

## **RECONSIDERING BYBLIAN AND EGYPTIAN STONE ANCHORS: NEW FINDS FROM THE ISRAELI COAST**

In recent decades extensive underwater surveys have been undertaken along the Israeli coast resulting in the discovery and documentation of many new sites and artifacts. The discoveries include shipwrecks, submerged pre-historic settlements, harbour installations and anchorage sites. The shipwrecks and their cargoes, consisting mainly of anchors and metal objects, are usually found in the coastal zone at depths ranging from 1-5 meters, at a distance of 60-200 meters off the modern shoreline. It appears that the most frequent find on the sea bottom are anchors. More than one thousand stone, metal and wood anchors have been located up to date. Most of them were found at a depth of 5 meters. The anchors appear either as a lone find or in clusters. Apparently each cluster consists of anchors belonging to a single vessel which was wrecked in the surf zone (Galili *et. al.* 1986: 25-37; Galili 1985: 143-153; Galili 1986: 69-73). Most of these clusters were found in unsheltered, open coastal areas. Another notable phenomenon is the appearance of large numbers of single anchors concentrated in one specially bounded area, or as Frost refers to them: "graveyards" of anchors (Frost 1970: 385). These are usually seen in sheltered areas along Kurkar (sandstone) islands or reefs at depths which usually range from 4-10 meters. The newly emerged data provided by the surveys enriches our knowledge of maritime practices of the ancients along the coasts of the eastern Mediterranean. Some actually require a reconsideration of previous conclusions, reached in the past. Among them is the question of one of the earliest relics of ancient navigation, the Byblian stone anchor (anchor previously defined as a Byblos type).

Until 1983 only two Byblian anchors had been recorded along the Israeli coast, both of which were located in the Carmel Ridge area (Romen and Olami 1973: 10, 27; McCaslin 1980: 37). Since then, twenty seven additional anchors have been found located mostly in the Carmel coast area (Fig. 1). Other types of anchors believed to be of Egyptian provenance were also discovered in this area (Steiglitz 1972-75: 43; Galili and Raveh 1988: 41-48).

Byblian anchors were first discussed by Honor Frost (Frost 1963: 8-9). She described the six anchors discovered by Maurice Dunand at the Temple of Obelisks at Byblos. Although she did not reach a clear conclusion as to the origin of this type of anchor, (e.g. whether they are local to Byblos or Egypt), she did postulate

that they "...could have never stood on ships in motion as the anchor from the relief in the tomb of the Egyptian Vth Dynasty Sahu-re evidently does" (Frost 1963: 9). Frost continued her studies and published later discoveries and constructed a typology of these anchors which is still being used today. In her studies, (1970: 381; 1973: 401; 1979: 51) Frost made a clear definition of the Byblian and Egyptian anchors. The Byblian was characterized as "... a triangular slab of stone with an apical piercing, sometimes surmounted with a shallow groove" (Frost 1970: 381). She further suggests that the anchors did not stand upright and were probably used for warships since none of them is large and most are medium sized (Frost 1970: 385). Frost defines Egyptian anchors as: typically exhibiting an L-shaped piercing through one corner of the base, an oval top, the capability to stand upright independently and the groove above the hole. She assumes that those are of Egyptian provenance since they are similar in shape to the anchors on the prows of Sahu-Re and UNAS ships. On one specimen, uncovered in Byblos, appeared the Egyptian hieroglyph nfr. Other similar representatives are the 7 anchors found in Mersa Gawasis on the Red Sea coast from a shrine in Egyptian context.

Other scholars have addressed the question of the anchors, citing the same published material. McCaslin (1980: 36-37) accepted the typology suggested by Frost for the Byblian and Egyptian anchors. He does however point out that the Egyptian anchors do not necessarily have the L-shaped piercing in the base end. He cites the example of the pair of stone anchors from Megadim on the Carmel coast which are believed to be Egyptian as evidenced by the Egyptian hieroglyph engraved on them (Stieglitz 1972-75:). He divides the Egyptian type into two groups, an earlier one, with L-shaped groove and a later one without the L-shaped groove. He explains the paucity of these types in Egypt by assuming that they were only used for foreign voyages. To Nibbi (1984: 247-248, 260), who does not believe that the Egyptians sailed in the open sea, the "so called" Egyptian anchor with the nfr sign (found in Byblos) and another in Ugarit could not be Egyptian at all. The Hieroglyphs, according to Nibbi, could be of Hyksos or local alphabetic origin. She further claims that the Megadim anchors with their steering oars do not necessarily point to an Egyptian origin, since these signs are common to any maritime civilization.

Since these treatises were published, many additional anchors of these types have been located in the area of northern Israel. Up to date, twenty five of them were found off the Carmel coast and one off the coast of Appolonia (central coastal plane of Israel) (Fig. 1). Of the twenty six, some were found in four separate clusters and a few were found individually.

The largest cluster was found in Neve Yam (Fig. 2) and consists of 15 Byblian anchors (Galili 1985; 1987). Since they were published in detail in the past, they will not be dealt with individually at this juncture. In the main bay of Atlit, two additional Byblian anchors were found alongside an MBII storage jar (Fig. 3). The two limestone anchors respectively weighed 144 and 117 kgs and their hole is straight and not biconical. Another group of two anchors was found off the Kfar Galim coast (Fig. 4). They are similar to the Atlit ones and weigh 133.5 and 151 kgs. The most interesting cluster, was located off the coast of Kfar Samir south of Haifa. It consists to two limestone anchors weighing 152 and 211 kgs. bearing inscriptions (Fig. 5). One of the two anchors has an L-shaped groove in its bottom. Of the five anchors, found individually, one was found off the coast of Appolonia-Arsut (Fig. 6) weighing 109.5 kgs (Galili *et. al.* 1993 in press). One was found in the southern bay of Dor (Wachsmann 1989: 236 plate 170). In the area of Atlit two individual anchors were sighted, the first weighing 104 kgs. (Ronen and Olami 1978: 27) and the other weighing 95 kgs. An additional Byblian stone anchor was located off the shore of Tel Kara (Ronen and Olami 1978: 10), weighing 104 kgs. All the above mentioned anchors, found individually or in clusters, are made of limestone, with one chiselled hole in the top which is straight. The majority of the anchors cannot stand upright independently. Some of the anchors have a groove encircling the top of the anchor from both sides of the hole, whereas in others the groove is partial, or absent altogether.

### **Discussion**

Considering the large incidence of anchors found over the past few years, it is necessary to re-evaluate certain definitions which were suggested in the past by scholars. Under discussion is the particular shape of the anchor defined as a Byblian type, its characteristics and distribution.

It has been suggested (Frost 1970: 385) that while the Egyptian anchors have the L-shaped piercing on one side of their base, the Byblian anchors did not. We found that this distinction is not always necessarily correct. In the Kfar Samir cluster, (Fig. 6) there is one specimen (anchor 2) which is a typical Byblian type anchor, yet it exhibits an L-shaped piercing in one of its sides. Both of the anchors found in Kfar Samir most likely originate from the same vessel, not only because they were found in close proximity to one another, but also bear almost identical inscriptions (Fig. 5). Alternatively, several anchors found in the same general area north of Atlit (Megadim) bear general characteristics which were defined as Egyptian (such as the oval top shape and the independent upright bearing) as

well as incisions which were considered to be of Egyptian provenance for instance the two anchors with steering oar reliefs and the one with the human legs inscription (Stieglitz 1972-75: 43; Galili 1988: 41-48). All three however, lack one important attribute: they do not exhibit the L-shaped piercing, which according to Frost's definition, should have been there. In addition, it has been suggested in previous publications that the Byblian anchors cannot stand upright independently (e.g. Frost 1963: 9). We found that some of the 27 are indeed capable of doing so.

Of course, the distribution pattern for the Byblian anchors which was established in the past, when the majority were found in the Lebanese Syrian coast (Byblos and Ugarit - Ras Shamra) is no longer acceptable since the large majority were found in the Carmel coast. Recent evidence further accentuates the problems of the current typology of Byblian and Egyptian anchors. The engravings on the Kfar Samir anchors are cases in point. The two anchors, of two different shapes, bear practically identical inscriptions, which are most likely of Aegean origin. Two of the three symbols may be interpreted as signs "20" and "86" in the Mycenaean Linear B syllabary (Ventris and Chadwick 1959: 41) and one in the Linear A syllabary (Gordon 1966: PL. XI).

### **Conclusion**

Based on previous discussions we are led to the conclusion that there is insufficient data to determine the ethnic or group origin of the so called Byblian or Egyptian anchors according to their shapes and other observable attributes. Thus the previous typological definitions are outdated. This indicates that the two types may actually be sub-classes of one type. Attributes of both of these two variants are the almost triangular shape of the anchors and a hole which is usually situated clearly below the center of the upper curve of the anchor, unlike the obvious case of most of the Syrian anchors in which the center of the hole is situated close or on the center of the upper curve (Fig. 12). We did not include the two Megadim anchors published by Stieglitz and an additional one with an Egyptian incision (Galili 1988: 41-47) in this triangular category (the Byblos type) since the center of their hole is situated approximately in the center of their upper curve and their form is not triangular.

Judging by the anchors found so far, the origin based upon their frequency of appearance, seems to be the Syro-Northern Palestinian coast. It should be noted that while the remainder of the Israeli coast has been as comprehensively surveyed, 25 of the 26 of the so called Byblian stone anchors were found off the Carmel coast.

The concentration of these anchors in the Carmel Coastal area raises new questions since we might assume that the anchors carried aboard ships would have been equally dispersed along the entire coast from Syria to Egypt, unless there is some unknown reason for this peculiarity. Another question is as to the likely owners of these anchors: are they of the same group of vessels sailing one particular period? We feel that they all belonged to merchantmen, and not to warships as previously suggested (Frost 1970: 385). If we use the case of the Neve Yam cluster of 16 anchors of which 15 are of the so called Byblian type, one could not possibly expect a warship, which should be light and quick, to carry such a heavy load of anchors.

Interestingly enough, although so many were sighted underwater, there are no Byblian anchors reported from any land excavations in Israel. This may be due to the fact that few coastal sites of the likely period in which they were used, namely the middle Bronze IIa (as established according to the finds at Byblos), were not yet excavated. However, with the renewed interest in coastal sites, new data has been emerging.

The coastal site of Tel Nami which is located on a peninsula one mile south of Neve Yam, has yielded a good amount of information on the period of the Middle Bronze IIa (Artzy and Marcus 1991). Seismic tests carried inland from Tel Nami indicate a possible anchorage in a silted outlet which has not been excavated yet. During archaeological excavations which took place at Nami from 1986 to the present, evidence of contacts with Cyprus (Artzy and Marcus 1992), Egypt (Marcus 1992; Marcus and Artzy in press) and the Aegean (Kislev, Artzy and Marcus 1993: in press) were noted. It is likely that the Nami region fulfilled a role of an anchorage for the trade between Byblos and Egypt which involved the Aegeans and possibly the Assyrian merchants in the southwestern coast of Anatolia (Artzy 1993: in press) and an entrepot (Marcus 1992) in the first part of the second Millennium B.C. Thus it should not be of any surprise to find the anchors in such proximity to Tel Nami.

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**ILLUSTRATIONS**

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- 1a, b      Location map showing distribution of stone anchors under discussion along Israeli and eastern Mediterranean coasts.
2.          Photograph of Byblos type stone anchors from Neve-Yam.
3.          Drawing of the Atlit Bay anchors.
4.          Drawing of the Kfar Galim anchors.
5.          Drawing of the pair of anchors from Kfar Samir.
6.          Photograph of the pair of anchors from Kfar Samir.
7.          Diver measuring the Kfar Samir anchors.
8.          Drawing of the Byblos type anchor from Appolonia.
9.          Drawing of the Byblos type anchor from the North Bay of Atlit.
10.        Photograph of pair of anchors from Megadim North.
11.        Photograph of the pair of anchors from Megadim South.
12.        A key to the measurements of stone anchors in the text.

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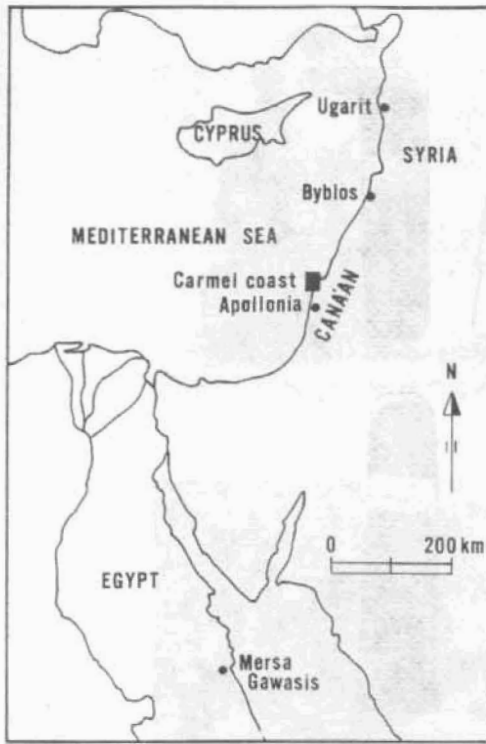


FIG. 1a

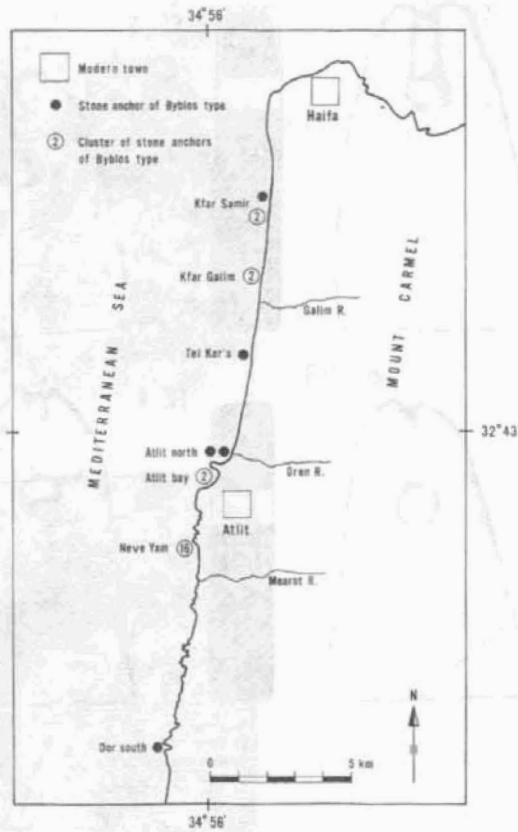


FIG. 1b

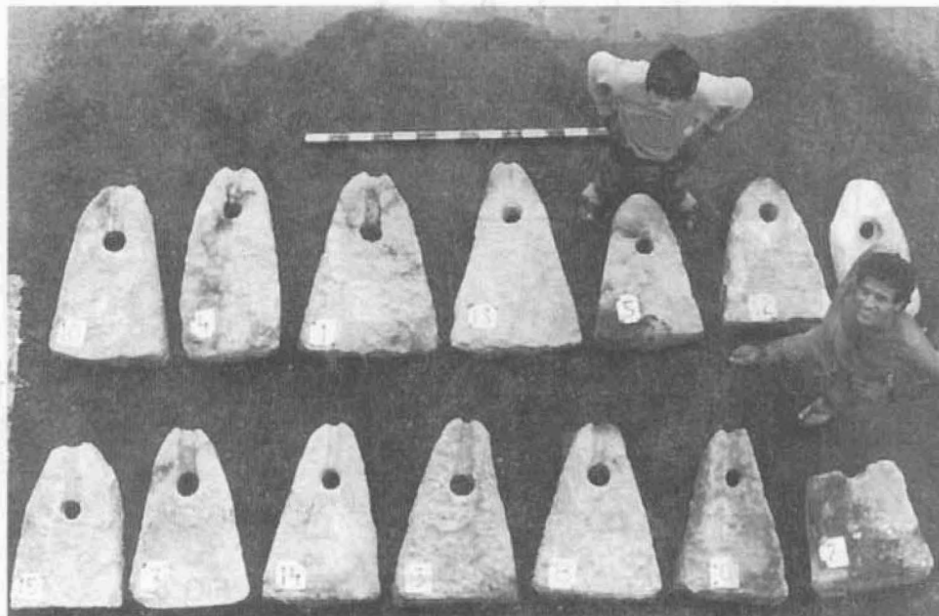
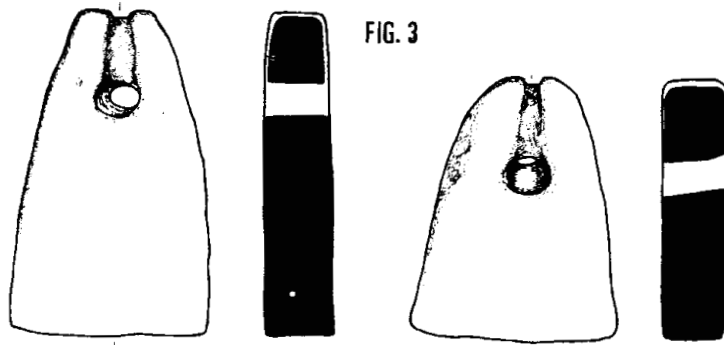
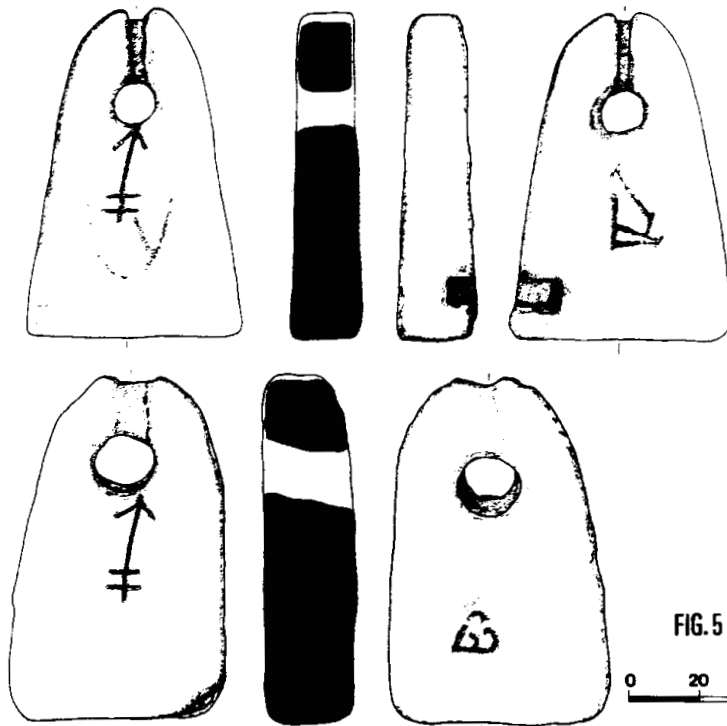


FIG. 2



0 20 40

FIGS. 3-4



0 20 40

FIG. 5

RECONSIDER BYBLIAN AND EGYPTIAN STONE ANCHORS:  
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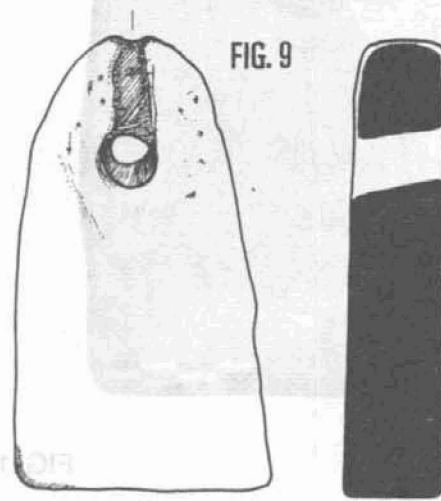
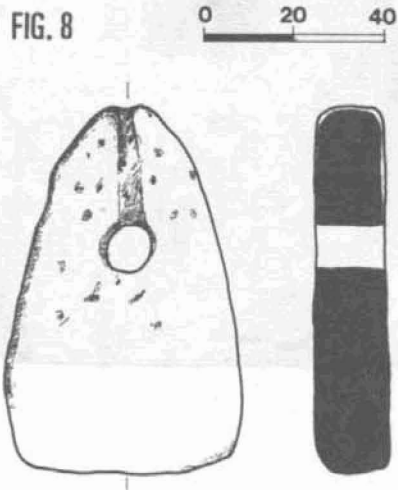


FIG. 8-9

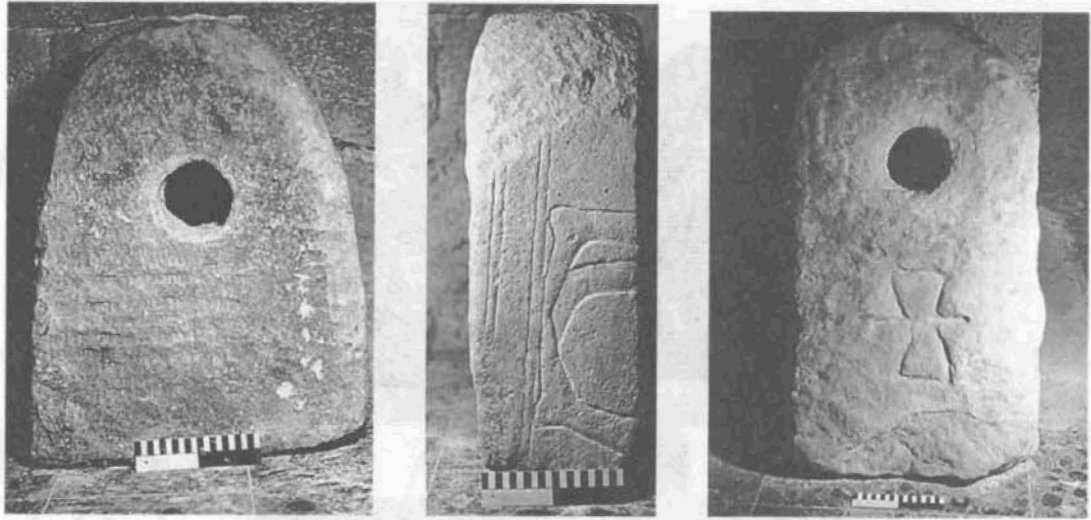


FIG. 10

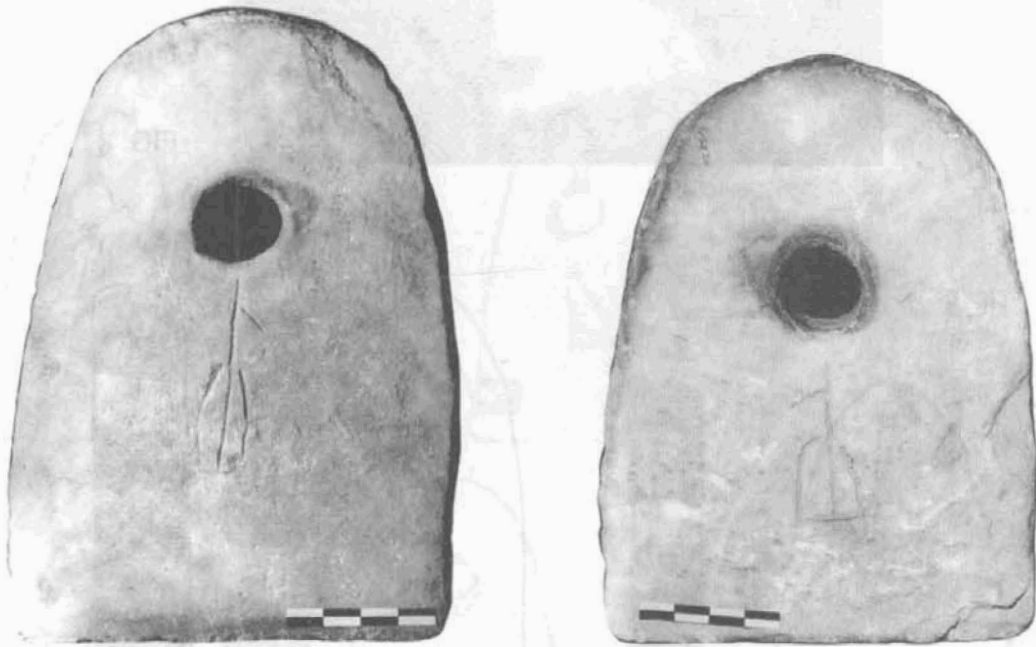
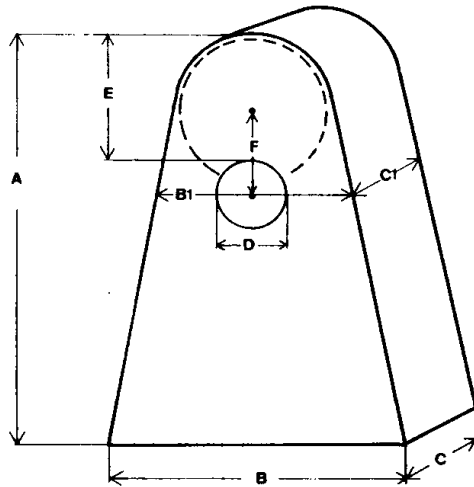


FIG. 11

RECONSIDER BYBLIAN AND EGYPTIAN STONE ANCHORS:  
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**FIG. 12**

Anchor's dimensions

- A - Maximum height
- B - Maximum width at lower part
- B1 - Maximum width at hole center
- C - Maximum thickness at lower part
- C1 - Maximum thickness at hole center
- D - Average hole diameter  $\frac{(D_{Max} + D_{Min})}{2}$
- E - Distance from hole to anchor's top
- F - Distance between apex center and hole center  
(If apex center is lower than hole center  $F < 0$ )

FIG. 12