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Author(s): Ilse Schoep

Source: *British School at Athens Studies*, Vol. 12, KNOSSOS: PALACE, CITY, STATE (2004), pp. 283-293

Published by: British School at Athens

Stable URL: <http://www.jstor.org/stable/40960786>

Accessed: 11-10-2017 12:43 UTC

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The socio-economic context of seal use and administration at Knossos

Ilse Schoep

The start of the Protopalatial period (MM IB, *c.* 1900 BC) is marked by the construction of monumental central buildings, labelled the “First Palaces”, in north-central (Knossos), south-central (Phaistos) and east (Malia; Petras) Crete. Although the remains of the First Palaces are in general heavily destroyed and/or overbuilt by later occupation, it is clear that they already displayed recurrent architectural features such as West and Central Courts. Although these central buildings were labelled “palaces” by analogy with the large buildings that succeeded them following their destruction at the end of MM II (around 1700 BC), one cannot assume *a priori* that they were organised in the same way. For example, the interpretation of the Palace at Knossos as a centre that was controlling storage and redistribution of goods from its hinterland is based in the first place on the final use of the Late Bronze Age Palace (Day and Wilson 1998, 350).

The construction of the First Palaces in MM IB is generally accepted to mark the beginning of the Protopalatial and the end of the Prepalatial periods. In the evolutionary model, the emergence of the palaces is thus seen as the progression from a relatively simple level of socio-economic organisation, based on reciprocity, to a complex system of the redistribution of goods by a centralised authority (Renfrew 1972; Day and Wilson 1998, 350). However, there is now good evidence to suggest that a complex system of exchange already existed in EM I and II (Day and Wilson 1994, 1999; Day *et al.* 1997). Moreover, the basis for the distinction we draw between the Prepalatial and the Protopalatial periods, namely the presence or absence of palace structures, may be a false one. The construction date of the Palace of Malia in EM III–MM IA (Pelon 1983) seems to suggest that the palaces, which are generally considered to be the outcome of social transformations in EM III/MM IA (for example, Manning 1994), may already have existed during the so-called Prepalatial period, that is in EM III and/or MM IA. At Knossos, the evidence is more circumstantial because most of the earlier building remains were levelled in MM IB, but the construction of the Royal Road in MM IA suggests a fully planned town in this period. Relatively few structures of this period are known from the site of the later Palace but these include the Hypogaeum (EM III), the North-West Platform (EM III) and the South-East Pil-

lar Basement (MM IA) (MacGillivray 1994, 49). None of these could be said to be domestic in character; it would appear at the very least that important structures existed in this area prior to the construction of the MMIB Palace, as outlined by MacGillivray (1994). Consequently, it may in many ways be better to regard MM IB as a phase within the Protopalatial period rather than the start of this period. A case can be made that the assumed MM IB watershed (Renfrew 1972; Cherry 1983) can be dismantled from two directions, with the emergence of complexity spread over a much longer time span. Many complex developments occurred before MM IB, as far back as EM I–II; and other developments occur not in MM IB but a little later, in MM II (Schoep and Knappett forthcoming).

It is against this background that the evidence for seal use, administration and writing from Knossos will be reviewed. Although the First Palace as outlined by MacGillivray (1994) was in place by MM IB, our story begins at an earlier time since the oldest “administrative” documents from Knossos date to EM IIA. The use of the term “administration” to describe the act of sealing in the so-called Prepalatial period has been strongly opposed (Weingarten 1990, 1994), on the basis of the assumption that no administrative system can have existed prior to the emergence of the palaces in MM IB. However, if the Prepalatial period is no longer regarded as a pre-palatial society of lower complexity and indeed the Palaces may be older than always assumed, this no longer holds. I shall, however, use the general term “seal use” to refer to the act of sealing of goods, without implying a hierarchical bureaucracy and centralised authority (cf. Weingarten 2000). The term “sealings” is a general term referring to sealed lumps of clay, which were placed either directly on the object which was to be sealed (direct object sealings) or were hanging from them.

SEALING IN EM II

The number of sealings from Early Minoan Knossos is small (TABLE 23.2). Two direct object sealings were found in a house beneath the West Court dated to EM IIA (Wilson 1994). The West Court House was a relatively large house whose first floor rooms would have stood more or less at the level of the later Palace in the

area of the West Magazines. It was levelled shortly after it was constructed at the beginning of EM IIA, and the sealings were found in a burnt stratum (Wilson 1994, 37).

The significance of these isolated EM IIA sealings at Knossos is difficult to assess, but some inferences about social practice and socio-economic context may be made by looking at the situation in the rest of the island. The EM IIA sealings from the West Court House are the earliest known in Crete (TABLE 23.1). It appears on the present evidence that sealings occur more widely in EM IIB contexts. The sealings from Myrtos-Fournou Koryfi and Malia are safely dated to EM IIB (Warren 1972; Pelon 1993), but the date of the sealings from Trypiti (Vlasaki and Hallager 1995, 269) and Chania (Hallager and Tzedakis 1988, 17) is less secure and could be EM II or EM III. The sealing from Psathi could be EM IIB or EM III/MM IA (Hallager 2000, 97), whereas that from the Bolanis plot at Khamalevri is certainly later (EM III/MM IA). The sealing with geometric design from Mochlos (Hallager 2000, 99) was found in an LM I context (Soles and Davaras 1992, 436).

The first observation that can be made is that the earliest sealings come from houses rather than central buildings. This is the case at Trypiti, Fournou Koryfi and probably Chania. An exception is Malia, where a direct object sealing, a possible nodulus (Perna 1999) and a granulated gold bead (Hue and Pelon 1992, 31–2, figs. 33–4) were found in an extensive EM IIB building, beneath the pillar room (Room X) of the later Palace. Because of the orientation and the presence of a court to the south, exactly like the Middle and Late Bronze Age palaces at this location, Pelon has suggested that this EM IIB building may well be a predecessor of the later Palace and thus a central building. Other remains of this EM IIB structure, which also follow the orientation of the later walls of the Palace, have been revealed in other rooms (Pelon 1992, 65, 1984, 887).¹ The existence of a central building at Malia is not unusual, especially in view of the discovery on the Greek Mainland of EB II sealings in connection with central buildings, for example in the House of the Tiles at Lerna (Pullen 1994).

Inevitably, the question arises of what existed in Knossos in EM IIA and IIB at the site of the later Palace. The levelling of the West Court House seems to be connected with a large-scale reorganisation of the settlement to extend the area available for building on top of the hill and to create a court to the west of it (Wilson 1994, 37). Although the existence of a central building must remain speculative in the absence of direct architectural evidence, it is very likely from the late EM IIA and EM IIB periods onwards. The large quantities of drinking and pouring vessels found in successive destruction horizons inside the (later) Palace and in fills outside the Palace shed some light on the social practice on the Kephala hill at Knossos in EM II. The quality and quantity of drinking and eating vessels have been

interpreted as evidence for large-scale ritualised drinking and feasting practices taking place during EM I, EM IIA and EM IIB (Day and Wilson 1998, 350–1, 1999, 43, 2002). This suggests some form of social complexity, perhaps involving competitive consumption and strategies for the consolidation and legitimisation of power (Day and Wilson 1999, 43). The presence of sealings in EM IIA may perhaps also be seen as an expression of such a strategy, without *per se* implying the presence of a centralised (hierarchical) authority (*contra* Schoep 1999, 272). The clay of the West Court House sealings would appear to be foreign to Knossos (Weingarten 1994; Wilson 1994) and, as a result, these sealings were probably sealing objects that had come from elsewhere.² The use of sealings could then be interpreted within the context of social relations not as facilitating the local and centralised control over the movement of goods, but rather as functioning within a wider network of exchange. In view of the probable connection between seals and individual identities, it is perhaps worth noting that this use of seals on objects destined for exchange may have served to associate the giver and the object more intimately, such as might be found in a situation of gift exchange. This perhaps explains the appearance of sealstones in tombs from EM II onwards (Blasingham 1983; Yule 1981, 8–9, 208) and the evolution of their decoration and shape from EM II to EM III/early MM IA (Sbonias 1999).

Thus, the use of direct object sealings in house contexts in EM IIA and in house contexts as well as in a possible central building (Malia) in EM IIB, suggest the existence of some form of social differentiation or complexity (see also Perna 1999). Since sealings not only define the property of a person or a group of people yet at the same time deny outsiders access to this property, they would seem to imply an unequal distribution of goods (Akkermans and Duistermaat 1996, 24). It is unlikely that they would occur in small isolated households, as Weingarten has argued,³ and their presence hints at the management of goods beyond the domestic unit, perhaps as gift exchange. This does not contradict the evidence from other domains where, despite the many gaps in material culture, it is generally agreed that EM II society was differentiated (Whitelaw 1983; Branigan 1984; Soles 1987; Manning 1994; Haggis

1 The EM IIA structure beneath the EM IIB building shows a different orientation; it seems that the orientation of the later Palace was followed from EM IIB onwards.

2 The same has been noted for the sealing from the Greek-Swedish excavations at Chania (Vlasaki and Hallager 1995, 269–70).

3 According to Weingarten 1994, 176, household sealings are by definition local and isolated, while seal impressions meant for extramural communication have wider economic ramifications.

TABLE 23.1: Seal use on Crete in EM II, EM III and MM IA (after Vlasaki and Hallager 1995, table 1; and Hallager 2000).

<i>Provenance</i>	<i>Document type</i>	<i>Date</i>	<i>Context</i>
Knossos	Sealing	EM IIA	West Court House
Knossos	Sealing	EM IIA	West Court House
Malia	Nodus (?)	EM IIB	Building X
Malia	Sealing	EM IIB	Building X
Fournou Koryfi	Sealing	EM IIB	Room 29
Trypiti	Sealing	EM II (?)	House
Chania	Sealing	EM II/III	House
Knossos	Jar stopper	EM III	South Front House
Knossos	Noduli	MM IB	South-West Palace Angle
Knossos	"Sealings"	MM IB	Vat Room
Archanes	Pierced cone?	MM IA	Phourni cemetery
Archanes	Pierced cone?	EM III/MM IA	Phourni cemetery
Khamalevri	Sealing	EM III/MM IA	Building on Bolanis plot
Psathi	Sealing (?)	EM IIB or EM III/MM IA	No architectural remains
Knossos	Sealings	MM IIA or earlier	Olive Press Room

TABLE 23.2: Seal use and written administration at Knossos in EM II–MM IIA and MM IIIA (?).

<i>Date</i>	<i>Provenance</i>	<i>Type of Document</i>
EM IIA	West Court House	Direct object sealing
EM IIA	West Court House	Direct object sealing
EM III	South Front House	Jar stopper
MM IA or later	South-East Pillar Basement	2 noduli; 1 two-hole hanging nodule; 2 flat-based nodules; 1 "sealing"
MM IB	South of Royal Road	Clay seal impression
MM IB	Vat Room Deposit	2 "sealings"
MM IB	South-West Palace Angle	3 noduli; 1 impressed sherd
MM IIA or earlier	Olive Press Room	2 direct object sealings
MM IIA	Workshop under later South-West House	1 label; 1 basket sealing; 1 nodulus
MM IIIA (?)	Hieroglyphic Deposit	19 four-sided bars; 1 three-sided bar; 18 medallions; 31 crescents; 2 clay tablets; 10 flat-based nodules; 1 hanging nodule; 2 noduli; 1 molar ⁴

1999). This social complexity need not, however, imply a centralised authority since power relations can be expressed in terms of heterarchy (Ehrenreich *et al.* 1995). Even if a central building existed at Knossos in late EM IIA and EM IIB, its function remains unknown; and Day and Wilson (1999, 2002) have, for example, emphasised a ceremonial rather than economic function. The existence of a central building cannot be equated with the existence of a single hierarchical authority, a point also made by Weingarten (2000) for the

House of the Tiles at Lerna. This is usually interpreted as a centre from which the elite was managing and controlling the distribution of goods (Pullen 1994), but the largely non-intensive sealing pattern points towards non-resident seal owners (Weingarten 2000, 104). She therefore prefers to see the House of the Tiles as a com-

4 Based on data in Hallager 1996, 57.

munal storage room, where the heads of different households stored goods (Weingarten 2000, 117).

SEALING AND WRITING IN EM III, MM I AND MM II

While the total number of sealings for EM II remains limited, evidence for seal use on sealings as well as on other objects, such as loom weights and jar handles, seems to increase in EM III/MM I (Vlasaki and Hallager 1995) (TABLE 23.3). At Knossos, six sealings were found in the South-East Pillar Basement, which was in use from MM IA till LM I, but these cannot be dated accurately (TABLE 23.2). Outside the area of the later Palace, an EM III jar stopper, which was impressed by two different seals, comes from the South Front House (Hood and Kenna 1973; Weingarten 1994) and a large MM IB clay seal impression was reported from the excavations south of the Royal Road (Hood 1960, 23).

The earliest secure evidence for seal use *within the Palace* dates to MM IA and comes from a sounding near the South-West Angle of the palace, where three noduli were found (Weingarten 1994). The direct object sealings from the Olive Press Room can be dated to MM IIA by context (MacGillivray 1994), but may well be earlier (Panagiotaki 1993a). Besides obsidian cores, blades and flakes, objects in shell and rock crystal fragments, two sealings were found in the Vat Room Deposit, dated to MM IA (Panagiotaki 1999, 23, 43, 271) or early MM IB (MacGillivray 1998, 35). With the exception of the South-East Pillar Basement, these deposits have yielded no sign of writing or of the new document types that characterise the Cretan Hieroglyphic administration of the later Hieroglyphic Deposit at Knossos. The first attestation of *literate* administration comes from a fill of the South-West House, where a fragmentary inscribed label, a nodule and a basket sealing were found in a MM IIA context. The label fragment is very small (2.85 × 2.55 cm) and contains two fragmentary signs followed by the numeral “40”.⁵ As the signs cannot be identified, it is impossible to tell with certainty whether it was inscribed in Cretan Hieroglyphic or Linear A (Macdonald and Knappett forthcoming). The nodule is impressed by a sealstone, part of which depicts a hand, perhaps the Hieroglyphic sign 009 (Weingarten 1994, 178). The sealings from the South-East Pillar Basement also testify to the appearance of Cretan Hieroglyphic writing on sealings as well as to a new type of sealing document, the hanging nodule (Pini 1990; Weingarten 1994) but cannot be dated accurately.

The evidence suggests at present that the application of writing for administrative purposes made its appearance well after the construction of the MM IB Palace. At the same time, a new range of document types (medallions, crescents, four-sided bars) was introduced although the older types such as noduli and direct ob-

ject sealings also continued to be used (Schoep 1999). The timing of these developments is paralleled at MM II Phaistos, although there another script (Linear A) and different range of administrative documents (roundels, direct object sealings and page-shaped tablets) were adopted.⁶ These differences in script and document type would appear to mark a cultural, political and perhaps economic difference between north-central and south-central Crete (Schoep 2001). The application of writing for *administrative purposes* seems to mark an important change from the preceding period.⁷ However, like Prepalatial seal use, script and administration in the Protopalatial period do not appear to be restricted to central buildings (Schoep 2002a). This is well illustrated at Malia where evidence for administration is found in Quartier Mu and in association with another large building (Müller 1991, 743). At Knossos, this is suggested by the new MM IIA inscribed fragment mentioned above. I should like to argue that, from MM II onwards, writing was used by the elite(s) as a deliberate measure to restrict access to administration. It is important to stress, however, that these elites do not appear to have been confined to the Palace only and that, as such, the Palace does not seem to have had the monopoly over the symbolic commodity of writing.

The Hieroglyphic Deposit

The fully fledged Protopalatial administrative system is best illustrated by the finds from the Hieroglyphic Deposit at Knossos, which probably dates to the end of the Protopalatial period (Schoep 2001b).⁸ The Hieroglyphic Deposit reflects, to some degree at least, the existence of administration within the First Palace at Knossos and a contextual study of the documents allows some insights into its workings and concerns. The name of this deposit is erroneous since it also contained some Linear A inscriptions (Olivier and Godart 1996, 18), albeit on document types used predominantly to record Cretan Hieroglyphic, suggesting that both Cretan Hieroglyphic and Linear A were used at this time.⁹

5 Originally the numeral comprised at least 6 dots (60).

6 A roundel in the Hieroglyphic archive from Petras is an exception: Hallager 2000, 101–3.

7 Sealstones with script signs (“Archanes script”) from an EM III/MM IA funerary context in the cemetery of Phourni suggest that script existed before it was applied to administrative purposes.

8 The end of the Protopalatial period at Knossos has been much debated. The pottery associated with the final phase of the “First Palace” at Knossos was noted to be closer to Levi’s Third Phase (MM IIIA) than the MM IIB destruction levels at Phaistos (Warren and Hankey 1987, 54), but was recently nevertheless dated to MM IIB (MacGillivray 1998). Macdonald (2002), however, argues again for an MM IIIA date.

9 A similar scenario exists at Petras where a fragment of a roundel was found together with the MM IIB Cretan Hieroglyphic documents (Tsipopoulou 1998).

TABLE 23.3: Seal use on objects from EM II, EM III and MM IA contexts (after Vlasaki and Hallager 1995, table 1).

<i>Provenance</i>	<i>Object</i>	<i>Context</i>	<i>Date</i>
Platyvola	Open vessel	Cave	EM II
Palaikastro	Loomweight	House D 32	EM
Palaikastro	Jar handle	Kastri	EM III/MMIA
Myrtos-Pyrgos	Jar handle	MP 73/257	EM III/MMIA
Malia	Jar handle	No. 290	EM/MM I (?)
Malia	Weight	No. 195	EM/MM I (?)
Chamaizi	Loomweight	Oval house	MM IA
Khamalevri	Spindle whorl	Section I	MM IA
Khamalevri	Open vessel	Section I	EM/MM IA
Chania	Open vessel	LM IIIB rubbish pit	EM/MM IA (?)

The main sealed document type is the crescent, a clay nodule shaped around a string (FIG. 23.1). As opposed to direct objects sealings, crescents were attached indirectly to the object that was to be sealed and were perhaps tied around bags or other perishable containers (Weingarten 1995 suggests boxes). The inscriptions on this type of document consist of a wide variety of sign groups, none of which is attested more than once. At least 10 crescents contain logograms that can be identified as grain, olives, wine and two unidentified commodities (Weingarten 1995, 297, fig. 5). The lack of any indications of quantity could suggest that crescents were actually accompanying goods. Although not all crescents have seal impressions the majority is impressed by one or two different sealstones, one of which is usually a Hieroglyphic sealstone (Weingarten 1995).¹⁰ The seal types are not recurrent and many different seals made few impressions. This non-intensive sealing pattern is identified with non-resident seal owners (Weingarten 1994; 1995). As for the physical characteristics of the Cretan Hieroglyphic crescents, as well as the nature of their inscriptions and the large number of seal types involved, it is a fair assumption that the Knossos crescents represent contributions of some sort. Thus, they could represent goods that were contributed to the palace by different parties (Weingarten 1995, 308 for a similar conclusion).

A possible indication of the direct involvement of the administration in the central building of the Kephala hill in a wider area is provided by the perforated four-sided bars with large numbers (FIG. 23.2). These numbers include hundreds and even thousands (e.g. Olivier and Godart 1996, 112–13. #059) and are always whole, never fractional. Since the bars lack logograms, it is not clear what was booked. However, the large but always whole numbers suggest two possibilities. First, in Linear A and B the omission of a logogram is most common in connection with people. One possibility, therefore, is that people are booked (Olivier 1990). The recording of people might suggest census records kept for different places, which could have formed a basis

for taxation or for other purposes. However, the structure of the inscriptions on these bars also bears resemblance to the Linear B sheep tablets (Olivier 1995, 266), and it has been suggested that the large numbers refer to sheep.¹¹ This is certainly the more likely interpretation since the numbers are mostly round (and people



Fig. 23.1 (above). Crescent from the Hieroglyphic Deposit with logogram for wine (Olivier and Godart 1996. #007) and Cretan Hieroglyphic impression (Olivier and Godart 1996. #161).

Fig. 23.2 (below). Four-sided perforated bar from Hieroglyphic Deposit (Olivier and Godart 1996. #049) with numeral 6400.



¹⁰ At Malia Cretan Hieroglyphic sealstones were found distributed over the town in the Protopalatial period, and there is no reason to identify the seal owners as residents of the palace.

¹¹ A similar observation has been made for a two-sided bar from Quartier Mu at Malia, which records the numeral 7000 (Godart 1980, 582).

do not tend to come in round numbers only). One of the four-sided bars has an interesting format, with the sign group TROWEL: ARROW (044–049) booked after every sign group (Olivier and Godart 1996, 108–9. #056).¹² The quantity following 044–049 is always slightly higher or lower than 10% of the preceding quantity and this could suggest some sort of contribution (defined by the TROWEL: ARROW sign group). At any rate, whether booking people or sheep, the perforated four-sided bars with large numbers seem to suggest that the administration in the Palace at Knossos was involved in a wider area than its immediate surroundings.

And so, both the crescents and the four-sided bars seem to suggest that the building on top of the Kephala hill had interests *outside* the immediate area of the town, at least at the time of the Hieroglyphic Deposit (MM IIIA?). However, these interests do not prove that this building functioned as a centralised political, economic and religious authority of a wider area (or as a Palace in the LM III sense of the word). Within the theoretical framework of the Palace model (Renfrew 1972; Cherry 1986), the presence of written administration in the buildings designated the First Palaces is generally considered to support just such an interpretation (Renfrew 1972, 307; Weingarten 1995), and any storage and movement of goods documented in the administration is interpreted as reflecting mobilisation and redistribution by a single central authority. This is illustrated by Weingarten's interpretation (1995, 308) of the non-intensive sealing pattern on the crescents from the Hieroglyphic Deposit as implying the presence of palatial officials who were controlling transactions dealing with tax or tribute payments in 30 different districts (30 crescents). However, the nature of the bookings in general and of the contributions in specific on the Cretan Hieroglyphic documents remains unclear (whether demanded or given, whether political or ideological) and it is equally, if not more likely, that the seal owners on the crescents belonged to different elite groups or households within the Knossos area. The agricultural commodities might then be viewed as contributions by different parties for communal feasting ceremonies held at the Palace.¹³ The possible references to sheep on the perforated four-sided bars would imply that the building on top of the Kephala hill may have been managing flocks of sheep, but the numbers involved are in no way similar in scale to the later LM III sheep administration.¹⁴ Recent research has emphasised that the First Palace at Knossos was primarily a place of consumption rather than production (Day and Wilson 1998, 2002). In this context the management of sheep would perhaps have been with the purpose of supplying and financing acts of consumption within the palatial building. In this way, the documents from the Hieroglyphic Deposit form the earliest evidence to suggest that the building on the Kephala hill was engaging directly in economic activities.

SEALING AND WRITING IN THE NEOPALATIAL PERIOD

After the destruction of the First Palace in MM IIIA, the successful reconstruction of a New Palace in MM IIIB marks the start of the Neopalatial period (Macdonald 2002). At Knossos, the earliest Neopalatial context that yielded administrative documents is that of the Temple Repositories, which contained two Linear A tablets (Godart and Olivier 1976, 256–9: KN 1–KN 2),¹⁵ six roundels and 74 sealings¹⁶ (Weingarten 1989; Panagiotaki 1993*b*; Hallager 1996) and can now be dated to MM IIIB (Macdonald 2002, 40, n. 21). A third Linear A tablet (Godart and Olivier 1976, 262–3: KN 28) from the Corridor of the Sword Tablets (Evans 1921, 618, 1935, 660) can be dated to LM IA (Macdonald 1990) and an inscribed single-hole hanging nodule from the North-East House dates to MM IIIB or LM IA (Schoep 1995, 34; Hallager 1996, 58). The remaining three Linear A tablets and inscribed roundels have no exact provenance and cannot be dated (Schoep 1995; Hallager 1996).

The main deposits of Neopalatial administrative documents from outside Knossos (Ayia Triada, Chania and Zakro) have been dated to LM IB (Hallager 1996; Schoep 1995), with the exception of the recently discovered Akrotiri sealings (Doulas 2000) and tablets (Boulotis 1998) in House Delta. These deposits yielded a similar range of inscribed Linear A documents such as roundels and tablets as well as sealings (single-hole, flat-based, two-hole sealings, etc). The sealing deposit from Hogarth's House A at Zakro, however, distinguishes itself from the other deposits. Its sealing system is characterised by: 1) the presence of the multiple sealing system, implying that documents are impressed by different seals at the same time; and 2) the use of look-alikes, seals that are so similar that it is hard to tell them apart. These features are paralleled only in the MM IIIB Temple Repositories at Knossos (Panagiotaki 1993*b*, 88, for parallels). Although dated by context to

12 Sign-group 044–049 is also impressed on the crescents by a Hieroglyphic sealstone.

13 A similar interpretation was made for the Linear B hanging nodules from Thebes (Killen 1994).

14 There are no indications as to distinctive age and sex composition, which would point towards specialised sheep raising as in Linear B (see Killen 1964). Also, the scale suggested by the extant four-sided bars is much smaller (Olivier 1995, 267) and the largest number 6400 compares to the number 7000 attested in Quartier Mu at Malia (Godart 1980, 582).

15 Initially, Evans (1921, 618) reported that KN 2 was found together with KN 28 on the pavement of the Corridor of the Sword Tablets. Later, however, it was attributed to the Temple Repositories (Evans 1935, 660).

16 These include 27 flat-based nodules, four single-hole hanging nodules, 38 or 39 noduli, four direct object sealings and four undetermined fragments (Weingarten 1989; Hallager 1996, 56).

LM IB (Weingarten 1983, 1–3), the possibility of an earlier date has been pointed out (Platon and Brice 1975, 39; Schoep 1995, 43). If pre-LM IB, then the differences between Hogarth's House A and the other known sealing deposits may be due to a chronological difference. This seems now confirmed by the use of the multiple sealing system on the Akrotiri flat-based nodules (Doulas 2000, 59), which seem to be in foreign clay (Doulas 2000, 63). By LM IB, the sealing system has evolved and the multiple sealing systems had disappeared. It is important to note, however, that the seal imagery remains the same in LM IA and IB.¹⁷

The MM IIIB Temple Repositories indicate that a number of important changes to the previous Protopalatial system of administration had occurred (Schoep 1999, 217–20). A first such change is the disappearance of Cretan Hieroglyphic (and associated document types). The script of the Knossos administration is now Linear A, and its unexpected predominance at Knossos, in combination with a new sealing system marks an important change.¹⁸ It is interesting to note, however, that some features in the Temple Repositories, such as the use of multiple seals and the cross (Hallager 1987, 1997), are reminiscent of the earlier Cretan Hieroglyphic administration. Elsewhere on the island, especially in East Crete, Cretan Hieroglyphic does not seem to have vanished completely. In the Palace at Malia, Cretan Hieroglyphic is used side by side with Linear A in MM IIIB. The Linear A administration differs from that in the Temple Repositories at Knossos in that the epigraphy and document types of the Linear A inscriptions testify to a strong Cretan Hieroglyphic influence: thus, Linear A is written on four-sided bars and on one bar the initial cross, so typical of Cretan Hieroglyphic, marks the start of the inscription (Olivier *et al.* 1987; Schoep 2002b, 18).¹⁹ At Petras, there is evidence to suggest that Cretan Hieroglyphic persists into LM I and co-existed with Linear A (Tsipopoulou and Hallager 1996).

Another Neopalatial change attested in the Temple Repositories concerns the shapes and seal imagery of the sealstones: inscribed sealstones which were common in Hieroglyphic administration disappeared and other seal shapes appeared (Hood 1978, 218), with a new and recurring imagery reflecting elite areas of activity such as bull leaping (Hallager and Hallager 1995), chariots, boxing and ritual scenes.²⁰ At the same time, Linear A was now for the first time also used on prestige objects destined for acts of conspicuous consumption in religious (stone libation tables at peak sanctuaries and caves) as well as in funerary contexts (metal pins) and other contexts of display (fine ware pottery).

Knossian hegemony versus regionalism?

The island-wide distribution of the Neopalatial sealing system, and especially the seal imagery at several non-palatial settlements such as Chania, Ayia Triada,

Zakro, Sklavokambos and Akrotiri (Thera), marks a significant change from the Protopalatial period (Schoep 1999). The apparent homogeneity in sealing practices has been connected with similar homogeneities in fine pottery, wall painting and architecture styles around the island. This has been interpreted in two ways, either as indicative of a large island-wide integrating political structure centred upon Knossos with dependent centres or as the result of peer polity interaction with different centres emulating Knossos (for references see Schoep 1999, 201–2; Knappett and Schoep 2000).

The evidence cited in favour of Knossian hegemony rests not only on the homogeneity of the LM IB sealing system at Chania, Ayia Triada, Zakro and Sklavokambos but especially on the existence of identical seal impressions at these sites. Betts (1967) was the first to point out the occurrence of identical seal impressions at different sites and at present, impressions made in total by six different rings occur at Chania, Ayia Triada, Zakro, Sklavokambos and Akrotiri (Hallager 1996, 207–9). Only one of these comes from the Palace at Knossos, from an unknown context (Hallager 1995). Furthermore, on the basis of the identifications of clay it has been suggested that documents were travelling between Zakro and Ayia Triada and between Zakro and Sklavokambos (Schoep 1999, 215, n. 79). The fact that these connections in most cases exclude Knossos underscores the independent status of the administrations at these sites: they were not dependent on the Palace of Knossos. In addition, the possibility that the Palace at Knossos was not operational in LM IB (Macdonald 1990, 2002) further undermines the idea of dependency. This independent status is also reflected in the Linear A tablet administration, which in general shows a concern with local economic self-sufficiency and displays a marked regional character with different scribal traditions (Schoep 1999, 204–13). The identical seal impressions, therefore, are an indication of a supra-regional administrative network connecting elites in different parts of Crete and beyond Crete (Thera). As suggested by the Akrotiri sealings, this network existed already in LM IA (Doulas 2000). Thus, any equation of these identical seal impressions

17 The sealings from Akrotiri (LM IA) and perhaps also Hogarth's House A suggest that the same rings were used in LM IA and LM IB.

18 As noted above, however, Linear A was already attested in the Hieroglyphic Deposit (Olivier and Godart 1996, 18).

19 The nature of the interaction between Linear A and Cretan Hieroglyphic seems to suggest that the latter was the original script of the administrations at Malia (and Knossos) and that the script was still used locally.

20 The imagery of the Protopalatial sealstones was more local, such as the style of the Atelier de Sceaux in Malia. See also Sbonias 1999 for an analysis of local styles.

with Knossian political control has to be a matter of faith rather than fact: to do so one must *assume* that the rings that made these impressions were all used by a single centre (the Palace of Knossos) and that the act of sealing had very specific political implications rather than social and ideological ones (Schoep 1999, 213–17). However, since in the Neopalatial period neither elites nor writing nor administration appear to have been restricted to the palaces (Schoep 1996), there is no need to explain the occurrence of identical seal impressions in terms of palatial control by a single centre.

SEAL USE AND WRITING AS SOCIAL AND POLITICAL PRACTICE

This paper has sought to assess the evidence for sealing and writing at Knossos from the Prepalatial (EM II) to the Neopalatial (LM IB) periods. The differences between these main periods in the distribution, nature and extent of seal use and written administration may be seen as the result of different social and political practice. I have argued that the presence of sealings at Knossos from EM II onwards implies social complexity and social differentiation. Island-wide, this is supported by evidence from architecture and tombs and the distribution and consumption patterns of pottery. The presence of sealings in house contexts, however, strongly suggests that seal use should not simply be equated with centralised hierarchical authority. Instead, the role of elites outside the palace should be emphasised. Even if a central building existed at Knossos in EM II, its presence does not imply a centralised redistributive administration.

At Knossos, the first direct evidence for monumental architecture (North-West Platform, Early Hypogaeum and South-East Pillar Basement) dates to EM III and MM IA. Apart from a single vase stopper from the South Front House, no sealed documents have been found at Knossos but, island-wide, one may note an increase in the range of objects sealed (loomweights, handles etc.). Again house contexts have yielded the majority of the sealings. The earliest evidence for seal use in the First Palace at Knossos dates to MM IB and is restricted to noduli. At the same time, however, there is evidence for seal use outside the palace (Royal Road South). The new range of sealed documents represented in the Hieroglyphic Deposit, which dates to the end of the Protopalatial period, is clearly related to the application of writing for administrative purposes. However, the MM IIA inscribed label from the South-West House again suggests that literate administration was not restricted to the palace. This situation is repeated at Malia, where written administration occurs in at least two contexts outside the Palace. The perforated four-sided bars with large numbers and the crescents from the Hieroglyphic Deposit suggest that the building on the Kephala hill was interacting with a wider area. The nature of this interaction, however, remains enigmatic,

whether political or ideological, and the administrative documents cannot be regarded as evidence that the First Palace was the centralised political, economic and religious centre of a territory.

Although the evidence for administration in the MM III period is restricted to the palaces (Knossos, Malia and Phaistos), the evidence for administration in non-palatial contexts, mostly private houses, is overwhelming in the LM I period: Houses I, II, III, IV and the Splantzia building in Chania, the building at Anemomylia at Poros-Katsambas, Hogarth's House A at Zakro, the "villa" at Sklavokambos, House A at Tylissos, Building B and Building V at Palaikastro, House II at Petras, a house at Tourkoyeitionia in Archanes and the building at Myrtos-Pyrgos (Schoep 1996, 77–8). Administration in the palaces in LM I is rather restricted, being limited to Zakro and Gournia, both of which were built in LM I only (L. Platon 1999; Soles 1991). Thus, private administration seems to be a consistent feature throughout the Minoan periods. This strongly suggests that we should widen our view of administration to include certain elite groups resident outside the palaces.

Accordingly, the various changes in administrative practices between EM II and LM IB should be viewed against a wider background of elite activity, not only in the palaces but also outside. Consideration of these changes in administration suggest an ongoing and island-wide process of innovation and adoption as administrative practices were invented, adopted and modified by different interacting groups around the island. Examples of this process of innovation and adoption include the spread of Cretan Hieroglyphic administration to urban centres along the north coast in MM II and the later Protopalatial evidence for the combination of Linear A and Cretan Hieroglyphic scripts and supports at Knossos and Malia. In general, it has been a palatial elite that has been viewed as the sole agents of these changes. However, recognition of the non-palatial use of administration suggests that we should not underestimate the role played by a wider elite body as users and innovators in the realm of administration. Writing surely played an important role in defining elite identity and in the legitimisation of their power throughout the period of its use in the Bronze Age. This seems particularly clear in the Neopalatial period, when Linear A writing was applied to a much wider range of objects meant for use in a variety of elite contexts (personal adornment, funerary, religious/ceremonial).

Thus, the various Neopalatial changes in sealing and administration may be viewed as a continuation of a process that started earlier on, a process that consists of innovation and adoption of practices from elsewhere on the island and perhaps even outside. There is no need to connect these changes with a move towards political centralisation by a single centre. Rather, the spread of a homogeneous system of sealing and administration may be viewed together with similar homo-

geneities in fine decorated pottery, architecture and wall painting as common elements in a shared vocabulary of elite expression resulting from elite emulation and competition (Hamilakis 2002). It is perhaps a mistake to see the development of the new system as a sudden innovation. The evidence for experimentation with combined elements of Cretan Hieroglyphic and Linear A administration at late Protopalatial Knossos, Petras and at MM III Malia suggests intermediary stages of development in parallel urban centres.

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