



PRAGMATIC TECHNOLOGY AND THE LIBYAN BRONZE AGE¹

Linda Hulin

Oriental Institute/Institute of Archaeology, University of Oxford

ABSTRACT

The last decade has seen an increase in our knowledge of the archaeology of the Libyans in the western desert of Egypt. This paper considers the extent to which the Libyans possessed a metals technology. Without access to indigenous ore bodies, it has been widely assumed that the Libyans lacked any metallurgical know-how. The discovery of crucibles at Marsa Matruh and Zawiyet Umm el-Rakham has not changed this view. In this paper it is argued that the Libyans possessed a pragmatic knowledge based on the need to repair and re-work metal objects gained through trade or war. The crucibles represent material evidence for this that has been overlooked by scholars with overly pessimistic conceptions of the adaptive capacities of nomadic and semi-nomadic societies.

In 1990, David O'Connor wrote a comprehensive review of Libyan groups in the New Kingdom, addressing geography, tribal and social structure, and international connections within an integrated model of transhumant pastoralism from written sources.² O'Connor's sophisticated and complex view of Libyan society was written at a time of scant archaeological data, and indeed he did not really consider this class of information in his article. In 1994, Donald White sought to rectify this in an article in an overview volume of *Libyan Studies* that, while reviewing the material record from Libya as a whole, concentrated on old and new work at Marsa Matruh.³ The intervening thirteen years have added little historical material to this account, although the inscription from Zawiyet Umm el-Rakham will add some detail when it is published. However, there has recently been a small explosion in archaeological information relating to this period discovered along the coast of the western desert of Egypt—at Marsa Matruh, Zawiyet Umm el-Rakham, and the surrounding region—since O'Connor wrote his article.⁴

Both areas had been previously investigated. Marsa Matruh was visited by Oric Bates in 1914. He opened five cist graves on the Great Ridge over a lagoon system that has provided safe anchorage to shipping both ancient and modern.⁵ Three of the graves had been looted completely, and at least one other partially so. Bates also identified Aegean and Cypriot remains on an island named Geziret el-Yehudiyeh⁶ in the first eastern lagoon. From 1985 to 1989, a team under the direction of Donald White revisited the area. No trace of the cist burials on the Great Ridge could be found (the town has expanded considerably since Bates' day), but excavation on the island proved fruitful. A collection of at least three rooms, a cooking area, and a storage area were identified, and quantities of Cypriot, Aegean, Canaanite, and (to a lesser extent) Egyptian wares were recovered.⁷

The fortress of Zawiyet Umm el-Rakham was first noted by Wolfgang Helck en route to and from el-Alamein in 1942. The site was first formally identified by Alan Rowe in 1948⁸ and excavated shortly after by Labib Habachi, who uncovered a chapel and a section of perimeter wall.⁹ An expedition led by Steven Snape excavated at the site from 1994 onward, uncovering more chapels, magazines (which included Cypriot, Canaanite, Mycenaean, and Egyptian wares), and a kitchen area, as well as defining the limits of the fortress.¹⁰ A squatter presence in and around the magazine area and one of the chapels was also identified, representing the widest range of Libyan (and/or non-Egyptian) material culture of the Late Bronze Age. This was the subject of an as yet unpublished doctoral dissertation by Fiona Simpson.¹¹

In this paper, I will consider one small aspect of the material found at Marsa Matruh and Zawiyet Umm el-Rakham. Evidence for small-scale metal-casting was found on the island and at the fortress. Nineteen non-joining crucible fragments were found on Bates' Island, representing an unknown number (≤ 19) of vessels.¹² Ten came from the southern tip of the island, where local legend had it that two Jewish goldsmiths, Ishak and Hugah, were buried.¹³ They were found in association with slag and metal detritus, suggesting the casting of copper or bronze items, although no moulds or bellows were identified. A number of small metal objects were also found, both in the vicinity of the crucibles and across the island. For the most part, these were utilitarian: pins/nails, fish hooks, a chisel, possibly an awl, and a needle or bodkin—but a blade and two barbless arrowheads were also present.¹⁴ A single crucible fragment was found in the squatter levels at Zawiyet Umm el-Rakham, in circumstances similar to those at Marsa Matruh. Although no metal detritus was found, many charcoal flakes were, alongside a number of metal objects, including pins and an Egyptian chisel and a blade fragment.¹⁵

The crucibles from both sites are broadly similar. The example from Zawiyet Umm el-Rakham was the most complete, consisting of a plain rim, a cylindrical clay body, and a pinched lip for pouring.¹⁶ The crucibles from Marsa Matruh were much more fragmentary, but they seem to have been of a generally curved, round-bottomed shape.¹⁷ Crucibles from both sites were thick-walled, with those at Marsa Matruh between 2 and 3 centimeters. The vessel from Zawiyet Umm el-Rakham was made of coarse, local clay with a heavy addition of grog, grit, and shell temper,¹⁸ as were at least three of the fragments from Marsa Matruh (9.35, 9.44, 9.45). The remainder were probably also locally made; one was made of unidentified stone.¹⁹ All the crucible pieces at both Marsa Matruh and Zawiyet Umm el-Rakham had droplets of metal adhering to their inner surfaces.²⁰

The interpretation of these objects at the two sites has been very different. Initially it was proposed that the finds from Marsa Matruh reflect the activities of mariners who cast small items on the spot as trade items to be exchanged for food, water, and ostrich egg shells²¹ (and, less probably, silphium).²² The Libyans in this scenario were passive recipients of metal goods from the outside world. This view was reinforced by Simpson, who regarded the crucible from Zawiyet Umm el-Rakham as evidence of a failed attempt by Libyans, squatting in the abandoned Egyptian fortress, to produce metal objects on their own.²³

This position is the result of technological and cultural assumptions that do not bear close scrutiny. Simpson, following Slater, argued that the crucible fabric was too coarse and porous to function: the metal would have simply soaked into the crucible wall.²⁴ This may well have been the case—although crucibles from the Roman site of Silchester in England were outstandingly crumbly²⁵—but the metal adhering to the interior wall of the example from Zawiyet Umm el-Rakham should surely be seen as evidence for success rather than failure. Certainly Killick, Pigott, and Swann seem to have no such doubts in their examination of selected crucible fragments from Marsa Matruh.²⁶

It is easy for the archaeologist to get caught between the competing claims of technical specialists, and there is little to be done other than to wait for consensus to appear. However, there is unity in the assumption that the Libyans were incapable of casting metal themselves.²⁷ With regard to the material from Marsa Matruh, this view is implicit, yet if true the encounter between mariners and Libyans is difficult to conceptualize. Are we to imagine that the sailors would fetch up at the island, enter into negotiations with the Libyans, then go ashore to the nearest clay bed (certainly at Wadi Aghiba, some 20 kilometers to the west, but arguably—and in this case hopefully—closer still) and fashion and fire crucibles for use? These were hardly bulky items. Why did they not bring crucibles with them? (Or perhaps they did, in the case of the stone crucible). It would be difficult to conceive of Libyans bringing the crucibles to the island themselves were it not for the crucible at Zawiyet Umm

el-Rakham, which was found a decade after the crucibles from Marsa Matruh were excavated.

Simpson was explicit in her assumption that the Libyans in the western desert could not have succeeded in their endeavours, reasoning that their lithic tradition was frozen in the Neolithic.²⁸ This is a debatable point: apart from begging the question of just how we define Late Bronze Age lithics in Libya, what is the difference between a fossilized lithic tradition and one fit for purpose? In the latter case, the point is not relevant to an argument about metal technology. Simpson also argued that, as nomads, the Libyans in the western desert of Egypt would have been incapable of developing a metallurgical tradition, although she did concede the possibility that the Meshwesh, located (probably) in Cyrenaica, and (probably) settled, did do so.²⁹ Again, this begs the question of the extent to which the population around Marsa Matruh and Zawiyet Umm el-Rakham were nomadic, a question to be dealt with by this author in more detail elsewhere (see note 1). If the cattle bones found at Marsa Matruh were locally sourced, then the local Libyans would have been transhumant at the most, since cattle cannot be moved long distances without losing muscle mass. But even if the population around Marsa Matruh had been nomadic, this does not exclude the possibility that they had acquired a rudimentary knowledge of casting.

It is true that there are no ore deposits in North Africa—any metal the Libyans did acquire must have been obtained from outside, either as booty from Egypt or through trade.³⁰ Reliefs at Karnak dating to the reign of Seti I show Libyans carrying ornate metal vessels, most probably of Asiatic origin. These are dismissed as mistakes or generic assignments by artists; curiously, Libyan access to trade goods circulating the eastern Mediterranean is seen to be strictly limited.³¹ The Meshwesh were shown wielding swords of Aegean type,³² and it is assumed that these and the chariots referred to in inscriptions at Medinet Habu were obtained from the north—although rock art from Tadrart Acacus shows at least some Egyptian-style chariots.³³

Yet having swords and using them carries the implication of a pragmatic technology that must have been acquired for sword use to be effective. The Libyans must have been a capable fighting force; otherwise they would hardly have been admitted into the “ranks” of the Sea Peoples. Such efficacy would be the fruit not only of the “thousand hours” of practice needed to master a discipline, but also the ability to effect repairs: to sharpen blades, straighten them, and re-haft them. Horses and chariots also imply a pragmatic technology, since metal was used at stress points in chariots and tackle, which would also have needed to be repaired or replaced over time.

As White pointed out, the Libyans were almost certainly “metal-hungry,” and this would have been an incentive for trade and contact with the outside world.³⁴ The emergence of military specialisms must certainly have been one of the catalysts that set in motion the shift from an egalitarian society to a

ranked chiefdom, as argued by O'Connor.³⁵ Pragmatic technologies emerge in any society where the means of primary production is either denied or not possible, and it is in this context that the crucibles from Marsa Matruh and Zawiyet Umm el-Rakham must be seen. The differing Libyan groups may never have acquired a sophisticated knowledge of all aspects of metallurgy, but they almost certainly did acquire a basic knowledge of casting and hammering on a need-to-know basis.

NOTES

1. This is an abbreviated version of a paper delivered at the Intercultural Contacts in the Ancient Mediterranean conference, held in Cairo on October 26–29, 2008. An expanded version of the argument presented here, along with a consideration of the lithic repertoire, will be included in the conference proceedings (2009).
2. David O'Connor, "The Nature of Tjemhu (Libyan) Society in the Later New Kingdom." In Antony Leahy et al., *Libya and Egypt, c. 1300–750 B.C.* (London: SOAS/SLS, 1990), 29–113.
3. Donald White, "Before the Greeks Came: A Survey of the Current Archaeological Evidence for the Pre-Greek Libyans," *Libyan Studies* 25 (1994): 31–39.
4. Linda Hulin, "'Marmaric' Wares: Some Preliminary Remarks," *Libyan Studies* 30 (1999): 11–16; Hulin, "Marmaric Wares: New Kingdom and Later examples," *Libyan Studies* 32 (2001): 62–78; Daniel U. U. Hounsell, *The Occupation of Marmarica in the Late Bronze Age: An Archaeological and Ethnographical Study* (Liverpool, unpublished thesis, 2002); Fiona Simpson, *Evidence for a Late Bronze Age Libyan Presence in the Egyptian Fortress at Zawiyet Umm el-Rakham* (Liverpool, unpublished thesis, 2002); White, *Marsa Matruh I–II. The University of Pennsylvania Museum of Anthropology's Excavations on Bates's Island, Marsa Matruh, Egypt 1985–1989*. (Philadelphia, INSTAP, 2002); Steven R. Snape and Penelope Wilson, *Zawiyet Umm el-Rakham I. The Temple and Chapels* (Bolton: Rutherford Press, 2007).
5. Oric Bates, "Archaic Burials at Marsa Matruh," *Ancient Egypt* IV (1915): 158–165; Bates, "Excavations at Marsa Matruh," *Harvard Africa Studies* 8 (1927): 125–197.
6. Bates 1915, 158–165; Bates 1927, 125–197.
7. White 2002.
8. Alan Rowe, "A History of Ancient Cyrenaica: New Light on Cyrenean Relations," *Annales du Services Supplement* 12 (1948).
9. Labib Habachi, "Decouverte d'un fortresse de Ramsès II," *La Revue du Caire* 33 (1955): 175; Habachi, *Les grandes decouvertes archéologique de 1954* (Cairo: Institut Français d'archéologie Orientale, 1955): 62–65; Habachi, "The Military Outposts of Ramesses II on the Coastal Road and Western Part of the Delta," *Bulletin de l'Institut Française Archéologie Oriental* 80 (1980): 13–30.
10. Snape, "Ramesses II's Forgotten Frontier," *Egyptian Archaeology* 11 (1997): 23–24; Snape, "Walls, Wells and Wandering Merchants: Egyptian Control of Marmarica in the Late Bronze Age." In Christopher Eyre (ed.), *Proceedings of the Seventh International Congress of Egyptologists* (Leuven: Peeters Press, 1998): 1081–1084; Snape, "Neb-Re and the Heart of Darkness: The Latest Discoveries from Zawiyet Umm el-Rakham (Egypt)," *Antiquity* 75 (2001): 19–20; Snape and Wilson 2007.
11. Simpson 2002; see also Simpson, "Evidence for Late Bronze Age Libyan Culture at the New Kingdom Egyptian Fortress of Zawiyet Umm el-Rakham." In Angela McDonald and Christina Riggs (eds.), *Current Research in Egyptology 2000* (Oxford: Oxbow Books, 2000), 97–102.
12. White 2002, 50–53.
13. White 2002, 72.
14. White 2002, 48–50.
15. Simpson 2002, 193–194.
16. Simpson 2002, 193–194.
17. White 2002, 50–51.
18. Simpson 2002, 194.
19. White 2002, 52–53.
20. Simpson 2002, 194; Donald White, Stuart Fleming, David Killick, and Christopher Swann, "Appendix I. MASCA Analysis of Crucibles and a Lump of Ore." In White, *Marsa Matruh II. The Objects. The University of Pennsylvania Museum of Anthropology's Excavations on Bates's Island, Marsa Matruh, Egypt 1985–1989*. (Philadelphia, INSTAP, 2002), 187–194.
21. David Conwell, "On Ostrich Eggs and Libyans," *Expedition* 29 (1987), 25–34; White 1994, 34–36; White, "Water, Wood, Dung and Eggs: Reciprocity in Trade Along the Late Bronze Age Marmarican Coast." In Philip Betancourt, Vassos Karageorghis, Robert Laffineur, and Wolf-Dietrich Niemeier (eds.), *MELETEMATATA. Studies in Aegean Archaeology Presented to Malcolm H. Wiener as he Enters his 65th Year*, vol. III (Liège: University of Liège, 1999), 931–936; Hulin, "A Final Summary of the Evidence." In White, *Marsa Matruh II. The Objects. The University of Pennsylvania Museum of Anthropology's Excavations on Bates's Island, Marsa Matruh, Egypt 1985–1989*. (Philadelphia, INSTAP, 2002), 169–186.
22. Seth Richardson, "Libya Domestica: Libyan Trade ad Society on the Eve of the Invasion of Egypt," *Journal of American Research Center in Egypt* 36 (1999): 149–164.
23. Simpson 2002, 194, 199.
24. Simpson 2002, 194, 199, and footnote 315.
25. Amanda Clarke and Michael Fulford, "The Excavation of Insula IX, Silchester: The First Five Years of the 'Town Life' Project, 1997–2001," *Britannia* 33 (2002): 129–166.
26. White, Fleming, Killick, and Swann 2002, 187–194.
27. Bates, *The Eastern Libyans* (London: Macmillan, 1914), 143; O'Connor, "The Nature of Tjemhu (Libyan) Society in the Later New Kingdom." In Antony Leahy et al., *Libya and Egypt, c. 1300–750 B.C.* (London: SOAS/SLS, 1990), 63; White, "1985 Excavations on Bates's Island, Marsa Matruh," *Journal of the American Research Center in Egypt* 23 (1986): 82–83; White 1994, 37.

28. Simpson 2002, 195; on p. 26 she did acknowledge that other Libyan groups may have had metallurgical capability.
29. Simpson 2002, 198–199.
30. O'Connor 1990, 61–62; White, "Excavation of Bates's Island, a Late Bronze Age Trading Station," *American Journal of Archaeology* 90 (1986): 205–206; White 1994, 37.
31. White 1994, 62; Jean Vercoutter, *L'Égypte et le monde Égéen* (Cairo: IFAO, 1956), 358–359; Alan Rowe, "A Contribution to the Archaeology of the Western Desert II," *Bulletin of the John Rylands Library* 37 (1954): 486; Geoffrey A. Wainwright, "The Meshwesh," *Journal of Egyptian Archaeology* 48 (1962): 93–97.
32. William F. Edgerton and John A. Wilson, *Historical Records of Ramses III. The Texts in Medinet Habu*, vols. I and II (Chicago: University of Chicago Press, 1936), 66; O'Connor 1990, 62–63.
33. Gabriel Camps, *Les char préhistorique du Sahara: archéologie et techniques d'attelage* (Aix-en-Provence: University of Provence, 1982).
34. White 1986, 83–84.
35. O'Connor 1990, 61–62.
-