through ill-treatment they die in the midst of their tortures” (III.13).

The civil status of the people at Bir Umm Fawakhir is by no means as clear as Diodorus’ account seems to make it. The town had no obvious planned layout but

rather sprawled from one end of its wadi to the other, and perhaps into the outlying clusters as well. The individual houses were idiosyncratic and while not sumptuous did have their small built-in comforts such as niches and benches. The grain silos did not suggest a centralized storehouse, and the dipinti came from wine amphorae, perhaps used for wine only once but still representing a fair quantity of an imported luxury. There were no formal defenses at the site, either to keep people in or out. None of the houses were noticeably more elaborate than any other, and a difference between the keepers and the kept would be expected in a penal establishment.

In describing the mining itself, Diodorus says “the gold-bearing earth which is hardest they first burn with a hot fire, and when they have crumbled it in this way they continue the working of it by hand ...” (III.12). Four mines were inspected during the 1996 season and in none of them was any sign of fire setting found, no charcoal, no ash, and in particular none of the rounded, spalled-out niches fire setting creates. The largest of the mines investigated was high enough to walk upright in, ran about 100 m into the mountainside, had two short side passages and one air shaft, and—at the working faces—hammered, rectangular slots for splintering out the rock. There could have been no need for fire setting. The gold-bearing quartz is tough, but the surrounding granite is naturally jointed and fissured and in places downright rotten. In the last two mines inspected this was particularly true; the granite sometimes crumbled underfoot.

Diodorus’ description of ore reduction, however, seemed closer to what could be documented at Bir Umm Fawakhir. “The boys who have not yet come to maturity ... laboriously gather up the rock as it is cast down piece by piece and carry it out into the open place outside the entrance. Then those who are above thirty years of age take this quarried stone ... and with iron pestles pound a specified amount of it in stone mortars, until they have worked it down to the size of a vetch. Thereupon the women and older men

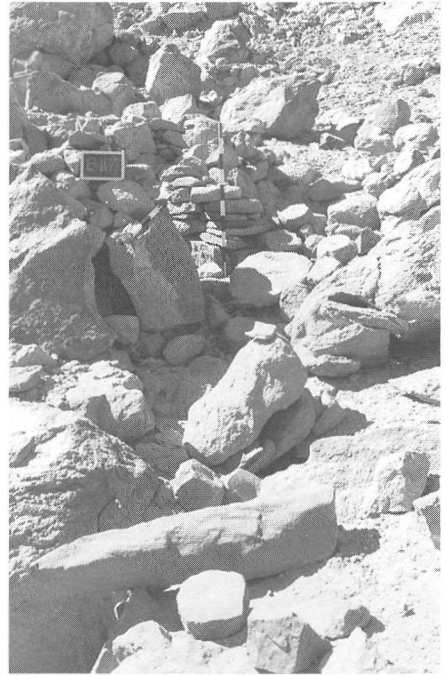


Figure 6. Building 117 with numerous crushing stones upslope

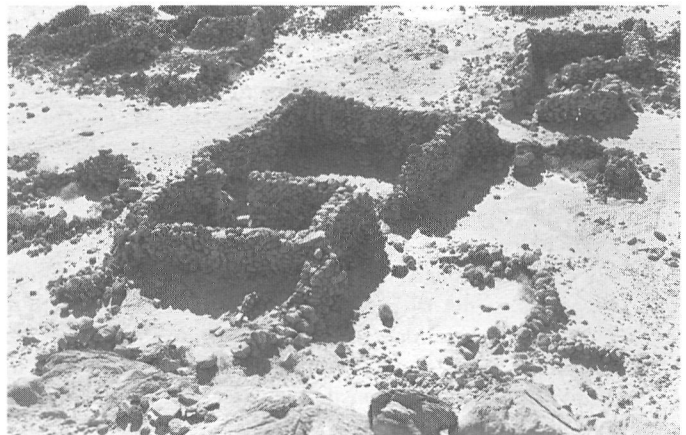


Figure 7. House in Outlier 2 at Bir Umm Fawakhir

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receive [it] from them and cast it into mills of which a number stand there in a row, and taking their places in groups of two or three at the spoke or handle of each mill they grind it ... to the consistency of the finest flour" (III.13). "Mortars" in the sense of deep pounding basins were few at Bir Umm Fawakhir, but there were hundreds of the dimpled crushing stones, including one in situ at the entrance to a mine, lumps of discarded quartz matrix still scattered around it. Similarly, there were scores of the rotary

querns or mills at Bir Umm Fawakhir, both upper and lower stones. What is still not accounted for, however, are the many concave grinding stones. Were they used at a different stage of the grinding or for something else altogether, such as flour, or are they more ancient?

The greatest surprise of the season was the discovery of New Kingdom material in an area not investigated previously because it was assumed to have been torn up by modern mining activity. The remains consisted of about half a dozen thoroughly looted graves with scattered potsherds, a guard post, and a large sherd dump. The guard post consisted of two rooms or shelters constructed of heavy, unworked stones, plus perhaps two more shelters built against boulders. The post commanded a fine view of the road through the Wadi el-Sid and the nearby modern mines. Although analysis of the drawings of the sherds from the dump is not complete, the blue-painted sherds, burnished jars, and a potstand point to a New Kingdom date.

The Twentieth Dynasty Turin Papyrus, which



Figure 8. Silo in Outlier 2 at Bir Umm Fawakhir

can reasonably be read as a map to the stone quarries in the Wadi Hammamat, shows a well, a temple, and a "Mountain of Gold" and a "Mountain of Silver" just beyond. This season, however, was the first time the project has been able to document pharaonic activity in the mining zone.

The Bir Umm Fawakhir Survey Project has now mapped three-quarters of an entire ancient town in detail, and we have a preliminary population estimate of a little over 1,000 people in the main settlement. The growing pottery corpus, coming from what is basically a one-period site, will be of particular value to researchers studying longer-lived and more complex sites. We have also documented aspects of the site that are often difficult to detect archaeologically: roads, paths, outlying clusters of buildings, silos, cemeteries, and working areas such as mines and quarries. We can now go beyond a straight descriptive account of the material remains of Bir Umm Fawakhir and begin to investigate questions about the miners themselves, including questions such as their civil status and who was responsible for the overall operations. For one thing, the emperors of the fifth and sixth centuries were desperate for gold, and Bir Umm Fawakhir is one of the first archaeologically studied gold sources within the Byzantine empire. It seems likely that the emperors' personal appointees, the dukes of Thebes (Luxor), and their administrative offices had some involvement in the mines or more exactly, in the product. Also, it is difficult to see who apart from the government could have organized the support and protection of such a remote mining town. It is a long

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way from the glittering courts of Constantinople to the Precambrian granites of Bir Umm Fawakhir, but it is becoming clear that we have to think about the site not only in an Egyptian context but also in an imperial one.
