

# Kohl Kit



**Abstract:** Although rather distant from the Western Indian Ocean basin, the Southern Levant can be considered fairly included into trading dynamics regulating the movement and use of exotic goods, especially luxury raw materials, frequently representing the final destination for this kind of items. During the Late Bronze Age, Southern Levantine jewelry encompasses an eclectic group of differentiated artifacts, witnessing a remarkable level of artistic talent and technical expertise. The most part of the products is manufactured in gold and silver, using the decorative shares of precious and semiprecious stones originating from eastern Africa and the Indus Valley.

The wealth of jewelry's arts, and in particular the large use of stones, has given rise to a number of hypothesis that will be briefly discussed in the paper, analyzing the origins of raw material, archaeological contexts of finished products, and specialized production of personal ornaments, with particular attention to the actors and the ultimate goal of their production.

**Keywords:** Late Bronze Age, Southern Levant, trade, jewelry, carnelian, lapis lazuli

Maryam Anza, just north of modern Hawzien in the Gheralta plateau of northern Ethiopia, is long- and well-known as the site of the important inscribed stela erected by a pagan king (NG) of Agabo (GB), possibly named BZT, sometime in the 3rd century AD (Godet 1977: 38; Kropp 2006; Phillipson 2012: 65) [Fig. 1]. More recently, Maryam Anza has been the focus of survey and excavation since 2014, sponsored by the Headley Trust and the Tigray Trust. The explorations have located and

**Jacke Phillips**

School of Oriental and African  
Studies, University of London  
jp39@soas.ac.uk

**Note**

This paper, as presented at Warsaw, was far more tentative, superficial and theoretical than I had envisioned, as recording circumstances during field seasons were less than ideal and necessary detailed recording and research of this and other material from Maryam Anza was twice postponed. A study season in October 2018 has since clarified details and answered questions expressed or implied in that presentation, and are incorporated into this paper.

excavated several cemeteries and monumental structures in the vicinity of the stela. I focus here on the Maryam Anza Cemetery (MACEM) site, where some 17 graves have been excavated along the near-base of a steep hill slope (Schofield 2015; 2017) rising amongst flat plains. The cemetery dates to the late 3rd/early 4th–5th centuries AD, that is, the Classical Aksumite phase. All burials are single interments, although some graves were disturbed or repeatedly reused at intervals by pushing the previous occupant(s) aside in order to accommodate a new individual. A few graves had cut into an existing one, providing a very limited horizontal stratigraphy. More graves also have been located in the cemetery, but project excavation now continues only at other nearby sites.

Four MACEM graves yielded a collection of artefacts that together can be described as the ‘kohl kit’ of my title—the eye makeup prepared compound and its associated paraphernalia [Table 1]. Two

Table 1. ‘Kohl kit’ components from MACEM graves

Kohl kit	MACEM grave 1	MACEM grave 5/6	MACEM grave 12	MACEM grave 11
Kohl compound	✓		✓	✓
Applicator, bronze (“spoon-probe”)	✓	✓	✓	✓
Applicator, iron (“spoon-probe”)				✓
Applicator, iron (stick?)		✓✓	✓	✓✓
Mirror with horizontal handle			✓	✓

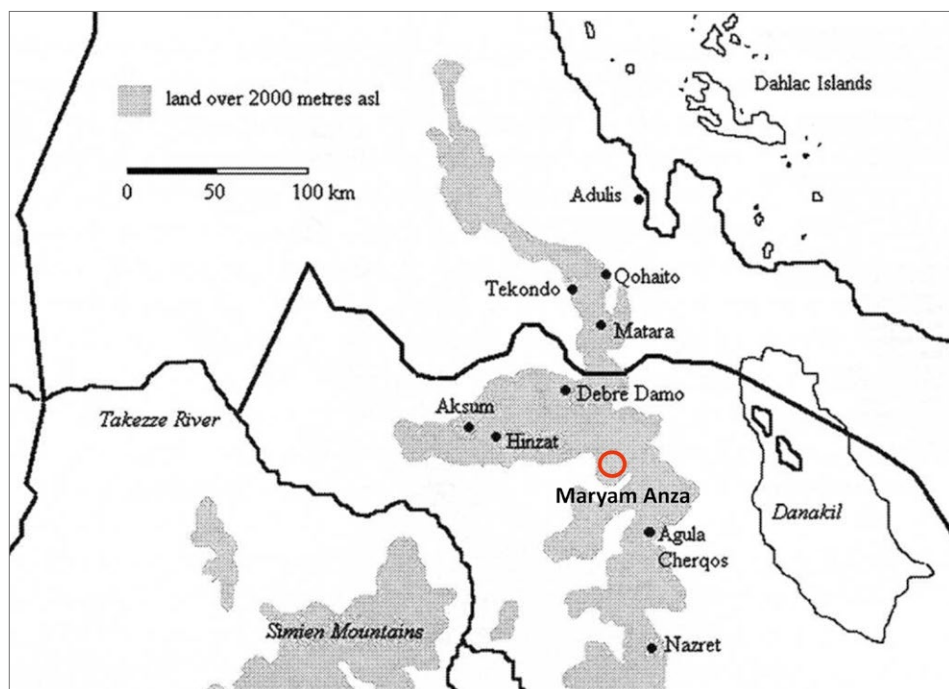


Fig. 1. Map with the location of Maryam Anza (Adapted from Finneran 2007: 147, Fig. 5.1)

(Graves 12 and 14) of the four are undisurbed single internments. The other two (Graves 4 and 5/6) were badly disturbed, containing two and six successive burials respectively, although the 'kohl kit' paraphernalia is associated with a single individual. All associated identifiable individuals are young to middle-aged female adults (K. Tucker, personal communication). 'Kohl kit' elements include the kohl compound itself, a container to hold it, an applicator to extract and apply it, and a mirror with which to follow the progress of its application.<sup>1</sup>

Although physical and cultural differences are apparent, this basic 'kit' in essence varies little either chronologically or spatially around the Red Sea region and most of the Near East, India, South Asia, around the Mediterranean, and North and Northeast Africa over past

five millennia and more. Nonetheless, individual cultures existed over considerably varying lengths of time and space, some being very well-known and others little understood. Research into kohl, its uses and its social and cultural implications of necessity have focused almost entirely on traditional, recent and contemporary anthropological evidence, medical issues and scientific analyses (e.g., Al-Kaff et al. 1993; Hardy et al. 1998; Mahmood et al. 2009; see also Lucas and Harris 1962: 82), with the major exception of ancient Egypt where considerable evidence has survived (Lucas and Harris 1962: 80–84; Brovarski 1982; Manniche 1999: 135–137; Tapsoba et al. 2010).<sup>2</sup> This allows only very small windows for kohl use throughout the millennia in the Red Sea region and farther afield, although undoubtedly much is applicable throughout.

## KOHL

Three graves at the Maryam Anza cemetery contained a mass of prepared kohl compound, each visually similar but differently shaped:

- 1) Grave 12, with a slightly concave flattened bottom, abraded diagonally above, some 2.54–3.0 cm in diameter but only 0.24–0.83 cm tall;
- 2) Grave 4, a tapering cone worn top and bottom, but 3.3 cm tall and 1.13–2.11 cm in diameter, and
- 3) Grave 14, one or two narrow tubes, one with a keeled bottom 1.15–1.23 cm in diameter, partly fragmented [Fig. 3]. All are dry and solidified as found.

Makeup, including kohl, in the Classical world came either as a bound powder in a container, or in 'tablet' form (Olson 2008: 62–63). No associated containers were recovered, although the surviving profiles indicate each had been contained.

The kohl itself consists of granules bound together into a solid mass using an unidentified but now brittle agent, not yet analysed but likely oil, fat or beeswax. The mass interior is black, with a hard pale grey surface of long exposure that outlines the interior profile of its now-lost container and exudes dust on the finger

1 The other common element, a palette to grind the compound, is absent from Maryam Anza.

2 Also, to a lesser degree, over the Græco-Roman period, e.g., Montserrat 1996: 69–70, 73.

when rubbed or touched.<sup>3</sup> The Grave 14 compound has fresh breaks that disintegrate when touched to individual granules, mostly black with some grey/white ones.<sup>4</sup> These vary in size but most are fairly fine, with a few up to approximately 0.025 cm. Two Grave 14 tubular fragments each have a hard grey concave upper surface suggestive of having been ‘scooped’ or worn down when the compound was extracted, presumably with an applicator. That two

fragments in the same grave have this same profile suggests the now-lost container was a double-compartment type, or perhaps two separate containers were interred in one grave (for further discussion, see below). One of the two intact graves (14) certainly and the other (12) probably boasted two applicators (discussed below). A similar concave profile was noted on a tubular kohl compound in Grave Q232 at Qustul (Williams 1991a: 2, 24).

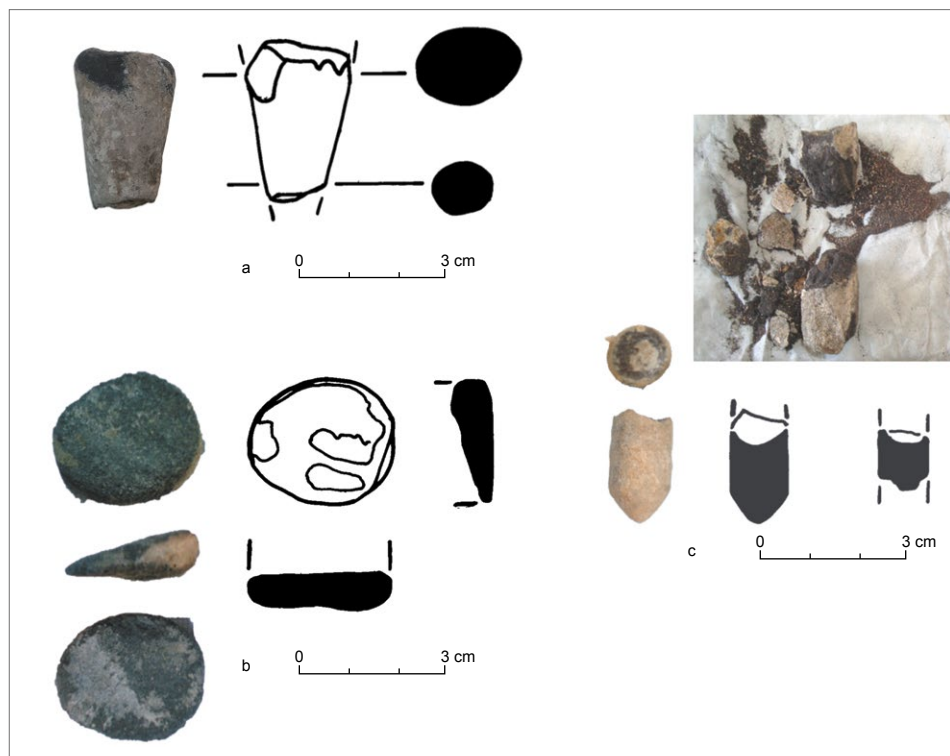


Fig. 3. Kohl compounds recovered at MACEM: a – Grave 4, #39; b – Grave 12, /61; c – Gr 14 /202.B, 209\ (Photos and drawings J. Phillips, except a – photo J. Then-Obluska)

- 3 Initially, the Grave 14 kohl compound was thought to be still contained within the lower body/base of a glass phial, and was so described in the conference lecture. On closer examination, this proved to be the hardened surface of the kohl itself, with no glass recovered in the grave. Kohl recovered from within a double-compartment container at Waqqas cemetery in North Jordan (Sultan and Khasawneh 2015: 91, Fig. 18) is visibly similar in appearance, although physically more stable.
- 4 Their instability does not allow an accurate reconstruction of their original state.

Kohl is sourced from a variety of minerals, including stibnite, antimony, galena and (it has been suggested) frankincense, over much of the ancient Near East, India/South Asia, and North and North-east Africa, as well as soot, lamp-black and ash with oils and waxes as binder, as well as other materials more commonly in use today. Ground into powder and then a paste, it was (and continues to be) applied to emphasise the eyes of both men and women as well as children, and to protect them from flies and infection. The most common mineral base in pharaonic Egypt was galena (Lucas and Harris 1962: 80–84 *passim*; Schoske, Kreissl, and Grimm 1990: 53, 167, No. 198; Manniche 1999: 136). Known ancient sources of galena within the Red Sea region appear limited to the coastal Eastern Desert of Egypt and Sudan, near Aswan, east and south of Medina in Saudi Arabia and near the Saudi/Yemeni border. None are known from Djibouti, Somalia, and the United Arab Emirates or elsewhere in the Arabian Peninsula, but are common in Iran and India (Casson 1989: 28; <https://www.mindat.org/a/mindatmanual>). The other mineral possibilities, stibnite and antimony (essentially the same mineral) are not sourced in the Red Sea region today and, according to Lucas (Lucas and Harris 1962: 82), are present only as an impurity in ancient Egyptian kohl. The mid-1st century AD *Periplus of the Erythraean Sea* includes ‘sulphide of antimony’ as an export from Egypt to several Indian ports, although Casson (1989: 208–209) notes antimony was not a kohl substance

at that time. Analysed kohl dating to the late Roman–Byzantine periods in Egypt, Palestine and Jordan reveals only the presence of galena (Blanchard et al. 1992; Grüner 2002; Sultan and Khasawneh 2015: 90–91).<sup>5</sup> The Maryam Anza kohl has not yet been analysed, but its compositional base was most likely also galena, probably with other constituents in smaller quantities. If so, given the extensive East–West sea trade of the 4th–5th centuries AD generally contemporary with the Maryam Anza cemetery, an Eastern origin cannot entirely be ruled out.

‘Lumps/fragments’ and long ‘tubes’ of not more than 1.5 cm diameter, identified as galena, were recovered in similar condition, together with a variety of other ‘kohl kit’ elements in earlier to roughly contemporary Meroitic and post-Meroitic/‘X-Group’ tombs and graves along the Nile Valley. Kohl sticks and a variety of spoon- and other probe types are regularly encountered in these burials, often in iron but also bronze, and a variety of organic materials. Some are accompanied by kohl vessels in wood, ivory and bone, as well as in metal, but a surprising number of kohl compound finds were interred apparently without a container. They can also be found together with a range of ‘kohl kit’ accoutrements, all loose in the fill but sometimes together as a ‘kit’ within a basket or wrapped in a cloth or beaded bag. (e.g., Ballana Graves B111.A and Qustul Graves Q164 and Q 232 [Williams 1991a; 1991b], Meroë Tombs W10, W140, W146, W152, W159,

5 Nonetheless, Graeco-Roman and Roman prepared kohl is repeatedly stated to be mostly antimony-based (Manniche 1999: 136; Stewart 2007: 46–47; Olson 2008: 62).

W165, W179, W185, W214, W308, W393, W399, W438, S13 and S94 [Dunham 1963]; Sedeinga grave I T 87 [Francigny and David 2013]).<sup>6</sup>

## POTENTIAL CONTAINERS

Organic preservation is very poor in the Maryam Anza and surrounding regions, but the kohl compounds might have been held in a bag of some sort that has not survived, similar to some finds in Nubia. The profiles and smooth surface of all kohl compound fragments indicate that they had originally been contained in glass vessels having comparable interior profiles. Numerous rounded and slightly concave, flat-based glass phials in a variety of sizes, known and excavated within the Aksumite world (e.g., Morrison 1989: 199, Figs 100–112; Zazzaro 2013: 84, Fig. 15.6–7) would be generally compatible. However, no suitable vessel was recovered with any of the kohl compounds, and it must be assumed their original containers were never interred in the graves.<sup>7</sup>

The body and keeled base profile of the Grave 14 kohl compound are preserved well enough to indicate it is an elongated cy-

lindrical ‘tube’ some 1.24 cm in diameter,<sup>8</sup> comparable in profile to galena ‘tubes’ recovered in Nubia (e.g., Dunham 1963: Fig. 58.f rows 5–6, diameter 1.0 m; Francigny and David 2013: 111, Fig. 8, not stated<sup>9</sup>), but vessels having a keeled interior profile are not forthcoming in the literature. The conical form in Grave 4 best fits the interior profile of glass lamps recovered in Graves 12 and 14, but not found in Grave 4, and a tapering phial base from Adulis (Zazzaro 2013: 84–85, Fig. 15.7 left). The Grave 12 kohl form likewise would be compatible with a wider glass phial having a slightly concave underfoot profile (e.g., Morrison 1989: 198–199, Figs 111–112; Zazzaro 2013: 84, Fig. 15.6). This seems to have been the last remnant of a larger (diameter 2.54–3.00 cm), probably tubular container.<sup>10</sup> It is extremely short, with its upper profile diagonally flat as if deliberately ground almost to its limit on a flat surface.<sup>11</sup>

- 6 The last dates to the end of the 1st century AD. Early publications do not mention kohl, although it may have been present, e.g., Woolley and Randall-MacIver 1910: 181 (G384); Emery and Kirwan 1938. Other cultures also buried their dead with a range of ‘kohl kit’ elements, but I highlight Nubia as the only other one to include iron applicators (discussed below).
- 7 A double-compartment kohl container in local felsite was found by an informant in the general cemetery area before 2014 when fieldwork began. It cannot be associated with any excavated grave, but may have been from an unexcavated grave uphill. No comparison for it can be cited, but it must have been locally made.
- 8 The kohl very likely has shrunk over time. Published kohl/galena ‘tubes’ are less than 1.5 cm in diameter.
- 9 Despite the authors’ suggestion that the Sedeinga ‘tube’ had slipped out of the glass unguentarium recovered with it, the ‘tube’ and unguentarium profiles are incompatible.
- 10 Nuri Pyramid N26 contents included another kohl compound of similar (about 3.0 cm) diameter; Dunham 1955: 147, Pl. CXXVII.C.43. It dates to the 6th century BC.
- 11 This would suggest that palettes were used in life to grind the compound, although they were not interred in the Maryam Anza graves.

## APPLICATORS

Kohl applicators traditionally are elongated tapering sticks with at least one bulbous end, used to apply kohl or lip paint to the skin, in a wide variety of materials including ivory, bone, glass, wood such as ebony, and metals such as bronze, silver and even gold. The opposite end can be plain, useful or decorative, in a variety of terminal shapes. One end form is an elongated narrow 'bowl' to extract the kohl from the narrow aperture of its container. The four bronze applicators recovered in the Maryam Anza graves, and another bowl in iron also found in

Grave 14, are of two related types. While all bronze applicators so far identified have one slightly bulbous end, the opposite end is a very narrow elongated bowl having a generally U-shaped to V-shaped section range [Fig. 3]. The two types also differ in handle length and bulb size. The handle sections vary along their length, from circular to square and even pentagonal, so were at least partly hammered into shape. The 'bowls' too appear hammered, being roughly squared along the top edge. Two applicators have short, fairly crudely filed or hammered notch designs around

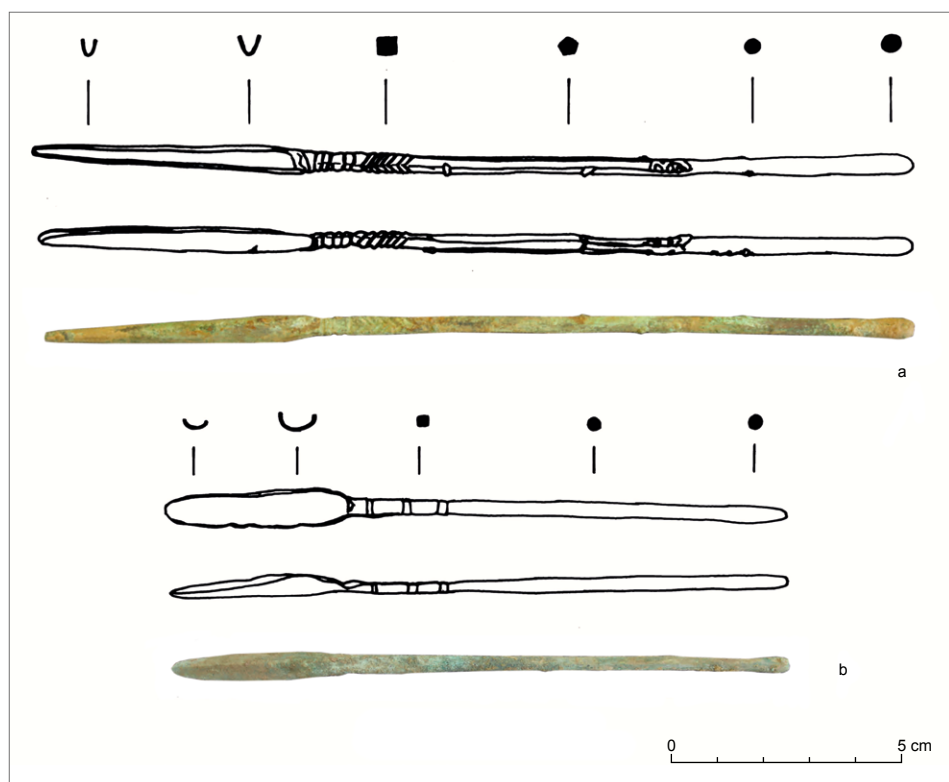


Fig. 3. Bronze applicators recovered at MACEM: a – Grave 5/6, /20.A; b – Grave 4, #36 (Photos G. Laidlaw; drawings J. Phillips)

the handle, just above the bowl. The last is incompletely cleaned but appears of better quality. Whether these differences are chronological or functional cannot be determined as yet, but more likely the two types are generally contemporary or at least overlapping in date here. The profile of the two 'scooped out' fragments recovered in Grave 14 suggests the applicator bowl employed had a U-shaped tip similar to the Grave 4 applicator, but those found in Grave 14 are also possible.

Their nearest comparanda are Roman medical instruments known as the 'spatula-probe' and 'spoon-probe,' both with one bulbous end. Most probes are of bronze but occasionally also are found in lead, tin and silver, although evidently not in iron. Unlike the Maryam Anza applicators, the spatulate end is flattened or only slightly curved along its length and, like some Maryam Anza applicators, the 'spoon' end is U-shaped at the tip, apparently with a rounded edge. They are well-made, normally having a series of lathe-turned 'rings' around the handle just above the bowl, or in the centre of its length. Both ends were used to apply medicaments, and the bulbous end also to investigate areas of the body not visible to the doctor. Although they also served other functions (including cos-

metic), their primary function in the Roman world appears to be medical/surgical (Bliquez 2003; 2015: 33–38).

At least five and possibly six bronze spoon-probes, together with other Roman medical instrument types, were recovered in Roberto Paribeni's 1907 excavations at Adulis, the main port of the Aksumite region (Zazzaro 2013: 75, Fig. 14.5 right, 80, Pl. 14.14.1 top [=2006: Pl. IV.1.a, b+c], 80, Pl. 14.14.2 centre [=2006: Pl. IV.2.e+g,l, p]).<sup>12</sup> Their find circumstances are not recorded,<sup>13</sup> nor do we know if they are Roman imports, or were used at Adulis for medical or cosmetic purposes—or both—but their original mainly medical purpose seems not to have reached Maryam Anza, at least as grave goods. At Aksum, what may be the undecorated handle of a bronze applicator (with the suggestion of a bowl at the break but not visually bulbous at the other end) was recovered in the late 4th century 'Tomb of the Brick Arches' (Phillipson 2000/I: 88, Fig. 67.h).<sup>14</sup>

Most Maryam Anza bronze applicators appear to be locally-made adaptations of these Roman medical instruments used for cosmetic purposes, with comparatively rough finish and simple filed or chiselled decoration likely negating importation from the Classical world. The 0.86 cm

12 Note that Pl. IV.2 objects 'l' and 'p' are identified as 'i' and 'n' in the text. My thanks to Dr. Filippo Maria Gambari, Director, Museo Preistorico Etnografico Luigi Pigorini, Rome, for permission to study these artifacts, and Dr. Loretta Paderni, curator, for her assistance.

13 The general location of a different probe type is recorded as from a habitation context rather than a cemetery (Zazzaro 2013: 82), and a spatula-probe fragment in the more recent excavations (Zazzaro, Cocca, and Manzo 2014: 550, 552, Fig. 47).

14 A different bronze medical instrument or applicator, with both ends slightly bulbous and ringed centre, was also recovered in the 'D' habitation site at Aksum. Its context is no earlier than the end of the 7th century AD, but the artifact itself is likely earlier (Phillipson 2000/II: 343, Fig. 299.a).

maximum width of the V-shaped bronze applicator in Grave 14 is narrower than the kohl fragments with 'scooped out' profiles (diameter 1.15–1.23 cm) found with it, and so is capable of being inserted into its putative container to extract its contents (Stewart 2007: 76). Very likely the accompanying iron applicator (at 1.14 cm maximum bowl width) is also narrow enough for insertion, given its corrosion and probable kohl shrinkage.

Only one iron applicator, recovered in Grave 14, has a similar elongated V-shaped bowl section, but no join could be made with potential handle fragments in the grave [Fig. 4]. Potential handle fragments also were recovered in two other graves (5/6 and 12), both also containing a bronze applicator. All are insufficiently preserved or conserved to indicate any decoration or details, but two in Grave 5/6 are sufficiently preserved (length 15.0 and 15.6 cm) to be considered potential handles [Fig. 5]. These 'handles' may instead be kohl sticks, with one pointed bulbous and

one pointed end similar to those recovered in Meroitic and Post-Meroitic/'X-Group' graves (e.g., Emery and Kirwan 1938/I: 341, No. 726; II: Pl. 85.D [Q.14–56]; Williams 1991a: Figs 76.b, 217.b). These kohl sticks are hammered into shape, with filed or chiselled notch handle decoration along part of the length; they likely are local products.

The royal tombs at Ballana and Qustul in Lower Nubia have revealed analogous bronze and silver 'spoon-probes' as well as bi-metallic 'toilet spades' and 'toilet-spoons' with bronze handles and iron 'bowls' (Emery and Kirwan 1938/I: 339–342; II: Pl. 85.A–D), the latter distinctly different from the Maryam Anza applicators. Almost all kohl applicators in non-royal Ballaña/Qustul graves are of iron, mostly with the handle file- or chisel-decorated (Williams 1991a: 1, 160), and at Karanog both bronze and iron applicators are 'numerous' with 'a fair number ... ornamented with hammered patterns on the stem ...' (Woolley and Randall-MacIver 1910: 66).

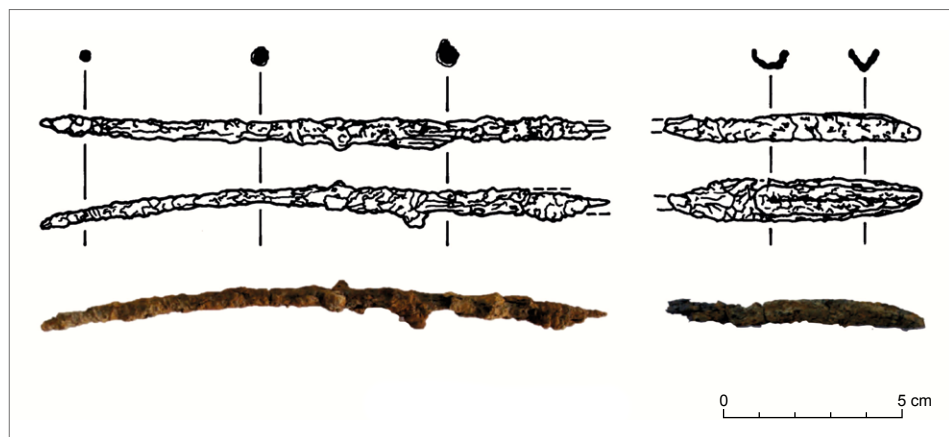


Fig. 4. Iron applicator 'bowl', Grave 14 /235\ (handle not identified), and iron kohl stick(?), Grave 5/6 /20.B\). These are from different MACEM graves, but illustrate the possibility that the 'sticks' may be applicator handles (Photos and drawings J. Phillips)

The use of iron for cosmetic applicators appears to be a non-Roman practice, local at least to Maryam Anza and Nubia.<sup>15</sup> The Maryam Anza iron may have been locally sourced, as small but high-grade iron deposits are recorded within the immediate vicinity (Schofield 2015: 29) but, equally, iron was imported to Adulis from both

India and Egypt (Casson 1989: 28, 53 §6, 114) and perhaps also Meroë at this time (Haaland 2013: 150; Humphris et al. 2018). The iron kohl applicators (and sticks?) in the Nubian graves suggest Maryam Anza was a participant in Aksumite cultural connections with the upper Nile Valley (Phillips 2014).

## MIRROR

‘Bronze’ hand mirrors were also recovered from two undisturbed graves of women [Fig. 5], one positioned in front of the face (Grave 12) and the other above the forehead (Grave 14), although neither held in the hand. Neither is fully recorded as yet. They are flat and circular, with a diameter of approximately 11.5 cm, and an angular handle in the form of a long rod attached along the middle, by a short vertical rod

near but not at either end of its reverse. They fit comfortably into the rare ‘horizontal-handle’ mirror type dating between the 1st and 9th centuries AD, found both across the Roman world (mostly northern Europe) and in Central Asia, with a few individual examples also recovered from South/Southeast Asia (Lerner 1996).<sup>16</sup> Both the (often decorated) flat strap and ‘Herkules knot’ handle types found in the



Fig. 5. ‘Horizontal-handled’ mirror recovered from MACEM Grave 12 /44\, possibly made of *speculum* (Photos J. Phillips)

- 15 I could find only one other—albeit tentative—reference to possible use of iron for a kohl applicator elsewhere. Analysis of a Palestinian glass kohl tube suggests it may have contained two separate kohl ‘rods’ of indeterminate form, one bronze and the other iron; see Blanchard et al. 1992: 247.
- 16 Add now the silver mirror from a rich 3rd-century-AD sarcophagus recently excavated in Zülpich, west-central Germany; see Hale 2018.

Roman/Western world are distinctly different from the Maryam Anza handles. They compare better with (mostly) Central Asian mirrors of later rather than earlier date, due to the circular section and generally angular presentation of the handles, but lack the characteristic zoomorphic terminals of Asian examples.

Mirrors are extremely rare in the Aksumite region. The only other examples known so far constitute a collection of eight found together in the late 4th century AD 'Tomb of the Brick Arches' at Aksum (Phillipson 2000/I: 93–95, Figs 73.c–d, 74).<sup>17</sup> All are slightly convex in section and entirely handleless, and so differ from the Maryam Anza mirrors in both respects. The Aksum mirrors are made of *speculum*, a form of bronze having a high tin content of 15–33% tin to copper, rather than the usual roughly 12% or less indicative of bronze; the fragment tested is about 30% tin (Feuerbach 2000/II: 948). The higher tin content results in a more brittle but whiter alloy that can be polished to a highly reflective 'silvery-white' surface. While some true bronze mirrors are known and others have a tinned surface overlying the 'bronze' (Scott 1991: 19, 26–27; Popescu et al. 2008: 183), Roman 'bronze' mirrors, when analysed, almost universally are of *speculum*. Both procedures suggestively attempt to replicate the surface of silver mirrors also known in the Roman world (Ingo et al. 2006). *Speculum* was used also for mirrors in China and Southeast Asia

since at least the 1st millennium BC. Both Roman and Chinese *speculum* mirrors commonly but not universally include up to 9% lead to soften their brittleness (Needham and Lu 1974: 198, 238; Chase 1989: 89, 100; Scott 1991: 28; Dungworth 1997: 6.3.2, 6.4; Popescu et al. 2008: 183). Ann Feuerbach cites no lead content in the Aksum mirrors, suggesting the more brittle, high-tin alloy here.

Although their handles more closely resemble the Central Asian type, a foreign model for their distinct handle type cannot yet be suggested and may not in fact exist. Perhaps, if anything, they are derived from one brought from the Indian Ocean world, where a few have been found or depicted. The Aksum mirrors appear to have been cold-worked into shape (Feuerbach 2000: 497), as were Roman but not Chinese mirrors (normally cast), suggesting these eight at least should be Roman, if not locally made products. Conflicting external and comparative evidence for the Maryam Anza mirrors leaves direct material analysis as the only potential means of identifying the metal(s) used and possible origin(s), but *speculum* seems most likely. They have a cupreous content, are not silver and have no tin overlay.

As tin is such an important component of *speculum*, we must also consider its sources relative to northern Ethiopia. There are no nearby tin sources, the closest being Western Europe and Southeast Asia.<sup>18</sup> Even if the Maryam Anza mirrors

17 The 'bronze discs' recovered in multiple contexts during Paribeni's excavations at Adulis are not mirrors (Zazzaro 2006: Pl. IX.1.a = 2013: 78, 80, 82, Fig. 14.14.4 top).

18 Both regions are the major tin sources for respective surrounding civilisations. Small tin deposits in the Eastern Desert of Egypt exploited today (Sainsbury 1969: 4, Fig. 1, 38) could have been anciently exploited as well, as well as those in the Sinai (Ogden 2000: 171). High-tin bronze, although rare, was used already in dynastic Egypt (Ogden 2000: 153–154).

are local Aksumite products, the metals still must have been imported from elsewhere, in the form of tin and copper, as bronze or as *speculum*. Copper is included amongst the products sold at Adulis in the *Periplus*, both as copper ‘honey pans(?)’ and raw ‘brass’, both intended to be cut up for local manufacture of small artifacts (Casson 1989: 52–55 [§6.2.23–6.3.3], 110–114), while cuperous artifacts are common enough throughout

the Aksumite region. The *Periplus* also records tin being exported only from Egypt (i.e., via Egypt from Western Europe), but it is not listed as an import to Adulis, although ‘a little’ was sold at Avalitēs and, in larger quantities, beyond even to India (Casson 1989: 20–23, 28). Lead was exported from Egypt only to the Indian ports (Casson 1989: 28). Analysis of the metal used for the Maryam Anza mirrors should clarify matters considerably.

### THE IMPLICATIONS OF ‘KOHL KITS’

Firstly, they are the first archaeological evidence we have for Aksumite body adornment, as opposed to adornment worn on the body such as jewellery. The well-known polychrome ‘human-headed jars’ recovered at Aksum (Phillips 2000: 71, Fig. 52) and elsewhere have no indication of eye- or even lip-paint, so their evidence does not support its use in the Classical Aksumite phase. The ‘kohl kit’ elements, and especially the presence of kohl in burial contexts, strongly suggest that it was used. The expensive mirrors, applicators and galena-kohl itself, whether imported or not, suggests availability only to those able to afford them, the élite and wealthy within society. Mirrors in the Graeco-Roman and Aegypto-Roman worlds, among others, are recovered only in wealthy graves like those at Zülpich, Ballaña/Qustul and Meroë. Whatever form of kohl was obtainable to the lower classes may have been used only on special occasions in life. Expensive mirrors and perhaps also metal applicators would have been beyond their means and need not necessarily have been interred if they were

obtainable. If the lower classes did use kohl and if they did inter a ‘kohl kit’ in the grave, the water, wood charcoal and perhaps soot, as well as applicators and containers in organic materials, would not have survived under existing soil conditions at Maryam Anza.

Secondly, the presence of the ‘kohl kit’ elements in burial contexts at Maryam Anza may or may not be significant, given the extremely limited publication of habitation contexts and their cultural material in the Aksumite region. We need not necessarily assume widespread and consistent use of eye-paint in the Aksumite world, as even the few wealthy excavated graves elsewhere do not include the kit or its individual elements. No kohl was recovered in the ‘Tomb of the Brick Arches’ at Aksum, for example, only the mirrors and possible applicator that do not appear to be a ‘kohl kit’ package in their context, although the ‘D’ site applicator and those recovered at Adulis might suggest their possible use in life. However, as noted by Amelia Varteresian (2014: 38) for Etruscan society, “the objects in the funer-

ary material culture rarely represent an accurate portrayal of the material culture of daily life. Etruscologists must be aware and mindful of the fact that the objects found in a funerary context do not equal objects not buried with the dead.” At Maryam Anza, some artifacts have clear evidence of prior use, sometimes distinguishable from possible use in the funerary rites. Whilst we cannot demonstrate prior use of the ‘kohl kit’ during life, indications such as the concave upper surface and remnant remains of the kohl compound itself suggest it was used before interment.

Thirdly, similarities in the use of locally-made iron applicators and apparent removal of kohl containers before burial highlights in particular an apparent influence from Nubia, or at least some burial practices and accoutrements in common with the upper Nile valley where they are recorded much earlier. The bronze ‘spoon-probes’ are clearly influenced or imported from the Aegypto-Roman world to both Nubia and Maryam Anza, but some ‘kohl kit’ materials and products could also have been imported from Arabian and other eastern cultures beyond, such as India. Even if not as finished goods, raw materials may have arrived via the East-West trade route exemplified in the mid-1st century AD *Periplus*. Although under different political and commercial circumstances, both raw materials and goods for recycling materials are prominent in the *Periplus*’ list of commodities viable for sale at Adulis, and

likely continued to be imported to the Aksumite world in the 4th–5th centuries as the East–West trading system still operated. The ‘kohl kits’ therefore encapsulate Maryam Anza’s wide trading connections at that time.

Fourthly and more specifically, they underline and emphasise the Maryam Anza region as a community with clear and strong connections to the Mediterranean, Indian Ocean and Nile Valley worlds, wealthy enough to obtain costly imports from there and elsewhere in some number and variety, and to inter a wide range of grave goods (including costly imports) for the deceased. Yet the inhabitants were buried in small, individual sub-oval graves in a hillside cemetery, sufficiently restricted that some graves were repeatedly re-used and existing graves cut through to inter the more recent dead in a new grave, rather than in more elaborate built tombs with multiple chambers and stone lining, or cut into soft stone, such as at Aksum. This circumstance would not be expected at this elite level, and we can only assume it was their preference. The eastern Tigray region currently is the focus of several ongoing excavation projects. Their results have made it increasingly clear that this region retained a distinct cultural tradition—or traditions—of unique and innovative local cultural developments and even recognisable autonomy, despite having been absorbed into the greater ‘Empire’ that is Aksum some generations before the earliest graves were cut at the Maryam Anza cemetery.

**Dr. Jacke Phillips**

<https://orcid.org/0000-0002-8858-9395>

School of Oriental and African Studies

University of London

jp39@soas.ac.uk

**How to cite this article:** Phillips, J. (2020). Kohl kit. In I. Zych, M. Gawlikowski, and J. Oller Guzmán (eds), *Red Sea trade in resources and other studies. Proceedings of the Red Sea VIII conference in Warsaw, 4–9 July 2017* (=Polish Archaeology in the Mediterranean, 29/1) (pp. 201–218). Warsaw–London: University of Warsaw Press; Archaeopress. <https://doi.org/10.31338/uw.2083-537X.pam29.1.11>

**References**

- Al-Kaff, A., Al-Rajhi, A., Tabbara, K., and El-Yazigi, A. (1993). Kohl—the traditional eyeliner: Use and analysis. *Annals of Saudi Medicine*, 13(1), 26–30
- Blanchard, W.D., Stern, M.E., and Stodulski, L.P. (1992). Analysis of materials contained in mid-4th to early 7th century A.D. Palestinian kohl tubes. In P.B. Vandiver, J.R. Druzik, G.S. Wheeler, and I.C. Freestone (eds), *Materials issues in art and archaeology III. Symposium held April 27 – May 1, 1992, San Francisco, California, U.S.A.* (=Materials Research Society Symposia Proceedings 267) (pp. 239–254). Pittsburgh: Materials Research Society
- Bliquez, L.J. (2003). Roman surgical spoon-probes and their ancient names (μήλη, μηλωτίς/μηλωτρίς, specillum). *Journal of Roman Archaeology*, 16, 322–330
- Bliquez, L.J. (2015). *The tools of Asclepius: Surgical instruments in Greek and Roman times* (=Studies in Ancient Medicine 43). Leiden–Boston: Brill
- Brovarski, E. (1982). Kohl and kohl containers. In R.E. Freed (ed.), *Egypt's golden age: The art of living in the New Kingdom, 1558–1085 B.C.* (pp. 216–227). Boston: Museum of Fine Arts
- Casson, L. (1989). *The Periplus Maris Erythraei: Text with introduction, translation, and commentary*. Princeton, NJ: Princeton University Press
- Chase, W.T. (1994). Chinese bronzes: Casting, finishing, patination, and corrosion. In D.A. Scott, J. Podany, and B.B. Considine (eds), *Ancient & historic metals: Conservation and scientific research. Proceedings of a symposium organized by the J. Paul Getty Museum and the Getty Conservation Institute, November 1991* (pp. 85–117). Marina del Rey, CA: Getty Conservation Institute
- Dungworth, D. (1997). Iron Age and Roman copper alloys from Northern Britain. *Internet Archaeology*, 2. <https://doi.org/doi.org/10.11141/ia.2.2>
- Dunham, D. (1955). *Nuri* (=Royal Cemeteries of Kush 2). Boston: Museum of Fine Arts
- Dunham, D. (1963). *The west and south cemeteries at Meroë* (=Royal Cemeteries of Kush 5). Cambridge, MA: Harvard University Press
- Emery, W.B. and Kirwan, L.P. (1938). *The royal tombs of Ballana and Qustul*. Cairo: Government Press
- Feuerbach, A. (2000). Metallurgical examination and analysis. In D.W. Phillipson (ed.), *Archaeology at Aksum, Ethiopia, 1993–7* (=BIEAM 17) (pp. 497–499). London: British Institute in Eastern Africa

- Finneran, N. (2007). *The archaeology of Ethiopia*. Abingdon–New York: Routledge
- Francigny, V. and David, R. (2013). Dating funerary material in the Meroitic Kingdom. *Der Antike Sudan*, 24, 105–115
- Godet, E. (1977). Répertoire de sites pre-axoumites et axoumites du Tigré (Ethiopie). *Abbay*, 8, 19–58
- Grüner, F. (2002). Analysis of crystalline materials preserved in a Palestine kohl vessel from the 4th century A.D. *Otto-Graf-Journal*, 13, 77–82
- Haaland, R. (2013). Iron working in an Indian Ocean context. In J. Humphris and T. Rehren (eds), *The world of iron* (pp. 146–155). London: Archetype Publications
- Hale, T. (2018). This young Roman woman was buried with everything you need to ensure beauty in the afterlife. *IFLScience*. Retrieved from <https://www.iflscience.com/this-young-roman-woman-was-buried-with-everything-you-need-to-ensure-beauty-in-the-afterlife-49042> (accessed: 29.08.2023)
- Hardy, A.D., Vaishnav, R., Al-Kharusi, S.S.Z., Sutherland, H.H., and Worthing, M.A. (1998). Composition of eye cosmetics (kohls) used in Oman. *Journal of Ethnopharmacology*, 60(3), 223–234
- Humphris, J., Charlton, M.F., Keen, J., Sauder, L., and Alshishani, F. (2018). Iron smelting in Sudan: Experimental archaeology at the royal city of Meroe. *Journal of Field Archaeology*, 43(5), 399–416
- Ingo, G.M., Plescia, P., Angelini, E., Riccucci, C., and de Caro, T. (2006). Bronze Roman mirrors: The secret of brightness. *Applied Physics A*, 83(4), 611–615
- Kropp, M.S. (2006). *Monumentalised accountancy from ancient Ethiopia: the stele of Maryam 'Anza*. Paper presented at the 2nd International Littmann Conference at Aksum, 6–10 January 2006. Retrieved from [http://www.oidmg.org/Beirut/downloads/Anza\\_handout.pdf](http://www.oidmg.org/Beirut/downloads/Anza_handout.pdf) (accessed: 18.02.2018)
- Lerner, J. (1996). Horizontal-handled mirrors: East and West. *Metropolitan Museum Journal*, 31, 11–40
- Lucas, A. and Harris, J.R. (1962). *Ancient Egyptian materials and industries* (4th rev. ed.). London: Arnold
- Mahmood, Z.A., Zoha, S.M.S., Usmanghani, K., Hasan, M.M., Ali, O., Jahan, S., Saeed, A., Zaihd, R., and Zubair, M. (2009). Kohl (surma): retrospect and prospect. *Pakistan Journal of Pharmaceutical Sciences*, 22(1), 107–122
- Manniche, L. (1999). *Sacred luxuries: Fragrance, aromatherapy, and cosmetics in ancient Egypt*. Ithaca, NY: Cornell University Press
- Montserrat, D. (1996). *Sex and society in Græco-Roman Egypt*. London: Kegan Paul International
- Morrison, H.M. (1989). The glass. In S.C. Munro-Hay, *Excavations at Aksum: An account of research at the ancient Ethiopian capital directed in 1972–4 by the late Dr. Neville Chittick* (=BIEAM 10) (pp. 188–209). London: British Institute in Eastern Africa
- Needham, J. and Lu Gwei-Djen. (1997). *Science and civilisation in China V.2. Chemistry and chemical technology. Spagyric discovery and invention: magisteries of gold and immortality*. Cambridge: Cambridge University Press

- Ogden, J. (2000). Metals. In P.T. Nicholson and I. Shaw (eds), *Ancient Egyptian materials and technology* (pp. 148–176). Cambridge: Cambridge University Press
- Olson, K. (2008). *Dress and the Roman woman: Self-presentation and society*. London: Routledge
- Phillips, J. (2000). Pottery and other clay objects. In D.W. Phillipson (ed.), *Archaeology at Aksum, Ethiopia, 1993–7* (=BIEAM 17) (pp. 205–212). London: British Institute in Eastern Africa
- Phillips, J. (2014). The foreign contacts of ancient Aksum: New finds and some random thoughts. In A. Lohwasser and P. Wolf (eds), *Ein Forscherleben zwischen den Welten. Zum 80. Geburtstag von Steffen Wenig* (pp. 253–268). Berlin: Sudanarchäologische Gesellschaft zu Berlin
- Phillipson, D.W. (ed.). (2000). *Archaeology at Aksum, Ethiopia, 1993–7* (=BIEAM 17). London: British Institute in Eastern Africa
- Phillipson, D.W. (2012). *Foundations of an African civilisation: Aksum and the Northern Horn, 1000 BC – AD 1300*. Woodbridge: James Currey
- Popescu, I.V., Ghişa, V., Belc, M., and Bahrim, M. (2008). Optical Emission Spectrometry and metallographic examination of Roman mirrors from Dobrudja, Romania. *Journal of Science and Arts*, 1, 183–187
- Sainsbury, C.L. (1969). *Tin resources of the world*. Washington, DC: U.S. Government Printing Office
- Schofield, L. (2015). In the Land of Sheba. Discovering a lost centre of the Aksumite Kingdom. *Current World Archaeology*, 72, 26–30
- Schofield, L. (2017). Forgotten kingdom. Searching for lost royalty from the days of the Aksumite Empire. *Current World Archaeology*, 83, 24–26
- Schoske, S., Kreissl, B., and Grimm, A. (1990). *Schönheit, Abglanz der Göttlichkeit: Kosmetik im Alten Ägypten*. Munich: Staatliche Sammlung Ägyptischer Kunst
- Scott, D.A. (1991). *Metallography and microstructure of ancient and historic metals*. Marina del Rey, CA: Getty Conservation Institute
- Stewart, S. (2007). *Cosmetics & perfumes in the Roman world*. Stroud: Tempus
- Sultan, Z. and Khasawneh, A. (2015). Facial beauty: A collection of glass kohl containers from the north of Jordan. *Mediterranean Archaeology and Archaeometry*, 15(1), 83–93
- Tapsoba, I., Arbault, S., Walter, P., and Amatore, C. (2010). Finding out Egyptian gods' secret using analytical chemistry: biomedical properties of Egyptian black makeup revealed by amperometry at single cells. *Analytical Chemistry*, 82(2), 457–460
- Varteresian, A. (2014). *A critical evaluation of gender studies in archaeological accounts of Etruscans* (unpubl. MA thesis). University of Connecticut
- Williams, B.B. (1991a). *Meroitic remains from Qustul cemetery Q, Ballana cemetery B, and a Ballana settlement* (=Oriental Institute Nubian Expedition 8 (Chicago: Oriental Institute of the University of Chicago
- Williams, B.B. (1991b). *Noubadian X-Group remains from royal complexes in cemeteries Q and 219 and from private cemeteries Q, R, V, W, B, J, and M at Qustul and Ballana* (=Oriental Institute Nubian Expedition 9). Chicago: Oriental Institute of the University of Chicago

- Woolley, L. and Randall-MacIver, D. (1910). *Karanòg: The Romano-Nubian cemetery*. Philadelphia: University Museum
- Zazzaro, C. (2006). Oggetti in metallo da Adulis (Eritrea) nella collezione archeologica del Museo Africano di Roma. *Africa*, 61(3–4), 454–482
- Zazzaro, C. (2013). *The ancient Red Sea port of Adulis and the Eritrean coastal region: Previous investigations and museum collections* (=BAR IS 2569). Oxford: Archaeopress
- Zazzaro, C., Cocca, E., and Manzo, A. (2014). Towards a chronology of the Eritrean Red Sea port of Adulis (1st–early 7th century AD). *Journal of African Archaeology*, 12(1), 43–73