Alexandria under the Mediterranean

Archaeological studies in memory of Honor Frost

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edited by

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An elongated composite stone anchor from Matariya

The phrase "elongated composite stone anchor" as a designation for a kind of anchor was first used by Honor Frost in 1970 in reference to two anchors from Alexandria[1]. Despite their dissension concerning Egyptian stone anchors in general, both Frost and Nibbi[2] agreed that this type of anchor had no parallels outside Egypt. However, at that time, only five stone anchors kept in the Graeco-Roman Museum in Alexandria were recorded, two of them being of uncertain provenance, the three others coming from the foundations or substrata of a Roman period shrine in Ras el-Soda, an area located east of ancient Alexandria[3]. Nibbi and Frost differ about the dating of these stone anchors as being reused in a Roman building. Nibbi dates them to the Late Imperial Period according to the date of the temple itself, while Frost thinks that they could be earlier[4].

The five stone anchors of the Graeco-Roman Museum of Alexandria are made of white or yellow limestone. They have an elongated, triangular outline and the lower edges are more or less rounded. They have a rectangular upper hole perpendicular to the narrow sides. The circular lower holes are pierced perpendicular to the wide sides. Three of the five stone anchors are intact, whereas the two others are broken. One of them has only one lower hole, while the others have two. Their length ranges from 83 to 102 cm, however, the biggest one, nowadays broken, must have been around 115 cm long. The maximum width at the bottom ranges from 30.5

1. Frost 1970, p. 381.
2. Nibbi 1991, p. 186-187.
3. The private shrine was built by a certain Isidoros as an *ex voto* on his recovery from falling from his chariot, in thanksgiving to Isis, Osiris, Hermanubis and Harpocrates, whose statues were found *in situ* in the sanctuary. It dates to the end of the 2nd or 3rd century AD. See A. Adriani, "Sanctuaire de l'époque romaine à Ras el Soda", *in Annuaire du Musée Gréco-Romain (1935-1939)*, Alexandrie, 1940, p. 136-148, pl. L-LIX. The monument was not far from the way and the canal connecting Alexandria with Canope: A. Adriani, *Repertorio d'Arte dell' Egitto Greco-Romano*. Serie C. vol. I-II, Palermo, 1966, p. 101.
4. Nibbi 1991, p. 189, 190, 193 emphasises the *in situ* discovery of the anchors, "in the lowest levels of the grounds of the temple", as a strong argument to assert a Roman period date. Frost 1970, p. 381, suggests an earlier date: "Though these were both found in a Roman level (that is to say, a period by which lead-stocked anchors had become current), these stone anchors could be earlier; not being *in situ*, they may have reached the later level by chance". See also, Frost 1997, p. 107.

to 45 cm. The minimum width at the top ranges from 8 to 11 cm for the three complete objects. The maximum thickness varies between 10 and 25 cm. They weigh 51 to 161 kg[5] (**fig. 1, 2**).

In 2003, during an examination of the Matariya boat, I came across a similar stone anchor in the storeroom of the Supreme Council of Antiquities (SCA) in Matariya, once the site of ancient Heliopolis, nowadays a north-eastern suburb of Cairo (**fig. 3**). This anchor was discovered within the area where the Matariya shipwreck was cleared. The remains of the Matariya boat consist of part of a planked shell, fastened by mortise-and-tenon joints. It was a transport barge over 11 m long, dating to the 5th century BC[6], according to C14 data. The storeroom documentation tells us that the anchor was found in 1985 in a Roman period sandy layer during the installation of a wastewater pipe near an old clogged branch of the Nile.

SCA Matariya Reg. Number 216 **Fig. 4, 5, 6, 7**
Hard limestone
Length: 76 cm
Width: 13 to 47 cm
Thickness: 17 cm
Weight around: 80 kg

The anchor has an elongated triangular shape with a rounded apex and a rounded bottom. The upper hole, perpendicular to the narrow sides and nearly axial, is rectangular (height 11.5; width 6 cm). It looks to have been worked from both sides, with an irregularity in the lower middle part. Around this upper hole, the stone is not thicker than in the lower part as noticed on two of the anchors from Alexandria (**fig. 1**). The two circular lower holes (Diam. left 8 cm, right 7.5 cm) are drilled perpendicular to the wide face of the stone. There are no wear marks on their perimeter. Between the upper hole and the apex is a shallow vertical groove where the rope would fit. There are faint traces of two carved graffiti. One is on a narrow side, under the upper hole and displays a boat with a square sail (**fig. 7**). The other, located on a wide face, close to the apex, is roughly circular and illegible.

Regarding this type of anchor, both Flemming and Nibbi suggest that the upper hole held a cross piece of wood, working like a stock[7]. However, considering in particular the lateral groove as an indication, I believe that it simply received a rope. Indeed, the position of the upper hole in the narrow side is a useful device to avoid the rope scraping between the anchor and the sea bed, as happens with stone anchors whose suspension hole is perpendicular to the main faces. Moreover, the carefully crafted and even sophisticated shape of the anchor suggests practice in its manufacture.

5. Catalogue: Nibbi 1991, p. 186-190.
6. Ward 2000, p. 129-135; Abd el-Maguid 2009, p. 105-110.
7. Flemming 1962, p.158: "The hole in our Apollonia anchor probably took a long crossbeam to control the position of the anchor when it struck bottom. At the opposite end were two holes perpendicular to the first one. They probably took short stakes that dug into the sea bed. The rope would have been attached to the longer beam on either side of the stone".
Nibbi 1991, p. 191 (fig. 12, 13): "Our Alexandria anchors may therefore be described as composite, with the lateral rectangular aperture intended for a wooden stock, to be lashed to the anchor to keep it in position. The round holes were intended for wooden flukes to enable it to grip the sea- or river-bed".

Other composite stone anchors with the upper hole cut perpendicular to the lower ones have been found in the Mediterranean Sea and elsewhere.

As for the Mediterranean, the first specimen, from the submerged Hellenistic harbour of Apollonia in Libya, was reported by Flemming, who described it as a "wedge-shaped Greek anchor"[8]. The sides form almost a regular trapezia. The approximate dimensions are: height 55 cm; width 15 cm at the top, 30 cm at the bottom; thickness 8 to 12 cm; the lower holes being about 5 cm in diameter[9]. The estimated weight is around 30 kg. One person can handle it easily (**fig. 8, 9**).

The second one was found in the south bay of Dor and was classified by Kingsley and Raveh in their publication in the unusual piercing system class[10]. It is made of limestone, and measures 50.7 cm long, 42.1 cm wide, 25.7 cm thick and weighs 66.5 kg. The holes are tubular (upper hole 10.9 x 8.5 cm; lower left hole 11.2 x 7.3 cm; lower right hole 8.6 x 8.6 cm) (**fig. 10**). Neither of the stone anchors of Apollonia and Dor is precisely dated.

Recently, stone anchors have been announced in a preliminary report of the *IEASM* underwater survey in Heracleion-Thonis, close to Abukir. A picture shows a stone anchor very similar in shape and size to the Matariya anchor, having two circular lower holes[11]. The lateral upper hole must exist but is not visible on the picture. Another picture displays a stone with two perpendicular holes, a wooden piece still crossing the lower one[12]. Two anchors of this type were found off Ibrahimieh in Alexandria[13].

Frost mentions a stone anchor with an upper hole perpendicular to a lower one, discovered at the mouth of the Ropotamo River, a site on the Black Sea coast connected to the Mediterranean cultural area[14]. Despite the lack of details, we can notice from the picture that it is a pyramidal-shaped stone with a lower square-looking hole.

Far beyond the Mediterranean, three stone anchors of the same type have been found in British waters near Dorset[15]. They are made of local limestone, triangular in outline, with two rectangular holes cut through the lower corners, the upper hole being pierced in the narrow side near the top and running perpendicular to the direction of the lower holes. At the vertex, the outlines of the triangle turn upwards and form a short knob. The smallest one, anchor No. 2[16] (**fig. 11**) weighs 21 kg (height 50.5 cm; max. width 36.5 cm, min. width 12.5 cm; thickness top 11.5 cm, base 10 cm). Anchor No. 1[17] (**fig. 11**) weighs 37 kg (height 68.5 cm; max. width 50.5 cm, min. width 12.5 cm; thickness top 11.5 cm, base 7.5 cm). The biggest one, an inscribed anchor[18] (**fig. 12**), weighs 83.5 kg (height 82.8 cm; max. width 51.8 cm, min. width 12.5 cm; thickness top 16.5 cm,

8. Flemming 1962, p. 158-159.
9. All dimensions are deduced from Flemming's picture showing the diver H. Edwards presenting the anchor on his knee: Flemming 1962, p. 159.
10. Kingsley, Raveh 1996, p. 41, fig. 32, pl. 37.
11. Fabre 2011, p. 26, fig. 1.16.
12. Fabre 2011, p. 27, fig. 1.17.
13. H. Tzalas, *supra,* p. 106 and 110, fig. 4.
14. Frost 1997, p. 112-113, fig. 10. According to Frost, the stone may be a mooring as well.
15. Markey 1991; Markey 1997.
16. Markey 1991, p. 48-50, figs 2-4.
17. Markey 1991, p. 48-50, figs 2, 3.
18. Markey 1997, p. 127-131, figs 2-5.

base 13 cm). All three anchors have almost square lower holes (6 to 9 cm), whereas their upper hole (7 to 9 cm) is rounded. These anchors being isolated finds are not dated.

On the east coast of Africa[19] and the west coast of India[20] a group of composite stone anchors with two or three perpendicular holes is worthy of mention (**fig. 14**). They have pyramidal outlines and some of them are very elongated. Their sides are almost equal and their bottom is flat. As for the two-hole stones, the upper hole is always perpendicular to the lower one. The three-hole anchors have the two lower holes perpendicular to each other, one of them being parallel to the upper hole. With two perpendicular wooden pieces inserted in the lower holes, this model is a kind of grapnel.

Finally, regarding modern objects similar to the Matariya anchor, R. Le Baron Bowen Jr. reported in 1957 a stone anchor called "Sinn" used by the Arabs in the Persian Gulf[21], and an identical one is also presented by Frost as one of the modern stone anchors displayed in Exeter Maritime Museum[22]. These anchors have a triangular outline, an upper hole cut in the narrow side close to the apex and only one circular hole at the bottom (**fig. 13**).

The previously mentioned anchors are comparable to the Matariya and the Alexandria anchors but do not form a consistent group with them. The common typological feature is an upper hole perpendicular to one or two lower holes. Otherwise, some of them share with the Egyptian cluster an elongated triangular outline. Nevertheless, they are all different. The Apollonia and Dor stone anchors are the most comparable in form and function with our specimen in spite of their flat bottoms and greater thickness, especially as regards the Dor anchor. The Dorset anchors are also rather similar in form, function and proportions, especially the inscribed one, despite their straight bottoms, the upper knob, and the differences in form of the holes. The Arabo-Indian anchors are quite different with their tall pyramidal outline, their nearly equal sides and, above all, their lower holes perpendicular to each other. Moreover, they are much bigger and can reach 3 m long. Lastly, the Persian Gulf anchor represents a continuation of the use of this type into modern times, but it is found only on smaller craft and is favoured by fishermen. It is smaller and thinner than the ancient Egyptian one though it displays the same form and proportions.

The dating of the elongated composite stone anchors of Egypt is more or less well established. The three anchors from Ras el-Soda predate the late 2nd century AD, and the Matariya anchor has been reported to come from a Roman layer.

Unlike the well known use of stone anchors at sea, their use in the Nile or in its canals has been questioned by arguing that they would have sunk into the mud[23]. The Matariya anchor provides evidence against this opinion. As a matter of fact, it must have been used by a boat sailing

19. Frost 1970, p. 381.
20. Gaur 2001.
21. Le Baron Bowen 1957, p. 289-290.
22. Frost 1997, p. 108, fig. 6 drawn from a picture by L. Basch.
23. The controversy is exposed by Frost 1979, p. 157 and Basch 1985, p. 457.

on a branch of the Nile or on a canal[24]. Moreover, ethnological studies support our notion: to quote Le Baron Bowen Jr., "the *Sinn* is excellent for the flat muddy bottoms in the area"[25].

In search for the origins of this type of stone anchor, Frost suggests that their shape looks more Eastern than Mediterranean and that a Mediterranean origin is improbable. Nevertheless, among the comparable pieces that we were able to gather, Indian anchors display the sharpest differences in size, shape and disposition of the holes from the Matariya and Alexandria anchors. So, we consider more likely that the Egyptian cluster represents a Graeco-Roman improvement of the three-hole "composite" Mediterranean stone anchor. According to Raban, these three-hole anchors were known in the Mediterranean Sea from the 13th century BC[26].

From her first article, Frost attempted to establish a new domain in the field of maritime archaeology. For three decades, she regretted the lack of knowledge and interest in stone anchors, but she did succeed in prompting scholars to contribute to the build up of what we might call *anchorology*[27]. During the last decade of the 20th century, stone anchors focused the interest of many a nautical archaeologist and a lot of discoveries were reported, especially from India, Israel and Bulgaria, while many pages have been devoted to their study in scientific periodicals. Nibbi introduced the topic to Egyptologists. She brought to light a lot of stone anchors from different Egyptian sites and museums and tried to reassess the evidence and the classification proposed by Frost in order to counter the prejudice held concerning the Egyptian maritime activities in Antiquity[28]. Basch has contributed generously to the topic by drawing attention to other forgotten stone anchors from Egypt and by discussing the thoughts of both Frost and Nibbi[29].

After the beginning of scientific underwater archaeological activities in Egypt in 1995, a lot of stone anchors were reported or added to the catalogues of anchors[30]. Now, along with undersea research, we are looking into the antiquities' storerooms all around Egypt in order to document and study any neglected pierced stone or, should I say, *things of stone*.

Acknowledgements

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24. One of the Alexandrian stone anchors was found in a fresh water canal near Maamura (Nibbi 1991, p. 189, anchor 3). As for the anchors of Ras el-Soda, they could be connected to a neighbouring canal, but the point remains hypothetical. The topic of stone anchors found in Egypt far from the sea, at Bubastis in the Delta and at Mirgissa on the Nubian stretch of the Nile, has been very much argued. Basch 1994 sums up the discussions.
25. Le Baron Bowen 1957, p. 290.
26. Raban 2000, p. 269.
27. For a bibliography of Honor Frost, see *supra,* p. 5-11.
28. For a complete bibliography of Egyptian stone anchors to the date of the article, see Nibbi 1993.
29. Basch 1985; Basch 1994.
30. Osama el-Nahas, *Anchors from underwater excavations in Alexandria,* M.A., Katholike Universiteit Leuven, 2000, unpublished; Tzalas 2002; Fabre 2011; Zazzaro, Abd el-Maguid 2012; P. Tallet, G. Marouard, D. Laisney, "Un port de la IVe dynastie au Ouadi al-Jarf (mer Rouge)", *BIFAO* 112, 2012, p. 421-424, p. 433 fig. 9 et p. 446 fig. 30; and, in this volume, J.-Y. Empereur, G. Soukiassian, "Anchors off Alexandria's Eastern Harbour", p. 63-101; Mohamed Mostafa Abd el-Maguid, "Maamura Surveys: preliminary Report", p. 115-123.

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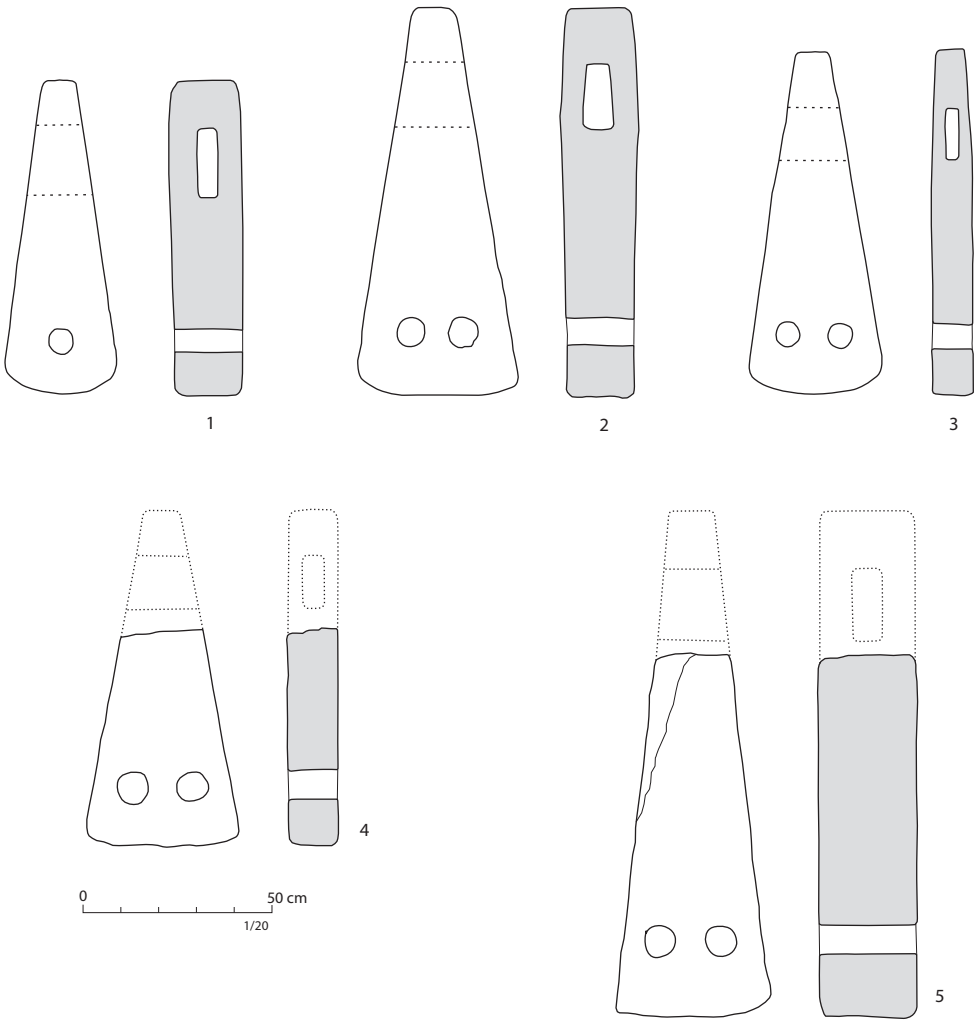

Figure 1: Stone anchors from Alexandria with perpendicular holes, after Nibbi 1991, p. 187, fig. 3: **1.** Alexandria, Graeco-Roman Museum no. 28811 (= *ibid.* Anchor no. 1); **2.** Ras el-Soda, Graeco-Roman Museum no. 28812 (= *ibid.* Anchor no. 2); **3.** Graeco-Roman Museum no. P 11509 (= *ibid.* Anchor no. 3); **4.** Ras el-Soda A Alexandria Graeco-Roman Museum (= *ibid.* Anchor no. 4); **5.** Ras el-Soda B Alexandria Graeco-Roman Museum (= *ibid.* Anchor no. 5); scale 1:20

Figure 2: Stone anchors from Alexandria with perpendicular holes, in the courtyard of the Graeco-Roman Museum no. 28811 (left), no. 28812 (right). CEAlex Archives, A. Pelle

Figure 3: Location of Matariya and other sites. Map of Egypt (after Ifao); scale 1:5,000,000

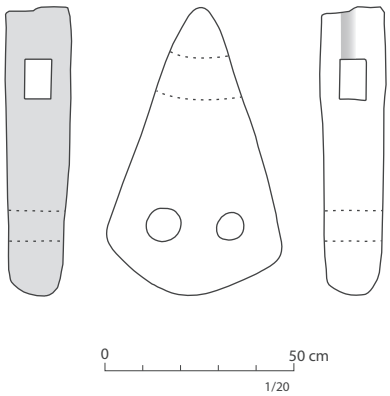

Figure 4: Matariya anchor; scale1:20. Drawing A. Velva

Figure 5: Matariya anchor, wide side with lower holes; scale 1:10. Photo Mohamed M. Abd el-Maguid

Figure 6: Matariya anchor, narrow side with upper hole. Photo Mohamed M. Abd el-Maguid

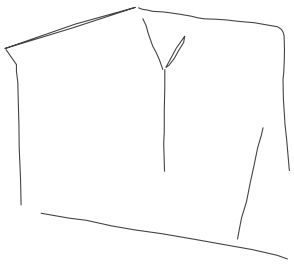

Figure 7: Matariya anchor, graffito.Drawing Mohamed M. Abd el-Maguid

Figure 8: Apollonia anchor (Flemming 1962, p. 159)

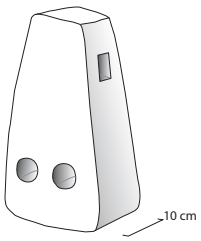

Figure 9: Apollonia anchor, sketch; scale 1:20 (drawn after Flemming 1962)

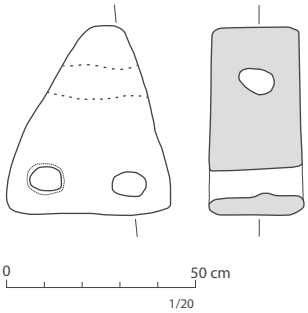

Figure 10: Dor anchor; scale 1:20 (after Kingsley, Raveh 1996)

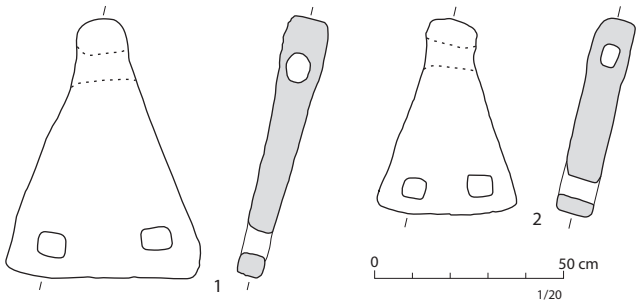

Figure 11: Dorset anchors 1-2; scale 1:20 (after Markey 1991, fig. 3, p. 49)

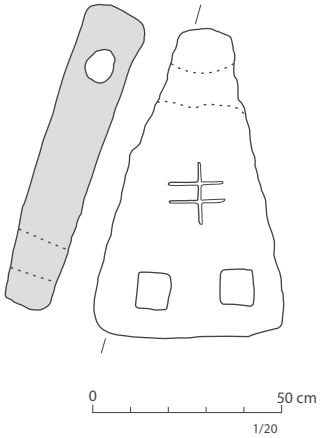

Figure 12: Dorset inscribed anchor; scale 1:20 (after Markey 1991, fig. 3, p. 129)

Figure 13: Anchor of a small *dhow* from the Persian Gulf exhibited in the Exeter Maritime Museum (after Frost 1997, fig. 6, p. 108)

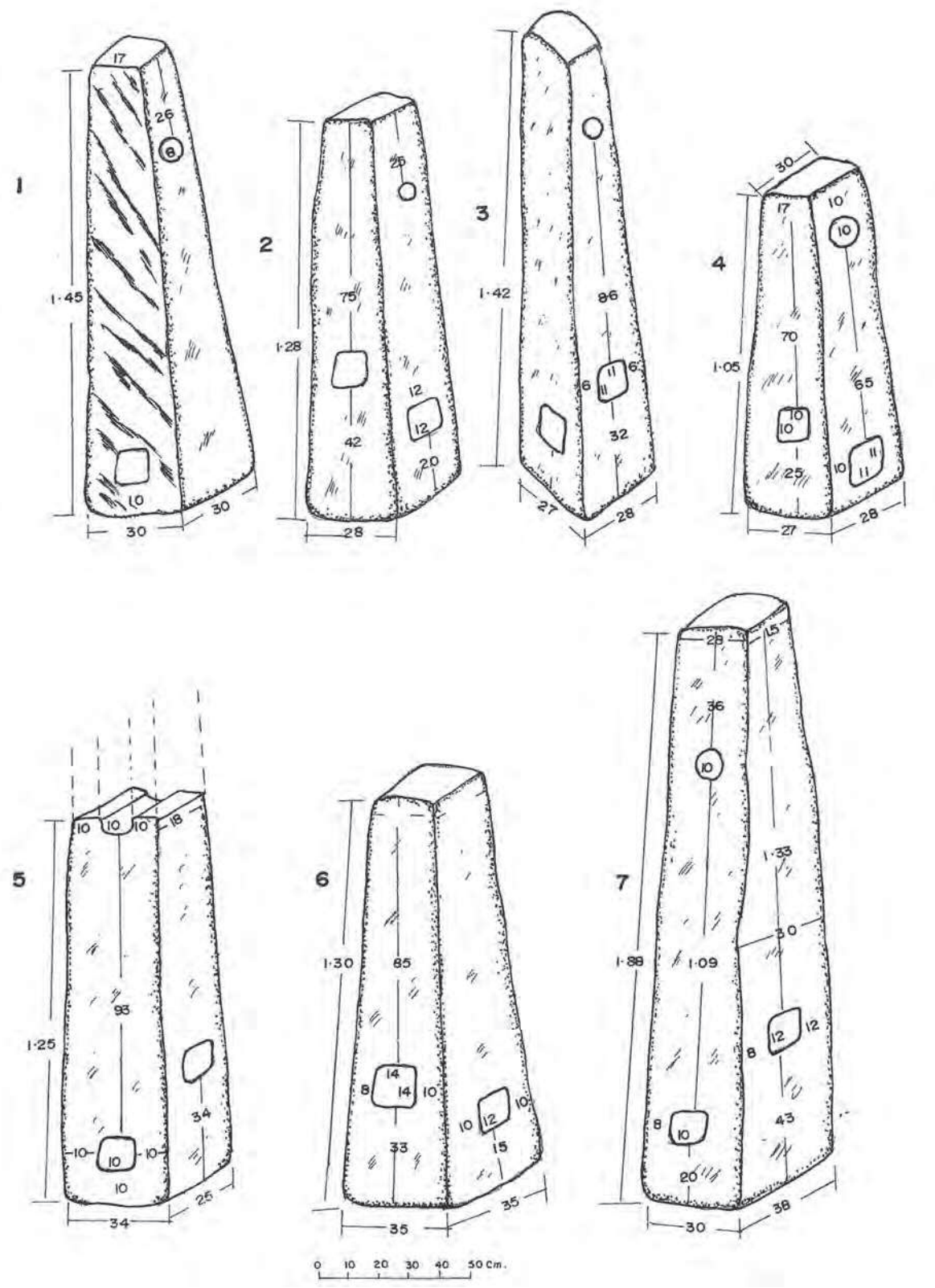

Figure 14: Arabo-Indian anchors, scale 1:20 (Gaur 2001)

Abbreviations

BAAL: *Bulletin d'Archéologie et d'Architecture Libanaises* (Beirut)
BAR: *British Archaeological Reports International Series* (Oxford)
BCH: *Bulletin de Correspondance Hellénique* (Athènes)
BdE: *Bibliothèque d'Etude. Institut Français d'Archéologie Orientale* (Le Caire)
BIFAO: *Bulletin de l'Institut Français d'Archéologie Orientale* (Le Caire)
IJNA: *The International Journal of Nautical Archaeology* (Portsmouth)
MDAIK: *Mitteilungen des Deutschen Archäologischen Instituts Abteilung Kairo* (Berlin)
ROMM: *Revue de l'Occident musulman et de la Méditerranée* (Aix-en-Provence)
RdE: *Revue d'Égyptologie* (Paris)