

**Fifth archaeological survey of the ancient greywacke
quarries of the Wadi Hammamat**

**Institute of Archaeology, University College London
in co-operation with SCA Ancient Quarries and Mines
Department**

1 – 5 November 2014



Copper Mines and Settlement, Wadi Hammamat

**Final Report to the
Supreme Council of Antiquities
*by***

Elizabeth Bloxam and Ian Shaw

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INTRODUCTION

The objectives of this fifth and very short season of work were as follows:-

- risk assessment and monitoring of the site given threats to it, primarily from random 'safari tourism' and flash floods
- undertake a detailed survey with total station equipment of a series of copper mines and settlement discovered in November 2011

THE SURVEY TEAM

Dr Elizabeth Bloxam (Field Director) – Institute of Archaeology, University College London

Dr Ian Shaw (archaeologist) – University of Liverpool, UK

SITE MONITORING

Since the guards have moved their accommodation much closer to the main areas of inscription and ancient settlement we observed no loss of inscriptions or any other archaeological material. The building of the guard's house, especially having the generator with lights, has been a great achievement and step forward in terms of protecting the site. There still needs to be proper ticketing of the site and also, we need to draw up a management plan in order to put in place longer-term protection measures. Groups of unsupervised tourists seem to have diminished, probably because of the general absence of foreign visitors to Egypt as a whole. However, it seems as if the Wadi Hammamat road is once more closed to foreigners as there were more rigorous checks at police checkpoints into and out of Quseir, a situation not seen since 2011.

THE MINES

The mine workings are open-cut pits that range in size, shape and depth. The copper comes from chrysocolla (a copper silicate mineral) that occurs along fractures in mainly metaconglomerate but also, to a minor extent, in the metagreywacke (Bloxam et al. 2012). We established there to be approximately 20 individual mines scattered across the site. We made detailed descriptions of a representative sample of these, which fall into largely 2 types: (1) crater-like mines that form circular depressions (now filled with sand) and are surrounded by spoil heaps, the depth of the mine is determined by the amount of waste circling it (Fig. 1); (2) longitudinal, often shallow and surrounded by spoil (Fig. 2). In most instances fragments of quartz and copper ore occur on top of the spoil heaps, or as small work areas slightly away from the mines (see Fig. 10).

STONE TOOLS

Stone tools occur scattered across the site and comprise hand axes/chisels of local metaconglomerate and greywacke (Figs 3 & 4). The stone source of these tools was directly in the area of mines as we located small quarries specifically for producing these (Fig. 5). The presence of tool rough-outs close to the dwelling areas (S1 and S2) suggests they may have been worked into finished products in these areas.

Other tools found are mainly hand-held pounders in dolerite and silicified sandstone, both of these stones are not local to the area. We have yet to establish if these non-local tools were brought into the mines as finished objects (most likely) or manufactured at the site.

SETTLEMENT

There are 2 areas of stone-walled, interconnecting rooms that were likely to have been temporary dwellings for the miners. The larger of the two areas (S1) comprises 3 interconnecting rooms (Fig. 6), whereas the smaller (S2) has only 2 rooms with a shared central wall (Fig. 7). Small amounts of pottery are scattered in these areas and from analysis made by Ashraf el-Senussi when the mines were initially found in November 2011 (Bloxam et al. 2012) these mostly dated to the 27th Dynasty of the Late Period. Flat based bread moulds comprise some of these 27th Dynasty ceramics so we need to establish if there was a bakery attached to the settlement (Fig. 8). However, analysis of sherds embedded into the floor of settlement area (S2) date to the New Kingdom (18th – 19th Dynasty), therefore implying that mining activity occurred here earlier than previously thought (Fig. 9).

Close to both settlements there are work areas where extracting the copper from quartz ore has left very fine pieces of both materials (Fig. 10). Dolerite and silicified sandstone pounders used for this process were found nearby. There is also evidence of possible greywacke working, as a worked, squared block sits inside one of the rooms (at S1) and also a greywacke chisel was found here (Fig. 11). These dwellings would need to be excavated at some later stage, if we are to properly determine the activities that were undertaken here.

SUMMARY

We have established a rare area of copper mining in the Wadi Hammamat not previously known, which, from analysis of pottery, dates to copper mining activity here in both the New Kingdom (18th-19th Dynasty) and Late Period (27th Dynasty). To date, evidence of mining activities such as this, particularly during the 27th Dynasty, are largely unknown and so we are presented with an exceptionally interesting site to further explore the connection between copper mining in Wadi Hammamat with that of greywacke quarrying. For instance, were they mining the copper for tools, or for objects unrelated to quarrying?

We have yet to find any evidence of metallurgy in the mining area, i.e. that they were smelting the copper *in-situ*. Further research needs to address where the copper was being processed and to determine the social context behind these activities. For instance, were the miners' members of local kin-groups who also quarried greywacke? Or alternatively, were they local but connected to other kin-groups who 'mined' rather than 'quarried'. Or, were these specialists who came (regionally) from elsewhere? We also need to establish work practices in terms of temporary/permanent presence here within a given period, or did groups come up to the mines sporadically when the material was needed during episodes of quarrying?

REFERENCES

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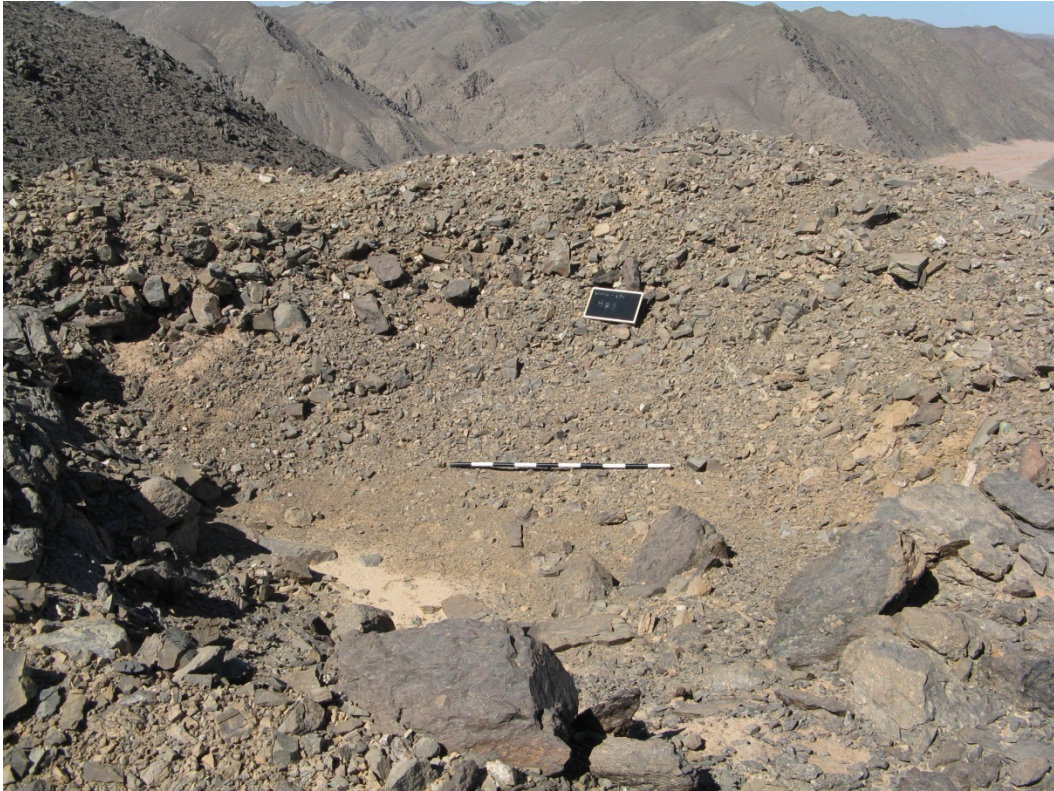


Fig. 1. View of deep 'crater' mine with high spoil heaps



Fig. 2. View of a shallow longitudinal mine with spoil heaps either side



Fig. 3. Metaconglomerate hand-axe



Fig. 4. Greywacke hand-axe



Fig. 5. Metaconglomerate quarry (M17) with large quarried slab (hand axe found in this location)

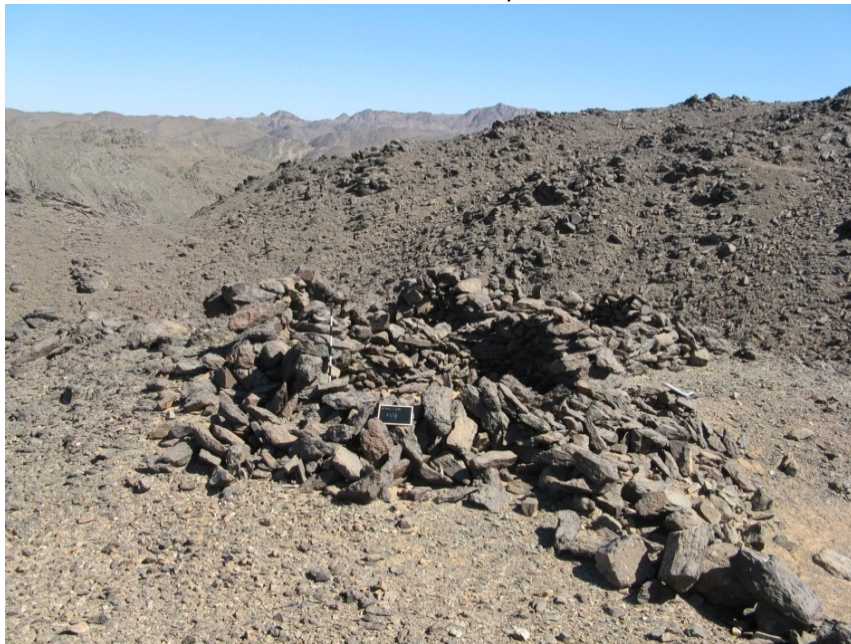


Fig. 6. Main area of settlement (S1) – three interconnecting rooms



Fig. 7. Area of dwellings comprising two interconnecting rooms with a shared wall (S2)



Fig. 8. Sherd of a bread mould found at settlement S1



Fig. 9. Rope impressed pottery sherds (New Kingdom) at settlement area S2



Fig. 10. Typical processing work area with fragments of quartz from which copper ore extracted



Fig. 11. Worked block of greywacke found in settlement area (S1) possibly for making tools?