

AEGAEUM 19

Annales d'archéologie égéenne de l'Université de Liège et UT-PASP

POLEMOS
LE CONTEXTE GUERRIER EN ÉGÉE
À L'ÂGE DU BRONZE

Actes de la 7^e Rencontre égéenne internationale
Université de Liège, 14 -17 avril 1998

édités par Robert LAFFINEUR

Université de Liège
Histoire de l'art et archéologie de la Grèce antique
University of Texas at Austin
Program in Aegean Scripts and Prehistory

1999

PRESENT ARMS/OARS/INGOTS: SEARCHING FOR EVIDENCE OF MILITARY OR MARITIME ADMINISTRATION IN LM IB*

The reality of warfare in LM I, and of naval expeditions for trade and raid, can hardly be in doubt. The Neopalatial Period sees the development of special Minoan sword, spear and other weapon types,¹ depictions of warfare on wall paintings, silver vessels, stone vases, faience (assuming the Town Mosaic depicts warfare) and seals, and the appearance in Neopalatial tombs at Poros of weapons and boar's tusk helmets. Major fortification walls are built or rebuilt at the heavily Minoanized sites of Phylakopi on Melos and Ayia Irini on Kea.² By (and perhaps at) the end of LM IB, alterations at a number of sites suggest possible preparations against attack through the blocking of entrances and erection of walls, the digging and enclosure of intramural wells, the addition of towers, perhaps defensive in nature, to major buildings, the transformation of fine living quarters into workshops and storage areas,³ and the stockpiling at Pseira of 1,000 stones, each a little larger than an egg, presumably for use in slingshots against invaders.⁴ The island-wide total or partial burning, destruction, and abandonment of sites at the end of the period, accompanied by the burial of hoards and the violent destruction of precious objects and ritual pottery, as evidenced by the scattering of fragments over a wide area,⁵ indicate that the fears of attack were fully justified.

Major military and maritime activity clearly requires written documents. Flotillas such as the one we see in the Thera miniature fresco do not spring into being and provision themselves spontaneously, and sea raids or assaults such as that depicted on the Siege Rhyton and Battle Krater need planning.⁶ The construction and maintenance of ships, the

-
- * My particular thanks go to E. Hallager, T. Palaima, R. Palmer, I. Pini, J. Weingarten and J. Younger for much helpful advice concerning seals, scripts and tablets, and to S. Chryssoulaki for her advice and photograph of House A at Zakros. I am also most grateful for advice, assistance and comments from the Director of the Zakros Excavations El. Platon, E. Bennett, D. Collon, O. Dickinson, S. German, J. MacGillivray, J. Shaw, M. Shaw, B. Thomas, J. Warner, P. Warren, P. Warren and M. Wedde.
- 1 N.K. SANDARS, "Later Aegean Bronze Swords," *AJA* 67 (1963) 117; S. HOOD, "Shaft Grave Swords: Mycenaean or Minoan?" *Cretological IV*, A'1 (1980) 233-242; O. HÖCKMANN, "Lanze und Speer im spätminoischen und mykenischen Griechenland," *JRGZM* 27 (1980) 13-158.
- 2 R.L.N. BARBER, *The Cyclades in the Bronze Age* (1987) 66-69.
- 3 P. REHAK and J.G. YOUNGER, "Review of Aegean Prehistory VII: Neopalatial, Final Palatial, and Postpalatial Crete," *AJA* 102 (1998) 101. Driessen and Macdonald believe the process starts by at least the beginning of LM IB, whereas the present author sees no persuasive evidence that defensive preparations begin before near the end of the period.
- 4 P. BETANCOURT and I. FRANGAKIS, "The Slingstones," in C.R. FLOYD, *Pseira III: The Plateia Building* (1998). Similar slingstones were found alongside the fortification wall at Koukounaries on Paros, a site clearly destroyed by hostile action about 300 years later (R. BARBER, "Hostile Mycenaeans in the Cyclades?," this volume). The Siege Rhyton, a vessel found in Shaft Grave IV at Mycenae but probably of Minoan origin (E.N. DAVIS, *The Vapheio Cups and Aegean Gold and Silver Ware* [1977] 229) shows three men wielding slings, with a row of kneeling archers behind them.
- 5 J.A. MACGILLIVRAY, L.H. SACKETT *et. al.*, "Excavations at Palaikastro, 1990," *BSA* 86 (1991) 129; J. DRIESSEN and C.F. McDONALD, *The Troubled Island: Minoan Crete Before and After the Santorini Eruption, Aegaeum* 17 (1997) 233.
- 6 C.G. DOUMAS, *Thera: Pompeii of the Ancient Aegean* (1983) 85-105; DAVIS (*supra* n. 4) 222-230; E. VERMEULE, *Greece in the Bronze Age* (1964) 100-105, pl. XIV; L. MORGAN, *The Miniature Wall Paintings of Thera. A Study in Aegean Culture and Iconography* (1988) 150-154, figs. 191-192. For an interpretation of the Siege Rhyton as depicting a pirate raid, see J. HOOKER, "The Mycenaean Siege Rhyton and the Question of Egyptian Influence," *AJA* 71 (1967) 270. For an interpretation of the Thera wall painting as depicting a coastal raid see P.M. WARREN, "The Miniature Fresco from the West House at Akrotiri, Thera and its Aegean Setting," *JHS* 99 (1979) 115-129. Piracy has played a major role in the life of the Aegean in many periods. See H.A. ORMEROD, *Piracy in the Ancient World* (1924). The *Iliad* and *Odyssey*, of course, are full of references to the sacking of cities by sea raiders, e.g., *Iliad* IX 138-140, 278-282, XVIII 326-327; *Odyssey* IX 39-61, XIV 199-265, 447, XV 427, 449-453, XVI 426-430, 442.

provisioning of crews and shipwrights, the supply of goods to exchange for copper and tin and for precious metals and other luxury products from abroad all require significant administration.

For the subsequent Linear B era, the tablets from Knossos, Chania, Pylos and Tiryns provide abundant evidence for military and maritime organization.⁷ These tablets reveal palace bureaucracies directing the manufacture, repair, storage and distribution of chariots, armor, helmets, swords, spears and javelins, and the distribution as well of the copper or bronze required. Moreover, the tablets indicate that the Palaces at Knossos and Pylos built, maintained and manned sizable fleets, including ships with a probable military function. Tablets at both sites make references to shipbuilders. T. Palaima has suggested that the Knossos tablets monitor ships at various locations.⁸ At Pylos tablet An 610 records 569+ rowers, and other tablets show that rowers were levied from local communities in the manner used for general regional taxation.⁹

Where, however, is the corresponding evidence for military/maritime administration in Neopalatial Crete? Two factors condition the search: (1) Linear A still awaits translation, although various signs, including the system of whole numbers and ideograms for various objects and commodities such as grain, wine, olive and fig, are understood; (2) Minoan administration, unlike Mycenaean, is largely accomplished through the use of seals. Accordingly, while a small number of inscribed signs or a group of Linear A tablets may provide enigmatic hints of possible military or maritime matters, only a large body of seal impressions employed systematically is capable of yielding evidence of significant military/maritime administration. For example, the roundels from disturbed LM IB contexts at Chania inscribed with what appears to be an ideogram of a warrior armed with weapon and shield and with seals impressed along their rims, most likely indicating the number of units allocated from storage,¹⁰ may be instances of military administration (assuming that the signs are to be understood ideographically rather than phonetically), but cannot provide any additional information.

Similarly enigmatic are Linear A tablets recording only numbers of men, or numbers of men in one section and an agricultural commodity such as barley in another. Tablets of this nature are found in the LM IB destruction levels at Ayia Triadha in both the Villa Reale, the main administrative center at the site, and the Casa del Lebete.¹¹ The number of men listed on tablets in both locations ranges from 3 to 292 in the tablets listing men only, and from 52 to

7 R. PALMER, "Linear A Commodities: A Comparison of Resources," *Politeia. Society and State in the Aegean Bronze Age. Proceedings of the 5th International Aegean Conference/5^e Rencontre égéenne internationale, University of Heidelberg, Archäologisches Institut, 10-13 April 1994*, *Aegaeum* 12 (1995) 133-156; T.G. PALAIMA, "Maritime Matters in the Linear B Tablets," *Thalassa. L'égée préhistorique et la mer, Actes de la troisième Rencontre égéenne internationale de l'Université de Liège, Station de recherches sous-marines et océanographiques (StaReSO), Calvi, Corsica, 23-25 April 1990*, *Aegaeum* 7 (1991) 273-310; "Seal-Users and Script-Users/Nodules and Tablets at LM IB Hagia Triada," *Archives before Writing. Proceedings of the International Colloquium, Oriolo Romano, 23-25 October 1991* (1994) 307-330; "Mycenaean Militarism from a Textual Perspective: Onomastics in Context: *lawos, damos, klewos*," this volume; A. SACCONI, "Les tablettes de Pylos et la guerre," this volume.

8 PALAIMA (*supra* n. 7) 35; F. HOCKER and T.G. PALAIMA, "Late Bronze Age Aegean Ships and the Pylos Tablets Vn 46 and Vn 879," *Minos* 25-26 (1990-1991) 307-308.

9 A similar system was employed at Ugarit. See J.T. KILLEN, "PY An 1," *Minos* N.S.18 (1983) 71-79. PALAIMA (*supra* n. 7) 286-287 and pl. LXIII.

10 E. HALLAGER, *The Minoan Roundel and Other Sealed Documents in the Neopalatial Linear A Administration*, *Aegaeum* 14 (1996) I, 49, 117; II, 67-69, 139.

11 The Casa del Lebete, a solidly built structure of nine rooms, is near the massive building called the Bastione, perhaps a storehouse since it lacked finds. Both were probably built after a destruction sometime in LM IA, and are adjacent to the strong north wall of the settlement. The Casa del Lebete contained the large bronze cauldron for which the structure is named, a terracotta bathtub, a fragment of a figure in stone, and a collection of fine decorated pottery. L. Banti suggested that the Casa del Lebete was also a storehouse, but E. Hallager sees the structure rather as a fine living area. F. HALBHERR, E. STEFANI and L. BANTI, "Haghia Triada nel periodo tardo palaziale," *ASAtene* 55, N.S. 39 (1980) 255-262; HALLAGER (*supra* n. 10) I, 45.

409 in tablets listing men together with agricultural products.¹² The deposits differ somewhat in that the Casa del Lebete archive is unique in containing tablets only, unaccompanied by roundels, nodules, seals or seal impressions; moreover, the Casa del Lebete tablets display greater internal consistency, with only one scribal hand represented in the tablets dealing with men. On these tablets, the logogram for man never appears with other logograms, e.g., qualifiers of status, employment or ethnicity. While it seems reasonable to suppose that these tablets constitute a special archive dealing with groups of men (and perhaps even their rations), there is nothing to indicate the purpose(s) of such units, which could include, for example, agricultural teams sent out at harvest time as depicted on the Harvester Vase, construction teams (such as those which would have been employed in the building of walls and closing of entrances prior to the LM IB destruction which baked the tablets), military units, or all-purpose detachments deployed as needed.¹³

There is, however, one example of a major archive of seal impressions whose systematic pattern of use and surrounding circumstances suggest the presence of a maritime administration with military capability. The site of the archive is House A at Kato Zakros.

Before undertaking an analysis of the House A sealing system, a consideration of the general role of Zakros within Crete and of House A within Zakros is in order. The full case for a Neopalatial Knossian-controlled Minoan thalassocracy has been set forth in detail elsewhere.¹⁴ The evidence includes (1) the relative size of the site and the Palace of Knossos, with the Palace two and one-half times as large as the Palace at Phaistos and close to twice the size of the Palace at Malia and in the case of Knossos incorporating a complex hydraulic system for piped drinking water plus a drainage system for washing and waste disposal, unmatched at the other palaces; (2) the lack of fortification walls on Crete in LM I and the presence throughout Crete of country houses, sometimes luxurious, sitting in open terrain, suggestive of a *pax Knossiana*; (3) the prominence in terms of architecture and votives of the peak sanctuary at Juktas above Knossos, at a time when it appears that many Protopalatial peak sanctuaries were no longer in use; (4) the influence of the Knossian school of architecture, wall painting and decorated pottery in all parts of Crete; (5) the Knossian origin of the great majority of the fine ware imports at Zakros, Phaistos, Ayia Triadha, and Kommos, and on the islands of Kythera, Melos, Kea and Rhodes; and (6) the impressions made by Knossian palatial rings, both on clay that visually appears to be Central Cretan in origin, which would indicate the arrival of documents, and on clay which appears to be local, indicating use of such rings or their close variants at various places including Zakros.¹⁵ Currently the number of such impressions stands at fifty-five, from six sites in Crete plus Akrotiri on Thera.¹⁶

12 Of the approximately seventy tablets or fragments from the Casa del Lebete found in circumstances which suggest they had been stored together on the upper floor, four record only lists of men, while seven list men in one section and commodities in another. Grain, presumably barley, and figs are well represented in these and other tablets. The range of logograms at the Casa del Lebete is more restricted generally than that at the Villa Reale, which enjoys a monopoly of logograms for artisanal products such as textiles and vases.

13 The LM IB destruction horizon at the Villa Reale produced two sealings showing fighting, at least one of which had been attached to a parchment document, and five examples of a sealing showing a crouching bowman, three of which appear on the edge of roundels. The two others are from a one-hole hanging nodule probably once attached to parchment records and a clay bar, now lost. The clay bar is interesting for, as J. Weingarten has observed, it represents one of the very rare occurrences at Ayia Triadha of the multiple sealing system common at Zakros, with two other sealings accompanying the crouching bowman.

14 M.H. WIENER, "The Isles of Crete? The Minoan Thalassocracy Revisited," *Thera and the Aegean World III*, Volume I: *Archaeology* (1990) 128-161. (The version as published contains over 40 typographical errors, notwithstanding timely corrections made by the author on the page proofs. The corrections are published in *Nestor* 18:8 [November 1991]. A corrected copy is also available upon request from the author.)

15 J. BETTS, "New Light on Minoan Bureaucracy: A Re-examination of Some Cretan Sealings," *Kadmos* 6 (1967) 15-40; HALLAGER (*supra* n. 10) I, 207-208; J. WEINGARTEN, "The Sealing Structures of Minoan Crete: MM II Phaistos to the Destruction of the Palace of Knossos. Part I: The Evidence Until the LM IB Destructions," *OJA* 5 (1986) 293; "Late Bronze Age Trade within Crete: The Evidence of Seals and Sealings", *Bronze Age Trade in the Mediterranean. Papers Presented at the Conference Held at Rewley House, Oxford, December 1989* (SIMA XC, 1991) 309, n. 11; I. PINI, "Neue Beobachtungen zu den tönernen Siegelabdrücken von Zakros," *AA* (1983) 570. For the programmatic Knossian nature of certain motifs,

Recently the question has been raised by J. Weingarten,¹⁷ J. Driessen & C. Macdonald,¹⁸ and P. Rehak & J. Younger¹⁹ whether the putative LM IA pre-Theran eruption dominance of Knossos might have been shattered by LM IB. The appearance at sites all over Crete of Knossian fine pottery imports, the presence at sites in various areas of seal impressions in Central Cretan clay, the local administrative use at various sites of close variants (the so-called “replicas”) of major Knossian rings, and the internal employment on parchment at Zakros of a multiple sealing system previously known principally from the Hieroglyphic Deposit and Temple Repositories at Knossos are all LM IB phenomena, however. The LM IB period witnesses the continuing of construction of villas or substantial farmhouses in undefended locations.²⁰ The ivory elephant tusks, copper oxhide ingots and Egyptian stone vessels reworked into luxurious Minoan vases found in the LM IB Zakros Palace destruction speak of continuing trade and wealth.²¹

House A, the site of the sealing archive to be considered, sits at the summit of a hill approximately 100 meters northwest of the Palace and 300 meters from the present seashore (Pl. LXXXa). The structure is built of massive Cyclopean blocks. The basement of House A incorporates levels of a building of MM II, whose commanding position and line-of-sight relation to the MM II watchtowers at Kalyvomouri on a ridge to the east-northeast and Ampeles on the peak to the south suggest that the predecessor of House A played a key role in the MM II watchtower network.²² The LM IB final destruction horizon at House A contained a bronze sword, bronze mattocks and drills, Marine Style pottery and bits of fresco painting.²³

D. Hogarth, the excavator, suggested that in LM IB House A might have served as a customs house or point of control for goods moving by land, a suggestion previously followed

particularly those involving bulls and bull-sports, see HALLAGER (*supra* n. 10) I, 207-212; B. PÅLSSON HALLAGER and E. HALLAGER, “The Knossian Bull-Political Propaganda in Neo-Palatial Crete?” *Politeia. Society and State in the Aegean Bronze Age. Proceedings of the 5th International Aegean Conference/5^e Rencontre égéenne internationale, University of Heidelberg, Archäologisches Institut, 10-13 April 1994, Aegaeum* 12 (1995) 547-556; M. SHAW, “Bull Leaping Frescoes at Knossos and their Influence on the Tell el-Dab’a Murals,” *Trade, Power and Cultural Exchange: Hyksos Egypt and the Eastern Mediterranean World 1800-1500 B.C. An International Symposium, New York, 3 November 1993, Ägypten und Levante* 5 (1995) 91-120, especially 104-105.

- 16 There are suggestions in the evidence of a possible special relationship between Knossos and Zakros. They share a multiple sealing system rarely seen elsewhere (see *infra*). Zakros has also produced impressions from three Knossian metal “replica rings” (i.e., rings of which several difficult-to-distinguish versions exist, rather than replicas *strictu sensu*), and 54 impressions from rings which E. Hallager regards as of lesser quality and hence possibly local manufacture, but with typically Knossian motifs involving bulls and fighting, which leads him to remark that “it is extremely tempting to see the users of these seals as representatives of the Knossian administration of Zakro” (HALLAGER [*supra* n. 10] I, 211-212). Aspects of Zakros architecture and entrance passages/roadways (P.M. WARREN, “The Minoan Roads of Knossos,” *Knossos: A Labyrinth of History. Papers in Honour of Sinclair Hood* [1994] 209-210, n. 88) closely resemble Knossos.
- 17 J. WEINGARTEN, “Three Upheavals in Minoan Sealing Administration: Evidence for Radical Change,” *Aegean Seals, Sealings and Administration. Proceedings of the NEH-Dickson Conference of the Program in Aegean Scripts and Prehistory of the Department of Classics, University of Texas at Austin, 11-13 January 1989, Aegaeum* 5 (1990) 105-114.
- 18 DRIESSEN and McDONALD (*supra* n. 5) 38, 77.
- 19 REHAK and YOUNGER (*supra* n. 3) 101.
- 20 J. SOLES, “The Collapse of Minoan Civilization: The Evidence of the Broken Ashlar,” this volume.
- 21 Appreciation of the advantages of the harbour at Zakros, protected as it is by Cape Sidero to the north, may have increased as a consequence of the late LM IA Theran eruption and accompanying *tsunami*, with its likely attendant effects on ships and harbour installations on the north coast of Crete. The destructive effects on shipping on the north coast of Crete of a far less significant eruption of Thera in A.D. 1650 are described in a contemporaneous poem by Marinos Tzane Bounialis quoted in D. VALLIANOU, “New Evidence of Earthquake Destructions in Late Minoan Crete,” *Archaeoseismology* (1996) 165.
- 22 Y. TZEDAKIS, S. CHRYSSOULAKI, Y. VENIERI and M. AVGOULI, “Les routes minoennes: le poste de Χοιρόμανδρες et le contrôle des communications,” *BCH* 114 (1990) 43-65; and personal communication from S. Chryssoulaki regarding the recent discovery of the structure at Ampeles, for which I am most grateful.
- 23 D.G. HOGARTH, “Excavations at Zakro, Crete,” *BSA* 7 (1901) 132-133.

by the present author.²⁴ Reconsideration at the site has led to the conclusion that the ancient road did not approach House A from the landward side, but rather followed its current path down from the upland Villa at Epano Zakros and around the hill of Ayios Antonios west of the Palace, arriving at the southern “gate” of the Palace and continuing alongside its West Court until reaching the northwest hill and a set of steps ending directly at House A. Intersecting this road at a point just north of the Palace is the Harbour Road, which runs between houses on the hill directly northeast of the Palace to the sea. (Pl. LXXXb).²⁵ House A on the landward side in fact faces a steep slope and a gully, which in antiquity may have been a considerable stream. Of course goods or messages could nevertheless have come overland via the actual road past the Palace to House A, but there is nothing about its location *per se* to suggest a customs house function with respect to internal Cretan traffic.

The foregoing discussion of the role of Zakros within Crete and of the position of House A within Zakros provides the context for the analysis and interpretation of the major archive found in the LM IB destruction deposit at House A, comprising approximately 1,070 seal impressions stamped by at least 214 separate seals on 554 objects (490 flat-based sealed document nodules, 59 hanging container or open document nodules and 5 docketts or tokens), plus 1 roundel and 1 tablet.²⁶ The single tablet is of some interest, for it records only large amounts of grain and figs.²⁷ Grain and dried figs were of course suitable as ships' rations.

The differences between the House A archive and the records found in the Palace itself are instructive. The main Palace archive, where 14 more or less complete tablets were found, was connected on both sides with the Central Shrine of the Palace, suggesting the possibility that the Palace archive was connected to cultic administration.²⁸ In contrast to House A, the excavations of the Palace produced 30 tablets or fragments but only 4 (or perhaps 5) sealings, 2 of which were applied to parchment (compared to the 490 parchment sealings at House A discussed below).²⁹ Of the total of 16 reasonably complete tablets from the Palace (including the 14 from the archive), 11 have single-commodity sections.³⁰ One lists an amount of barley almost twice that of the House A tablet. Wine is particularly well represented, followed in frequency by sheep. Olives, olive oil and figs also appear, along with a large amount of vinegar.

Four of the six wine tablets are single-commodity tablets and are the most complex tablets in terms of length of texts at the site. The town of Zakros contained numerous wine presses (as well as olive presses), recalling the fact that the terraces above Zakros are well-

24 HOGARTH (*supra* n. 23) 130; this position is also stated in J. WEINGARTEN, *The Zakro Master and his Place in Prehistory* (1983) 45; M.H. WIENER, “The Nature and Control of Minoan Foreign Trade,” *Bronze Age Trade in the Mediterranean. Papers Presented at the Conference Held at Rewley House, Oxford, December 1989* (SIMA XC, 1991) 341.

25 I am most grateful to S. Chryssoulaki, the Director of the Minoan Roads Project, for this recent information and for her additions to the illustration. El. Platon, the Director of the Excavation of Kato Zakros, has kindly indicated his agreement regarding the route of access to House A.

26 J. WEINGARTEN (“Late Bronze Age Trade within Crete: The Evidence of Seals and Sealings” [*supra* n. 15] 303) gives a total of 564 objects with seal impressions, whereas Hallager’s House A total is 554 ([*supra* n. 10] I, 25, 73). The statistics given in the text are based on information provided in HALLAGER (*supra* n. 10), except for the number of different seals employed, which is based on WEINGARTEN (*supra* n. 24). For evidence of attachment to parchment documents, see HALLAGER (*supra* n. 10) I, 137-145; WEINGARTEN (*supra* n. 24) 38-44; PINI (*supra* n. 15) 560-562. The sealings were found in circumstances which suggested that most had fallen from a chest or other container from the upper floor, or from a high shelf on the ground floor of House A. HOGARTH (*supra* n. 23) 133; HALLAGER (*supra* n. 10) I, 73-74; WEINGARTEN (*supra* n. 24) 3.

27 PALMER (*supra* n. 7) 144.

28 WEINGARTEN (*supra* n. 24) 4.

29 HALLAGER (*supra* n. 10) I, 76-77. Of course it is possible that the Palace contained a major parchment sealing archive which failed to survive because the room in question was not burned, or that within the inner precincts of the Palace there was no need to seal parchment documents. N. Platon, the first excavator of the Palace, noted that many sealings as well as tablets may have decomposed in the damp conditions of the Palace at Zakros (HALLAGER [*supra* n. 10] I, 76).

30 The ideogram for persons (AB 100) does not appear at Zakros, but two tablets and one fragment are inscribed with words followed by whole numbers (156, 61 and Z) which could be personnel records.

suiting to wine production.³¹ (The ground floor of House A also contained a wine press.)³² The Villa at Epano Zakros produced a large pithos with the wine ideogram followed by a number presumably referring to liquid capacity, followed in turn by a long inscription.³³ T. Palaima notes that the wine ideogram plus the phonetic ligature AB*60 are known from both Zakros and a pot found at Ayia Irini on Kea.³⁴ Administration of the local regional economy, of luxury goods production and of cultic activity were surely functions of the Palace. Whether the local administration of overseas trade was also situated in the Palace or delegated, largely or partially, to House A is a more difficult question. (The claim of House A is considered below.)

A number of iconographic points are of interest with respect to the sealings of House A. Some seals depict warriors, and one shows a scene of combat. Others, some of them frequently used, depict figure-of-eight shields with architecture or plumed helmets.³⁵ The chief iconographic feature of the archive is the dominant appearance of seals featuring fantastic monsters, mostly threatening and/or agitated in appearance, sometimes partly human, and often with exaggerated sexual parts. J. Weingarten believes the seals to be almost entirely the work of a single seal engraver whom she has called "The Zakro Master,"³⁶ whereas I. Pini sees several principal hands contributing to the production of a Zakros Workshop.³⁷ While seals from other Cretan sites depict compound creatures such as the Minoan genius and the bird-headed woman or goddess, nevertheless the work of the Zakro Master/Workshop must have struck the rest of Crete as highly distinctive, particularly in this period of fine naturalistic sealings.³⁸ An apotropaic purpose has recently been suggested for these images, or an attempt to convince potential enemies of the fierceness of Zakros³⁹ (or whatever entity was perceived as the originator of the message to which the seal impressions were attached). J. MacGillivray has suggested that the spread wings on some of the creatures represent vultures, in which case an apotropaic or menacing message may again have been intended.⁴⁰

With respect to the administrative function of these sealings, the penetrating analyses of J. Weingarten⁴¹ and E. Hallager⁴² have revealed the following significant points:

1. All 490 of the flat-based nodules were attached to parchment. 88.1 percent of the sealings recovered from House A showed evidence of attachment to parchment documents, compared to 6.9 percent at the largest surviving Minoan archive at Ayia Triadha (76 of

31 WIENER (*supra* n. 14) I, 133; S. CHRYSOULAKI and El. PLATON, "Relations Between the Town and Palace of Zakros," *The Function of the Minoan Palaces. Proceedings of the Fourth International Symposium at the Swedish Institute in Athens, 10-16 June 1984* (1987) 77-84; PALMER (*supra* n. 7) 150.

32 HOGARTH (*supra* n. 23) 130.

33 PALMER (*supra* n. 7) 144.

34 PALMER (*supra* n. 7) 144; T.G. PALAIMA, "Linear A in the Cyclades: The Trade and Travel of a Script," *Temple University Aegean Symposium 7* (1982) 15-22, and personal communication, for which I am most grateful. A.H. BIKAKI, *Keos, Volume IV: Ayia Irini: The Potters' Marks* (1984) 32.

35 WEINGARTEN (*supra* n. 24) 78, 12.

36 WEINGARTEN (*supra* n. 24) 58-81.

37 Personal communication, for which I am most grateful.

38 The images have been subject to various types of art historical and psychoanalytic interpretation, including analysis by insult, e.g., the product of an "overheated, fever-stricken imagination" (M.P. NILSSON, *The Minoan-Mycenaean Religion and its Survival in Greek Religion* [1950] 370), or of a "schizophrenic disorder" (M.A.V. GILL, "The Human Element in Minoan and Mycenaean Glyptic Art," *CMS Beiheft 1* [1981] 83-90). Both are cited in S. GERMAN, "Erotica and Power: A Reexamination of the Zakros Sealings," *Paper presented at the 98th Annual Meeting of the Archaeological Institute of America (New York, 29 December 1996)*.

39 GERMAN (*supra* n. 38).

40 J. MacGillivray, personal communication. Years of involuntary naval service has caused the author of this paper to wonder whether the depictions of creatures with huge erect penises, enormous breasts and spread legs might simply be examples of military humor.

41 WEINGARTEN (*supra* n. 24); "Late Bronze Age Trade within Crete: The Evidence of Seals and Sealings" (*supra* n. 15) 303-324.

42 HALLAGER (*supra* n. 10).

1,103).⁴³ 69 percent of all known Minoan parchment sealings recovered in excavations come from House A at Zakros.

2. Almost all the parchment sealings appear visually to be of the distinctive local clay.⁴⁴ Accordingly, the House A sealings would either have been attached to important records of a local but special nature, or to documents awaiting dispatch, in all likelihood either to Knossos or to destinations abroad.

3. 70 percent of the 525 nodules examined by Weingarten were stamped on more than one side, whereas in the rest of Crete the percentage of nodules stamped on more than one side is very low. The only parallel for the Zakros multiple sealing system discovered to date comes from Knossos, where nodules with multiple sealings from the Hieroglyphic Deposit and Temple Repositories comprise almost half the total from each of these locations. 85 percent of all known Minoan multi-sealed documents come from House A at Zakros.⁴⁵

4. 65 percent of the impressions which appear in the multiple sealing system are from seals of the Zakro Master/Workshop.⁴⁶ These seals are very rarely used in combination with other gems, and are seldom employed alone. Moreover, seals used on three-impression document nodules are very seldom used on two-impression nodules, and vice versa.⁴⁷ Specific combinations of these seals are used with notable consistency. Intensity of use of particular seals is far higher in the multiple than in the single sealing system. Some combinations are invariable, i.e., the sealings always appear together. There are, however, 100 different combinations in all, a number greater than would be required for purely local administration, which in any event could be accomplished using clay tablets, rather than valuable parchment.⁴⁸

5. The multiple sealing system employs a significant number of "look-alikes"—i.e., seals which are not quite the same—which suggests that the seals identified function rather than person. (The Knossian gold "replica rings" may represent the same phenomenon.)

6. Most significantly, *the multiple sealing system is a closed system: the seals of participating seal users only appear in combination with other such seals and never individually.*

With respect to the closed and repetitive nature of the House A multiple sealing system, J. Weingarten finds it "difficult to imagine a purely administrative system so complex, rigid and enduring," which leads her to propose that the sealing groups "are based on kinship, the most complex, rigid and enduring of all relationships."⁴⁹ Other possibilities include military and naval administration, which can surely compete as regards complexity, rigidity and longevity. A possible illustration of such longevity is provided by an impression from a Knossian metal ring, on clay unlike that of Zakros but visually similar to that of Knossos, which sealed a parchment document found at House A.⁵⁰ "Look-alikes" of this ring were in use at Knossos roughly three generations later; impressions from these rings were found in close association

43 HALLAGER (*supra* n. 10) I, 25, 73. D. LEVI ("Le Cretule di Haghia Triada," *ASAtene* 8-9 [1925-1926; published 1929] 73) gives a total of 1,165 "impronte," but the total includes fragments which were later joined or are no longer identifiable.

44 HALLAGER (*supra* n. 10) I, 145. X-ray florescence analysis of two Zakro Master/Workshop sealings said to come from Poros/Heracleion and now in the Ashmolean Museum, Oxford indicated a clay source consistent with local Zakros pottery (WEINGARTEN [*supra* n. 24] 24, n. 27, citing J. WEINGARTEN, *The Zakro Master and His Place in Prehistory*, M. Litt. diss., Oxford [1981] Appendix III).

45 HALLAGER (*supra* n. 10) I, 205.

46 WEINGARTEN (*supra* n. 24) 7-8.

47 HALLAGER (*supra* n. 10) I, 151.

48 HALLAGER (*supra* n. 10) I, 223. The House A multiple sealing system also included 18 impressions from one seal (Z 97) and 16 impressions from another (Z 98), both of which E. Hallager regards as seals of Knossos type, but not made in the Knossos workshop. It is these seals which E. Hallager would connect with "representatives of the Knossian administration of Zakro" (HALLAGER [*supra* n. 10] I, 211-212).

49 J. WEINGARTEN, "The Multiple Sealing System of Minoan Crete and Its Possible Antecedents in Anatolia," *OJA* 11 (1992) 34.

50 WEINGARTEN (*supra* n. 15, 1991) 307-308.

with Linear B tablets, one tablet perhaps dealing with military matters as argued by J. Driessen,⁵¹ but certainly referring to officials coming from or going to various places.⁵²

Clearly the multiple sealing system archive at House A was used in connection with records, messages and/or contracts of a highly specialized nature. There is a marked contrast between the unexceptional quality, apart from the striking iconography, of the seals, made from common local stones and lacking the sophistication of carving of the major Knossian sealstones and metal rings,⁵³ and the special nature of the skilled-labor-intensive parchment writing surface to which most of the stamped nodules were attached. This contrast suggests that the seals were used for the most part by non-elite functionaries, civil or military, whose roles called for the stamping of important documents which required extended retention or safe transport, perhaps transport by sea.⁵⁴ Of course the parchment documents to which 490 of the House A nodules were attached would have contained the actual messages, whether instructions, requests, agreements or inventories of accompanying goods. The sealings may have indicated where a parchment packet was to be delivered, or the identity of the parties or entities who had inventoried goods listed on the sealed parchment, joined in the transaction, or were responsible for approving or authenticating the communication.⁵⁵

With what matters were the House A parchment documents and those who participated in the multiple sealing system dealing? It seems unlikely that the House A documents largely duplicated the redistributive, atelier, and cultic administrative functions of the Palace (or even the Palace administration less cultic activity), particularly given the heavy concentration of parchment sealings and the distinctive multiple sealing system present at House A. J. Weingarten has proposed that House A was the residence of a scribe or scribes (who in that case clearly lived in style, considering the position, size, architecture and fresco decoration of the building), and that the parchment documents they produced dealt with trade, including particularly trade in textiles (whose large-scale production is attested in the Knossian Linear B tablets roughly three generations later), with the sealings reflecting receipt and delivery of raw materials and finished products. It seems unlikely, however, that accounts of local deliveries of wool would have been recorded on parchment rather than on clay tablets, where in fact the Linear A ideogram for sheep regularly appears. The tablets from the Palace also contain extensive, complex entries regarding wine⁵⁶ (see above); accordingly, it seems equally unlikely

51 J. DRIESSEN, "Collector's Items': Observations sur l'élite mycénienne de Cnossos," *BCH Suppl* 25 (1992) 207.

52 The term used for these officials, "qa - si - re - u," is an early form of the Greek "basileus," but has no Indo-European root or parallel; perhaps both the term and the administrative system are Minoan in origin. T. Palaima has proposed that whereas "wa - na - ka" (wanax) is a likely Minoan loan word, "qa - si - re - u" may have been a Helladic or general Aegean substrate borrowing in light of the subsequent widespread prominence of the term "basileus." T.G. PALAIMA, "The Nature of the Mycenaean Wanax Non-Indo-European Origins and Priestly Functions," *The Role of the Ruler in the Prehistoric Aegean. Proceedings of a Panel Discussion presented at the Annual Meeting of the Archaeological Institute of America, New Orleans, Louisiana, 28 December 1992, Aegaeum* 11 (1995) 119-142.

53 J.G. YOUNGER, "Minoan and Mycenaean Seals as Insignia," this volume.

54 Parchment was certainly also used for elite correspondence; of 53 impressions from gold rings (thought to be Knossian) which have been examined, 46 were attached to parchment (J. WEINGARTEN, *Review of The Minoan Roundel and Other Sealed Documents in the Neopalatial Linear A Administration*, Vols. I-II, by E. HALLAGER, *AJA* 101 [1997] 784).

55 The House A multiple sealing system required that the seals be impressed at the same time, while the clay was wet, and with equal pressure from both or all sides, but not necessarily by more than one person (HALLAGER [*supra* n. 10] I, 205). E. Hallager describes the operation of the sealing system as follows: "a tiny folded piece of worked leather—or parchment—has been wound with a thin string upon which a small lump of clay has been applied and the thin string further wound around the 'parcel' and within the clay lump, the procedure ending with the impressing of one or more seals into the clay" (HALLAGER [*supra* n. 10] I, 135; 140, fig. 51). I. Pini believes that the physical evidence does not indicate whether the putative pieces of parchment to which the nodules were attached were folded or flat, that almost all of the parchment pieces were too small to permit extensive texts and that the value of parchment would have been such as to mandate great economy in its use. (Personal communication, for which I am most grateful).

56 PALMER (*supra* n. 7) 144.

that the multiple sealing system parchment document administration centered in House A would have been largely concerned with local wine production. It seems still more unlikely that the parchment document administration would have involved the single winepress on the ground floor of House A itself. Administration involving the export of quantities of textiles and wine is of course a different matter (see below).

A third possibility, that the House A document archive constituted a registry (for example, of appointments to office, entitlements to land, and/or obligations of landholders or tax collectors, perhaps even covering a substantial part of the coast of East Crete) also seems unlikely. The House A archive contained no single-hole hanging nodules, the type of document that E. Hallager believes was attached by threads to records which were kept open to general examination, and in general the concept of such a separate bureau of records seems anachronistic.⁵⁷

The complex, closed and rigid parchment document multiple sealing system, known thus far only from House A at Zakros and from Knossos, appears to involve something beyond local exchange or administration.⁵⁸ The administrative requirements of overseas trade or exchange and of maintaining a fleet of ships present obvious possibilities, in view of the position of Zakros with its twin harbours, protected from both north and west winds. Even the first step of obtaining timber for the building of ships would probably have involved record-keeping. A roughly contemporary Egyptian papyrus believed dateable to the 30th year of Tuthmosis III (1449 B.C. on the Middle Egyptian chronology)⁵⁹ records the exact amounts of wood given to a number of chief shipbuilders over a period of about eight months.⁶⁰ Providing ships with equipment, including sails, ropes and oars, and provisioning them with crews and rations would clearly also have required records.

Finally, ships' cargoes were surely recorded. Perhaps E. Hallager's proposed "Knossos-type seals" may have been used on documents relating to state exchange or major cargoes. The elephant tusks and copper oxhide ingots found in the Zakros Palace remind us of the extent of trade with the east. It is worth recalling in this context that the Cypro-Minoan script is derived from Linear A, with 18 out of 20 distinctive signs in common.⁶¹ Metal trade between Cyprus and Crete, perhaps involving a literate Minoan agent at Toumba tou Skourou or Ayia Irini, sites on the northwest coast of Cyprus with significant Minoan finds and near the copper resources of the Troodos mountains, is one possible explanation for the linkage in scripts. Parchment (rather than unbaked clay) would surely have been preferred for transmission of messages overseas.

It is indeed possible that the Palace, in addition to its direction of cultic, atelier and regional economic activities, was also the center for maritime administration, perhaps involving exports of weapons, wine, olive oil and textiles and imports of metals and luxury goods, whether acting on its own behalf or as the entrepôt for Near Eastern trade or state exchange for Knossos. Imported oxhide copper ingots, elephant tusks and fine stone vases incorporating Egyptian stone bowls were all found in the Palace treasury adjacent to the shrine area, but given the fact that both the treasury and the workshops for luxury products

57 HALLAGER (*supra* n. 10) I, 197-199.

58 The appearance of Zakro Master/Workshop seals or sealings at Poros, Ayia Triadha and Sklavokambos should be noted in this regard. For the appearance of such sealings in connection with a rare occurrence of the multiple sealing system at Ayia Triadha, along with a seal impression of a bowman, see *supra* n. 13.

59 K.A. KITCHEN, *The Third Intermediate Period in Egypt (1100-650 B.C.)*, 2nd Edition (1986) and 2nd Edition with Supplement (1996); "The Basics of Egyptian Chronology in Relation to the Bronze Age," *High, Middle or Low? Acts of an International Colloquium on Absolute Chronology held at the University of Gothenburg, 20-22 August 1987* (1987) I, 37-55; "History of Egypt (Chronology)," *The Anchor Bible Dictionary* (1992) II, 322-331; "The Historical Chronology of Ancient Egypt, A Current Assessment," *Acta Archaeologica* (forthcoming); M.H. WIENER, "The Absolute Chronology of Late Helladic IIIA2," *Sardinian Stratigraphy and Mediterranean Chronology* (1998) Addendum.

60 S.R.K. GLANVILLE, "Records of a Royal Dockyard of the Time of Tuthmosis III: Papyrus British Museum 10056," *ZAS* 66 (1931) 105.

61 T.G. PALAIMA, "Cypro-Minoan Scripts: Problems of Historical Context", in Y. DUHOUX *et al.*, (eds), *Problems in Decipherment* (1989) 137-138.

were located in the Palace, it seems likely that such goods would have been delivered to the Palace whatever the location of maritime administration and record-keeping. The possibility that the Palace was the center of such administration is reduced by the fact that only two document sealings were recovered from the Palace versus 490 from House A (always bearing in mind the possibility of a major accident of recovery).

Of course many of those involved in trading expeditions may have been “warrior-traders,”⁶² for in the Late Bronze Age the choice between trade and raid was likely often made at the moment, with flotillas equipped for either. M. Wedde describes the type of ship depicted on the Thera fresco and on contemporaneous Minoan seals as a “superb sailor” with the ability to engage in both peaceful trading and bellicose colonizing.⁶³ Some no doubt were primarily warriors, as the Theran miniature fresco, with its depiction of warriors and warships, attests. Near in time to the LM IB destructions, Tutmosis III describes seizing two ships, “equipped with their crews and laden with every good thing including male and female slaves, copper and lead,” while returning home from his fifth Syrian campaign—the first recorded act of piracy.⁶⁴

The argument of this paper may thus be summarized as follows:

1. Neopalatial maritime administration for trade and raid (and perhaps defense at the end of LM IB) required written instructions, messages and records.
2. Some of the important documents would have been written on parchment.
3. The position of Zakros and the finds there suggest a special maritime role for the site.
4. The LM IB destruction level at House A produced 490 document sealings, in contrast to two from the Palace. At Ayia Triadha, the site of the largest excavated deposit of Minoan LM IB sealings, 76 out of 1,103, or 6.9 percent, were document sealings, in contrast to Zakros House A where the percentage is 88.1. Unless these differences are the result of striking accidents of recovery, they suggest a distinctive function for the House A archive, which contained 69 percent of all known Minoan document sealings.
5. The multiple sealing system in which most of these Zakros parchment sealings appear is very rarely attested elsewhere, except at Knossos. 85 percent of all known Minoan multi-sealed documents come from House A at Zakros.
6. The totally closed and rigid nature of the multiple sealing system, its distinctive iconography, and its concentration in a specific location suggest a special function or functions.
7. A likely but not certain candidate for such a function is the administration of cargoes and ships for trading and raiding.

Malcolm H. WIENER

62 REHAK and YOUNGER (*supra* n. 3) 139.

63 M. WEDDE, this volume. I am most grateful to have received this paper in manuscript, and for the further suggestion that the “fighting platforms” of the vessels shown on the Theran miniature fresco were removable, attached when the ship was in a fighting mode and detached when the ship was to be used for cargo (M. WEDDE, letter of May 28, 1998). It is perhaps worth recalling in this connection that the Classical Athenian grain fleet (“corn fleet” in English, “wheat fleet” to Americans) was also the fighting fleet.

64 K. SETHE and W. HELCK, *Urkunden der 18. Dynastie*, Part IV (1907) 686-687. The ships depicted on Middle Helladic vases found at Kolonna on Aegina have been interpreted by L. BASCH as pirate ships (“The Aegina Pirate Ships of c. BC 1700,” *Mariner's Mirror. International Journal of the Society for Nautical Research* 72 [1986] 415-437). Wedde believes these ships to be the direct forerunners of the ships shown on the Theran fresco, and similar in size.

LIST OF ILLUSTRATIONS

- Pl. LXXXa Zakros. House A (photograph courtesy of S. Chryssoulaki).
Pl. LXXXb Map. Zakros Area.

DISCUSSION

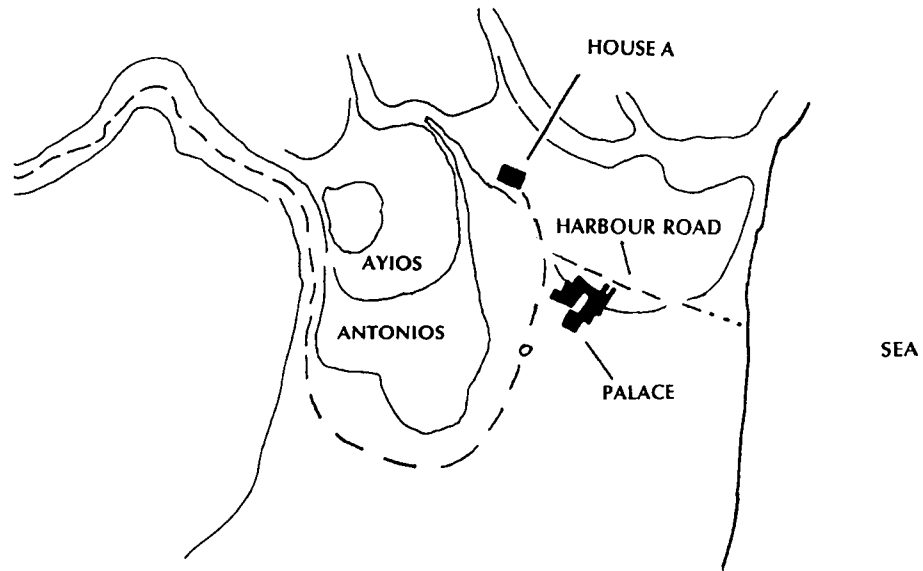
- P. Warren:** Just a brief question: if the purpose of the sealings in House A was to control goods coming in by sea and we know these goods were actually taken and stored in the palace, then why were the sealings not found in the palace, where you would expect them to be, instead of in a relatively distant building? This surely must raise a query about the interpretation of the sealings as for the control and record of goods incoming by sea.
- M. Wiener:** We must distinguish between two types of goods coming into the Palace: first, local agricultural produce which was recorded on the clay tablets found in the Palace as I've indicated, and second, the luxury products found principally in the Treasury adjacent to the main cult room and near to the workshops. Egyptian stone vases to be turned into luxurious Minoan products by the addition of rock crystal and ivory elephant tusks for use as raw material would have come to the Palace workshops wherever maritime administration involving storage of parchment/leather documents was located. There were of course two seal impressions with parchment impression found in the Palace, and it would be natural to associate those, as you say, with the goods actually found in the Palace. In the long version of the paper I go through that to some extent. That still leaves a great deal of administration of the navy and perhaps the fighting forces to be done somewhere. When you look at the existence of let's say 200 parchment documents, perhaps more, in House A, whatever their size, that seems to me to imply more than local record-keeping for local agricultural purposes.
- T.G. Palaima:** With the multiple sealing system, you have three impression^s of three different seals. Do these all have to be made at the point of origin? Or at least when the clay is still malleable. So it looks to me as if it is a system of check and countercheck at the point of origin, which is an added point in Malcolm's favor through thinking of a sphere where you're really tightening down on security in this way using the seal system - which I think is the hallmark of the Minoan system. As far as Jan and Ilse's paper, which I think is correct in broad outlines, I think there are still things to understand about the transition between a seal-dominated administrative system and the Mycenaean where that is out of the loop. Getting back to Malcolm's point, if you have three individuals who are involved in the process of making sure that this document is correct, and then correctly sealed, and these people are responsible... In the latest *Minos*, which has had troubles with circulation, Carol Justus, a Hittitologist, who attended the *Aegean Seals, Sealings and Administration* conference, has written from the perspective of Hittite documents a legal dispute, which she thinks may function very much like roundels and nodules, that are involved with royal materials that are being embezzled by various officials. The whole court trial is unravelled there, the whole process of shipping goods to Hattushas and back, but showing the absolute security that the seals and these kinds of documents provide for high-level and important things. So I think that this certainly is a significant side of this multiple system.
- M. Wiener:** Two small comments with regard to this: I would agree that the most likely interpretation of the use of the system is the one that you have advanced. But there are other possibilities. For one thing it is possible for one person to impress more than one seal if he is acting in various capacities, or if the sealings are instructions as to delivery. Remember, the real message would have been on the piece of parchment. It may be that he is indicating the location and unit, or the unit and person to whom that message is to be delivered. It is also possible that the sealings were attached to incoming documents. I think all of those possibilities exist.
- I. Pini:** The multiple sealing system at Zakros is much more complicated. It does not only mean that three seals were used. Sometimes copies of these seals were used, and sometimes re-engraved seals were used, but all at the same time. I am pretty sure that these sealings are the result of a very short period of keeping them. So we have at the same time sometimes up to three seal-faces which are almost identical, far more than the examples John Younger has shown today to us, far more. Sometimes it took us a long, long time - you will see: after eight weeks the book will be out - all the cases where we found these differences. And only then

one can start to do a thorough study. We started with that but it is complicated to create a database for this because of this complex situation.

- M. Wiener:** Two points: first that seems to me very strongly to suggest that really it is the function of the person that counts, the fact that the number one of the sealings appears repeatedly in the same combinations, but as you say with slight differences in the seal, but the fact that the combinations don't change suggests strongly to me that it is the role or the function of the person and not the individual person that is really critical here. Also I don't believe that these are sealings being inventoried as sealings, but rather that they were attached to parchment documents which were kept in that chest on the second floor. The parchment documents are gone. I don't think that we would have that many sealings preserved for some time just because somebody was coming along and inventoring the sealings. They are not like intermediate Linear B tablets, but rather they are certificates to some documents they seal.
- S. Chryssoulaki:** About the question of Professor Warren: House A has been very well excavated twice, once by Hogarth who finished his excavations at the Neopalatial floors, and then the Greek excavation went under the floors to the first phase of the construction. The material for the first palace period is extremely good in quantity and in quality - fine Kamares ware. Dr Platon will say if it is imported or not. House A is not one of the houses of the town: it is very different from the others, not only due to the topography, but also due to some of the architectural details. For instance, it is the only house - as far as I know - in a settlement which has a sally-port, like the sally-port of the sites I discussed. I don't want to say it had the same function, but it was something very important, in both the palatial phases of the town.
- P. Militello:** I have two observations as far as Agia Triada is concerned. I don't think we have any indication for a military connection, neither textual nor contextual, of the tablets of the Casa del Lebete. Also for a military function of the so-called Bastione: we have no proof of this. Perhaps they were storerooms, or something else.
- M. Wiener:** Yes, I advanced that very hesitantly as you recall, and even wondered whether I should do so at all. As you say there is certainly no proof for a military function. I even suggested that these tablets perhaps were recording some sort of agricultural detail, like on the Harvester Vase. There could be many such explanations. What is your explanation for the fact that this archive is unique in that it has only tablets and no other types of Minoan administrative documents, and, secondly, that it is so limited to tablets of a particular type? It doesn't have any of the artisanal tablets, any tablets referring to raw materials for crafts. It is really completely different from the archive we find in the villa.
- I. Schoep:** I think it is a dependency of the administration in the villa, and that is the reason for the administration going on this different location. But so far we can't establish the reason. I don't think there is evidence for military matters because there are tablets recording people, on the same tablets we have amounts of A303 which is either wheat or barley, wine and figs, but there is no system, no ratio.



a



Zakros Area (dashed lines indicated approximate proposed ancient pathways)

b

