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Tablets and Territories? Reconstructing Late Minoan IB Political Geography through Undeciphered Documents

ILSE SCHOEP

Abstract

In this article I explore the political geography of Neopalatial Crete through a multidisciplinary analysis of Late Minoan IB administrative documents. These documents testify to the existence of two levels in Minoan administration, a local level, represented by Linear A tablets, and a regional level, embodied by sealed documents. Both tablets and sealed documents reflect a considerable degree of regionalism, an observation that does not corroborate the thesis that LM IB Crete was a centralized state run by Knossos. On the basis of intersite differences in administration, it is argued here that administrative centers were managing and exploiting their own hinterland, without the interference of a central power. The so-called Knossos replica rings, which left identical impressions at various Neopalatial sites, cannot be directly connected with Knossos. Although perhaps testifying to the existence of an intensive suprarregional network, the rings do not provide evidence that this was of a political nature. Some developments in material culture, script, and religion that occur at the beginning of the Neopalatial period are explained as politically motivated and caused by unifying aspirations of Knossos. By the time of the final destructions in LM IB, however, the regions of Crete had lapsed again into a looser network of regional centers, managing their own resources. *

* This paper is an expanded version of a seminar given in March 1998 at the Institute of Fine Arts at New York University, the Universities of Wisconsin (Madison), Cincinnati, Texas (Austin), and at Dartmouth College. I would like to thank M. Wiener, J. Bennet, J. Davis, T.G. Palaima, and J. Rutter for inviting me and giving constructive comments. Furthermore, my thanks go in the first place to J. Driessen for his patience and many fruitful discussions, P. Tomkins for correcting my English, C. Knappett for filling in the Protopalatial background, and C. Shelmerdine for making an unpublished manuscript available. Thanks are also due to the two anonymous A/JA reviewers for many useful comments.

The following abbreviations are used:

ADMINISTRATION AND POLITICAL GEOGRAPHY

The topography of Crete divides the island into a number of geographical units that are separated from one another by mountain ranges and other natural boundaries. In the Neopalatial period, several of these units contained a “central place” characterized by an urban center with a central building (fig. 1). The plan of this building is either that of a canonical “palace” with functionally different areas organized around a court, or of a different form, which appears to be an unsuccessful attempt at imitation of the standard palace plan. Examples of the first type are the central buildings of palatial type at Knossos, Galatas, Phaistos, Malia, Gournia, Petras, and Zakro; examples of central buildings of nonpalatial type are those at Hagia Triadha, Myrtos Pyrgos, Kommos, and Arkhanes. 1 The degree to which this distinction between canonical and noncanonical palatial buildings reflects a hierarchical difference is at present unknown, nor are we able to say whether these geographical units are also territorial units. In fact, we remain fundamentally ignorant about how

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the palaces fit into the political landscape of Neopalatial Crete.\textsuperscript{2} There are two dominant but directly opposing views on the political geography of Crete during this period. Some scholars, such as Hood, Betts, Wiener, Cadogan, Hallager, Dickinson, and La Rosa, conceive of a unified island under Knossian rule, with all other palaces dependencies of Knossos.\textsuperscript{3} Others, however, advocate a patchwork of small independent states centered on the different palaces, with Cherry, Renfrew, Weingarten, Bennet, Diessen, and Macdonald as the main proponents.\textsuperscript{4} Most of the arguments cited in favor of a single political unit, such as colonization, size of Knossos, lack of defensive structures, and diffusion of Knossian architectural style, are neither exclusively true for the Neopalatial period nor do they necessarily have any bearing upon the political domain.

A source of information rarely exploited for its relevance to this debate are the undeciphered Linear A tablets found at several sites on the island (fig. 2). From contemporary Bronze Age cultures, we know that script and administration were powerful tools of elites and political institutions. It is therefore my purpose here to examine whether and how these undeciphered Linear A documents may be of help directly, in clarifying the administrative organization of Neopalatial Crete, and indirectly, in assessing the political geography of the island in the period ca. 1650–1450 B.C.\textsuperscript{5} This approach is influenced by Bennet’s work on the (deciphered) Linear B tablets from...
Knossos and their relevance for a reconstruction of the political structure of Late Minoan III Crete. The evidence of the Linear B administration of Knossos and the social hierarchy that it reflects seem to fit the unitary state model, a type of hierarchical structure in which all powers are delegated from the top and similar powers are not repeated at each level. This model may be contrasted with the segmentary state, in which similar powers are found at all levels, the ideological component is stronger than the political and economic one, and the centralized government exercises limited economic control over provincial administrative centers.

Linear B administrative procedures display a large degree of standardization and homogeneity in their use of set formulas, tablet shapes, and text dispositions, in the recurrent contextual position of certain commodities, and in the existence of a standard system of weights and measures, which appears to have been used in Mycenaean polities from Crete to Boeotia. Furthermore, the Linear B tablets testify to the existence of a relatively uniform palaeographic *koine*, despite the different topographical and chronological contexts in which the tablets appear. Despite these *administrative* similarities, however, there is no evidence to suggest a *political* unity on the Mycenaean mainland, let alone one including Crete. The Linear B case, therefore, serves as a warning not to take administrative standardization and recurrent patterns of economic organization in different spatial contexts at face value for the reconstruction of political organization. On the other hand, it seems scarcely acceptable to assume the existence of a unified state or centralized bureaucracy, which makes use of different systems of administration and types of economic organization, a variety of handwriting styles, document types, and weight and measurement standards, since such a practice would defy all principles of bureaucratic organization. In this article I demonstrate that Linear A lacks the general standardization typical of Linear B, but nevertheless exhibits island-wide features that imply some kind of unifying factor.

A general comparison between the two scripts and their administrations should highlight some similarities and differences. In seeking to do this, however, one must first question whether conclusions drawn from observations valid for a *deciphered* script can be considered relevant to an *undeciphered* script. Indeed, are undeciphered documents of any value in the reconstruction of political structure? I believe they

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6 Bennet (supra n. 4).

7 For the application of the segmentary state model in the Near East, see G. Stein, "Segmentary States and Organizational Variation in Early Complex Societies: A Rural Perspective," in G.M. Schwartz and S.E. Falconer eds., *Archaeological Views from the Countryside: Village Communities in Early Complex Societies* (Washington, D.C. 1994) 10–18. For the introduction of this model of the state into Aegean archaeology, see C. Knappett, *Pottery Production and Distribution: Technological, Economic and Social Perspectives* (Diss. Univ. of Cambridge 1997).

8 Within the economy of each Mycenaean polity, however, differences exist with regard to organization (e.g., decentralized vs. centralized workshops) and focal interests (e.g., flax at Pylos, wool at Knossos). See E. Stavrianopoulou, "Observations sur la hiérarchie des localités d’après les textes en linéaire B," in De Miro et al. 499–509; C.W. Shelmerdine, "A Comparative Look at Mycenaean Administration(s)," in *Florent Studia Mycena. Proceedings of the 10th Mycenaean Colloquium, Salzburg, May 1995* (Salzburg, forthcoming).

have an important part to play because, through an assessment of both external (pinacological, epigraphical) and internal (contextual) features of the documents, of both tablets and sealings, one may attempt to measure the degree of standardization in administrative practice. The type of approach advocated here is one that takes into account the archaeological context, spatial distribution patterns, morphology, administrative procedures, and the palaeography of administrative documents.

There are, however, several areas where caution must be exercised. Only sites that have yielded a sufficient number of Linear A documents are considered here, namely, Haghia Triadha, Khania, and Zakro. The state of preservation of the available Linear A documents constitutes a recurring theme throughout the present comparative analysis because it defines our sample; one way of overcoming gaps is to focus on the features that the administrative documents from different sites have in common (e.g., commodities and their contextual positions and associations). Because of the nature of Linear A and the gaps in our sample, we are restricted to studying the administrative processes rather than the economic patterns reflected by the tablets. All intersite differences in administration are not equally relevant to regionalism, and it is therefore better to make a distinction between primary and secondary differences. Secondary differences can, but do not necessarily, result from relevant differences in administrative practices. Other coincidental factors cannot be excluded, such as the randomness of discovery (excavation, destruction by fire, etc.), the stratigraphical position of the documents (in situ or not), the time of destruction, and the function of a deposit (working deposits versus archives). Differences that are probably not influenced by these factors and that may be due to regionalism are here labeled primary. This distinction should not be taken as implying that all secondary differences are results of coincidence since some of these may also result from regionalism; the nature of the sample does not allow for certainty either way. Finally, the differences in administrative organization suggested by the Linear A and Linear B tablets may at least partly result from the different perspectives used in assessing both, respectively a bottom-up versus a top-down perspective.

**NEOPALATIAL ADMINISTRATION: SECONDARY DIFFERENCES**

With the above provisos in mind, we may now look at our sample in more detail. As far as tablets are concerned, we are dealing with less than 300 documents from three sites: Haghia Triadha in the Messara with 147 tablets; Zakro, a port town in the far east of the island with 31 tablets; and Khania, a port town in the northwest of the island with 94 tablets. The main caches of sealed documents were also found at these three sites. These sealed documents break down into different typological categories, each with a number of subtypes. All seemingly fulfilled a set function in the administrative process. The main types are roundels (clay disks with seal impressions on the edges), hanging nodules (clay lumps originally attached to strings), flat-based or “parcel” nodules (clay lumps with the imprint of perishable documents on the back), and noduli (clay lumps with no means of attachment). The distribution of the main sealed document types as well as tablets is shown in figure 2 and table 1.

The first intersite difference to consider is chronological: the three main sites, Haghia Triadha, 

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10 The other Neopalatial sites (e.g., Arkhanes, Tylissos, Myrtos Pyrgos, Palaikastro, Papoura, and Petras) yielded too few documents.


12 If we only had Linear B tablets, we would be badly informed about life in LM III; see, e.g., P. Halstead, “Agriculture in the Bronze Age Aegean: Towards a Model of Palatial Economy,” in B. Wells ed., *Agriculture in Ancient Greece* (Stockholm 1992) 105-106, stressing that the regional centers did produce commodities other than those in which the palace was interested (e.g., different kinds of wheat, pulses, and vetching); Halstead, “Making the Most of the Gaps in the Evidence,” *PCPS* 38 (1992) 57-86; see also the discussion in *Politieia* 171-72; C.W. Shelmerdine, “Review of Aegean Prehistory VI: The Palatial Bronze Age of the Southern and Central Greek Mainland,” *AJA* 101 (1997) 367. The question is whether we would be able to make statements about the political geography of Crete without relying on the tablets. For some attempts, see H.W. Haskell, “Mycenaean at Knossos: Patterns in the Evidence” and L.V. Watrous and H. Blitzer, “Central Crete in LM II–IIIB1: The Archaeological Background of the Knossos Tablets,” in J. Driessen and A. Farnoux eds., *La Crête mycénienne, Actes de la Table Ronde internationale organisée par l’Ecole française d’Athènes (BCH Suppl. 30, Paris 1997) 187–93 and 511-16, respectively.

13 The difference between two-hole nodules and single-hole nodules is that, in the former, the string runs all the way through the clay lump, which was suspended horizontally, whereas in the latter, the lump hangs from a vertical string. The *miscellanea* in table 1 comprise hybrid administrative documents that do not fit into any of the other categories.
Khania, and Zakro, have all yielded documents that date to LM IB (ca. 1450 B.C.). Also attributed to this period are the documents from Tylissos, Petras, Arkhanes, Myrtos Pyrgos, Sklavokambos, and Palaikastro. Other documents, however, are certainly earlier, most notably those from the palaces of Knossos, Phaistos, and Malia.14 Contrary to what one may expect, the nonpalatial contexts at Khania and Hagha Triadha yielded the largest quantities of documents and, with the exception of Zakro and Petras, none of the other palaces contained administrative documents dating to LM IB: all are LM IA (Knossos) or earlier (Phaistos, Malia). This discrepancy between palatial and nonpalatial sites may imply either that the architectural shape of the building did not dictate settlement hierarchy in LM IB15 or that there was a deliberate policy or tendency in this period toward making the palaces of Malia and Phaistos redundant from an administrative point of view, as suggested by Driessen and Macdonald.16 This may make sense as far as Phaistos is concerned—the town shows hardly any LM IB occupation—but it is not corroborated by the extensive LM IB occupation in the towns of Malia and Knossos and could therefore be merely a result of random discovery.

One may also question the relevance of the differences in the quantities between the various sites, as shown in table 1. It seems risky to link these differences to either internal administrative patterns or settlement hierarchy, as has been done by Weingarten,17 and again the random nature of discovery may have played a role. One might compare this situation with the distribution and number of Linear B documents on the Mycenaean mainland, which, although similarly unbalanced, are never explained in this way.

The intrasite distribution of documents shows a good deal of variation: sometimes documents were found only at a single location within a site, as at Myrtos Pyrgos and Tylissos; elsewhere they were found in two or more locations, as at Hagha Triadha, Knossos, Zakro, and Khania. This variation is more difficult to explain and may well suggest the existence of different levels in an administrative hierarchy. For this, one should examine parameters other than spatial distribution, such as the archaeological and architectural context, function of the buildings in question, types of documents attested, and their contents and palaegraphy; all can help to show that a different internal organizational structure exists behind the different distribution patterns of the documents. For example, at Khania, both tablets and some types of sealed documents were found in what appear to be private houses throughout the LM IB town: two tablets, noduli, a parcel nodeule, and a sealed stopper in House I, and tablet frag-

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15 The lack of elite residences in some of the palatial settlements (e.g., Phaistos, Gournia) and their presence in some of the nonpalatial settlements (e.g., Hagha Triadha) suggest that at least some nonpalatial settlements functioned in a similar way to the palatial ones.

16 *Troubled Island* 148–68 (Knossos), 186–93 (Malia), and 195–200 (Phaistos).

17 Cf. Weingarten, in Palaima (supra n. 4).
ments in Houses II and III along the Minoan square and the Splantzia plot. This distribution seems to suggest a level of private administration so far unattested elsewhere on Crete.\textsuperscript{18} In other cases, however, such as Haghia Triadha, Knossos, and Zakro, a consideration of the above criteria suggests that the presence of documents in different locations reflects instead a spatial decentralization of the administration. If this is correct, it may suggest differences in the administrative organization of the Cretan settlements with most, but not all, having a monopoly on administration by the central power. This suggests the existence of three levels in Minoan administration: centralized, decentralized, and private (table 2). In contrast, the spatial and typological distribution—both within and between sites—of documents found in Mycenaean politcs is much more straightforward and only allows recognition of the first two levels.\textsuperscript{19}

The typological composition of the deposits of administrative documents found at the sites also shows considerable variation, especially where sealed documents are concerned (fig. 3). Weingarten has argued that variation in composition is caused by a variety of regional practices, claiming that “no two Minoan sites have identical sealing structures.”\textsuperscript{20} Although this may be true to some extent, I believe she does not allow sufficient room for secondary factors, such as archaeological context, the function of the deposit, the time of destruction, and the administrative cycle.\textsuperscript{21} Minoan sealed documents are comprised of several types and each type has a particular function in the administrative process.\textsuperscript{22} Furthermore, sealed document types, as I have argued elsewhere, may represent different stages in the processing of information.\textsuperscript{23} If this is correct, the time of destruction may account for the predominance or absence of certain types of sealed documents.

Sealed documents fulfilled specific functions in the administrative process, and one should expect variation because secondary factors, as outlined above, are constantly at play. For example, single-hole hanging nodules are interpreted as hanging from perishable documents and are therefore associated with the final or archival stage of recording. This suggests that we should not expect to find such nodules in temporary, working deposits, where administration took place, such as storerooms or workshops. In working deposits, other types are expected, such as tablets, noduli, and perhaps parcel nodules. This may be illustrated by comparing the typological composition of the deposit from the Northwest Quarter of the “villa” at Haghia Triadha with that of the entirely different deposit from House A at Zakro (fig. 3). The high frequency of single-hole hanging nodules at Haghia Triadha must be related to the function of this wing of the complex as the central archive of the building. In contrast, the overwhelming number of flat-based nodules found in House A at Zakro may be explained by taking into account the strategic location of the building; it may have been some kind of “road station” involved in intersite relations. In a similar way, differences in sealing patterns can be observed between the respective

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\textsuperscript{18} I. Schoep, “Towards an Interpretation of Different Levels of Administration in Neopalatial Crete,” \textit{Aegean Archaeology} 3 (forthcoming).

\textsuperscript{19} Thus, LH III sites without a “palace” have not yielded Linear B tablets. Architectural units other than the palace that have yielded Linear B documents seem to have been centrally administered: P. Militello, “Aspetti amministrativi dei palazzi micenei,” and J. Driessen, “Architectural Context, Administration and Political Architecture in Mycenaean Greece,” in De Miro et al. 361–68 and 1013–28, respectively.


\textsuperscript{21} I. Schoep, \textit{Minoan Administration on Crete: An Interdisciplinary Approach to Documents in Linear A and Cretan Hieroglyphic} (Diss. Univ. of Leuven 1996) 203. “Deposit” is a general term for a collection of documents; deposits can be characterized more closely as “central” archives, “working” archives, or “discarded” archives. Especially in the last two cases, the time of destruction may have had a major impact on the typological composition of the collections.

\textsuperscript{22} For the different classes, see 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 Destoructions,” \textit{Ofla} 5 (1986) 279–98; \textit{Minoan Roundel} 23, fig. 2.

\textsuperscript{23} Schoep (supra n. 21) 203.
sites. A scaling pattern is either "intensive," when few seals are responsible for many impressions, or "non-intensive," when many seals have left few impressions. For example, at Khania nine seals have left 57 impressions on flat-based nodules, whereas at Hagia Triadha 62 seals left 76 impressions. Although this pattern could conceivably be a regional feature due, for example, to more administrative specialization at Khania or the involvement of several parties, it may also indicate differences in processing stages.

As far as Linear A tablets are concerned, it is necessary to consider features of similarity and difference that might be meaningful. Thus, we can examine the ways in which the information on tablets has been organized. The text on a tablet is made up of a number of formally distinguishable and identifiable components: sign groups, logograms, numerals, and fractions. The variation in the combination of these components makes the format of a tablet and a distinction can be made between three basic formats. Linear A tablets in format 1 list logograms of mixed commodities with a numeral; format 3 tablets list logograms of single commodities with a numeral; and format 2 tablets have sign groups without logograms, which presumably deal with people (fig. 4).

Although these three formats recur at the main sites and are structurally identical, their contents show considerable variation. For example, while some commodities are only treated in one or another format at some sites, they occur in other formats at other sites. Thus, people are only attested in format 2 tablets at Zakro, but at Khania they occur in format 1 and at Hagia Triadha in format 3. Similarly, format 1 tablets at Hagia Triadha list a specific set of mixed commodities in a fixed order, whereas those at Zakro list other commodities randomly. Is this absence of such fixed sets of commodities at Zakro meaningful or is it simply a result of the difference in function of the respective deposits (e.g., specialized versus nonspecialized), or is there a difference in the time of destruction or stage of information processing? This situation contrasts strongly with Linear B, where, because of the formulaic character, it is often possible, even on the basis of a small tablet

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25 This is not surprising since these three basic formatting types can also be found in other administrations (e.g., Proto-Elamite, see W.C. Brice, "A Comparison of the Account Tablets of Susa in the Proto-Elamite Script with Those of Haghia Triada in Linear A," Kadmos 2 [1963] 27–38).

26 Linear A tablets are mostly found in nonspecialized contexts, as opposed to Linear B specialized ones. Although it has been claimed that the Odos Katriè deposit at Khania was specialized in the distribution of foodstuffs (R. Palmer, "Linear A Commodities: A Comparison of Resources," in Politeia 133–55, esp. 148–49), the documents also treat other commodities.

27 Although this possibility cannot be excluded, both the Haghia Triadha and the Khania tablets have a high rate of specialized formats, treating either single or specialized commodities (cf. Palmer, supra n. 26), which makes a comparison between the two valid.
fragment, to reconstruct its original format and to attribute it to a specific series or set. The contrast makes clear the nonstandardized ways in which commodities are recorded in the Linear A administration.

A related issue is the absence of certain commodities from some sites. At Khania, for example, no olives (AB 122) are recorded, while no wheat (A 303) is mentioned at Zakro.28 These gaps are much more likely to represent accidental gaps in the evidence than to have been dictated by economic specialization or the centralization of certain products at specific sites.29 Most of the commodities in question—olives, wheat, and barley—could presumably have been grown in every region of Crete, although it is very likely that some regions had a larger yield of a particular commodity than others, which may have produced some kind of specialization. I will come back to this possibility below.

Also related to this discussion is the restriction to some sites of certain single and compound logograms,30 fractional signs,31 transactional terms such as “total” (AB 81-02/κι-ρο)32 and “grand total” (AB 11-05-81-02/πο-το-κι-ρο), “deficit” (AB 67-02/κι-ρο), as well as the so-called transaction signs.33 Again this may largely be due to the vagaries of discovery and cannot be attributed solely to regional practices, although this is probably the reason for the limited distribution of some of the transactional terms. Coincidence may also explain why very few sign groups recur at different sites.34 Toponyms, for example, could be informative for intersite relationships, but few can be identified with certainty. Thus, the Linear

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29 Compare, e.g., some of the Ur III administrative reforms with economic impact meant to concentrate particular commodities (livestock, agricultural produce) in specific specialized redistribution centers: M.H. Mahoney, A Study in Sumerian Administrative History of the Third Ur Dynasty (Diss. Univ. of Minnesota 1953); P. Steinkeller, “Administrative and Economic Organization of the Ur III State,” in M. Gibson and R.D. Biggs eds., The Organization of Power: Aspects of Bureaucracy in the Ancient Near East (SAOC 46, Chicago 1987) 19–41.

30 Compound logograms are logograms of, for example, oil, wheat, and barley that have been given another, mostly syllabic, sign as a ligature to denote a specific variety or characteristic of a commodity (see Palmer [supra n. 26] 155).

31 Fractional or metric signs are signs that express quantities smaller than a unit; L. Godart and I. Tzedakis, Témoignages archéologiques et épigraphiques en Crète occidentale du Neolithique au Minon récent IIIIB (Rome 1992) 143 emphasize the diversity of the fractional system at different locations. It is especially the composite fractions that are limited to particular sites rather than the simple ones.

32 Attested at Hagia Triadha and Zakro but not at Khania; we may conjecturally reconstruct it after the number [220] on a tablet from Tylissos (TY 3b.4).

33 Transaction signs are single signs that are punctuated on both sides. The fact that they are probably abbreviations and thus conventional could have important ramifications for their presence or absence at a particular site. The most frequent transaction sign at Hagia Triadha, AB 04/τί, is not attested elsewhere but some others are (A 516 and AB 28).

34 There are ca. 18 sign groups that recur at different sites (Schoep [supra n. 21] 530). These sign groups consist mostly of one or two signs (including κι-ρο). Some are attested on tablets and clay storage jars, but we remain ignorant as to whether they represent toponyms, anthroponyms, or other words.
A words ku-ta, pa-i-to, se-to-i-ja, ku-do-ni,35 and su-ki ri-ta have been tentatively equated with the Linear B toponyms Ku-ta-to, Pa-i-to, Se-to-i-ja, Ku-do-ni-ja, and Su-ki ri-ta. Apart from su-ki ri-ta and its derivative su-ki ri-ti-i-ja, perhaps related to Sybritta in the Amari valley west of Ida, none is attested at more than one site. No other sign groups occurring in the Linear A tablets are repeated in sufficient numbers or in specific contexts to allow their identification as toponyms. Serious differences are suggested when comparison is made with the Linear B tablets: the large number of toponyms identified in the Knossos and Pylos texts has enabled the reconstruction of “provinces,” regional capitals, and hierarchical settlement patterns.36

NEOPALATIAL ADMINISTRATION: PRIMARY DIFFERENCES

I have argued above that a number of particular features of the Linear A documents are most likely the result of secondary circumstances. Some, however, cannot be accounted for by excavation or the accident of destruction. Admittedly, taken on their own they carry little weight and might be considered idiosyncratic. Combined, however, they seem to suggest nonstandardized operational practices in use in the administration of the NeoPalatial centers. Some pertain to the external or pinacological aspect of a tablet, i.e., the way the tablet was manufactured and manipulated; others concern the epigraphy, the ways in which the information was set out on the tablet, or the palaeography, the ways the signs were drawn or composed; finally, there are also contextual differences between the sites in the ways information was treated.

In terms of pinacology, it may be observed that the sizes of the tablets vary a good deal within a deposit or among the production of a single settlement. If, however, the size of most documents from a site differs consistently from that typical of other sites, this tendency may be explained as a result of the local habits of a group of scribes or tablet flatteners. For example, there can be no doubt that tablets, rounds, and nodules at Khania and Zakro are considerably larger than their equivalents at Haghia Triadha37 and, since the size of these documents neither relates to their contents nor to the stage of information processing,38 it appears indeed to be a regional feature. Related to this are other features of manufacture. For Linear B, a relation between tablet flatteners and scribes can sometimes be shown and standardized sets of tablets occur, as is the case with those from Pylos dealing with armor.39 Not so for Linear A, however, where tablets inscribed by the same hand or treating the same topic are often of varying size and manufacture, and this surely must have influenced the ways in which they were stored and manipulated.

It is also obvious that tablets were often not molded individually, as at Zakro, but cut from what originally must have been large slabs of clay, as at Khania. Cut tablets were also used at Haghia Triadha, but apparently for different reasons and less frequently than at Khania. Indeed, many of the Haghia Triadha tablets are small and simply contain a summarizing or totaling entry. At Haghia Triadha, moreover, tablets are frequently reused and reinscribed, whereas palmipsists are virtually absent at Khania and Zakro. This may imply that the scribes at Haghia Triadha decided more quickly to erase old information, presumably because it had been copied onto another medium. It may suggest that tablets were needed more often than at Khania or Zakro, or that different manufacture and manipulation processes were in use at the respective sites. In addition, the mere existence of a class of miscellaneous documents underlines the lack of stan-

35 Bennet (supra n. 4) 199, table 2. With the exception of su-topia, which occurs on a stone vessel from Prassa near Knossos (PR Za 1), these sign groups are attested only at Haghia Triadha. Only su-ki ri-ta can be read with certainty: J.-P. Olivier, “Lire’ le linéaire A’” in Le monde grec: Hommages à Claire Préaux (Brussels 1975) 441–49. It is attested on a two-string nodule from Phaistos (PH Wa 32) and on a pithos from Haghia Triadha.


37 The largest tablet from Haghia Triadha (HT 100) is 75 cm2 but is only medium-sized in comparison to the large-
est tablets from Khania (KH 6: 113 cm2) and Zakro (ZA 6: 141 cm2); for the smaller size of hanging nodules at Haghia Triadha, see Minoan Roundel 167; the size of the roundsels at both sites keeps pace with the general tendencies that can be noted for the tablets. Other particularities are, for example, the pinprick holes in the Khania roundsels for which no explanation yet exists: E. Hallager, “The Use of Seals on the Minoan Roundel,” in Fragen und Probleme der bronzezeitlichen ägäischen Glyptik (CMS Beiheft 3, Berlin 1989) 55–78; and Minoan Roundel 169.

38 This may be inferred from the fact that tablets that are clearly summarizing or recapitulating documents are no larger than others, in contrast to Linear B, where in some cases the smaller palm-leaf tablets were copied on larger page-shaped tablets.

ardization, since certain types of these documents seem to be limited to specific sites. For example, from Palaikastro comes a disk, pierced diagonally and deliberately cut in two halves, with logograms on its recto, a type of document unattested at other sites.\textsuperscript{40} Perhaps also better considered as a pinacological difference is the extensive use of the multiple sealing system (MSS) at Zakro, for which there is no explanation other than local administrative practice. Its close relationship with sealstones made by the Zakro Master\textsuperscript{11} and its association with a flat-based nodule designed especially to accommodate three different seal impressions confirm this picture of regionality.\textsuperscript{12}

There are also discrepancies between the sites in terms of the epigraphy of the tablets and in the way the information was presented by using rule lines, paragraphing, word dividers, and other auxiliary means. In fact, no set rules seem to have applied to the use or even the shape of word dividers,\textsuperscript{43} and even the shape of the numeral 10 shows some variation.\textsuperscript{44} The lack of standardization in the Linear A writing system and administration is clear, underlined further by the specific methods of stenographic writing attested at each site. The regional aspect of Minoan administration is further emphasized by the layout and format of a tablet from Tylissos (TY 2), which is so awkward that Hooker wondered whether it represented a different script.\textsuperscript{15}

Linear B tablets, as mentioned above, show a high degree of homogeneity in palaeography despite being issued in different polities. The broad palaeographical styles that have been identified in Linear B seem to reflect chronological rather than regional differences.\textsuperscript{46} The Linear A documents under discussion, in contrast, are much more chronologically limited and geographically restricted.\textsuperscript{47} Nevertheless, the palaeography appears to be much less standardized and diversified. Each of the Linear A deposits at Haghia Triadha, Zakro, and Khania seems to represent a particular writing style with a number of graphical idiosyncrasies; indeed, it is possible to speak of an East Cretan writing tradition, attested at Zakro and Petras.\textsuperscript{48} Signs at a single site can show considerable variation in the ways they are drawn or composed, however, and Linear A tablets generally exhibit a less tidy appearance than their Linear B successors. All these aspects seem to imply that Linear A tablets were written when needed and were intended to circulate within a restricted group, whereas Linear B tablets were destined for proper archival processing by third parties.\textsuperscript{49}

This two-level palaeographic diversity, both within and between sites, requires explanation. I believe it suggests a development from an earlier stage, during which a more homogeneous and widespread writing style was in existence throughout the island (see below).


\textsuperscript{41} J. Weingarten, The Zakro Master and His Place in Prehistory (SIMA-PB 26, Göteborg 1983).

\textsuperscript{42} Minoan Roundel 151. The multiple sealing system was not used elsewhere during LM IB although it had been used in LM IA in the Temple Repositories at the Palace of Knossos.

\textsuperscript{43} Both dots and vertical strokes are used; the most common position for word dividers is between the different words of an opening heading; word dividers may, or may not, be placed between the (last) sign group of the (opening) heading and the following logogram; however, this is arbitrary.

\textsuperscript{44} At Haghia Triadha, both dots and horizontal strokes are used for the numeral 10, which can cause confusion with word dividers. It cannot be excluded that dots represent a more archaic way of rendering 10 since they also occur on the earlier tablets and bars from Knossos, Malia, and Phaistos. For the linguistic relevance of word dividers, see A. Morpurgo Davies, “Forms of Writing in the Ancient Mediterranean World,” in G. Baumann ed., The Written Word: Literacy in Transition (Oxford 1986) 51–77, esp. 64–68.

\textsuperscript{45} J.T. Hooker, The Origin of the Linear B Script (Minos Suppl. 8, Salamanca 1979) 18–19.

\textsuperscript{46} Thus, although there is both a mainland and a Cretan tradition, the earlier Pylos tablets show a palaeographical style that is remarkably close to some of the Knossos tablets (T.G. Palaima, “Evidence for the Influence of the Knossian Graphic Tradition at Pylos,” Eirene 16 [1982] 80–84). Hooker (supra n. 45) 37 describes the Linear B graphical style as a “monolithic system, to the extent that it betrays only trivial differences between site and site or between scribe and scribe.” In Linear B, the differences in scribal tradition are clearly smaller and of a different nature from those in Linear A.

\textsuperscript{47} Although tablets were found on Santorini, Melos, and Kea, these are too fragmentary to be taken into account.

\textsuperscript{48} See also M. Tsipopoulou and E. Hallager, “Inscriptions with Hieroglyphs and Linear A from Petras,” SMEA 37 (1996) 31. At both Zakro and Petras, the same peculiar way of writing the fraction A 704E is attested: instead of a hook-shaped sign facing left, the fraction is angular and faces right (ZA 6b.1, 18a.2). Other examples of the East Cretan style can be found in the way certain signs are written, such as the preference for archaic signs. One of the scribal hands at Khania is “papyrological” and the closest parallel is the ink-written cup from Knossos (KN Ze 6). See also Schoep (supra n. 21) 406–11.

\textsuperscript{49} J. Driessen, The Scribes of the Room of the Chariot Tablets (Minos Suppl. 15, Salamanca, forthcoming) 107 distinguishes between different “modes” and argues that Linear B tablets were “deferential” whereas Linear A tablets were “familiar” or “private.”
low). As yet, scribal analysis has not been able to identify a scribe working at more than one place, although this has been tentatively suggested for a tablet from Petras (PE 2) and another from Zakro (ZA 20). Obviously, conclusive identifications of this kind would have important implications for relations between the respective centers. The lesson of Linear B scribe 115, however, should warn us against hasty inferences.

The main question remains whether or not there are salient differences between the respective administrations in the methods of record-keeping and in the way in which resources were managed; and here the answer seems to be positive. In contrast to Linear B, identical commodities recorded in the Linear A archives never seem to be treated in an identical way: artisanal products at Khania, for instance, are only booked on roundels, whereas at Hagia Triadha they only occur on tablets. Moreover, the textual information on roundels at Khania differs from that on roundels from Hagia Triadha, with single signs at the former site and sign groups at the latter. The tablets at Khania may also reflect a different chaîne opéraire than those at Hagia Triadha and Zakro, since those from the former site seem not to have been drawn up on the basis of a primary information source. At Hagia Triadha, a tablet may contain a variety of topics and formats, whereas at Zakro and Khania, the scribes seem to have been more careful in concentrating related topics on individual tablets and entering this information in a specific format. Opisthography, the practice of inscribing tablets on both sides, is relatively frequent in Linear A, but while at Zakro and Khania the verso of a tablet was only used if the recto did not suffice to accommodate the entire text, it often served at Hagia Triadha to book an entirely different transaction. It was mentioned above that the limitation of particular transactional terms to specific sites could in some cases indicate the regional character of the different administrations. Certain commodities at Hagia Triadha, for example, are consistently linked to specific transactional terms (e.g., sa-ra₃₂) or transaction signs (e.g., AB 04 / te, A 307, A 307 + A 307). The same commodities at Khania and Zakro are never accompanied by similar terms or signs. Such discrepancies seem to imply that the various Cretan sites followed slightly different administrative procedures.

Perhaps even more significant are the differences in the ways in which commodities were booked by the respective administrations, since these may point to the existence of different strategies in the management of resources. At Hagia Triadha, for example, barley (AB 120) occurs often and in large quantities, whereas wheat (A 303) is rarely booked and in small quantities. In contrast, wheat is mentioned often in the Khania tablets but barley occurs less frequently. Since the largest quantity of barley at Khania is 90 units as opposed to 684 units at Hagia Triadha, this discrepancy may reflect some kind of

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50 The simultaneous use of palaeographical variants of identical signs may perhaps be explained by the fact that these writing traditions go back to an earlier period and perhaps to a single school. Only the Odos Katrê deposit at Khania presents a more homogeneous writing style; for the lack of standardization in Linear A, see also J. Driesen, “Linear A Tablets and Political Geography,” in Minoan Villa 216–17.

51 The small number of signs the two tablets have in common, however, requires that this must be considered conjectural. The clays used for two tablets from Petras differ, so further analysis would perhaps throw light on the matter.

52 The writing style observed on at least one of the recently found Linear B tablets at Khania was deemed surprisingly similar to that of scribe 115 at Knossos, an official dealing with West Cretan affairs. Olivier suggested that the hands were identical, implying an administrative relationship between the two settlements as well as a chronological proximity; J.-P. Olivier, “KN 115 = KH 115. Un même scribe à Knossos et à La Canée au MR IIIIB: Du souçon à la certitude,” BCH 117 (1993) 19–33. Palaima, however, showed that the palaeographic similarities were not strong enough to posit such an identification: T.G. Palaima, “Ten Reasons Why KH 115 ≠ KN 115,” Minos 27–28 (1992–1993) 261–81. Olivier has since retracted his earlier statements: “KN 115 et KH 115: Rectification,” BCH 120 (1996) 823.

53 This characteristic way of formatting at Hagia Triadha cannot be explained merely by the smaller size of the tablets but seems to result from a particular administrative practice. Opisthography is especially frequent at Hagia Triadha, which yielded more than half of all opisthographic tablets (65%), followed by Zakro (16%). This stands in sharp contrast with Khania, where only two tablets are opisthographic. The same can be noted for roundels: while those at Hagia Triadha are predominantly opisthographic, those from Khania are not.

54 For a more detailed discussion, see Schoep (supra n. 24). A 307 occurs at Khania but here it is ligatured to A 100/102 instead of being punctuated as it always is at Hagia Triadha. Besides the word for “total,” ki-ro, attested at Hagia Triadha and Zakro, it has tentatively been suggested that ki-wa at Zakro may have been a local variant (J. Raison and M. Pope, “Linear A: Changing Perspectives,” in Y. Duhoux ed., Études minoéennes I: Le linéaire A (Louvain-la-Neuve 1978) 39.

55 Cf. Palmer (supra n. 26) 133.

56 Applying the measure of the Mycenaean dry unit, this would correspond with, respectively, 8.640 and 65.664 liters of barley.
agricultural specialization, perhaps influenced by local environmental conditions. Judging from differences in the quantities, in the number of occurrences, in the number of variants of commodity logograms, and in the booking procedures and formatting types among the three sites, it may be suggested that they had specialized interests and different focal points: barley (AB 120) at Hagia Triadha, wheat (A 303) at Khania, and wine (AB 131) at Zakro.

Finally, there are several indications that the Linear A archives belong to independent local centers managing and exploiting a limited hinterland. LM IB administrative centers were, of course, not only concerned with agricultural commodities but also with commodities such as wool, textiles, metals, perfumed oil, and pottery. Linear A administrations seem to have dealt with a much wider range of commodities than the later Linear B administration, judging from the large number of logograms not taken over by the latter script. Moreover, the quantities in which some of these commodities are attested, although not quite equal to those in the Linear B tablets, are at the very least comparable.

Variety and quantity therefore suggest a large degree of self-sufficiency. This discussion of primary and secondary differences is summarized in table 3. The external features of the documents, their ways of dealing with information, and the topics treated provide sufficient reasons to question the existence of a unified, overarching administrative system in LM IB Crete. The respective Linear A tablet administrations dealt with local affairs, local resources, and local redistribution.

A problem that remains to be tackled, however, concerns the interaction between tablets and sealed documents. Since tablets are unsealed, they probably were used to record a type of information different from sealed documents, most likely reflecting a stage of recording that either preceded or followed a stage that needed authentication. Since both types of documents were actively used to keep track of transactions, their difference must be at the level of transaction or the stage of processing and recording. Judging from contents and format, the data on the Linear A tablets seem to have been composed on the basis of two specific types of documents, a “pri-

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57 P. Halstead, “From Determinism to Uncertainty: Social Storage and the Rise of the Minoan Palace,” in A. Sheridan and G. Bailey eds., *Economic Archaeology: Towards an Integration of Ecological and Social Approaches* (BAR-IS 96, Oxford 1981) 201 argues that Crete experiences the sort of regional diversity in rainfall and crop production that both demands and facilitates frequent exchange of food and other commodities over relatively small distances.


59 Perhaps illustrated by the large number of industrial installations in regional centers during LM IB (*Troubled Island* 50–52).
mary source," as suggested by the presence of multiple entries on the tablets, and a detailed reference document, perhaps in perishable material, as suggested by the standard sequence in which mixed commodities occur. In Linear B, nodules served as the primary source for tablet data; there are no indications, however, that the same was true for Linear A. In fact, there are some indications that tablets and sealed documents may have dealt with different matters altogether. Linear A tablets and sealed documents only rarely occur together in archaeological contexts. The usual scenario is either a large deposit of tablets with few sealed documents (or none), or the reverse. Only the Odos Katrë deposit at Khania is an exception, with 82 tablets, 112 roundels, and 84 other sealed documents.\(^{60}\) Since this deposit represents a clearance or fill, we remain ignorant as to whether all these documents came from the same context, let alone the same room. There is therefore little evidence that tablets were drawn up on the basis of sealed documents,\(^{61}\) and the spatial dichotomy between the two types of documents suggests that they were to a large extent administratively independent means of recording, treating entirely different topics. Tablets seem to have treated the immediate territory of the administration and its revenue; this may account for the difficulty with which toponyms can be identified. There are also indications, discussed below, that at least some sealed documents related to intersite matters; the so-called Knossos replica rings are relevant in this regard.

THE ROLE OF THE KNOSSOS REPLICA RINGS

Following Marinatos’s initial observation that seal impressions found at several Cretan sites showed similarities, Betts identified a number of identical seal impressions from Neopalatial sites such as Hagia Triadha, Zakro, Sklavokambos, and Gournia.\(^{62}\) Recently, Hallager identified 10 rings responsible for 53 impressions on 52 documents, and he has added Khania and Knossos to Betts’s list of sites.\(^{63}\) The rings include six bull-leaping scenes, two combat scenes, a chariot scene, and a scene with two running lions (fig. 5).\(^{64}\) Betts and Hallager use the term "Knossos replica rings" for these rings that left identical impressions at several sites. This term is confusing because it can refer both to unique rings, which left impressions at different sites, and to identical rings, which were authorized copies and which also made impressions at different sites.\(^{65}\) In addition, these two possibilities should be distinguished from a third category, that of look-alikes, the impressions of which are very similar, but not identical, and which often show motifs that resemble those of the first two types.\(^{66}\) Minoan rings were most often produced by using steatite molds.\(^{67}\) This, of course, meant that rings could be cast in several specimens, and, by implication, that authorized copies could have been in circulation at different sites. In favor of such an interpretation is the observation that several Minoan sites display a seal imagery with recurring themes, such as bucrania, quadrupeds, ducks, butterflies, talismanic motifs, sacred robes, and griffins. Although the correlation between seal imagery and rank or hierarchy is a largely unexplored domain in Minoan studies, it could imply that particular seal images were connected to particular offices rather than individuals. An authorized copy of a ring could then simply reflect the presence of a similar office or status in a particular settlement and a repetition of some sort of hierar-

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\(^{60}\) Minoan Roundel 50.

\(^{61}\) There is a possibility that at least some noduli fulfilled this function. The main argument is the discovery in the south part of the villa at Hagia Triadha of 45 noduli together with a tablet (HT 24) listing perhaps 46 or 47 units of wool: Palaima (supra n. 38) 317.

\(^{62}\) S. Marinatos, “Το μυκηναϊκόν μέγαρον Σαλαβοχάμπου,” Archäph 1939–1940, 69–96; Betts (supra n. 3); Minoan Roundel table 74.

\(^{63}\) One flat-based nodule from Hagia Triadha (HM 516) has two impressions: a bull-leaping scene (HT 110) and a chariot scene (HT 117) (Minoan Roundel 207).


\(^{65}\) Minoan Roundel 207.

\(^{66}\) For example, at Gournia, a nodulus (GO 101) was impressed by HT 54, a ring that also made impressions at Hagia Triadha, Sklavokambos, and Zakro; with GO 101 was found a flat-based nodule with a bull-leaping scene, described by Boyd as “identical” to GO 101 but which, in fact, was produced by a slightly different look-alike ring; see H. Boyd Hawes, Gournia, Vasilikí and Other Prehistoric Sites on the Isthmus of Ierapetra, Crete (Philadelphia 1908) 54.

\(^{67}\) Sakellarakis mentions steatite molds from Knossos, Poros, Katsamba, Kephala, and Palaikastro but few were destined for the manufacture of rings: J.-A. Sakellarakis, “Matrizen zur Herstellung kretisch-mykenischer Siegelringe,” in Studien zur minoischen und helladischen Glyptik (CMS Beiheft 1, Berlin 1981) 167–78. The motif of the ring was either engraved in the mold or obtained after casting by the repoussé technique.
Fig. 5. Knossos replica rings. (After Minoan Roundel 209, fig. 77)

The only studies that assess Minoan seal imagery and hierarchy are Weingarten (supra n. 20) 107; and J. Weingarten, “Seal-Use and Administration in the South-west Basement Area at Knossos,” BSA 89 (1994) 151–56. Minoan seal imagery could conceal a social hierarchy similar to the Mycenaean one, with the woman, lagawetai, etelai, telesti, and qistereos, etc. The tendency for highly naturalistic motifs to occur on particular sealed document types (e.g., especially parcel nodules and single-hole hanging nodules) at different sites seems to support this view.

Thus KH 1, SK 4, HT 110, and HT 113 are not found outside, respectively, Khania (9 times), Sklavokambos (14 times), and Hagia Triadha (both once), and the ring that made HT 113 is included only because of the remarkable motif (Minoan Roundel 208).

Betts (supra n. 3); Hood 1978 (supra n. 3); Hallager and Hallager (supra n. 3); Minoan Roundel 239.

The main reason for linking the Knossos replica rings to represent a level transcending local or regional organization. The main question is therefore not if there is evidence that the rings were produced at Knossos, but whether they were solely used by Knossian officials. Since only one ring impression is thus far attested both at Knossos and Hagia Triadha, we need other evidence to corroborate the Knossian connection; in this regard, a consideration of the type and clay of the sealed documents is informative.

The clay used for the sealed documents has only rarely been analyzed chemically. In the harbor town of Knossos, at Poros, a few sealings were found, impressed by the Zakro Master. Analysis showed that some of these were made of East Cretan clay, while another sealing, perhaps from Hogarth’s

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70 Betts (supra n. 3); Hood 1978 (supra n. 3); Hallager and Hallager (supra n. 3); Minoan Roundel 239.

71 The main reason for linking the Knossos replica rings

with different themes to a single workshop situated at Knossos seems to be the quality of the rings and the size of Knossos. No evidence for such a workshop at Knossos has been found.

72 This is a combat scene (HT 114), which is attested five times at Hagia Triada and twice at Knossos.

73 Hallager (Minoan Roundel 144, fig. 56), for instance, uses the size of the nodules and the string to suggest that Knossos replica rings are linked to a single center. This is not a very convincing argument for several reasons: it includes impressions that are not real replica ring impressions (cf. supra n. 69); moreover, neither the string size nor nodule size are exclusively limited to actual Knossos replica ring impressions, and, as he admits himself, he has not been able to study all seal impressions from this point of view.


75 PM II 253, fig. 149.
<table>
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<tr>
<th>Findspot</th>
<th>Knossos</th>
<th>Hagia Triadha</th>
<th>Zakro</th>
<th>Sklavokambos</th>
<th>Foreign to Site, Unidentified</th>
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<tr>
<td>Hagia Triadha (HT)</td>
<td>flat-based nodule</td>
<td>Hagia Triadha</td>
<td>flat-based nodules</td>
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<td>HM 526/1 (HT 114); nodulus (HT 113)</td>
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<td>2 noduli (HT 54); 8B (?)</td>
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<td>HM 369, HM 1275 (HT 114)</td>
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<td>flat-based nodules HM 101 (HT 54)</td>
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<td>Poros</td>
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<td>flat-based nodule SK 13, 14, and 16</td>
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<td>Khania (KH)</td>
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<td>flat-based nodule KH 1528a–b</td>
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1 Said to be of central Cretan clay and, according to Hogarth, coming from Zakro, although this may be entirely speculative (see R.E. Jones, Greek and Cypriote Pottery [Athens 1986] 462–63).

2 J. Weingarten, in Palaima 111, n. 40 also suggests that HT Wa 1852, HM 508 and 516 from Hagia Triadha, impressed respectively by HT 82, HT 134, and HT 117 + HT 110, were possibly of foreign clay.

3 Minoan Roundel 71.

4 For numbers, see V.E.G. Kenna, Cretan Seals (Oxford 1960).

House at Zakro, is more likely to have been made of central Cretan clay. If correct, it would be positive evidence for the movement of sealed documents between settlements. Unfortunately, none of the other sealed documents have been analyzed and clay identifications are usually done visually, the value of which may be questioned. Weingarten, for example, identifies 16 parcel nodules from Zakro as imports because of their unusual clay, while two nodules from Hagia Triadha are regarded as imports from Zakro, and three nodules from Sklavokambos are said to come from East Crete. Table 4 lists those nodules for which Hallager and Weingarten have suggested a nonlocal clay. Some of these show Knossos replica ring impressions but other impressions also occur. What is more important is that interaction seems to have taken place between different Cretan centers without Knossos explicitly being involved. One may note again that there is only a single Knossos replica ring attested both at Knossos and

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70 This scaling is perhaps from Zakro because a sealing with a very similar motif (lookalike or identical?) may come from the Temple Repositories at Knossos. In V.E.G. Kenna, Cretan Seals, with a Catalogue of the Minoan Gems in the Ashmolean Museum (Oxford 1960) 42 fig. 63, the two sealings are catalogued under one number (88). Two slightly different drawings are published in PM I, 505, fig. 363a and in D.G. Hogarth, “Note on Two Zakro Sealings,” BSA 17 (1910–11) 264–65. That both sealings would come from Knossos and Zakro, respectively, is not excluded and other sealings from Knossos have close parallels at Zakro: M. Paragiota, “The Temple Repositories of Knossos: New Information from the Unpublished Notes of Sir Arthur Evans,” BSA 88 (1993) 88; I. Pini, “The Hieroglyphic Deposit and the Temple Repositories at Knossos,” in Palaima 83–60.

77 Opinions, moreover, tend to differ (infra n. 79). Ideally, a minimally destructive technique such as scattered petrographic analysis would be promising.

78 Minoan Roundel 212–13; these are HM 597 and 598 from Hagia Triadha and SK 13, 14, and 16 from Sklavokambos.

79 Flat-based (or parcel) nodules impressed by HT 54 apparently traveled between Zakro and Hagia Triadha, on the one hand, and Zakro and Sklavokambos, on the other, whereas noduli impressed by the same ring found at Gournia and Zakro are said to be of Knossian clay (Minoan Roundel 218). Two parcel nodules from Gournia seem to be made of a nonlocal clay, with one (HM 102), according to Hallager, of a clay that resembles the Sklavokambos nodules (Minoan Roundel 146), although Weingarten, in Palaima (supra n. 4) 111 believes it to be Knossian.
Haghia Triadha. The case for a major Knossian involvement thus rests on circumstantial evidence and subjective interpretation. The fact that sealed documents impressed by Knossos replica rings were kept in local archives only further underlines the importance and status of regional centers.

In general, very few nodules are of nonlocal clay. The question is how to interpret this? The issue is two-sided. On the one hand, we have nonlocal nodules with (or without) Knossos replica ring impressions, and, on the other, we have local nodules, again with or without Knossos replica ring impressions. Nonlocal nodules with Knossos replica ring impressions need not imply anything more than the exchange of written documents between centers. Local clay with Knossos replica ring impressions would imply that a ring making identical impressions was traveling only if a single specimen of this ring existed. If more than a single specimen existed, it could have been used simultaneously in different centers. Therefore, it remains to be proven whether the administrative issuer in this case was one and the same office (in casu Knossos) or whether there is a local repetition of hierarchy.

This question may be at least partly addressed by a consideration of the specific types of sealed documents on which these Knossos replica ring impressions occur. Figure 6 shows the correlation between seal imagery and document types. It should be immediately obvious that the Knossos replica ring impressions occur mainly on flat-based (or parcel) nodules and only rarely on hanging nodules and noduli and never on roundels or other types. Although the function of hanging nodules and roundels is not entirely clear, these documents appear to be immediately related to internal administration. Flat-based nodules, on the other hand, are generally agreed to have sealed documents in perishable material, prob-

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80 E. Hallager, “Four Inscribed Hanging Nodules in the Heraklion Museum,” Proceedings of the Danish Institute 1 (1995) 15; the impression in the Haghia Triadha parcel nodule (HM 526/1) was made by a ring (HT 114) that was much more worn than the one used to stamp the hanging nodule (HM 1275) at Knossos and it cannot be excluded that two authorized copies of the same ring were in circulation. Alternatively, it is also possible that the impressions are not contemporary.

81 No documents that can firmly be dated to LM IB have been found at Knossos and the absence of a destruction by fire in the palace has led to the hypothesis that the palace was a building yard in LM IB. C.F. Macdonald, “Destruction and Construction in the Palace at Knossos: LM IA–B,” in D.A. Hardy et al. eds., Thera and the Aegean World III (London 1990) 82–88. Others have explained the absence of LM IB deposits from the palace by the fact that Knossos would have escaped the LM IB destructions by fire; see, e.g., W-D. Niemeier, “Knossos in the New Palace Period,” in D. Evely, H. Hughes-Brock, and N. Momigliano eds., Knossos, a Labyrinth of History: Papers in Honour of Sinclair Hood (Oxford 1994) 88. It may be observed that none of the LM IB contexts at Knossos town that indicate a destruction by fire (Royal Road, Stratigraphical Museum) have thus far yielded evidence for administration.

82 Minoan Roundel 237 and supra n. 69.
ably in parchment.\textsuperscript{83} It has already been argued that the matters treated by documents sealed by parcel nodules were probably entirely different from those treated by tablets. Since these parcel nodules were not only sealed (and thus not accessible for unauthorized personnel), but also impressed by rings, often in gold, with highly naturalistic motifs, and since they were sealing a different and possibly more valuable writing material, it is likely that they did not contain ordinary bookings but more important matters, perhaps legal or diplomatic, which concerned intersite relations.\textsuperscript{84} An argument in favor of this last hypothesis is now offered by sealed documents preserved by the LM IA destruction of Akrotiri on Santorini. From Block Delta come almost a dozen sealings, some of which appear to have been impressed by Knossos replica rings.\textsuperscript{85} Although some Minoanists will claim these to be another sign of Knossian involvement and colonization, it is much more likely that, together with other exterior signs of elite emulation, the sealed documents testify to lively interaction between elites on Crete and the islands to the north. Thus, although we are unable either to narrow down the users of these rings to a single institution or to identify a repetition of hierarchy, the Knossos replica ring impressions can no longer be assumed to indicate political control.

I have argued that three levels of administration are identifiable within Minoan settlements—private, decentralized, and centralized—and that the Linear A tablets of the LM IB period, because of their non-standardized administrative practices, cannot be used to posit an overarching, centralized administrative structure. Only the recurring seal impressions provide evidence for the existence of a supraregional network. That this was not necessarily political and did not deal with local administrative matters, which are instead reflected in the tablets, seems clear because the total number of Knossos replica ring impressions at a site is so limited that it makes the systematic exploitation of economic resources by an external center highly implausible.\textsuperscript{86} Furthermore, this network appears to have been a balanced and equal one, linking the elites of Cretan sites in an exchange of written information (fig. 7), which should be seen alongside the exchange of prestige goods and ideas.\textsuperscript{87} Knossos took part in this network but there is no evidence that it controlled it, at least during LM IB. The question is: did it ever?

\textbf{EARLY NEOPALATIAL ADMINISTRATIVE REFORMS?}

In general, it is accepted that there was considerable continuity in ritual, economy, and material culture on Crete between the Protopalatial and Neopalatial periods.\textsuperscript{88} However, while a consensus exists for a broad outline of the political geography of the Protopalatial period, namely the coexistence of independent polities, each with its own hinterland, no such agreement exists for the Neopalatial period.\textsuperscript{89} Mapping the positive and negative distribution of architectural features, specific pottery shapes, and luxury items supports the identification of regional cultural groups occupying, respectively, north-central Crete, south-central Crete, the Malia-Lasithi region,\textsuperscript{90} and the far east of the island.\textsuperscript{91} These cultural groups

\textsuperscript{83} Minoan Roundel 137–45. For an example of how these flat-based nodules might have been attached to the documents, see E.H. Kraeling, The Brooklyn Museum Aramaic Papyri (New Haven 1953) 123–27 and pl. XXI.

\textsuperscript{84} Not all parcel nodule types would have had the same function, as is suggested by the fact that they comprise four subtypes with one to three seal impressions. The seal impressions on these subtypes rarely overlap, which suggests that the typological differences constituted a real difference in Minoan times. Knossos replica ring impressions occur mostly on parcel nodules that had only a single impression.

\textsuperscript{85} A charioteer scene and a bull-jumper scene are shown in BCH 120 (1996) 1306, 1309 figs. 261–62 as well as in the preliminary publication by C. Doumas in Ergon 1996, 54, figs. 37–38. Judging from the published photographs, the charioteer scene seems identical to that from Sklavokambos and Haghià Triadha, but the bull-leaper scene is different from any of the Knossos replica rings published in Minoan Roundel 209, fig. 77.

\textsuperscript{86} Hallager’s 10 rings have left impressions on 52 documents and, against a total of 2,120 sealed documents, this share is unimpressive.


\textsuperscript{90} A more dynamic approach that takes into account center and periphery relations has recently been applied to the so-called Malia-Lasithi area (C. Knappett, “Ceramic Production in the Protopalatial Mallia ‘State’: Evidence from Quartier Mu and Myrtos Pyrgos,” in Techné 305–12).

have been equated with political entities centered respectively on the palaces of Knossos, Phaistos, Malia, and perhaps Zakro. The use of two different systems of script and associated administrative documents, such as sealings and nodules, in apparently two geographically circumscribed regions—Cretan Hieroglyphic in northern and northeastern Crete, Linear A in south-central Crete—seems to endorse this picture of cultural groups and regionalism.92

The architectural elaboration of the “First Palaces” was clearly meant to enhance the symbolic function of the central place of the early polities at the same time as representing the physical manifestation of the power and authority of its leaders.93 Nevertheless, we cannot be certain whether all Protopalatial predecessors of the later palaces already served as the focus of an extended polity. Partly this is because their architectural remains do not permit such a conclusion, as is the case with Galatas, Petras, Zakro, and Gournia, and partly because even in cases where sufficient monumental architecture is preserved, it remains difficult to interpret it ideologically and socially. In contrast to the megaron of the Mycenaean palaces, which, as Kilian has shown,94 embodied both an ideology and a social hierarchy, Minoan palaces are much more difficult to interpret. That they conveyed a similar message to those on the mainland is just one of several possibilities. An analogy with Near Eastern palaces suggests that it was not so much the plan and elaboration of a building but its size and monumentality that implied political status and (in)dependence.95

A general comparison of the Protopalatial and Neopalatial periods allows the immediate recognition of a series of changes in material culture, settlement patterns, religion, iconography, and especially in script and administration. Especially in terms of the distribution and consumption of prestige items, it is obvious from the Early Neopalatial period (MM III/LM IA) onward that the distinct cultural differences that existed during the Protopalatial period were largely replaced by cultural homogeneity.96 This homogeneity is reflected most clearly by the widespread adoption and adaptation of palatial architectural features such as the Minoan Hall and the Lustral Basin,97 the increasing monumentality of palatial buildings,98 and the islandwide recurrence of pottery styles (Floral, Tortoise-Shell, and Spiral bronze (Paris 1982).

92 See I. Schoep, “The Origins of Writing and Administration on Crete” (OJA, in press) for the use of script as a distinguishing feature in the process of early state formation on the island.


95 This is, for example, illustrated by the palace of Ras Ibn Hani, which was dependent on the royal palace of Ugarit, situated ca. 6 km away. The architecture and contents of both palaces did not show any notable differences; see P. Bordreuil et al., “La découverte archéologique et épigraphique de Ras Ibn Hani (Syrie) en 1983,” CRAI 1984, 419, 434–35. For Near Eastern palaces, see J. Margueron, Recherches sur les palais mésopotamiens de l’Âge du bronze (Paris 1982).

96 See also a quantitative analysis of the contents of houses by M.K. Dabney, A Comparison of Correlations in the Spatial Distribution of Archaeological Remains from Prepalatial and Palatial Settlements and Tombs (Diss. Columbia Univ. 1989) 145–46.

97 J. Driessen, “The Minoan Hall in Domestic Architecture in Crete: To Be in Vogue in Late Minoan IA?” Acta Archaeol. 22 (1982); Driessen (supra n. 87).

98 This contrasts with the observation that the LM I state seems to have invested little in public amenities except for the maintenance of some existing systems, while more attention was given to the monumentalization of buildings (J. Driessen and I. Schoep, “The Architect and the Scribe: Political Implications of Architectural and Administrative Changes on MM II–LM IIIA Crete,” in Polieia 649–64).
styles).\(^9^9\) This is, of course, a top-down perspective, where focus is given to prestige artifacts, in contrast to a bottom-up approach that still allows for regional variations to be pinpointed.\(^1^0^0\) Some changes in settlement patterns seem to begin in the Early Neopalatial period. During the Protopalatial period, a system of dispersed settlement apparently existed with small clusters of equally sized sites. An increase in population for the Early Neopalatial period onward has been suggested;\(^1^0^1\) Crete and other islands such as Melos and perhaps Kea seem to witness a nucleation, and site-size ranking has been identified in the archaeological record.\(^1^0^2\) That this is at least partly a political and economic move toward centralization is obvious.\(^1^0^3\)

Religion may at times function to promote ideology, and changes in religious practices are also likely to reflect changes in political relations. In the case of Neopalatial Crete, the decreasing number of peak sanctuaries is countered by the qualitative embellishment of those that remain in use. In addition to this new monumentalization, matched by the first appearance of peak sanctuaries in iconography, writing now appears for the first time in such contexts. This coincidence of events suggests a positive role for Linear A in the materialization of ideology. These features have been explained as indicative of palatial involvement in religious affairs, and it is indeed true that an ideology composed of elements freely accessible to the populace has little power.\(^1^0^4\) In iconography too there are some surprising changes, including the introduction of an entirely new (and recurring) seal imagery reflecting elite areas of activity such as bull-leaping, chariotry, combat scenes, cult and secular architecture, and ritual.\(^1^0^5\) Seal imagery is of course a convenient vehicle for ideology and thus links the latter with administration.

The most surprising changes, however, concern the use, distribution, and purpose of the Linear A script.\(^1^0^6\) The duality in Protopalatial scripts and administrative procedures vanishes: Cretan Hieroglyphic disappears and a single script (Linear A) with a set assemblage of administrative documents (nODULES, roundels) is used, both for administrative and cult purposes, not only throughout the island, but also apparently in Minoanized areas abroad (Thera, Kea, Miletos, Melos, and Kythera). The propagation of Linear A and the obsolescence of the Cretan Hieroglyphic writing system are mostly attributed to the fact that Linear A was better suited to dealing with the needs and demands of an expanding administration.\(^1^0^7\) It cannot be denied, however, that political factors were involved, also suggested by the use of Linear A for religious purposes and in conspicuous consumption (metal objects, painted inscriptions on fine wares, etc.).\(^1^0^8\) The disappearance of inscribed

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\(^9^9\) P.P. Betancourt, *The History of Minoan Pottery* (Princeton 1985) 117, 139; Rehak and Younger (supra n. 88) 121.

\(^1^0^0\) Petrographic analysis of pottery from different zones in East Crete has indicated that each region had its own production center and that coastal settlements with central buildings functioned as semiautonomous production units: Day (supra n. 87).

\(^1^0^1\) P. Warren, “The Place of Crete in the Thalassocracy of Minos,” in Hägg and Marinatos (supra n. 3) 39–43.


\(^1^0^3\) The picture has been obscured in the past by overemphasizing the so-called Minoan villa, a term that covers a wide spectrum of different buildings, from fancy townhouses in either urban settlements or largely unexcavated sites, or an isolated freestanding country house with dependencies, to the central building of a minor site. The concept of the Neopalatial “village system” has recently been questioned, not only for its incorrect and inconsequent terminology, but also for its social and economic implications whereby such sites are automatically considered secondary centers to palaces; see the review by C. Knappett of *Minoan Villa: Beyond the Palaces—Views from the Minoan Countryside*, *Antiquity* 72 (1998) 447–51.

\(^1^0^4\) Cf. Demarrais et al. (supra n. 93) 17.

\(^1^0^5\) J. Crowley, “Subject Matter in Aegean Art: The Crucial Changes,” in *Transition* 211. It has been suggested that Neopalatial bull imagery was Knossian propaganda, representing Knossian power: Hallager and Hallager (supra n. 3) 547–56. The earliest attestation of a bull-leaping scene comes from the Temple Repositories at Knossos and dates to LM IA; Panagiotaki (supra n. 76) 87. The impressions on the sealings from LM IA Akrotiri suggest that this imagery was already in existence in the Early Neopalatial period. Apparently no new seals were made in LM IB: J. Weingarten, “Seal-Use at LM IB Ayia Triada: A Minoan Elite in Action II. Aesthetic Considerations,” *Kato Kastri* 27 (1988) 107.

\(^1^0^6\) Whether the propagation of the Linear A script system and its administrative underpinnings also implied a change in language cannot be established since it remains a matter of dispute whether or not Cretan Hieroglyphic and Linear A reflect the same language; see J.-P. Olivier, “The Possible Methods in Deciphering the Pictographic Cretan Script,” in Y. Duhoux, T.G. Palaima, and J. Bennet eds., *Problems in Decipherment* (Louvain-la-Neuve 1989) 39–58.


\(^1^0^8\) The palaeography of the inscribed stone vessels with their “archaic character” or “archetypal signs” may be a sign of the use of Linear A as political propaganda. The LM IA inscriptions on clay from Knossos also seem to display a somewhat archaic character, but the material is too scanty to allow for certainty.
sealstones, abundant in Cretan Hieroglyphic administration, perhaps suggests that literacy was more of an acquirement, and requirement, and that access to it was controlled. This would have been one way of controlling access to the rank of administrator and to the elite in general. Other changes that are remarkable are the standardization of the shapes of seal devices, sealed documents, and Linear A tablets.109

The domains in which these different incentives occur are surprising in that they all can be interpreted as being politically charged. Since the changes are islandwide, they may perhaps be interpreted as a political strategy and thus reflect a move toward territorial unification by a center, which, most likely, would have been Knossos. One may even wonder whether the homogeneity in the sealing system with its set subtypes does not imply that the system spread from a single location.110 The introduction of a new seal imagery and the repetitive character of the designs (naturalistic and not) on seals in Neopalatial “sealing caches” may well suggest yet another reform, especially if particular seal types can be linked to specific offices or institutions.111 Although the only administrative documents that can be dated to the Early Neopalatial period come from Knossos, this may be coincidence and I would hesitate to use it as an argument that Knossos was the main seat of administration at this time.

Following this line of thought, it seems logical to conclude that the Early Neopalatial architectural form of a palace does not reflect a politically independent unit, which implies that the ideological message conveyed by these Early Neopalatial palaces was different from that carried by the Protopalatial palaces. The changes observed would then reflect a shift in ideology that may be connected with an evolution in the political organization of the island from the Middle to the Late Bronze Age. Since a different situation presents itself in LM IB, when the local administrations testify to a regional setup, it is not unlikely that the administrative and economic situation again altered, this time perhaps influenced by the eruption of Santorini.112

**ADMINISTRATION AND POLITICS?**

The nonstandardization of Linear A writing styles, the differential formatting of tablets and booking of commodities, and the widespread use of writing all stand in sharp contrast to what is understood about the Linear B administration. Analysis of the LM IB administration demonstrates that the local archives were kept by local administrators, each with their own idiosyncrasies, rather than by officials sent out from a single center to regulate the flow of tribute. Regional centers were managing and exploiting their hinterland and in doing so may have been largely self-sufficient. The so-called Knossos replica ring impressions testify to the existence of an extensive network of intersite contacts during the LM IB period, not necessarily all going through Knossos, and it is impossible on the basis of current evidence to equate these impressions with Knossian officials and Knossian political control.

The problem with this reconstruction is the difficulty with which administrative patterns can be translated into economic and political realities: political control does not always imply economic control and may consequently not be apparent in the economic and administrative organization.113 The regionalism and apparent self-sufficiency of the LM IB centers do not rule out an ultimate political and/or ideological dependence upon a single center, although this dependence cannot be identified in either the Knossos replica rings or the tablets. What can be established by the approach advocated here, however, is that if a single center during LM IB controlled larger parts of the island, this control was not sufficiently centralized to have influenced local administrative proce-

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109 Hood 1978 (supra n. 3) 218. Hallager (Minoan Roundel 235) notes that the four “classic” nodule types had not yet appeared in MM II–III. In MM II and MM III, two-, three-, and four-sided bars were in use together with page-shaped tablets to record Linear A. From LM IA onward, only the page-shaped tablet is used. 110 This is also suggested by the introduction of a notational system on hanging nodules: Weingarten (supra n. 20). 111 Cf. Ur III, where there may be evidence for linking seal types with offices/institutions because particular seal types are clearly concentrated on particular document types: I. Winter, “Legitimation of Authority through Image and Legend: Seals Belonging to Officials in the Administrative Bureaucracy of the Ur III State,” in Gibson and Biggs (supra n. 29). 112 Troubled Island 117–18. In this connection we may ask whether the motifs in use during LM IB carried the same connotations as during LM IA or whether here too a shift in ideology occurred. 113 It has been noted that during the Aegean Bronze Age, especially the Mycenaean period, political control was hardly separable from economic control; see Shelmerdine (supra n. 12) 566; and J. Bennet, “Outside in the Distance: Problems in Understanding the Economic Geography of Mycenaean Palatial Territories,” in J-P. Olivier and T.G. Palaima eds., Texts, Tablets and Scribes (Minos Suppl. 10, Salamanca 1988) 20.
In the introduction to this article, I alluded to segmentary and unitary states and suggested that the Linear B administrative and political organization displayed many of the characteristics of the unitary state, with its centralized monopoly of political, military, and fiscal power. We may now ask where on the continuum the evidence of LM I Crete is to be situated? If my hypothesis of the Early Neopalatial reforms is correct, Crete may have been more of a politically and administratively centralized state in LM IA, with its center at Knossos. This analysis of local administrations and their regional administrative practices suggests, however, that this control had declined by the end of LM IB, much to the benefit of local centers. For this interpretation one need not go so far as to assume that the island had become a patchwork of small, competing polities. Crete may have lapsed into a more segmentary state, in which Knossos still formed an important ideological component and served as a cosmological center, but whose rural areas acquired (yet again) a high level of political and economic autonomy.

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114 It cannot be excluded that some regions may have been under tight Knossian political control, whereas others may have only felt its influence at the ideological level. The existence of different levels of administration, alluded to above (supra n. 18), also leaves room for a variety of levels of control. Administration kept at the secondary centers is likely to have constituted a risk for the central administration because of the danger of increasing the power of local administrators; cf. J.T. Killen, “The Linear B Tablets and the Mycenaean Economy,” in A. Morpurgo Davies and Y. Duhoux eds., Linear B: A 1984 Survey (Louvain-la-Neuve 1985) 241–305; Troubled Island 74–78.

115 As suggested in Troubled Island 70–74, 96.

116 J. Soles, “The Functions of a Cosmological Center: Knossos in Palatial Crete,” in Politeia 405–14; Rehak and Younger (supra n. 88) 129.