

THE CAPE GELIDONYA SHIPWRECK SCARABS RECONSIDERED*

Baruch Brandl**

INTRODUCTION

Forty years ago, George F. Bass informed the archaeological community of the discovery of a Bronze Age shipwreck that had been found off the Lycian coast near Cape Gelidonya in 1960.¹ The discovery of the ship, laden mainly with a cargo of ox-hide shape copper ingots, opened up a new era in the study of the interregional contacts in the Eastern Littoral of the Mediterranean Sea during the 2nd Millennium BCE.

Questions regarding the date of the wreck, as well as the origin of the ship and crew have been discussed over the years. The group of four scarabs and a bifacial oval plaque² (Plate 1),³ all of which bore Egyptian motifs, played a major role in the debate that ensued. But, in spite of the fact that these objects have been the focus of several studies⁴ it is this author's intent, that their re-examination will add to the understanding and the solution of the aforementioned questions.⁵

HISTORY OF THE RESEARCH

Schulman's Publications [1961 and 1967]

Alan R. Schulman published the Cape Gelidonya scarabs on two separate occasions. First, in a popular article published in 1961⁶ and later on, in 1967, in an individual chapter included in the final report.⁷ Schulman described only three of the scarabs in the first publication, but his conclusions regarding the date of the sinking and the origins of the crewmembers had already been formed. The following summa-

ry has, however, been adopted from SCHULMAN's 1967 publication.

Date:

Schulman dated the scarabs [Plate 1] to three different periods:

- 1) **CG Scarabs 3 and 4** (both with the *ANRA* formulas⁸ in their central registers) – to the Second Intermediate Period,
- 2) **CG Scarabs 2 and 5**⁹ – to the 18th Dynasty,
- 3) **CG Scarab 1** (with the falcon headed Re) – to the 19th Dynasty and more specifically, to the days of Ramesses II.

Therefore, based on the appearance of the latest scarab (**CG Scarab 1**), Schulman suggested that the boat sank in the 13th century BCE.

Origin:

Schulman noted that the motifs appearing on the Cape Gelidonya scarabs were the same as those found on scarabs discovered in several sites outside of Egypt.¹⁰ This observation led him to conclude that the members of the ship's crew, who most probably owned the scarabs found in the wreckage, also originated from these same regions outside of Egypt (Canaan, Syria and Cyprus).¹¹

Giveon's Critic [1985]

In 1985, Raphael Giveon published a review of Schulman's chapter on the Cape Gelidonya scarabs.¹²

* To George F. Bass with great appreciation

** Israel Antiquities Authority

¹ See BASS 1961

² Schulman's original numbering system has been preserved throughout this article (indicated in bold type). Schulman grouped the plaque together with the scarabs and numbered it accordingly (**CG Scarab 3**).

³ See SCHULMAN 1967. Illustrations of four of the finds appeared earlier in BASS 1961:274, pl. 90:35; SCHULMAN 1961 and THROCKMORTON 1962:700–701.

⁴ See GIVEON 1985b; CATLING 1986; WEINSTEIN 1989; 1991.

⁵ The author has been involved in a behind the scenes discussion regarding the interpretation of these finds since the

80's and see WACHSMANN 1990:45 n. 17; BRANDL 1993:136 n. 5; WACHSMANN 1998:208 n. 37.

⁶ See SCHULMAN 1961.

⁷ See SCHULMAN 1967.

⁸ For the latest research on this topic see RICHARDS 1996; 2001.

⁹ The remaining fragment of **CG Scarab 5** was erroneously interpreted by Schulman as its lower half rather than its right half (see his note in the caption to his first figure, in SCHULMAN 1967:144, fig. 150).

¹⁰ See Distribution Map in SCHULMAN 1967:146.

¹¹ See SCHULMAN 1967:147.

¹² See GIVEON 1985b.

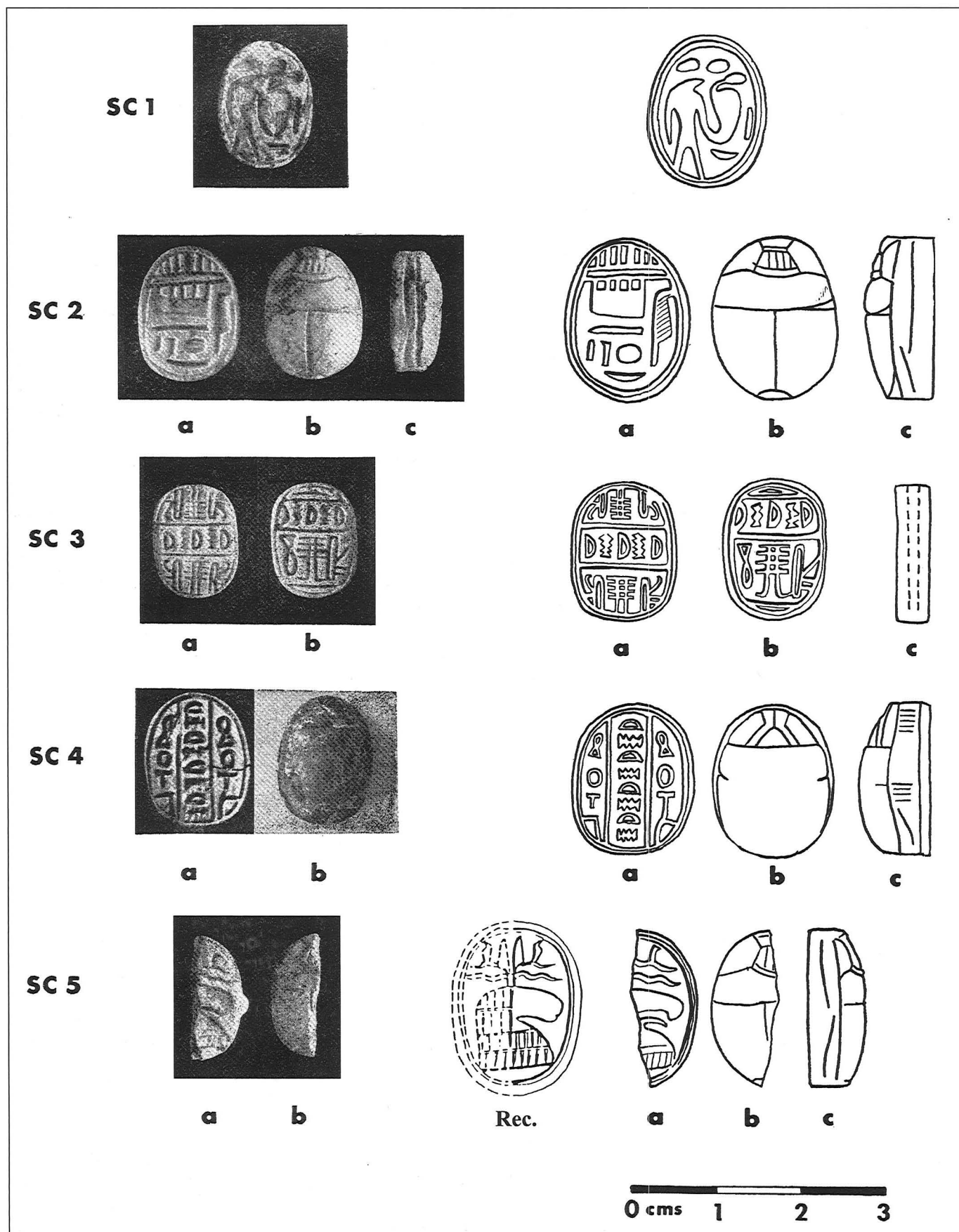


Plate 1 The Cape Gelidonya scarabs – including the later reconstruction of CG Scarab 5 (composed from SCHULMAN 1967: 144, fig. 150; GIVEON 1985b: 100, fig. 1:b.)

Though discussing the same material the conclusions reached were entirely different.

Date:

- 1) Giveon claimed that the **CG Scarabs 3** and **4** were later (New Kingdom) imitations of the Second Intermediate Period originals.¹³
- 2) He corrected Schulman's "reading" of **CG Scarab 5**, showing that it depicts the right half of a ram's head with an "Atef Crown" (marked as "Rec." in Plate 1)¹⁴, a motif known as the symbol of the god Amon or Amon-Re, thereby making Schulman's parallels irrelevant.
- 3) Lastly, he pointed out that **CG Scarabs 1, 2** and **5** have parallels in two of the tombs in "Cemetery 900" at Tell el Far'ah (South) (Plate 2), Tomb 984¹⁵ and Tomb 934.¹⁶ These tombs contained *inter alia* scarabs with names of the 20th Dynasty rulers.

Reasoning that as both tombs contained scarabs with the names of Ramesses III and one even of Ramesses IV, Giveon concluded that **CG Scarabs 1, 2** and **5** should be dated to the 20th Dynasty.

Giveon thus joined forces with those scholars who, for their own reasons dated the sinking of the Cape Gelidonya ship to the 12th century BCE,¹⁷ an opinion that was accepted even by Bass¹⁸ for a short time.

Origin:

Giveon's view was that the Cape Gelidonya scarabs and their parallels in Canaan were all imports from

Egypt, thereby dismissing Schulman's claim regarding the different origins of the crewmembers.

Catling supporting Giveon [1986]

Shortly after the appearance of the first publications on the Cape Gelidonya wreckage (see above n. 17), Hector W. Catling suggested an alternative 12th century BCE date for the sinking of the ship.¹⁹ Naturally he welcomed Giveon's article and gave it support by publishing the opinions of several of his colleagues on Giveon's arguments as expressed in their personal correspondence.²⁰

New finds from the shipwreck [1988]

In 1987, GEORGE F. BASS revisited the wreckage site with some of his old friends,²¹ and after a fruitful one-day diving trip²² he decided to conduct an additional weeklong excavation in 1988.²³ During that season, which turned into two weeks, Donald Trey and Murat Tilev found two large, 13th century BCE, Late Mycenaean IIIB stirrup jars.²⁴ The jars were found about 70 meters southeast of the main site and their discovery convinced both the underwater and the dry-land archaeologists that the original dating of the wreckage to the 13th century BCE, was indeed correct. Cemal Pulak, who participated in that excavation, concluded "These actually provide better evidence for dating the wreck than anything found during three months of dive in 1960..."²⁵

¹³ His claim was based both on typological observations and the fact that a close parallel of **CG Scarab 4** was found at Byblos where "...there is no Hyksos-stratum and no Hyksos-context." (GIVEON 1985b:99, and n. 4). In spite of Giveon's suggestion, four years later Weinstein still referred to the original date given by Schulman (WEINSTEIN 1989:21 n. 100).

¹⁴ For another scarab with the same motif broken in a similar fashion, see KEEL 1997:706-707 [Ashkelon No. 45].

¹⁵ Incidentally, the parallels to **CG Scarabs 1, 2** and **5** found in Tomb 984, were published in the original report in the same order and the same cluster. The scarabs in Tomb 984 bore the royal names of the following Pharaohs: Thothmes III (Nos. 362-363, 369, 371-372), Amenhotep III (No. 364), Ramesses II (Nos. 365-368, 370, 373) and Ramesses III (No. 374).

¹⁶ Tomb 934, which had in total more scarabs than Tomb 984, has actually yielded two parallels for each of the **CG Scarabs 1, 2** and **5**. Giveon ignored the fact that Tomb 934 scarabs also bore the royal names of Thothmes III (Nos. 108-113), Amenhotep III (Nos. 114-116) and Sety I (No. 117) in addition to those of Ramesses II (Nos. 118-125),

Sety II? (No. 130), Ramesses III (Nos. 126-128) and Ramesses IV (No. 129), and see the table in GIVEON 1985b:100.

¹⁷ See for example CATLING 1964:54.

¹⁸ See BASS 1973:33 n. 36; WACHSMANN 1990:45 n. 17. However, in 1989 Bass dated the sinking of the ship to "shortly before 1200 B.C." (see BASS 1989:12). More recently, Eric H. Cline in his catalogue of "Orientalia and Occidentalia in the LBA Aegean," upholds a 12th century BCE dating for the sinking. See CLINE 1994:143-144, 148-149 Nos. 99, 104, 138-139 and 148.

¹⁹ It was based on his understanding of the development of the Cypriot metallurgy.

²⁰ See CATLING 1986.

²¹ See BASS 1988:4-5.

²² Among the new discoveries was also the head of what seems to me as a Cypriot Base-Ring Bull-shaped zoomorphic vessel (BASS 1988:5). For the most recent discussion on this category see NYS 2001.

²³ Bass returned to the site also in 1989 (BASS 1989).

²⁴ See PULAK 1988:13; BASS 1997b:83; 1999:21 n. 1.

²⁵ See PULAK 1988:13.

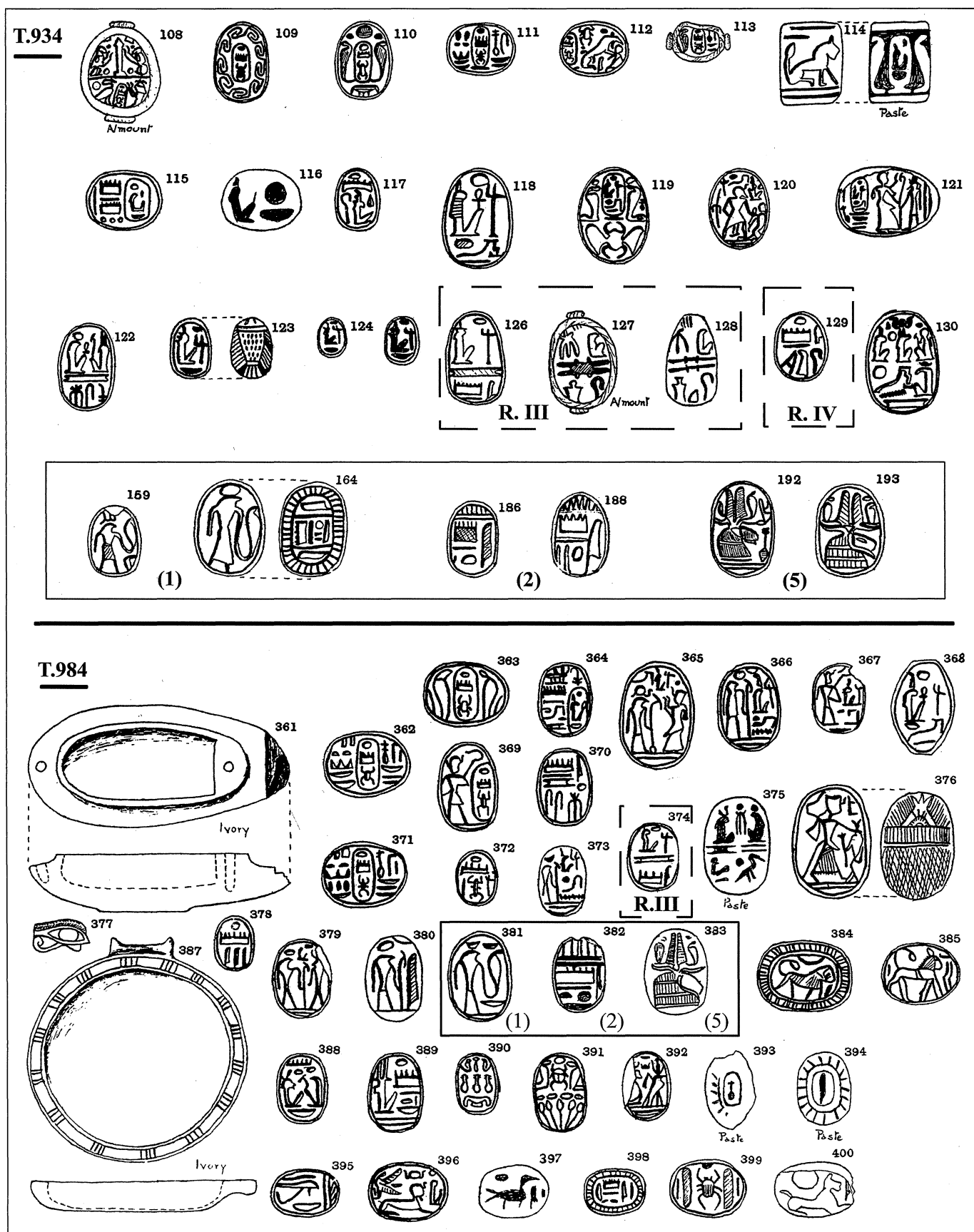


Plate 2 Tell el Far'ah (South) parallels from Tombs 934 and 984 to CG Scarabs 1, 2 and 5 [in full frame] and the scarabs bearing the names of 20th Dynasty kings [in broken frames] (composed from STARKEY and HARDING 1932: pls. 52:108-130, 159, 164; 53: 186, 188, 192-193 and 57:361-385, 387-400)

Weinstein's comments on Giveon's dating [1989 and 1991]

JAMES WEINSTEIN published his comments on Giveon's dating in two of his articles. In the publication of the Ulu Burun scarabs, Weinstein raised the possibility that the latest scarab among the group from the Cape Gelidonya wreck was **CG Scarab 5**.²⁶ Except for this point in which Weinstein is in partial agreement with Giveon, he pointed out the methodological weakness' of Giveon's choice of Tombs 984 and 934 in Tell el Far'ah (South)²⁷ as follows:

- 1) Both tombs contained materials dated part to the 13th and part to the 12th century BCE.
- 2) Tomb 934 was severely disturbed and the material was mixed.
- 3) **CG Scarab 5** has an 18th Dynasty parallel in Tomb J39 at Buhen.

His conclusion was that **CG Scarab 5** does not support the re-dating of the wreck to the 12th century BCE.

In the second article²⁸ Weinstein pointed out that Giveon himself dated the **CG Scarab 5** parallels from Tomb 934 in Tell el Far'ah (South) to the 19th Dynasty in his British Museum catalogue that appeared in the same year.²⁹

RECONSIDERING THE CAPE GELIDONYA SCARABS

Dating

Overall, I agree with Giveon that all the Cape Gelidonya scarabs belong to the Late Bronze Age, but contrary to him, I date them to the 19th Dynasty to the time of Ramesses II in the 13th century BCE (Shulman's original date for the sinking of the boat). Giveon's use of the Tell el Far'ah (South) parallels to date **CG Scarabs 1, 2** and **5** was methodologically incorrect (already noted by Weinstein). The time span of these particular tombs is too long. Likewise, Giveon's suggested dating of **CG Scarabs 3** and **4** to the Late Bronze Age is too general.³⁰

My dating is based mainly on the stratigraphy and typology of the Tell el-Far'ah (South) parallels to the Cape Gelidonya scarabs. The evidence discussed here originates both from those tombs already discussed above and from additional ones.

Stratigraphy

It is unfortunate that Giveon did not examine more tombs from the "Cemetery 900" at Tell el Far'ah (South), especially those with a shorter time span, even if they contained only one or two parallels, since **CG Scarabs 1, 2** and **5** do not represent the entire assemblage. There are at least three other tombs that are suitable for this study 905, 981 and 982 (Plate 3).

- 1) Tomb 981 has at least one close parallel to **CG Scarab 1**. The assemblage from this tomb includes five scarabs with various royal names, the latest (No. 336) bearing the name of Merneptah, the son of Ramesses II.
- 2) Tomb 982 contains a single parallel to **CG Scarab 5** and has two scarabs with royal names, in both instances the *Prenomen* of Ramses II.

The evidence from these two tombs shows that at least two of the three scarabs dated by Giveon to the 20th Dynasty already existed in the 19th Dynasty.

- 3) Tomb 905 has parallels to **CG Scarabs 2** and **5**. The tomb's content is typical of the 19th Dynasty although there are no scarabs with royal names.³¹

Another scarab originating from "Cemetery 900" (second in Plate 4) is a close parallel to "Face b" of the bifacial oval plaque (**CG Scarab 3**).³² Although this parallel is unstratified, it can be dated by a scarab found at Tell es-Safi [marked by broken frame in Plate 4], that Giveon himself published.³³ There, the horizontal oval contains the *Prenomen* of Ramesses II, instead of the *ANRA* formula.³⁴ The **CG Scarab 4**, dated originally by Schulman to the Second Intermediate Period, has two close parallels from other sites:

²⁶ Contrary to Schulman's choice of **CG Scarab 1** and Giveon's suggestion for **CG Scarabs 1, 2** and **5**.

²⁷ See WEINSTEIN 1989:21 n. 100.

²⁸ See WEINSTEIN 1991:82.

²⁹ See GIVEON 1985a:36–37 Nos. 40–41 and here in Plate 2: 192–193 and Plate 5.

³⁰ See also Keel's discussion on **CG Scarab 3** in KEEL 1995:85 § 208.

³¹ For the dating of scarab No. 3 in Tomb 905 (the parallel of **CG Scarab 2**) see ROWE 1936:No. 760; BRANDL 1993: 135–136.

³² Two additional parallels are known – one from the Late

Bronze Age temple in Amman (see WARD 1964:52, pls. 21–22 [No. 5862]), and another from a private collection (see MATOUK 1977:219, 413 [No. 2446]).

³³ See GIVEON 1978:100, fig. 51a–c.

³⁴ For another relatively close parallel with the *Prenomen* of Ramesses II from an unknown provenance see HALL 1913: No. 2247. The only other scarab with a royal name in a similar format is a later issue with the name of Thothmes III found at Byblos (see DUNAND 1937:158 [No. 2325], 1939: pl. 129: [sic! 2335]).

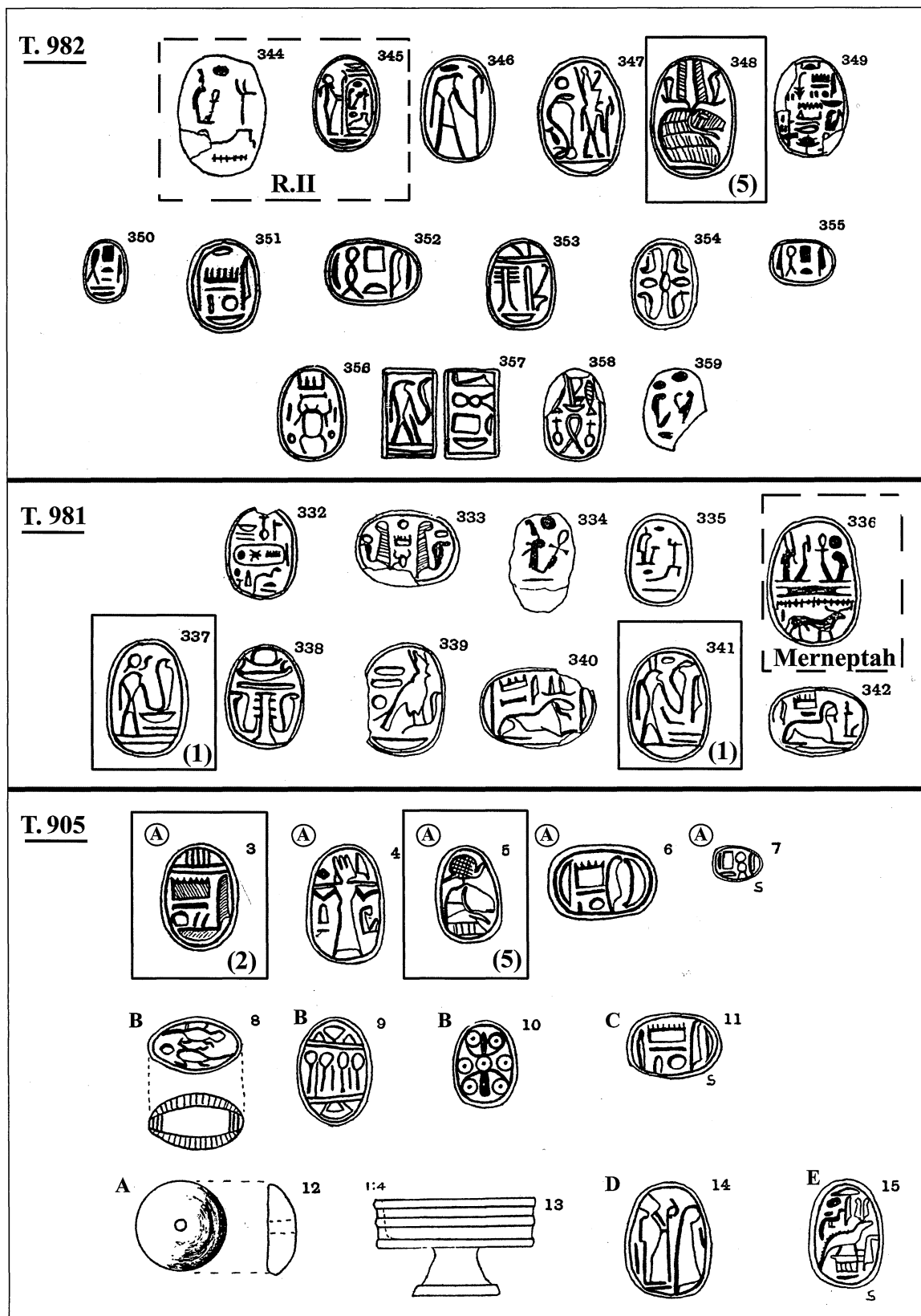


Plate 3 Tell el Far'ah (South) parallels from Tombs 982, 981 and 905 to CG Scarabs 1, 2 and 5 [in full frame], and their scarabs bearing the names of 19th Dynasty kings [in broken frame] (composed from STARKEY and HARDING 1932: pls. 48: 3-15; 57: 332-342, 344-359)

The first parallel was found at Byblos (No. 7665), where a parallel of **CG Scarab 2** (No. 1571) was also found (Plate 7).³⁵ Scarab 7665 found in grid 14/23 was attributed by Dunand to Level I.³⁶ According to Schaeffer, Byblos was destroyed at the end of the 13th century BCE.³⁷

The second parallel is from Tell Ridan (in the Gaza Strip), 18 km south of Gaza and 4 km to the NW of Khan Yunis. It was found in Tomb II (Plate 4) and was dated to the 19th Dynasty.³⁸

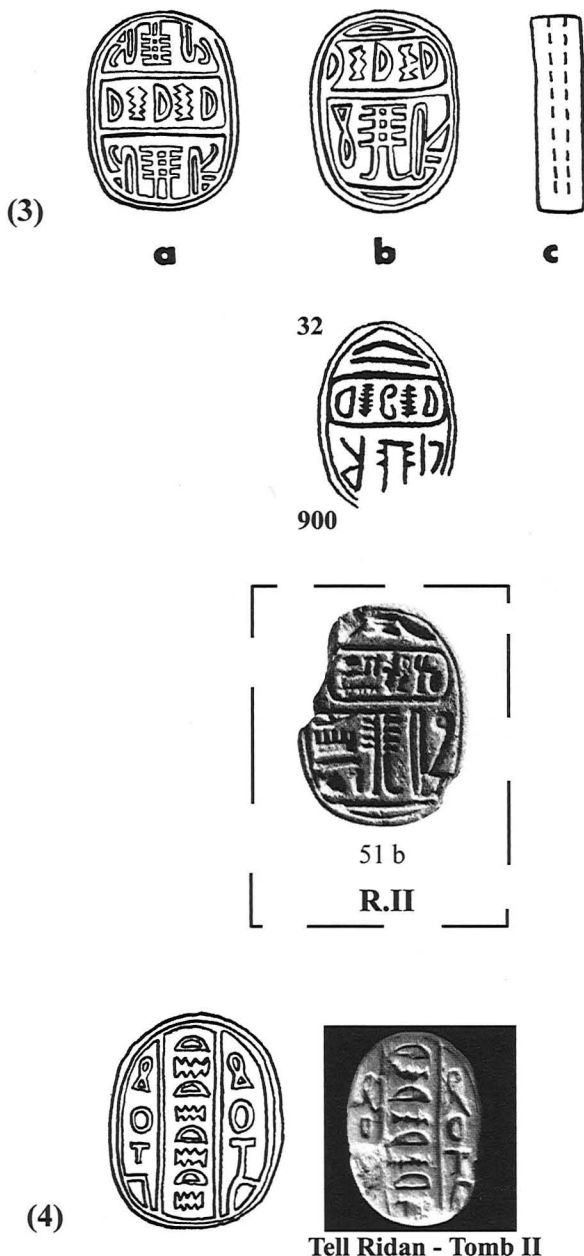


Plate 4 Parallels of **CG Scarabs 3** and **4** from the Canaanite sites: Tell el Far'ah (South), Tell es Safi and Tell Ridan (composed from SCHULMAN 1967: 144, fig. 150, STARKEY and HARDING 1932: pl. 62:32, GIVEON 1978: fig. 51:b and private slide)

Typology

In addition to the "stratigraphical discussion", which is based on the motifs depicted on the scarabs' bases, I would like to add a new criterion for dating the Cape Gelidonya scarabs.

Two of the four scarabs, **CG Scarabs 2** and **5**, have the same feature (Plate 5). Their heads are schematic trapezoids that are divided horizontally into two strips, of which the upper one is sliced vertically, while the lower strip is plain. Their *clypeus* is another trapezoid also divided horizontally, and it is smaller than usual.³⁹ This particular shape of the **Head and Clypeus** (henceforth **HC**) is very close to number 15 in the typology of the scarabs found in Palestine composed by Alan Rowe.⁴⁰

According to Rowe, this type is typical to the 18th–19th Dynasty, but 28 of the 29 scarabs defined by him as belonging to this type⁴¹ were, in fact dated by him exclusively to the 19th Dynasty. The dating of the twenty-ninth scarab⁴² to the 18th Dynasty is erroneous and it should also be also dated to the 19th Dynasty. When this type of **HC** appears on scarabs with royal names, it is either that of Ramesses II (Plate 6),⁴³ or one of the later issues with the *Prenomen* of Thothmes III.⁴⁴ Until recently, no such scarabs have been reported from excavations in Egypt. However, in the recent excavations at Qantir

³⁵ Both were referred to by SCHULMAN, (in 1961 – with photographs and in 1967 – by references only).

³⁶ See RICHARDS 1996:161 fig. 4.26, 212 and Catalogue p. 2 [Byb2] = 2001:96 fig. 4.26, 125 and 240 [Byb2].

³⁷ See SCHAEFFER 1948:72. For stone and alabaster fragments with the name of Ramesses II depicted on them that were found in Byblos, see DUNAND 1939:53 No. 1315, 54 No. 1317, 56 No. 1320, 399 No. 6031; 1937:pls. 37:1317, 1320; 38:6031; CHÉHAB 1969:34–37.

³⁸ For the late appearance of the *ANRA* formula, see two such scarabs bearing the name of Ramesses II (PETRIE 1889:pl. 50:1565–1566 = RICHARDS 1996:187 fig. 4:36 = 2001: 114 fig. 4.36).

³⁹ Likewise, the sides of these scarabs are very schematic.

⁴⁰ See ROWE 1936:pl. 32 = KEEL 1995:42.

⁴¹ These scarabs were found in six sites as follows: Tell el Far'ah (South) 18, Tell el 'Ajjul 6, Lachish 2, Gezer 1, Beth Shemesh 1, and one from unknown provenance. They are discussed by the author together with some other scarabs in a separate study that will appear shortly.

⁴² See ROWE 1936:No. 565.

⁴³ The uppermost scarab (No. 366) was found in Tomb 984 at Tell el Far'ah (South). Its drawing was turned right-left in accordance with the technical mistake appearing in BEN-TOR 1989:65 [No. 25].

⁴⁴ See ROWE 1936:Nos. 508, 510 and 515.

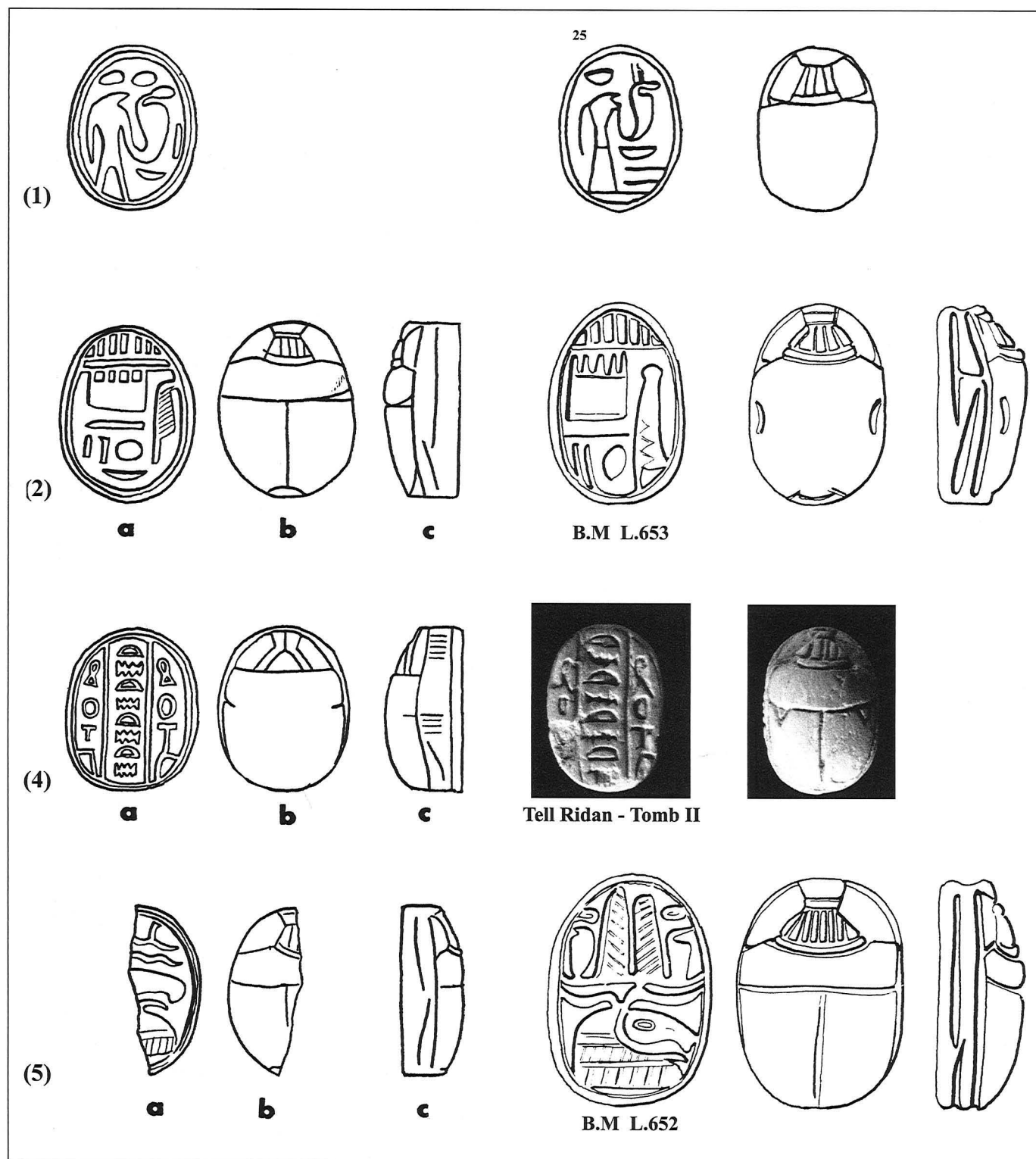


Plate 5 Rowe's Head and *Clypeus* Type 15 scarabs – from Cape Gelidonya, Lachish, Tell el Far'ah (South) and Tell Ridan (composed from SCHULMAN 1967: 144, fig. 150, TUFNELL 1940: pl. 32A:25; GIVEON 1985a: 36–37 No. 41, 38–39 No. 47 and private slides)

two scarabs with just such a **HC** were found.⁴⁵ In Canaan, there are scarabs that are exact parallels to those from Cape Gelidonya which bear not only the same motif depicted on the base, but also have the same **HC Type 15**:

- Tell el Far'ah (South): Cemetery 900 – One scarab similar to **CG Scarab 5** was found in Tomb 984 (No. 383 in Plate 2).⁴⁶ Two scarabs similar to **CG Scarab 2** and **5** were found in Tomb 934 (second and forth on the right column in Plate 5).
- Beth Shemesh – Another scarab similar to **CG Scarab 2** was found there in Tomb 1 (11).⁴⁷

Moreover, some of the parallels of the two remaining Cape Gelidonya scarabs (**CG Scarabs 1** and **4**) bear the same **HC Type 15**:

One parallel of **CG Scarab 1** was found at Lachish (first on the right column in Plate 5)⁴⁸ and others in Tombs 984 and 922 at Tell el Far'ah (South).⁴⁹ The parallel of **CG Scarab 4** is the same scarab found in Tomb II at Tell Ridan discussed earlier (third on the right column in Plate 5).

Origin

I beg to differ with Schulman's view regarding the various origins of the individual crewmembers. It was based on his understanding of the distribution of the various parallels of the Cape Gelidonya scarabs, of which many I believe to be erroneous. I do agree, however, with Giveon's conception that the Cape Gelidonya scarabs and their parallels were produced in a single region. But, contrary to Giveon's Egyptian orientation, I propose South Canaan as the most appropriate source.⁵⁰

- 1) The frequent appearance of the **HC Type 15** scarabs in Canaanite sites indicates that this group was more likely to have been manufactured in Canaan than in Egypt as suggested by Giveon.⁵¹

⁴⁵ One of these scarabs, depicting the image of the winged Sutekh, will be published soon by its excavator EDGAR PUSCH.

⁴⁶ For the photograph of its back see ROWE 1936:No. 696.

⁴⁷ See GRANT 1929:89 [center of the uppermost row], 198 No. 564 = 1932:88-89 pl. 51:20 = ROWE 1936:No. 762.

⁴⁸ See also ROWE 1936:No. 708.

⁴⁹ See ROWE 1936:No. 705 and GIVEON 1985a:42-43 [No. 59] respectively.

⁵⁰ For early suggestion that the Cape Gelidonya scarabs are Syro-Palestinian copies of Egyptian scarabs, see BASS 1966:141; 1997b:81.

⁵¹ See GIVEON 1985b:101.



Plate 6 Rowe's Head and *Clypeus* Type 15 scarabs – bearing the *Prenomen* of Ramesses II (composed from BEN-TOR 1989: 65 No. 25; STARKEY and HARDING 1932: pl. 57: 366; HORNING and STAEHELIN 1976: 313 No. 614, pl. 68:614; NEWBERRY 1907: pls. 5: 36275, 20: 36275)

Cape Gelidonya

Byblos

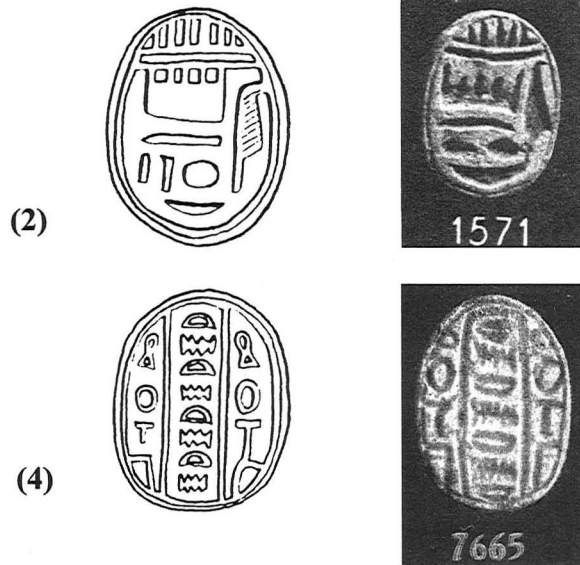


Plate 7 **CG Scarabs 2** and **4** and their parallels from Byblos (composed from SCHULMAN 1967:144, fig. 150; DUNAND 1937: pl. 129: 1571; 1950: pl. 199: 7665)

- 2) The **HC Type 15** scarabs have been found to date in only a single Egyptian site (the Ramesside capital at Qantir).
- 3) The existence of poorly executed examples of **HC Type 15** scarabs in Canaan,⁵² a standard of workmanship unknown in Egypt, would also suggest local production.
- 4) This is the only region where parallels to all the Cape Gelidonya scarabs have been discovered.

FURTHER OBSERVATIONS AND THOUGHTS

I agree with Schulman that the Cape Gelidonya scarabs were personal belongings. Moreover, the common find spot of these scarabs (Plate 8), and their common religious theme – the god Amon-Re,⁵³ suggest that all the scarabs belonged to a single and probably important, crewmember. This common religious entity also makes it likely that all the scarabs were kept together, either in a small bag or on a chain, attached somehow to the owner's body.

In light of the evidence regarding the origins of the scarabs, this crewman was probably of Canaanite origin who practiced the worship of Amon-Re. He probably also owned the Canaanite jar and oil lamp (Plate 8) which were discovered in the wreck.⁵⁴ Could this have been the captain⁵⁵ of the ship?

The distribution of the Cape Gelidonya scarabs and their parallels may contribute to the reconstruc-

tion of part of the ship's route, from the Southern Coast of Canaan (Tell Ridan) along the Eastern Coast of the Mediterranean Sea (Byblos) to the Lycian shores (Cape Gelidonya). From that point the ship could continue to the Aegean region or turn towards the island of Cyprus and back to Southern Canaan.⁵⁶

Acknowledgments

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Abstract

All the Cape Gelidonya scarabs were produced in Canaan, in the 13th century BCE. They were the property of one person, a worshiper of the god Amon-Re. That person was most probably the Canaanite captain of the ship, that sailed from South Canaan to the Lycian coast and farther.

Abbreviations

ADAJ	Annual of the Department of Antiquities of Jordan
ÄDS	Ägyptische Denkmäler in der Schweiz
AJA	American Journal of Archaeology
AOAT	Alter Orient und Altes Testament
AS	Anatolian Studies.
BAR Int. S.	British Archaeological Reports (International Series)
BASOR	Bulletin of the American Schools of Oriental Research
BMB	Bulletin du Musée de Beyrouth

BSAE	Publications of the Egyptian Research Account and British School of Archaeology in Egypt
INA Newsletter	Institute of Nautical Archaeology Newsletter
KVHAA	Kungl. Vitterhets Historie och Antikvitets Akademien
OBO	Orbis Biblicus et Orientalis
OBOSA	Orbis Biblicus et Orientalis, Series Archaeologica
RDAC	Report of the Department of Antiquities Cyprus
TAPS	Transactions of the American Philosophical Society

⁵² See BRANDL 1999:18*–20* and fig. 2 [Scarab No. 2] with additional parallels from Canaan.

⁵³ Mentioned by its name (**CG Scarabs 2–4**), formal appearance (**CG Scarab 1**) or symbol (**CG Scarab 5**) [Plate 1].

⁵⁴ Another non-personal object of Canaanite origin that was found in the wreckage is the anchor; see BASS 1997a:157 and 168; 1997b:81; 1999:23.

⁵⁵ As has been already suggested in 1961 (DU PLAT TAYLOR 1961:27).

⁵⁶ Egypt should not be included in this circle since there were no other objects of Egyptian origin among the finds in the wreckage.

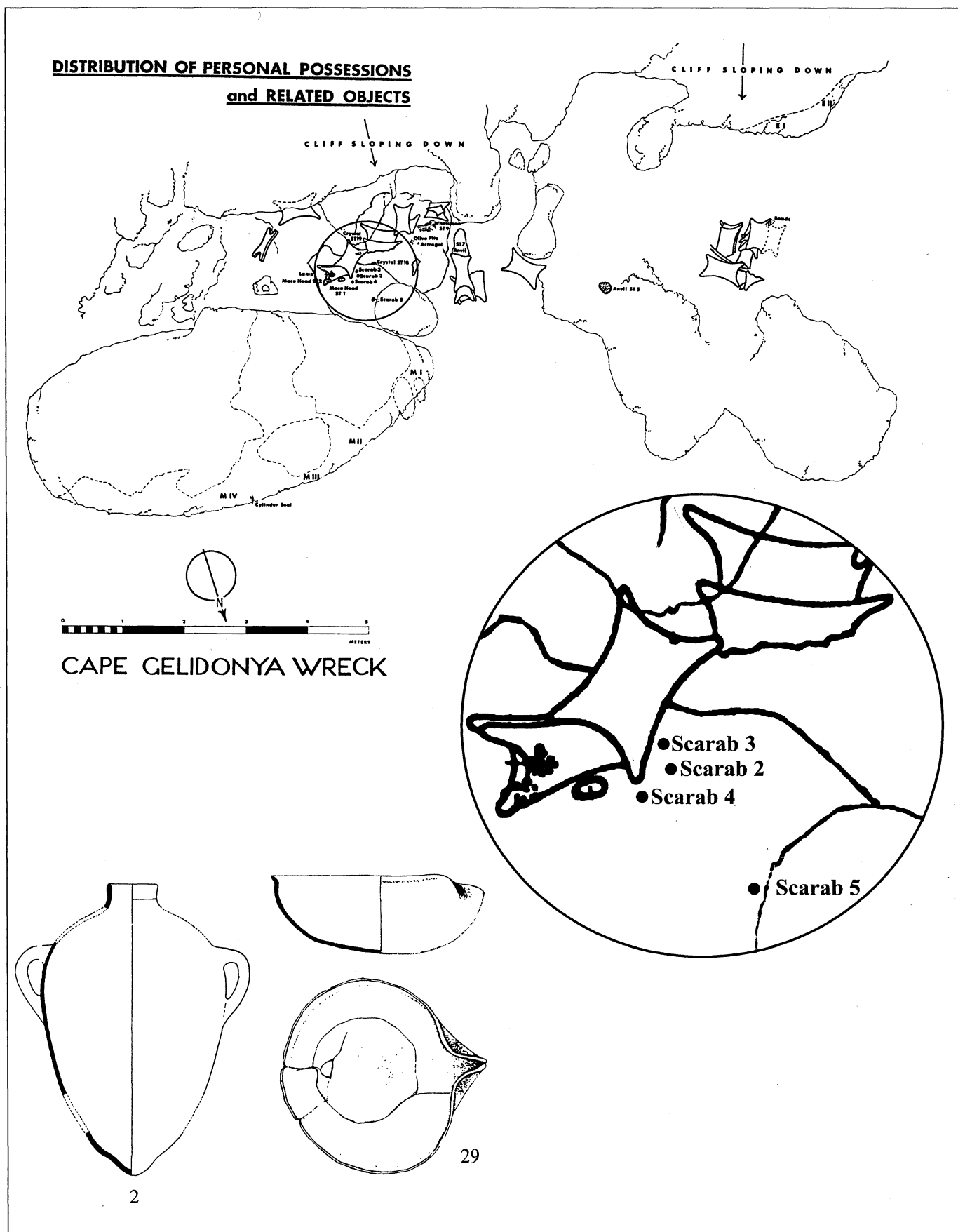


Plate 8 The concentration of **CG Scarabs 2–5** on the sea bed, and two Canaanite vessels from the same wreckage (composed from BASS *et al.* 1967:47, fig. 43; HENNESSY and DU PLAT TAYLOR 1967: 123, figs. 132:1 and 124, fig. 133:29)

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ABBREVIATIONS

<i>Atiqot</i>	<i>Atiqot. Journal of the Israel Department of Antiquities, Jerusalem</i>	<i>BdCE</i>	<i>Bulletin du liaison du groupe internationale d'étude de la céramique égyptienne, Cairo</i>
<i>Ä&L</i>	<i>Ägypten und Levante. Zeitschrift für ägyptische Archäologie und deren Nachbargebiete, Wien</i>	<i>BdE</i>	<i>Bibliothèque d'étude, Institut français d'archéologie orientale, Cairo</i>
<i>ÄA</i>	<i>Ägyptologische Abhandlungen, Wiesbaden</i>	<i>Berytus</i>	<i>Berytus Archaeological Studies, Beirut</i>
<i>AA</i>	<i>Archäologischer Anzeiger: Jahrbuch des Deutschen Archäologischen Instituts, Berlin</i>	<i>BES</i>	<i>Bulletin of the Egyptological Seminar, New York</i>
<i>AASOR</i>	<i>Annual of the American Schools of Oriental Research, New Haven</i>	<i>BICS</i>	<i>Bulletin of the Institute of Classical Studies, University of London, London</i>
<i>ÄAT</i>	<i>Ägypten und Altes Testament, Wiesbaden</i>	<i>BIE</i>	<i>Bulletin de l'institut d'Égypte, Cairo</i>
<i>ABSA</i>	<i>Annual of the British School of Archaeology at Athens, London</i>	<i>BMB</i>	<i>Bulletin du Musée de Beyrouth, Beirut</i>
<i>ADAIK</i>	<i>Abhandlungen des Deutschen Archäologischen Instituts Kairo, Glückstadt, Hamburg, New York</i>	<i>BMMA</i>	<i>Bulletin of the Metropolitan Museum of Art, New York</i>
<i>ADAJ</i>	<i>Annual of the Department of Antiquities of Jordan, Amman</i>	<i>BSA</i>	<i>Annual of the British School at Athens, London</i>
<i>ÄDS</i>	<i>Ägyptische Denkmäler in der Schweiz, Basel</i>	<i>BSAE</i>	<i>British School of Archaeology in Egypt, London</i>
<i>Aegaeum</i>	<i>Aegaeum: Annales d'archéologie égéenne de l'Université de Liège, Liège</i>	<i>BSAK</i>	<i>Studien zur Altägyptischen Kultur, Beihefte, Hamburg</i>
<i>AEph</i>	<i>Archaiologike Ephemeris, Athen</i>	<i>BSEG</i>	<i>Bulletin de la Société d'égyptologie de Genève, Geneva</i>
<i>ÄgAbh</i>	<i>Ägyptologische Abhandlungen, Wiesbaden</i>	<i>CCÉ</i>	<i>Cahiers de la Céramique Égyptienne, Cairo</i>
<i>ÄgFo</i>	<i>Ägyptologische Forschungen, Glückstadt, Hamburg, New York</i>	<i>CChEM</i>	<i>Contributions to the Chronology of the Eastern Mediterranean, Wien</i>
<i>AJA</i>	<i>American Journal of Archaeology, Boston, Mass.</i>	<i>CdE</i>	<i>Chronique d'Égypte, Brussels</i>
<i>AJSLL</i>	<i>American Journal of Semitic Languages and Literatures, Chicago</i>	<i>Chem. Geol.</i>	<i>Chemical Geology, Amsterdam</i>
<i>Akkadica</i>	<i>Akkadica. Périodique bimestriel de la Fondation assyriologique Georges Dossin, Brussels</i>	<i>Clio</i>	<i>Clio. Introduction aux études historiques, Paris</i>
<i>Al-Rafidan</i>	<i>Al-Rafidan. Journal of Western Asiatic Studies, Tokyo</i>	<i>CMAO</i>	<i>Contributi e Materiali di Archeologia Orientale, Roma</i>
<i>AM</i>	<i>Mitteilungen des Deutschen Archäologischen Instituts, Athenische Abteilung, Berlin</i>	<i>CMS</i>	<i>Corpus der minoischen und mykenischen Siegel (ed. I. PINI), Berlin</i>
<i>ANews</i>	<i>Archaeological News, Tallahassee, Fla.</i>	<i>CRIPEL</i>	<i>Cahiers de recherches de l'institut de Papyrologie et d'Égyptologie de Lille: Sociétés Urbaines en Égypte et au Soudan, Lille</i>
<i>Ann. Glaciol.</i>	<i>Annals of glaciology, Cambridge</i>	<i>DE</i>	<i>Discussions in Egyptology, Oxford</i>
<i>AOAT</i>	<i>Alter Orient und Altes Testament, Kevelaer - Neukirchen-Vluyn</i>	<i>E&L</i>	<i>s. Ä&L</i>
<i>APAW</i>	<i>Abhandlungen der Preussischen Akademie der Wissenschaften, Berlin</i>	<i>EEF</i>	<i>Egypt Exploration Fund, London</i>
<i>Arch. Anz.</i>	<i>Archäologischer Anzeiger. Jahrbuch des Deutschen Archäologischen Instituts, Berlin</i>	<i>EES</i>	<i>Egypt Exploration Society, London</i>
<i>Archäolog. Anzeiger s. Arch. Anz.</i>		<i>EI</i>	<i>Eretz Israel, Jerusalem</i>
<i>AS</i>	<i>Anatolian Studies, London</i>	<i>ESUFC</i>	<i>Edizioni e saggi universitari di filologia classica, Bologna</i>
<i>ASAE</i>	<i>Annales du service des antiquités de l'Égypte, Cairo</i>	<i>EVO</i>	<i>Egitto e vicino oriente, Pisa</i>
<i>ASOR</i>	<i>American Schools of Oriental Research</i>	<i>Geochim. Cosmochim. Acta</i>	<i>Geochimica et cosmochimica acta, London</i>
<i>Assur</i>	<i>Assur, Monographic Journals of the Near East, Malibu</i>	<i>Geol. Soc. Am. Bull.</i>	<i>The Geological Society of America Bulletin, Boulder, Colorado</i>
<i>BA</i>	<i>The Biblical Archaeologist, New Haven</i>	<i>Glob. Plan. Change</i>	<i>Global and planetary change, Amsterdam</i>
<i>BAM</i>	<i>Beiträge zur ur- und frühgeschichtlichen Archäologie des Mittelmeer-Kulturräume, Bonn</i>	<i>GM</i>	<i>Göttinger Miszellen, Göttingen</i>
<i>BAR Int. Ser.</i>	<i>British Archaeological Reports, International Series, Oxford</i>	<i>HÄB</i>	<i>Hildesheimer ägyptologische Beiträge, Hildesheim</i>
<i>BASOR</i>	<i>Bulletin of the American Schools of Oriental Research, New Haven</i>	<i>HdO</i>	<i>Handbuch der Orientalistik, Leiden</i>
<i>BCH suppl.</i>	<i>Bulletin de Correspondance hellénique, Supplément, Athens</i>	<i>Hesperia</i>	<i>Hesperia. The Journal of the American School of Classical Studies at Athens, Princeton, NY.</i>
<i>BCH</i>	<i>Bulletin de Correspondance hellénique, Athens</i>	<i>HSOA</i>	<i>Heidelberger Studien zum alten Orient, Heidelberg</i>
		<i>IEJ</i>	<i>Israel Exploration Journal, Jerusalem</i>
		<i>INA Newsletter</i>	<i>Institute of Nautical Archaeology Newsletter, London</i>
		<i>Int. J. Mass Spectrom. Ion Processes</i>	<i>International journal of mass spectrometry and ion processes, Amsterdam</i>

<i>Iraq</i>	<i>Iraq, British School of Archaeology in Iraq, London</i>	<i>SbWien math.-nat.Kl. Sitzungsberichte der mathematisch-naturwissenschaftlichen Klasse der Österreichischen Akademie der Wissenschaften, Wien</i>
<i>ISIMU</i>	<i>Revista sobre Oriente Próximo y Egipto en la antigüedad, Madrid</i>	<i>SCE The Swedish Cyprus Expedition, Stockholm</i>
<i>J. Radioanal.</i>	<i>Nucl. Chem. Journal of radioanalytical and nuclear chemistry, Dordrecht</i>	<i>SIMA PB Studies in Mediterranean Archaeology, Pocket-book, Jonsered, Göteborg</i>
<i>JAOS</i>	<i>Journal of the American Oriental Society, New Haven</i>	<i>SIMA Studies in Mediterranean Archaeology, Jonsered, Göteborg</i>
<i>JARCE</i>	<i>Journal of the American Research Center in Egypt, Princeton</i>	<i>SJE Scandinavian joint expedition to Sudanese Nubia, Stockholm</i>
<i>JCS</i>	<i>Journal of Cuneiform Studies, New Haven, Cambridge, Mass.</i>	<i>SMEA Studi Micenei ed Egeo-Anatolici, Rome</i>
<i>JEA</i>	<i>Journal of Egyptian Archaeology, London</i>	<i>SÖAW Sitzungsberichte der Österreichischen Akademie der Wissenschaften in Wien. Phil.-hist. Kl., Wien</i>
<i>IIAE</i>	<i>Praktika tēs en Athēnais Archaïologikēs Hetaireias, Athens</i>	<i>STRAND Int. Series s. BAR Int. Ser.</i>
<i>PBSR</i>	<i>Papers of the British School at Rome, London</i>	<i>Syria Syria, revue d'art oriental et d'archéologie, Paris</i>
<i>PEFQS</i>	<i>Palestine Exploration Fund, Quarterly Statement, London</i>	<i>TAPS Transactions of the American Philosophical Society, Philadelphia</i>
<i>PEQ</i>	<i>Palestine Exploration Quarterly, London</i>	<i>Tel Aviv Tel Aviv. Journal of the Tel Aviv University, Institute of Archaeology, Tel Aviv</i>
<i>Prakt. Ath. Arch. Etair</i>	<i>s. IIAE</i>	<i>UF Ugarit-Forschungen, Kevelaer - Neukirchen-Vluyn</i>
<i>PWRE</i>	<i>G. Wissowa (ed.), Paulys Realencyclopädie der classischen Altertumswissenschaft, München</i>	<i>UGAÄ Untersuchungen zur Geschichte und Altertumskunde Ägyptens, Leipzig, Berlin</i>
<i>Qadmoniot</i>	<i>Qadmoniot. Quarterly for the Antiquities of Eretz Israel and Bible Land, Jerusalem</i>	<i>UMI University Microfilms International</i>
<i>QDAP</i>	<i>The Quarterly of the Department of Antiquities of Palestine, London</i>	<i>UZK Untersuchungen der Zweigstelle Kairo des Österreichischen Archäologischen Institutes, Wien</i>
<i>Qedem</i>	<i>Qedem. Monographs of the Institute of Archaeology, The Hebrew University of Jerusalem, Jerusalem</i>	<i>WVDOG Wissenschaftliche Veröffentlichungen der Deutschen Orient-Gesellschaft, Leipzig, Berlin</i>
<i>RB</i>	<i>Revue biblique, Paris</i>	<i>WZKM Wiener Zeitschrift für die Kunde des Morgenlandes, Wien</i>
<i>RDAC</i>	<i>Report of the Department of Antiquities Cyprus, Nicosia</i>	<i>ZÄS Zeitschrift für ägyptische Sprache und Altertumskunde, Leipzig, Berlin</i>
<i>RdE</i>	<i>Revue d'égyptologie, Cairo, Paris</i>	<i>ZDMG Zeitschrift der Deutschen Morgenländischen Gesellschaft, Leipzig, Wiesbaden</i>
<i>SAGA</i>	<i>Studien zur Archäologie und Geschichte Altägyptens, Heidelberg</i>	<i>ZDPV Zeitschrift des Deutschen Palästina-Vereins, Leipzig, Stuttgart, Wiesbaden</i>
<i>SAOC</i>	<i>Studies in Ancient Oriental Civilisation, The Oriental Institute of the University of Chicago, Chicago</i>	

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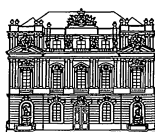
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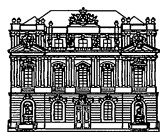
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