

# A LINEAR A INSCRIPTION FROM TEL LACHISH (LACH ZA 1)

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## **The Archaeological Context (by D.U.)**

The inscription which forms the subject of this paper is incised on the shoulder of a large limestone vessel, probably a large, deep bowl or krater (Figs. 1 and 2). Only a single, large fragment of the vessel has been recovered; (ca. 15 cm. high, 9.5 cm. wide, and 2.6 cm. thick) making it difficult to correctly estimate the size or shape of the original vessel. The fragment contains part of a simple, rounded rim, and its surface is well-smoothed inside and out. A limestone sample of the fragment was examined by Y. Eshet of the Geological Survey of Israel and it appears that the vessel was locally-made (see Appendix by Y. Eshet). The one-line inscription is incised parallel to and beneath the rim of the vessel, and is presently broken on both sides. The inscription was applied with a sharp tool which left deep, narrow incisions on the smooth surface of the vessel.

The vessel fragment bearing the inscription (Reg. No. 70574/50) was discovered in the 1987 excavation season at Tel Lachish directed by D. Ussishkin. It was uncovered in Area D (supervised by J. Woodhead and O. Zimhoni) in Locus 7059 Upper of Level VI at an elevation of 267.41 m. Locus 7059 was part of a small room or unit which belonged to a larger structure of Level VI, located in the general area of the acropolis of that time (see Ussishkin 1996:29–30; Fig. 19). This unit had two phases in its history, the floor of the original one extending ca. 267.20 m., and that of the upper one ca. 267.55 m. The unit was later disturbed in Level IV when Wall 7077 was built as part of the foundations of the Judean palace-fort (Palace B). The foundations were covered by a constructional fill composed mainly of Level VI debris. Evaluating the stratigraphical context of the inscription at the time of its discovery, we could not ascertain whether it belonged to the debris of Unit 7059 Upper or to the fill dumped here in the Iron Age. In either case it appears that the inscription belonged to Level VI, unless it was a stray from an earlier level.

Level VI was the latest Canaanite city level at Lachish. It was dominated by the pharaohs of the 20th Dynasty, and destroyed completely in a massive destruction. This destruction must have occurred some time after Ramses III's ascendancy to the throne in 1182 B.C.E. (according to the low chronology of Wente and Van Siclen 1976), and probably only after the reign of Ramses VI (1141–1133 B.C.E.), when Egyptian rule in Canaan collapsed (see Ussishkin 1983:168–170; 1985:217–220). Thus — based on the archaeological context — our inscription tentatively dates to the earlier part of the 12th century B.C.E.



Fig 1. Bowl fragment with Linear A inscription from Tel Lachish.

Significantly, numerous Aegean pottery vessels were found in association with the Late Bronze Age levels at Lachish. Relevant to our inscription are the finds of the British Expedition in Locus K.16:1031 — constructional fills of the southern annexed building of the Judean palace-fort (Palace B), probably dumped there in Level IV at the same time as the fills in Locus 7059 Upper (see *Lachish III*:112; Pl.

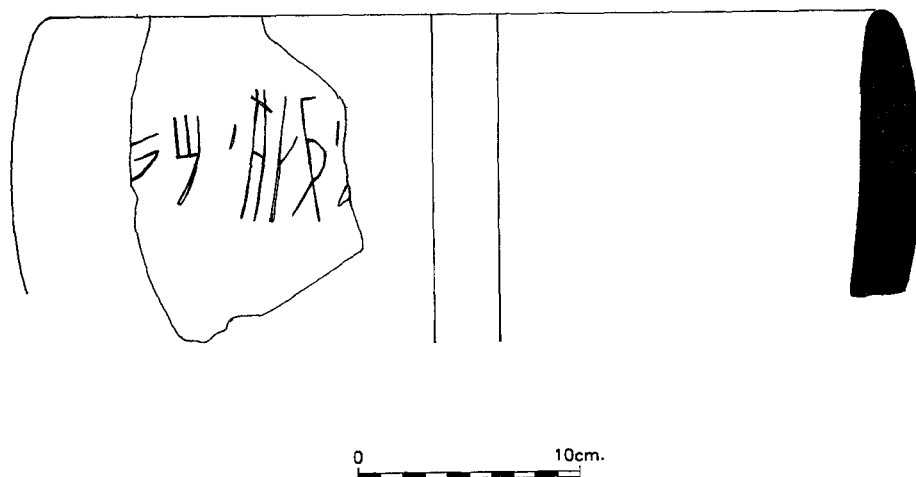


Fig. 2. Bowl fragment with Linear A inscription from Tel Lachish.

115; *Lachish IV*:132, 213–216). The finds include fragmentary Egyptian hieratic bowls dating to the reign of Ramses III, fragments of a Mycenaean chariot krater (Hankey and Hankey 1985), and a large Late Minoan IIIB amphoroid krater with octopus decoration (*Lachish IV*:213–214: Type 949; 214:n.1; Pl. 83: No. 949; see also Warren and Hankey 1989:166).

Loci 7059 Upper and K.16:1031 — both of which revealed rare finds associated with Crete in what appears to be a Level VI context — are located ca. 40 m. from one another. Both loci were apparently situated on the fringes of the royal acropolis of the Level VI city which probably extended to the east of the Judean palace-fort. In my opinion, the acropolis was destroyed and its area lowered when the palace-fort was erected nearby in Level IV. Its debris were taken to be used as constructional fill in the foundations of this building (see Ussishkin 1996:31-32). Thus, it is quite possible that one, or both of these rare finds originated in the royal acropolis of Canaanite Lachish during its last period of prosperity, i.e. the period of Level VI.

### The Inscription (by M.F. and A.U.)

1. This inscription is incised from right to left upon the surface of a stone vessel. It consists of five signs, a numeral, and two word divider marks ('). The signs can be identified as Linear A/B and are represented in the common transnumeration system of *GORILA V* as follows:

-\*7]3(?) ' \*53-\*01-\*10 ' \*09 \*732

Or, using the Linear B phonetic values, as:

-m]i(?) ' ri-da-u ' SE JE[

Writing directed from right to left never appears in Linear B. Linear A, however, supplies three incontestable examples: VRY Za 1, PL Zf1, and PO Zg 1 (see Brice 1976:18–27; Davaras and Brice 1977:5–6; Dimopoulou, Olivier, and Réthémotakis 1993:501–21). One additional case is uncertain (KE Zb 4); twice boustrophedon is used (KN Za 19, IO Za 11; see Karetsou, Godart, and Olivier 1985:142), and once writing in both directions starting from one angle is attested (IO Za 9). When this reverse direction of writing is used, the asymmetrical signs are usually reversed 180° as well. In our case this rule is applied to \*53, \*10, and \*09, but \*01 is inscribed as if written from left to right.

The first sign is badly broken, only its lower sharp angle being visible. Two Linear B signs have a similar sharp angle in their lower part — \*72 (*pe*) and \*73 (*mi*); only the latter exists in Linear A as well. The sign appears before the word divider, thus it should be regarded as the last syllable of the first word of the inscription.

The second sign can be identified as AB 53 only if referred to the Linear B graphic variants of the latter (see Fig. 4:c), because no sign of a strictly comparable form is attested among the Linear A graphic variants of AB 53. Yet, its form is irregular from the standpoint of Linear B as well: of its two characteristic features in Linear B, the front ‘leg’ and the horizontal ‘belt’ in the middle, only the former is found on the Lachish inscription. Because of the importance of the evidence provided by this sign, it will be analysed separately below.

\*01 is perfectly normal, and it is the only sign which is not reversed with the direction of writing. Similar inconsistency is observed on IO Za 11, where in a sequence which can be read as *i-na-i-da*, the same sign \*01 is not reversed leftwards with the direction of writing as would be expected.

\*10 is irregular, the vertical of the cross attached to the upper part of a lituus shaped line being so prolonged that it may be confused with one of the ‘gate-shaped’ Linear A/B signs (\*55, \*56, \*57). However, it corresponds almost exactly to the Linear A variant of AB 10 appearing on PK Za 12c as the first element in the well attested Minoan formula *u-na-ru-ka-[ ]-ja-si* (for this formula and its variants see Finkelberg 1990/91:63–65). The only difference is that on the Lachish inscription the sign is reversed leftward with the direction of writing.

\*09 is quite regular, but, as previously mentioned, reversed with the direction of writing.

\*732 (JE) is a fractional sign, the numeric value of which is probably 3/4 (cf. Brice 1961:7–8; Table 2; Was 1971:35–51; Ventris and Chadwick 1973:36). It is attested in Linear A only, being a regular combination of two signs (\*707 = J + \*704 = E) written one above the other. Of the two components of the sign only the lower one has fully survived; the direction of writing is from left to right.

As previously emphasized, the second sign of the Lachish inscription is

identifiable as AB 53 on the basis of Linear B evidence. However, this fact alone is not enough to identify the Lachish inscription as belonging to Linear B. Indeed, considering that the fractional sign \*732 is characteristic of Linear A only, and that the direction of writing from right to left is not attested in Linear B (cf. Dimopoulou, Olivier, and Réthémiotakis 1993:513, where the direction of writing from right to left is used as proof of the Linear A provenance of PO Zg 1), it seems wiser to see the sign in question as representing a transitional stage in the graphic development of AB 53 (= *ri*), a stage at which this sign had not yet acquired all the features characterizing it in Linear B script. Accordingly, the inscription can preliminarily be identified as written in Linear A and classified, according to the principles set up in *GORILA IV*, as LACH Za 1.

2. Let us return to the sign identified by us as AB 53. The Linear A signs which should be considered in this connection are: (a) an S-like sign, both straight and inverted; (b) a Z-like sign; and (c) a 7-like sign; the latter two often having either a horizontal 'belt' or a dot in the middle (see Fig. 3). In the history of interpretation of Linear A, the signs of this group were alternately identified either with the Linear B 75 (*we*), or with Linear B 53 (*ri*).

In his classification of Linear A signs which was introduced in 1945 and was widely in use until it was superseded by the *GORILA* edition, E. Pugliese Carratelli (1945:422–610) drew a distinction between the S- and Z-like sign either with or without the dot on the one hand, and the Z-like sign with the horizontal 'belt' on the other. The former was given the number L 94 and equated with Linear B *we*, the latter was given the number L 72 and no Linear B equivalent was proposed. Carratelli's classification was founded on the material of the Hagia Triada archives only. In the modified version of Carratelli's system introduced by W.C. Brice in 1961, which was based on a much wider range of Linear A evidence, the distinction between L 72 and L 94, (whose graphic variants now covered not only the S- and Z-like signs, but also the 7-like one), was cancelled; no Linear B equivalents to Linear A signs were suggested in Brice's edition (see Brice 1961: Table 1). Finally, in 1985, in the concluding volume of their new and thorough edition of Linear A texts, L. Godart and J.-P. Olivier have merged the two signs into one, which was identified with Linear B *ri* and, according to their new system of transnumeration, given the number AB 53 (see *GORILA V*: xxxvi). As has recently been pointed out by Olivier, the main reason for merging L 72 and L 94 into one sign was that the editors of *GORILA* found it impossible to draw a clear distinction between the two signs on the basis of the extant Linear A evidence (see Dimopoulou, Olivier, and Réthémiotakis 1993:516; n. 48). It seems, however, that the new evidence provided by LACH Za 1 allows, for the first time, for drawing such a distinction.

The initial identification of the relevant Linear A signs with B 75 (= *we*) proceeded from the obvious resemblance of the 'zigzag' signs ('S' and 'Z') to the Linear B and

Cypriot *we*, of which the former has the form of the inverted S, and the latter that of Z (see Fig. 4:a, b). Neither Linear B, nor the Cypriot variant, however, is accompanied by either a 'belt' or dot so often attested with their Linear A counterparts. In their identification of the relevant Linear A signs with B 53 (= *ri*), the editors of *GORILA* adopted a different line of interpretation, they assumed that the middle 'belt' or dot are essential to the graphic concept of the sign in question. Taking this as the starting point, one would naturally suggest that the Linear B sign \*53 (see Fig. 4:c) evolved through adding the front 'leg' to the middle 'belt' of the original sign. However, the evidence of the Lachish sign, which, as we

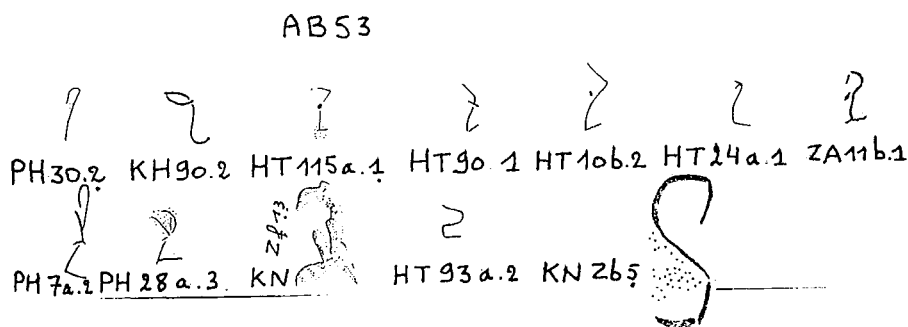


Fig. 3. Linear A variants of AB 53 (after *GORILA V*).

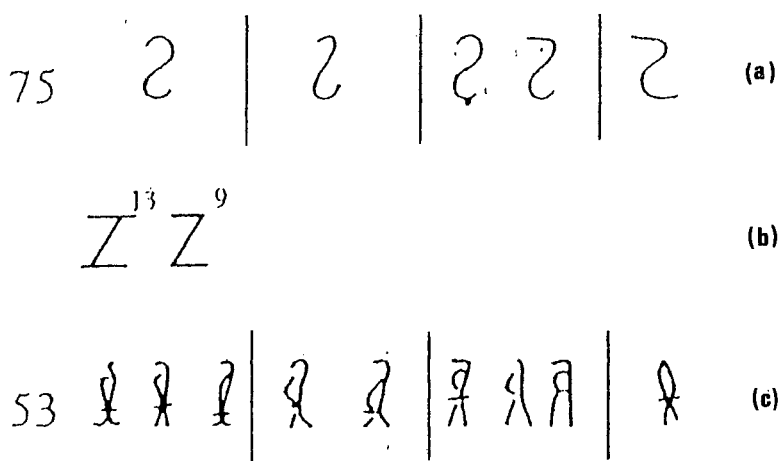


Fig. 4. (a) Linear B variants of B 75 (*we*); (b) the Cypriot *we* (the Paphian signary); (c) Linear B variants of B 53 (*ri*) (after Ventris and Chadwick 1973).

have seen, can only make sense if related to B 53, shows that the evolution of the latter proceeded in a different direction — the Lachish sign has the front ‘leg,’ but does not have the ‘belt.’ Thus, LACH Za 1 unambiguously shows that in the graphic history of B 53 the ‘leg’ preceded the ‘belt’ rather than vice versa. In other words, the evidence provided by LACH Za 1 disproves the development from the Linear A S-or-Z-like sign with a ‘belt’ to the Linear B sign \*53 with ‘belt + leg’ as was assumed in *GORILA*.

Note that in all the variants of the Linear B sign \*53, the zigzag (S/Z-like) form, so characteristic of the Linear A sign with which it is equated, is totally absent, the basis of this sign invariably having the 7-like form. Thus, the constants of B 53 are the 7-like basis, the horizontal ‘belt’ and the ‘leg.’ The Lachish variant also has the 7-like basis, accompanied with a ‘leg.’ It follows from this that the Linear B *ri* could not have evolved out of zigzag-like Linear A signs. The descendants of the latter are, as was initially suggested by Carratelli, the Linear B and Cypriot *we*, both of which preserve the zigzag (S/Z-like) form (see Fig. 4:a, b). A new piece of evidence supplied by the recently found PO Zg 1 corroborates this conclusion.

As was pointed out by the publishers of this inscription, the sequence of signs attested on it which, if rendered phonetically, will give *ri-qe-ti a-sa-sa-ra*\*325, bears a startling resemblance to the sequence *u-qe-ti ja-sa-sa-ra-me* constituting part of PL Zf 1 (see Dimopoulou, Olivier, and Réthémiotakis 1993:516). This resemblance can hardly be due to mere chance, the more so as the *a/ja* phonetic alternation attested in the second word is firmly established for the Minoan language in general and for the word *a/ja-sa-sa-ra* in particular. This seems to indicate that the alternation between AB 53 of PO Zg 1 and AB 10 of PL Zf 1 may be due to similar reasons. However, such an interpretation can only make sense if we return to the traditional identification of the sign in question with the Linear B *we*. Indeed, only the latter would allow us to interpret the alternation between the first words of PL Zf 1 and PO Zg 1 as *u-qe-ti/we-qe-ti*, thus allowing the conclusion that what is dealt with is in fact the well-attested Minoan alternation of the type *w/u* (see Dimopoulou, Olivier, and Réthémiotakis 1993:516; on the *w/u* alternation in Minoan see also Finkelberg 1990/91:44, 48). It is little wonder then, that the evidence provided by PO Zg 1 has created considerable confusion concerning the identification of AB 53 (see Dimopoulou, Olivier, and Réthémiotakis 1993:516).

Thus, *GORILA* were correct when cancelling the distinction between the zigzag signs with or without the dot and the zigzag signs with the ‘belt’ introduced by Carratelli, but were incorrect when associating all the relevant signs with the Linear B *ri*. This is not to say, however, that all the signs in question should now be indiscriminately associated with the Linear B *we*. As a matter of fact, the evidence provided by the Lachish inscription seems to allow for drawing a relevant distinction among the graphic variants associated with AB 53. Namely, the fact that, as distinct

from the zigzag (S/Z like) basis of the *we* signs, both the Lachish sign and the Linear B *ri* have the 7-like basis. This strongly suggests that what is essential to the graphic concept of the signs in question is either the zigzag or the 7-like basis, rather than the 'belt' or the dot. It was shown above that the 7-like sign is also attested in Linear A. Among the graphic variants of AB 53 recorded in *GORILA*, this sign can be seen on PH 30.2, HT 115 a.1, ZA 11 b.1 (see Fig. 3), and also on TY 2, which will be discussed below. It can easily be imagined how this sign could serve as the starting point in a development, the first stage of which supplied it with the front 'leg' as in LACH Za 1, and the second — with the horizontal 'belt,' as in the graphic variants of Linear B sign \*53.

Thus, it seems that two very similar, almost indistinguishable signs did exist in Linear A — one of them being equivalent to Linear B 53 (= *ri*), the other to Linear B 75 (= *we*). If correct, this would allow us to restore, at least partly, Carratelli's original identification and to introduce an additional sign, AB 75 = *we*, into the current Linear A signary.

If indeed two very different readings can be attributed to AB 53, the development of Linear B \*53 (*ri*) can be seen as an attempt to introduce several graphical devices (such as 'front leg' and 'horizontal belt') in order to draw a clear distinction between this sign and \*75 (*we*). This would be consistent with the transition from multiplicity to uniformity, characteristic of the graphic ancestor of the Linear B script (see Hooker 1979:37). It seems that the second sign of LACH Za 1 displays a transitional stage in this process, being half way between the forms of \*53 (= *ri*) in Linear A and Linear B. Therefore, LACH Za 1 provides an important piece of evidence concerning the graphic history of Linear B script.

3. The closest formal parallel to LACH Za 1 in Linear A corpus is KN Zb <27>, also inscribed on a vessel — a clay jar found at Knossos. Using the Linear B phonetic values, it can be read as: *di-na-u* VIN 17. The sequence *di-na-u* is widely attested on Hagia Triada tablets, where it is written either in full (HT 9a3, 9b5, 16.1-2, 25a1,2) or as an abbreviation *DI* (HT 3.3, 20.3, 32.3, 32.4, 69.1, 85b3, 97a4, 111a3, 122b4, see Brice 1961:5); the single *DI* is also attested on the reverse of a clay 'rondelle' from Hagia Triada HT Wc 3017. At least once in the Hagia Triada corpus, on HT 9a, *di-na-u* appears in a list whose heading contains, as in KN Zb <27>, the ideogram VIN, whereas on the Knossos Linear B tablet K 829 the abbreviation *DI* is depicted inside a three-handled vessel. It is not out of the question that a thorough study of the distribution of *di-na-u*/*DI* in the Linear A corpus will allow us to understand better its meaning. However, at the present stage of our knowledge it is difficult to say whether the parallelism between LACH Za 1 and KN Zb <27> is functional as well as formal.

Although the sequence of signs *ri-da-u* is not directly attested in the Linear A corpus, similar sequences, such as *ri-[da]-\*65*, *ri-da-[wa]-\*65*, *ri-da-wa-\*65*, and

*ri-<da>\**65<sup>1</sup> are found on TY 2 (for these readings see *GORILA V* 1985:76). The first sign of these sequences invariably has the 7-like form. Since the possible reading of AB 65 is *ju*,<sup>2</sup> all these words probably should be read as *ri-da-(wa)-ju*. All of them are written in small characters around two variants of ideogram \*309b/c, which is a picture of a round object, probably a vessel. Thus, the Minoan word *ri-da-(wa)-ju* might well be the name of this object. If this is correct, it is plausible that the *ri-da-u* of the Lachish inscription should be seen as a graphic variant of the same word. In that case, the language of LACH Za 1 should be identified as Minoan.<sup>3</sup> The evidence, however, is not conclusive, and it is not out of the question that languages other than Minoan should also be considered in connection with the Lachish inscription.

Sign *SE* as an ideogram is attested as a single sign on the reverse side of two clay ‘rondelles’ from Hagia Triada — HT Wc 3004b and 3005b (for this reading see *GORILA V* 1985:77), and before the numeral on KH 95 (see Hallager, Vlasakis and Markoulakis 1991:37–39): *SE*7[, which is the context most similar to LACH Za 1. If *SE*, as VIN in KN Zb <27>, stands for the name of the commodity delivered, the overall tentative ‘translation’ of LACH Za 1 would be: “*ridau*. 3/4 *SE* commodity.” If *SE* stands for the liquid capacity measure, LACH Za 1 should be translated as “(container) for the *ridau* commodity of 3/4 *SE* capacity.”

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1 Similar defective writing is found in HT 1 *ki-<da>-ro*, cf. HT 47 and 117:

HT 1	HT 47	HT117
ki-<da>-ro	ki-da-ro	ki-da-ro
ku-*56-nu	ku-*56-na-tu	ku-*56-nu
a-ra-na-re	[a]-ra-na-re	

2 It was originally proposed on the basis of the Linear B *ri-\*65-no* (KN U 49), which is a spelling variant of the well-attested Cretan place-name *ri-jo-no*, written also as *ri-u-no* (KN Xd 149). This interpretation may be further supported by functional commensurability between *a-ra-u-*, which is a part (probably the stem) of the sequence *a-ra-u-da* attested on KH 5, and *a-ra-\*65*, found twice in the Hagia Triada corpus (for interpretation of these two Minoan words as related to Hittite, Luwian, and Lycian *arawa-*, ‘free,’ see Uchitel forthcoming).

3 As far as application of the phonetic values of Linear B to the Minoan Linear A script allows one to produce a consistent analysis of Minoan as related to the Anatolian languages, particularly to Luwian (see Finkelberg 1990/91:43–85; Uchitel and Finkelberg 1995:29–36), Anatolian etymologies should be sought for the overall interpretation of LACH Za 1. In Hittite and Luwian, <sup>gis</sup>*liti-* means some vegetable substance (according to the determinative GIS), which was used to soften the anger of Telepinus by means of anointment (KUB XVII.10.II.22–23; *CHD*:72–73; Starke 1990:208). In light of this, it may be tentatively suggested that Minoan *ri-da-(wa)-ju* / *ri-da-u* was formed from this stem (note that the Linear A/B syllabic signs conventionally transliterated as *r* + vowel stand also for *l* + vowel) with the addition of the typically Minoan ending *-u* (on this ending see Lejeune 1972:203–209; Finkelberg 1990/91:43–44).

### Some General Considerations

Although Lach Za 1 is probably later than most Linear A and Linear B texts known to us, it bears witness to the fact that a linear script intermediary between these two was in use in the eastern Mediterranean in the 2nd millennium B.C.E. Thus, the Lachish inscription reinforces the view of the late J.T. Hooker that, “although Linear B is the last script to be attested in Minoan Crete, it is not a direct descendant of earlier Minoan writing-systems, such as Pictographic and Linear A, but is related to them in complex ways” (1979:71). This is not necessarily to say that Canaanite Lachish, where the inscription was unearthed, should also be regarded as this script’s place of origin. Comparison with the recently published Middle Bronze Age Minoan graffito inscribed on a potsherd excavated at the Canaanite site of Tel Haror provides some useful parallels (see Oren, *et al.* 1996:91–117).

On the accepted chronology of the Aegean scripts, the Tel Haror find (dated to the end of the 17th — the beginning of the 16th century B.C.E.) is too early to be considered written in Linear B (see however below, n. 4). Yet, as Olivier points out, “the puzzling thing” about the Tel Haror sample is that in the case of two of the three signs present on it, “the identification is supplied by the Linear B *comparanda*” (Oren, *et al.* 1996:109). The situation with LACH Za 1, though it is much later, is quite similar: the second sign of this ostensibly Linear A inscription can only be properly identified if provided with Linear B parallels. At the same time, Olivier’s attributing the peculiarity of the Tel Haror signs to their underrepresentation in the indigenous Cretan scripts can hardly apply to sign \*53 of the Lachish inscription. The very consistency of this sign, as compared with its counterparts in Linear A and Linear B, precludes the possibility that the absence of its exact parallel from the Linear A sources could be due to the hazards of representation. Therefore, postulation of an additional script, out of which Linear B directly developed, seems to be the best way to account for the peculiarities of both samples of Aegean writing found on the territory of ancient Canaan.

According to the evidence supplied by the petrographic study and the neutron activation of the Tel Haror sherd, the composition of the sherd matches neither local Canaanite nor, most significantly, Cretan ceramics. The results of the petrographic study concluded that “the fabric of this sherd does not match any of the fabrics from Crete known to these writers,” and the evidence from neutron activation suggested that, “the Tel Haror piece does not match the composition of any ceramics analyzed from Crete” (Oren, *et al.* 1996:113, 117). The only ceramic samples comparable to the Tel Haror sherd are those excavated in Israel at Tel Dan and in Cyprus; the former are of a non-local style, the latter of Mycenaean III B (*ibid.*: 116). At the same time, according to J. Yellin, “adjusting the Tel Haror piece for possible dilution does not bring the composition into agreement with the Tel

Dan or Cypriote pieces but there is sufficient similarity in the pattern of the element abundances to suggest that a common region may be involved” (*ibid.*).

It appears that the limestone on which LACH Za 1 is inscribed is most common to the area of Lachish, thus it seems that the inscription was locally incised. Therefore, comparison with the Tel Haror graffito suggests a pattern too significant to simply be ignored. Considering, (a) that both Tel Haror and Lachish produce ostensibly Linear A signs, some of which however are better identified on the basis of the evidence supplied by Linear B; (b) that the analysis of both Canaanite finds suggests that the vessels on which these signs are inscribed are not of Cretan origin; and (c) that no exact parallel to the graphic design represented by the sign AB 53 of the Lachish inscription had ever been attested on Cretan soil until Linear B was introduced to the island by the Mycenaeans, it seems reasonable to infer that the place where the direct graphic predecessor of Linear B developed should be sought in areas other than Minoan Crete.<sup>4</sup>

### Acknowledgements

The authors are indebted to I. Singer for his efforts in the identification of the inscription and its study, which led to the preparation of the present article, to Y. Goren for arranging the geological examination of the limestone of the bowl, to Y. Eshet of the Geological Survey of Israel for examining the bowl, to A. Perry who prepared the drawing and to P. Shrago who prepared the photograph published here.

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4 It is probable that the recent discovery at Kafkania in the western Peloponnese of a Middle Helladic inscription in Linear B (presumably, mid-17th century B.C.E.) will substantially change the accepted view of both the chronology of this script and its place of origin. Unfortunately, the inscription has not yet been published, so that its full impact on the present interpretation of LACH Za 1 is insufficiently clear. At present, the range of possibilities seems to be as follows: if the Kafkania inscription is cast in what can be called a ‘mixed’ A/B script, it should be treated as belonging to the same intermediary group as the two Canaanite samples discussed. In that case, no significant change in the accepted chronology of Linear B would be involved. If, on the other hand, it is proved conclusively that Linear B is the only script to be considered, it is not out of the question that the ensuing change in the chronology of this script will also be able to account for the graphic peculiarities of the Tel Haror graffito. However, this finding would not affect the present interpretation of the Lachish inscription for the simple reason that its signs \*10 and especially, \*732 can only be identified if Linear A is taken into account. In any case, the early dating of the Kafkania find goes well with the conclusion of the present paper that the graphic predecessor of Linear B did not develop in Crete.

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## APPENDIX

# MICROPALAEONTOLOGICAL EXAMINATION OF A CHALKY BOWL FROM LACHISH

**Yoram Eshet**

In order to assess the age of the stone from which the bowl was made, a microfossil examination was made by the author. A sample of ca. 3 g. of rock were taken from the bowl and processed in order to study their calcareous nannoplankton content. Calcareous nannoplankton are microscopic phytoplanktonic algae that live in the ocean. Their fossil remains are common in chalks and marls from Triassic times to the present. The study of calcareous nannofossils is conducted under a polarized-light microscope.

The sample contained a very rich assemblage of calcareous nannofossils, the most significant of which are *Reticulofenestra pseudoumbilica*, *Discoaster barbadiensis*, *Discoaster saipanensis*, and *Dictyococcites bisecus*. These results indicate a Middle or Late Eocene date for the assemblage (Bolli, *et al.* 1985).

Since rock outcrops of the Eocene Age are most common in the area of Lachish, it is suggested that the rock from which the bowl was made was taken from the surrounding area and not brought from afar.

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