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THE DATING OF THE LINEAR A INSCRIPTIONS FROM THERA*

Introduction

The Linear A inscriptions recovered from Thera are:¹

THE Zb 1	GORILA 4, p. 101	41-30-81[SI-NI-KU
THE Zb 2	GORILA 4, p. 102	08-27-31-06	A-RE-SA-NA
THE Zb 3	GORILA 4, p. 103	08-24[]	A-NE[]
THE Zb 4	GORILA 4, p. 104	08-27[A-RE[
THE Zb 5 ²	.1 AB80 40 AB50 5		.1 MA 40 PU 5
	.2 AB171 7 AB20 9 AB59 4		.2 AB171 7 ZO 9 TA 4
THE Zb 6 ³	Ostrakon, with 1 sign.		
THE 7-8-9 ⁴	Three tablets including NI as ideogram for FIGS.		
THE Zb 10 ⁵	Pithos from House of the Ladies, 1990, with 4 signs.		

* This research was carried out in London, Crete, Athens and Thera in the summer of 1998 as a new approach to an old but interesting problem of Aegean (pre)history. The authors gratefully acknowledge the assistance of Athena Nikitopolou, Kalliope Nikolidaki in the preparation of this article and Prof. Bill McGuire, Director of the Benfield Greg Hazard Research Centre (UCL) and Editor of the Proceedings of the Earthquakes, Volcanoes and Archaeology Conference (28–29 April, 1997, Burlington House, London) which was the inspiration for this joint piece of work. The authors are responsible for the views expressed.

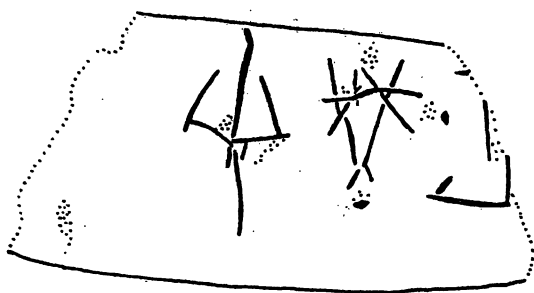
¹ See G. Owens, *The Thera Linear A Inscriptions*, *Kadmos* 35 (1996) 168–169; *Further Comments on the Linear A Inscriptions from Thera*, *Kadmos* 36 (1997) 172–173; *Linear A in the Aegean*, *Aegaeum* (1998) 1–13; *Minoan Inscriptions in Mycenaean Greece*, forthcoming, for full discussions of the Thera Linear A inscriptions. It should be noted that the island in question is called Thera throughout this article, and not Santorini, Kallisti, Stromboli etc.

² See A. Michailidhou, *Ostrakon with Linear A Script from Akrotiri (Thera). A Non-Bureaucratic Activity?*, *Minos* XXVII–XXVIII (1992–1993) [1995] 7–24.

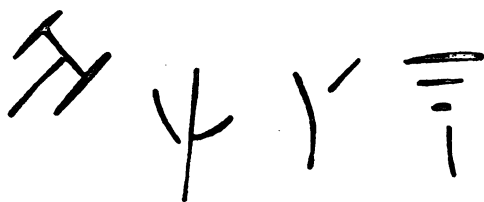
³ See A. Michailidhou, (note 2) 21 for this ostrakon and its Linear A sign.

⁴ See Ch. Dumas in a report to the Athens Archaeological Society, reported in «*Kathimerini*», *Nestor* 21.5 (May 1994), *Ergon* 1993 (1994), 88–90 in which he mentions fragments of at least two tablets, in a public lecture in Heraklion (14/10/96) in which he mentioned three tablets, and personal communication.

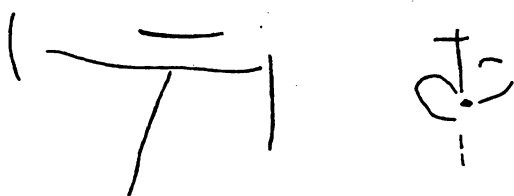
⁵ See *Kadmos* 35 (1996) 176, and E. B. French in *SPHS/BSA AR* 1993–94, 69.



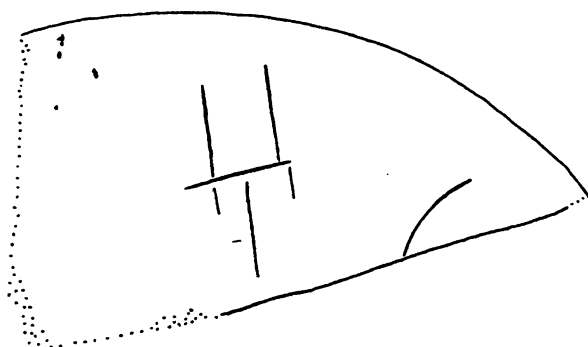
THE Zb 1



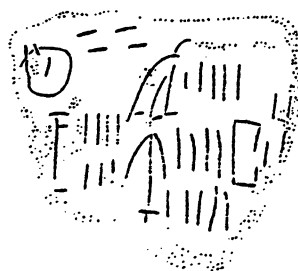
THE Zb 2



THE Zb 3



THE Zb 4



THE Zb 5

Along the Central Cycladic route, the first port of call for ships leaving the north coast of Crete is Thera which has produced seven inscriptions on pottery and at least three fragments of tablets. These ten Theran Linear A inscriptions are from the destruction of Akrotiri as a result of an eruption of Thera in the Second Millennium B.C. and consist of five inscribed vases, two ostraka and three fragments of clay tablets.

The first four Minoan inscriptions on vases from Thera (THE Zb 1-2-3-4), of which two may have been the same, have been previously discussed. These four inscriptions can best be compared with Minoan personal and/or religious inscriptions from Crete.

Dr. Michailidhou has now published and thoroughly discussed the first ostrakon to be discovered from Akrotiri (THE Zb 5). This inscribed sherd, which fits in the palm, records five commodities indicated by abbreviations, some of which are known from Linear B and which are here followed by numerals. Dr. Michailidhou has also announced a rounded pot-sherd from the Akrotiri settlement which bears an incised sign (THE Zb 6) and which is currently being prepared for publication.

Professor Doumas has announced the discovery of the first Linear A tablets from Akrotiri on Thera (THE 7-8-9). These are three fragments of tablets found in the excavations which have covered less than 5% of the area of Akrotiri. These tablets are described as being made from local clay, and as thicker and having a different "feel" from tablets found on Crete. This means that Thera now joins the islands of Milos and Kea as a source of Linear A archives in the Cyclades. Professor Doumas believes that the differences in the construction and execution of the tablets are further indications that Thera was independent from Crete in matters scribal as well as commercial and political. He has also claimed that Thera was an independent Cycladic settlement and not a Minoan colony of any description. Whatever the exact nature of these tablets, and whoever wrote them, there is clearly an archive waiting to be found somewhere at Akrotiri. Professor Doumas has now also announced the discovery of an inscribed pithos with four Linear A signs. This was found in 1990 in the House of the Ladies. The full publication of THE Zb 6, THE 7-8-9 and THE Zb 10 is awaited.

The Theran script could have been used by Minoan traders, by Minoan overlords who administered this strategic island, or by Therans who had come under powerful Minoan influence in scribal matters.

Chronology

The date of the eruption which destroyed the settlement of Akrotiri and preserved the Linear A inscriptions has been the subject of much debate for more than half a century. The earliest date offered is c. 1630–20 B.C.,⁶ a later proposal is c. 1535–1525 B.C.⁷ There is approximately a century between these dates, but both fall inside LM I A.

Epigraphy

A comparative study of the Thera inscriptions may help to date them more precisely:

THE Zb 1-2-3-4 Inscribed Vases. These Thera vase inscriptions can best be compared, both textually and epigraphically, to KN Zf 13, the spiral inscription on a gold ring from Knossos⁸. Two of them, THE Zb 2 and THE Zb 4 (A-RE-SA-NA and A-RE[]), can be compared with the first four signs of the inscribed ring (A-RE-NE-SI-) which has been dated to MM III – LM I A.

THE Zb 5-6 Ostraka. The Ostraka from Thera are the first from the Aegean Bronze Age, their only possible connections being with the Minoan graffito from Tel Haror in Israel, which is dated by the excavator to the Middle Bronze Age⁹, and the two lines of accounts

⁶ See three Thera Congresses (1969, 1978 and 1989) and S. Hood, Review of the 3rd Thera Congress 1989, *Kadmos* 29 (1990) 84–86, for a summary of the latest congress and the consensus of scientific opinion, regarding tree-rings, ice-cores and C14, which dates the eruption to c. 1625 within LM I A. Clearly a final answer has yet to be reached, concerning the date of Akrotiri and its Linear A inscriptions. See, however, W. D. Niemeier, Knossos in the New Palace Period (MM III–LM I B), in *Knossos: A Labyrinth of History, Papers in Honour of Sinclair Hood*, eds. D. Evely, H. Hughes-Brock and N. Momigliano, *BSA Supplement* 1994, 71–88, especially the section on relative and absolute chronology, 71–74, for the acceptance by a leading Aegean archaeologist, and the historical consequences, of “a date of 1628 B.C. for the eruption”.

⁷ See K. Foster, Ahmose and the Eruption of Thera, *American Research Center in Egypt, Newsletter* 171, December 1996, for a discussion of the Tempest Stele of Ahmose in support of a c. 1530 B.C. dating of the Thera eruption. We thank Paul Michaelis of the 1998 International Summer School in Linear B, Institute of Classical Studies London, for bringing this paper to our attention.

⁸ See *GORILA* 4, 1982, 152–153.

⁹ See E. D. Oren and J.-P. Olivier, A Minoan Graffito from Tel Haror, *Cretan Studies* 5 (1996) 91–118.

on a CM I ostrakon from Enkomi in Cyprus¹⁰. In Michailidhou's extensive discussion of THE Zb 5 based upon discussions with Godart, close epigraphic parallels are seen with SY Za 1 (MM III B – LM I A), KO Za 1 (?), KN 90.2 (LM I B), KN Za 10a (LM I), KN Zf 31 bis (LM I A), PR Za 1a (MM III B – LM I A), ARKH 4a (LM I B), but the closest link is perceived to be with AP Za 1 (MM III). It is perhaps of note that, due to the ostrakon being inscribed after firing (as opposed to the Tel Haror graffito), the signs on the hardened clay can better be compared with those on hard surfaces (such as five on stone libation tables and two on the silver pin from Knossos, which date from MM III – LM I A) than to the two examples on soft clay dated to LM I B. The closest parallel is AP Za 1 which is dated to MM III¹¹.

THE 7-8-9 Tablets. The presence of tablets at Akrotiri indicates an archive with clay archival documents. Such a situation is already known from the islands of Kea (KEA 1 and KEA Wc 2), where both documents are dated to MM III, and Milos (MI 2), where the tablet is dated to LM I. In addition clay archival documents are known from Samothraki in the North Aegean dated to MM II–III¹².

THE Zb 10 Inscribed Vase. This recently discovered inscribed vase has yet to be published.

In summarizing it can be observed that the Theran inscriptions have Minoan comparanda predominantly dating from the MM III/LM I border period, conventionally dated to c. 1600 B.C. in absolute terms, thus strongly suggesting an earlier rather than a later date for the destruction of Akrotiri¹³. The consequences of this dating will be discussed in the conclusions below.

Conclusion

This discussion of the Theran Linear A inscriptions may be read within the context of Minoan trade and foreign relations¹⁴. The dis-

¹⁰ See O. Masson, *Cypro-Minoica*, 1974, 22 and fig. 8, and P. Dikaios, *Enkomi II, Excavations 1948–58 (1969–1971)*, 888, *Enkomi III* pl. 190/6.

¹¹ See GORILA 4, 1982, 2–3.

¹² See D. Matsas, *Samothrace on the Northeastern Aegean: The Minoan Connection*, *Studia Troica* 1 (1991) 154–179.

¹³ See P. Warren and V. Hankey, *Aegean Bronze Age Chronology*, 1989, Table 2.5.

¹⁴ For Minoans abroad, at Thera and elsewhere, see papers in the three volumes *The Minoan Thalassocracy: Myth and Reality*, *Proceedings of the 3rd International Symposium at the Swedish Institute in Athens 31/5–5/6/1982*, eds. R. Hägg and

covery of Linear A inscriptions from the Cyclades, Kythera and the Peloponnese, Samothraki and Troy, Miletos in Asia Minor and Tel Haror in the Negev desert of Israel testifies to Minoan contacts, and possibly even to the presence of Minoans, throughout the Eastern Mediterranean. The closest location to Crete which has produced Minoan inscriptions is of course Thera.

The relation between Thera and Minoan Crete has been the subject of much discussion, as have the effects of the eruption on the neighbouring island. Since 1939, when Professor Marinatos first tried to link Thera to the destruction of Minoan Crete, many scholars have discussed this point¹⁵.

It is widely believed that the First Palaces were destroyed some time in the 17th century B.C. It has been shown that Thera erupted and destroyed Akrotiri following a strong earthquake in LM I A¹⁶. In addition it is generally accepted that the majority of Minoan Neo-Palatial sites (with the notable exception of the Palace of Knossos) were destroyed in LM I B, and that Knossos itself was destroyed in LM III A1 at the earliest. So there is clearly no direct and immediate

N. Marinatos, 1984; Thera and the Aegean World III, Proceedings of the 3rd International Congress held in Santorini 3–9/9/1989, eds. D. A. Hardy with C. G. Doumas, J. A. Sakellarakis and P. M. Warren, *Thalassa, L'Égée Préhistorique et la Mer*, Proceedings of the 3rd International Aegean Conference held in Corsica 23–25/4/1990, eds. R. Laffineur and L. Basch, 1991.

¹⁵ See the following four works which are interesting and which chart the progress of the interest of the general public in matters concerning Thera, Minoan Crete and the myth of Atlantis: S. Marinatos, *The Volcanic Destruction of Minoan Crete*, *Antiquity* 13 (1939) 425–439; J. V. Luce, *The End of Atlantis – New Light on an Old Legend*, London 1969; D. L. Page, *The Santorini Volcano and the Destruction of Minoan Crete*, *JHS Supplement* 12, 1970; R. Castleden, *Atlantis Destroyed*, 1998.

¹⁶ The Thera eruption has been rated as 6.9 on the Volcanic Explosivity Index (VEI), a scale similar to Richter for earthquakes. As a point of comparison it should be noted that two relatively recent eruptions in Indonesia, Tambora in 1815 and Krakatau in 1883, were rated as VEI 7.0 and VEI 6.3 respectively. It has often been stated that the Thera Caldera is four times as large as that of Krakatau, suggesting an eruption of at least the same magnitude, if not indeed greater, than this historically well-documented one of 1883. It has been calculated that the earthquake took place two and a half years before the eruption of Thera and destruction of Akrotiri, thus explaining the absence of bodies, unlike the situation at Pompeii for example.

It is worth noting that Tambora caused 92,000 deaths, Krakatau 36,400 and Mt. St. Helens in the USA with a VEI of 5 in 1980 caused 57 deaths. How many deaths may Thera have caused?

connection between these destructions spread over more than two centuries¹⁷.

It has recently been argued, however, that there may have been a longer influence of Thera on Minoan Crete¹⁸ if the LM I A eruption heralded a period of stress in the Minoan world which created politico-economic disturbances. An inability to adapt to the earthquake and eruption of Thera might gradually have led to the downfall of Minoan Poly-Palatial civilization at the end of LM I B, and to the Mycenaean presence at and subsequent domination of Knossos by LM II, followed by the destruction too of Knossos in LM III A1 and the subsequent Mycenaean hegemony of the previously Minoan-dominated Aegean.

There are further questions: 1) Did Minoan Crete at the end of LM I B indeed fall into disarray, or was it overwhelmed by Knossos?

2) If the Thera Linear A inscriptions from Akrotiri indicate a 17th century date for the earthquake and eruption, could this seismic event possibly be the one which destroyed sites such as Amnissos and Zominthos in LM I A¹⁹, or even perhaps the First Palaces of Minoan Crete, and not the Second Palaces and Villas at the end of LM I B (with the exception of Knossos) as argued by Marinatos 60 years ago?

¹⁷ See G. Owens, The Date of the Linear B Archive from the "Room of the Chariot Tablets" at Knossos – LM II or LM III A1?, *Talanta* 26–27 (1994–95) 28–49 for a possible historical reconstruction of the events of the 15th century B.C. at Knossos.

¹⁸ See J. Driessen and C. F. Macdonald, The Eruption of Santorini and Its Effects on Minoan Crete, *Proceedings of Earthquakes, Volcanoes and Archaeology Conference* (28–29 April 1997), London (in press) for a, on the whole, good discussion despite their erroneous opening line "Iconographical or literary evidence for natural catastrophes during prehistory is rather scarce". There is no literary evidence for prehistory. History, the study of the past based upon written evidence, begins when there is literary evidence, thus Minoan Crete and Mycenaean Greece do not belong to the prehistoric period. See also the same authors, *The Troubled Island. Minoan Crete before and after the Santorini Eruption* (Aegaeum Series, in press).

¹⁹ See K. Nikolidaki-Owens and G. Owens, The Provincial Sites of Knossos, in *Kritika Daidalika – Evidence for the Minoan Language – Selected Essays in Memory of James Hooker* (1997), 187–235 for a discussion of these and other sites in North Crete during the LM I period. See also *The Function of the Minoan Villas*, *Proceedings of the 7th International Symposium at the Swedish Archaeological Institute in Athens* 10–16 June 1992, eds. R. Hägg and N. Marinatos (1994).