CONCLUDING REMARKS

The overwhelming majority of the objects retrieved at the Cycladic settlement of Akrotiri in Thera and discussed in this book are known to have been brought in from the neighbouring island of Crete. A question that underlies their study is the 'indexical' role Cretan seals and sealings can be understood as having had at Akrotiri, whereby 'an "index" in Peircean semiotics is a "natural sign", that is, an entity from which the observer can make a *causal inference* of some kind, or an inference about the intentions or capabilities of another person.'[966] In anthropological terms, with the transfer of these objects from Crete to Thera one is forced to wonder about what has colourfully been described as 'the abduction of agency':[967] what inferences exactly the people who received seals and sealings at Akrotiri formulated about the social, i.e. political and financial, meaning of these agents in their place of origin?

The query has multiple strands: it starts with what was intended by their manufacture and shipment in the first place; whether they were even made at all for the purpose of being sent to Akrotiri; how they were perceived in their place of reception (i.e. their original affordances); and finally, whether or not the initial goal(s) was (were) achieved. All the previous questions apply differently in the case of seals, stamped sealings and stamped objects.

THE INFORMATION WE ARE MISSING

Regarding the 'indexical' role of sealings matters are particularly complicated, since we are not certain whether it was the sealing itself or the seal impression(s) it bore that functioned as the sign conveying the message. In addition, more than one agent lurked behind them: they were stamped by a person in an official capacity, who was acting however on behalf/in the name of an even higher authority. The matter of personification of official responsibility[968] adds yet another level of complexity to the reception of these items: depending on how personalized or impersonal the system had become, how are we to know what the receivers recognized behind the sealings? Was it an eponymous individual or a specific office? Incidentally, all the above questions apply quite differently depending on who was at the receiving end: we cannot deny that people who received the sealings at Akrotiri were knowledgeable about their meaning and importance, but there is no way of telling whether these people belonged to the local population or came from Crete themselves.

The sealings were produced because of a unidirectional, consecutive series of established conventions. The process would emanate from a high authority, invisible in the archaeological record, whose representatives were the seal bearers, people of a certain status in the administration. How exactly authority was delegated from the upper echelon to the seal bearers cannot be ascertained, but it seems that the seals functioned as the insignia of this

966 Gell 1998, 13.
967 Gell 1998, 13–16.
968 See Chapter 4, p. 199.

delegated power. The responsibilities these people undertook were evidenced through the seals, and subsequently through the seal impressions and the sealings they were meant to produce. The initial medium of the delegated authority, the seal, would move in to create yet a further medium, the sealing, without which the person(s) at the start of the process would not have been able to transmit their message.[969] In the case of the sealings that sealed leather documents it appears that the message conveyed through these documents was in need of authentication through stamping; whether the leather documents could ever function at the receiving end without their authenticating stamps is not clear. That these sealings were kept in order to form archival deposits with or without the leather documents they accompanied, shows that the seal impressions and the physical entity they created, the sealings themselves, were an integral part of the message to be conveyed. Between the higher authority, therefore, and the receivers of their messages a chain of media, people and things alike, functioned as conductors of the message: in order of appearance, these were the administrators, their seals, the leather documents and the sealings. They all became nodes in a network that comprised human and non-human entities, which functioned intermittently in active or passive manners.[970]

The temporal dimension is also of great importance and among the information sorely missed. We cannot assume that sealings at Akrotiri had *a priori* the same implications and substance for the local population, as those acquired in their place of origin, Crete, after centuries of continuously implemented administrative practices. In addition, the fact that in Crete they represented an administrative system designed and applied from within, whereas at Akrotiri they were, in all probability, a foreign body, is bound to have been of some significance. The distinct and circumscribed level on which the sealings functioned at Akrotiri is further emphasized by the likelihood that an altogether different and seemingly unrelated local accounting system was in place, one which made use of clay cylinders for counting.[971]

Admittedly, we cannot know how far back we should posit the import of Cretan sealings at Akrotiri, or whether we are seeing the first and last examples of such importations. Still the amount of time potentially involved in such processes is not a negligible factor. The unknown time span involved in the introduction of Cretan sealings at Akrotiri contrasts with the known time span derived from the seal data, with the earliest imported seal **S3** found at Akrotiri to be dated in the MC A period, corresponding to MM IA, i.e. c. 2100–1900 BC. The inhabitants of Akrotiri had long been acquainted with seals, a fact which establishes *de facto* different trajectories for the reception of Cretan seals and sealings at Akrotiri.

We are also missing all clues on the potential time span for the storage of sealings. Unlike Linear B tablet archives that are regarded as annual, or even monthly, records — an assumption based on references within the tablets themselves to registrations of 'this'

969 An instance where the seal and the sealing come together to form a new social reality, one that would not have existed without them (Latour 2000).

970 Knappett 2002, 114–15.

971 The clay cylinders from Room D17 are presented in Tzachili 2002–03; 2008; one more cylinder surfaced in Room D16, see Chapter 2, pp. 35, 38. A more recent examination sees them as tally-sticks (Firth 2016).

year and the 'debts' of 'last year'[972] — we are entirely missing all comparable evidence for sealings. A period of 15 years has been tentatively suggested for the Protopalatial sealing deposit in the palace of Phaistos corresponding to some 45 administrative cycles, but was met with fierce opposition.[973] Even with respect to Egyptian evidence, discussions have been similarly inconclusive as to how long the sealings that accompanied products or letters were kept and when they were discarded. Scholars have suggested a period of months or a year or two, but even a hundred years have been posited. A papyrus in the Louvre dating to the reign of Tutmose III (18th Dynasty) introduces the notion of an 'administrative cycle' which lasted between four and 21 months;[974] after this ended old and useless sealings would have been discarded. It needs, however, to be stressed that the aforementioned suggestions for the Protopalatial Aegean and New Kingdom Egypt involve primarily the so-called direct sealings, which have little if nothing to do with the Akrotiri evidence.

In the long list of information we are missing on the clay sealings, and despite all these agents intervening — seal bearers/administrators, seals, sealings and leather documents — we are in the dark as to the actual agency involved. We see the people and the objects they use as instruments of control engaged in an administrative process, but the process already appears fixed and settled because of its repetitiveness and regularity. The agents are nowhere to be seen as individuals or independent actors: certainly they all act, but within a framework of an established system, and according to what we assume are prearranged conventions. The notion of intentionality, which would be fundamental to discerning individuals behind the administrative structure, is here impossible to detect: we see the effect, but we are unable to see the motive or the cause behind the action. Possible social tensions, intended and unintended consequences, potential oppression or resistance to the system, all phenomena so often encountered in power structures, remain invisible in our case.[975] What can be ascertained is that through the actions of human individuals in the administrative chain the system was maintained and reproduced, thus affirming and strengthening social inequality inherent in hierarchical formations.

WHERE ARE THE WOMEN?

While we are missing the individual in this study, it seems that the next thing we are missing is gender, most notably the female one. This does not automatically mean that administration was left to male actors: we have evidence for neither gender. In the absence of texts — a fact which is ironic considering that the main topic in this monograph has been precisely written documents —, gender is particularly difficult to detect in archaeological evidence, and women even more so.

972 The Linear B evidence is scarce: Bennet 2001, 27–29; Palaima 2003, 169–72, suggests Linear B tablets in Pylos 'probably cover between two and five months of selected economic activities within a given administrative period'.

973 The suggestion in Weingarten 1994b, 290, the opposition in the responses by Poursat (297–98), Frangipane (300), Fiandra (300–01), and more recently, Relaki 2012, 304–05.

974 The information in Moeller – Marouard 2011, 107, n. 78.

975 Dornan 2002, 320, 324–25.

Some efforts to detect women through texts have been made for the Mycenaean period, when the Linear B texts in their usual telegraphic brevity have offered some clues. Women did not participate in the higher echelons of political power or land holding in Mycenaean society, but some did own and lease land, they did take up religious roles, and had distinct responsibilities in terms of production and the economy.[976] Eritha the priestess and Karpathia the keybearer, who probably controlled access to the resources of the Pylian sanctuary of Sphagianes, are the two most prominent female figures in the Pylian Linear B texts; a labour supervisor, Kessandra, oversees male workers and further distributes food rations.[977] Evidence dating to the Old Babylonian period from Sippar is more eloquent on the property rights of the female *nadītu* priestesses of Šamaš, who were clearly involved in the buying and leasing of land, as well as the control of wealth through loans.[978] Overall, texts from the ancient Near East make references to or are signed by some, rather few, female scribes, and there were some more women that could read and write; but the equally few women that had the right to possess and use their own seal were wives or daughters of kings or high officials, i.e. they belonged to high-ranking families.[979]

From the Egyptian Middle Kingdom only some scarabs are known to have belonged to female members of the family of Senwosret III, who appear to have been independently active in financial activities in the town of Wah-Sut in South Abydos, but never in the mortuary complex of the same king.[980] Women are known to have participated in public life and administration in Egypt from the Old Kingdom onwards, but it seems that their participation was limited and specific. There is some scanty evidence to suggest that it was even possible for women to be home-schooled in reading and writing.[981]

But the usual way to go about looking for gender in prehistory, when no texts are available or deciphered, is through iconography and burial customs, where men and women and more fluid social identities can be distinguished with more or less ease.[982] The sealings attested at Akrotiri contain a number of representations of humans, which all happen to be male. This fact can only be accidental, since female representations do exist in Minoan iconography, including wall paintings and sculpture in general, and women are visible in Minoan public life in a number of ways.

Apart from direct evidence such as that which could have been offered by iconography, there is minimal indirect evidence for any female involvement in any of the processes described in this study, i.e. administrative processes, importation and use of seals and sealings. A suggestion has been put forward on the basis of measurements of hoop diameters among surviving LBA signet rings that interprets their differing sizes as an indication that these rings were worn by both men and women, in which case the rings were obviously made to order.[983] Moreover, among the surviving signet rings there are some with

976 Eder 1994; Olsen 2014.
977 Shelmerdine 2016; 2017.
978 De Graef 2016.
979 Stol 2016, 367–71, 387–89.
980 Wegner 2004.
981 Grajetzki 2009.
982 Hitchcock – Nikolaidou 2013; Weingarten 2009.
983 Müller 2005a, 172–73, pl. XXXVIIj. The male earthquake victim at Anemospilia, however, allegedly wore a silver ring on the small finger of his left hand (Sakellarakis – Sapouna-Sakellarakis 1997, 294–95, 650–51, 692–94, fig. 717).

consistently small-sized hoops of a specific manufacturing technique (finger-bed plate; semi-globular hoop profile with transverse ribbing) that attest to cultic scenes; naturally, these rings have correspondigly small bezels.[984] Cultic scenes, although present, are not the majority among administratively active rings during the Neopalatial period, we need therefore to keep in mind that not all LBA signet rings were administrative rings. It would be tempting, however, to see a female administrator behind the 'second rank' ring with the cultic scene detected among the Akrotiri evidence (*Fig. 77*), since this would have been a ring that matched the observations made on the basis of the surviving examples.[985] The fact that a cultic scene is attested oddly echoes the Linear B textual evidence laid out previously, where priestesses are shown to have participated in legal and financial transactions.

THE SEALS AND THE IMPRESSED OBJECTS

The evidence for one use of certain seals as stamping agents is usually provided indirectly, namely through their impressions on clay. Seals **S1**–**S16** found at Akrotiri were not — to the best of our knowledge — used for stamping, since we are missing relevant evidence to support such an assumption. Furthermore, the administrative sealings **N1**–**N75** found so far at the site appear to have been stamped elsewhere and imported to the island as such. Lastly, among the extremely small number of seal impressions on objects, represented by **I1**–**I3**, only one was locally manufactured while the other two are of uncertain origin. All this is evidence that leaves us with a very thin case for locally-practised stamping habits.[986]

A certain suspicion regarding the possible use of the Akrotiri seals for stamping, though not necessarily of clay,[987] arises from the extensive wear on some examples. The engraved faces of lentoids **S2** and **S9** appear in a bad state of preservation, but their overall state of preservation is bad; then, the engraved face of lentoid **S6** is completely effaced, whereas its non-engraved face seems to be in a good state of preservation. Assuming that this were to be considered as evidence in favour of use wear under normal circumstances, it has to be stressed that Akrotiri reserves unpredictable preservation conditions for each and every material buried under the pumice. The *Petschaft* **S15** is also worn, but it is made of a soft, calcareous material, a mineral that has proven sensitive to the particular taphonomic conditions at Akrotiri and was therefore subject to surface corrosion.

A further use that could be suggested for seals during the Neopalatial period is that of personal adornment.[988] There are two instances of seals appearing on wall paintings: the well-known Cup Bearer Fresco at Knossos, which has long provided evidence that seals were worn on the wrist (*Fig. 116*);[989] and the bull-leaper from Tell El-Dab'a (Avaris)

984 Measured on the rings with finger-bed plate and semi-globular hoop profile in Müller 2005a, table 1, pl. XXXIV, XXXV: their bezel lengths vary between 1.5 and 2.45 cm.

985 *CMS* V Suppl. 3 no. 394 came from a bezel of 1.8 cm length. See Chapter 4, pp. 211–13. A note of caution is due, in that the surviving rings come from LM/LH II onwards contexts (for instance, see Becker 2011–12, 82–83, who discusses one of these rings, namely *CMS* I no. 129).

986 See also, Karnava 2008; 2016a.

987 Ethnographic and archaeological parallels frequently feature textiles, bread and the human body as candidates for receiving seal/stamp impressions.

988 For the matter, among other interpretations, Younger 1977; subsequently, Pini 1998; Müller 2005a.

989 Evans 1928b, 704–12, fig. 441.

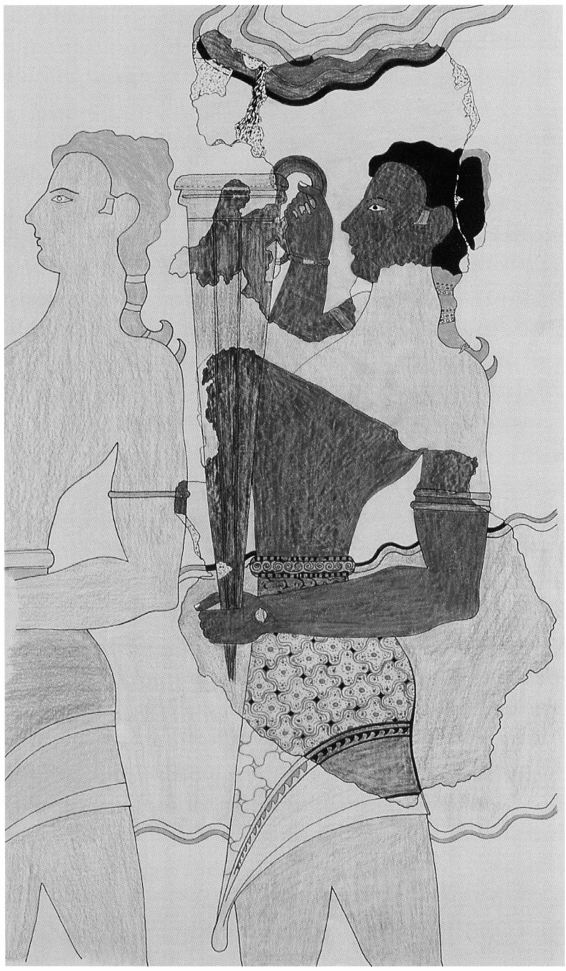

Fig. 116. Knossos: reconstruction of a wall painting fragment, depicting a man who participates in a procession wearing a seal around his wrist (Evans 1928a, pl. XII).

in Egypt, who also wears a seal on his wrist (*Fig. 117*).[990] In these examples, however, the figures do not appear to be engaged in everyday activities: the Cup Bearer was taking part in some kind of formal procession, while the bull-leaper was participating in a ceremonial game, which was probably held on special occasions. It is noteworthy that the Cup Bearer seemingly wears a lentoid, the most common Neopalatial shape, whereas the Avaris bull-leaper wears a cushion. It has been suggested that cushions were fairly prominent among administratively active seals at the transition from the MM III to LM I, but nothing can be said regarding the previous or succeeding periods.[991]

The numerous wall paintings found at Akrotiri afford no evidence as to the wearing of seals, which should make us hesitate in automatically regarding any seal found on the site

990 Bietak *et al.* 2007, 80.

991 Dionisio *et al.* 2014, 121–25. Apparently the person interpreted as a priest in Anemospilia appears to have worn a cushion in his left wrist (Sakellarakis – Sapouna-Sakellarakis 1997, 294–95, 650–51, 692–94, fig. 717).

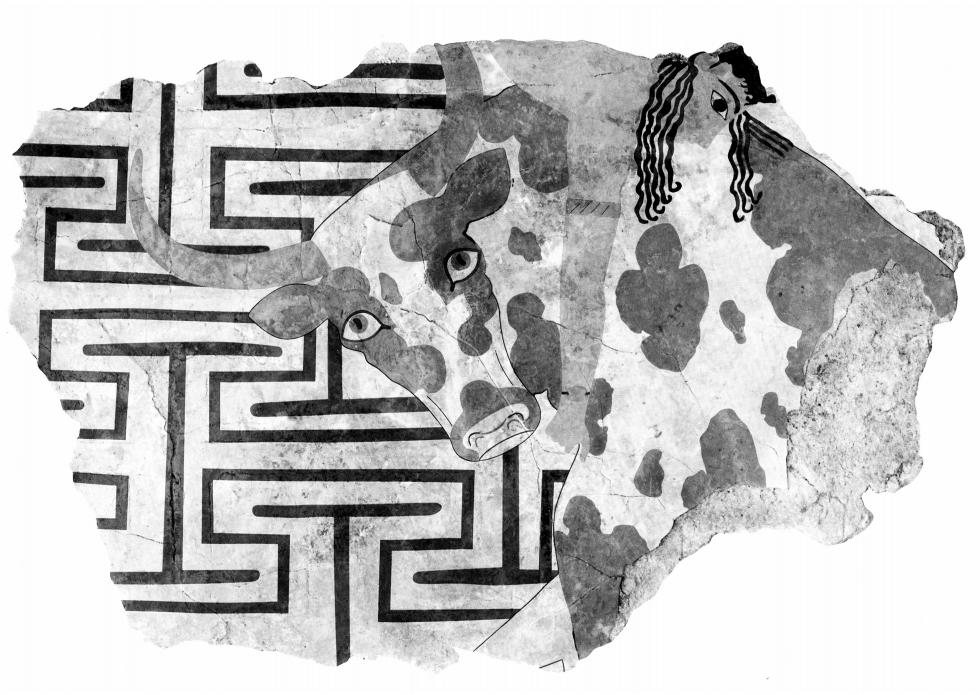

Fig. 117. Tell El-Dab'a (Avaris): reconstruction of a wall painting fragment, depicting a bull-leaper wearing a seal around his wrist (Bietak *et al.* 2007, 95 no. A13; image courtesy of the authors and the *Verlag der Österreichischen Akademie der Wissenschaften*).

as jewellery.[992] Furthermore, none of the Akrotiri seals has been found in contexts containing beads or items from necklaces and bracelets.[993] A single sketch of a bull-leaper is attested behind a wall painting in Xeste 4,[994] but the representation does not provide much detail. A procession scene in Xeste 4 depicts men impressively stripped of jewellery and footwear.[995] A scene in Xeste 3 shows men carrying vessels and a piece of cloth, evidently involved in a ceremony where liquid was poured.[996] But none of the figures on the Akrotiri wall paintings, whether male or female, is shown wearing a seal. To be sure, women wear an impressive amount and a variety of jewellery,[997] some of which even seems to be standardized, such as hoop earrings and bracelets, but none contains seals. The complete absence of seals as personal jewellery among the individuals depicted on Theran wall paintings[998] can be explained in so many ways that it is hardly worth discussing them. One need only think of the different uses reserved for seals in Knossos, Tell El-Dab'a and Akrotiri; it is also possible that the excavations at Akrotiri have simply not revealed the relevant evidence yet.

992 *Pace*: Vlachopoulos – Georma 2012, 37, pl. XIVc–d.
993 Seals as part of necklaces are only reported in the so-called warrior graves that postdate LM IB around Knossos and in the Peloponnese (Dimopoulou 1999, 29).
994 Televantou 2000, 837, fig. 2.
995 Doumas 1992, 176–79: Xeste 4, staircase; Vlachopoulos – Georma 2012, 40–41.
996 Doumas 1992, 146–51, figs. 110–115: Xeste 3, Room 3b; Vlachopoulos 2008, 452.
997 Vlachopoulos – Georma 2012, 35.
998 Televantou 1984.

Almost from the outset, Cretan seals circulated widely in the Aegean, and sometimes beyond. Phylakopi presents us with some of the earliest seals to have been manufactured in the Aegean, which seem to fit well with EM II examples from south-central Crete,[999] where the earliest Cretan seals are attested around the mid-third millennium BC. The manufacture of seals is not as widespread as, for instance, the making of pottery: it requires specialized craftsmen, special tools and, if higher quality was desired, special raw materials such as hard stones or metals. Seals **S7**, **S8**, **S10** and **S13** that were made locally at Akrotiri — as indicated by their manufacture material — are rough, crude and clumsy. Admittedly, it could be mere chance that we have not yet retrieved the Theran masterpieces of glyptic, but on present evidence it seems highly unlikely that we ever will.

The almost total absence of any evidence for locally-made seals is echoed by a similar lack of locally-made figurines or other artefacts that might indicate some interest in rendering shapes or motifs three-dimensionally. Artefacts of this kind are simply imported, such as the head of a clay figurine retrieved in the VDL[1000] and a clay flask of MM IIIA date with a bull and lion rendered in relief.[1001] These constitute the few examples of objects in relief or in the round amidst the wealth of finds at Akrotiri that are not made locally. While some locally-made objects rendered in relief or in the round do occur, they always appear to imitate prototypes of Cretan inspiration: some relief decoration on LC I pottery; relief wall paintings on two of the walls of Room 9 on the second floor of Xeste 3;[1002] locally-produced stone tools and vases.[1003]

Local seal production, as attested through the few examples retrieved from LC I contexts, points to yet another differentiating factor with its contemporaneous Cretan output. Leaving aside the unique specimen without a suspension hole **S7**, the three other local products **S8**, **S10** and **S13** share an element in common. They all have a suspension hole, as do all Cretan seals, but their shape was not suitable for wearing on the wrist; instead they could be hung around the neck, as pendants. Whatever purpose these pendant seals may have served, the fact remains that they differ greatly in concept from what their Cretan counterparts had evolved into by the Neopalatial period. In Crete, pendant seals were an obsolete Prepalatial or, at the most, Protopalatial notion. The only Cretan seal shape at Akrotiri suitable for use as a pendant is *Petschaft* **S15**; the round face of these seals that is combined with a narrow grip would, however, make even *Petschafte* rather inconvenient pendants. Local pendants **S8** and **S10** have a shape more suited for suspension than *Petschafte*, but also than the local **S13**.

It is a common misconception to attach some sort of special significance to seals or even to the contexts in which they occur,[1004] but this inference is not necessarily justified. In the case of Akrotiri — at least for the latest phase of the settlement's life when the evidence is most plentiful — seals do not appear to have been integrated into the local culture: they

999 Younger, in Renfrew *et al.* 2007, 455; *CMS* V Suppl. 1B nos. 35, 36.

1000 Maniki 2003.

1001 Knappett – Nikolakopoulou 2008, 19 no. 34, fig. 17, with a parallel from Anemospilia in central Crete.

1002 Vlachopoulos 2008, 463, fig. 41.46.

1003 Devetzi 2000.

1004 For an instance of both, see Papagiannopoulou 1995, 209–12, where two seals out of four known at the time to have been found at Akrotiri appear in a list of what makes Xeste 3 stand out from the rest of the buildings. The phenomenon of overstating the importance of seals is of course not limited to Akrotiri.

were not assimilated, they were not emulated, they were not reproduced.[1005] Yet for some reason, or conceivably for several, they circulated and found their place within Akrotiri, kept mainly in storerooms. In one instance, namely the seal found in Room D16, a room seemingly containing items intended for trade or exchange, the seal itself may have been destined for exchange.

Although there is no convincing evidence that any of the seals recovered at Akrotiri were actually used for sphragistic purposes, one cannot entirely dismiss their possible significance on a symbolic level. After all, seals were items imported at Akrotiri and, more importantly, they were imported from Minoan Crete. The economic and cultural hegemony of Neopalatial Crete over large swathes of the Aegean is undeniable. Leaving aside futile discussions as to whether cultural hegemony can be translated into political domination, one can accept that seals were undeniably a Cretan 'brand' product and were apparently recognized all over the Aegean as such.

Although there is scant evidence for elucidating the role and importance of seals at Akrotiri, some insights can be gained from a more general knowledge of Minoan Neopalatial glyptic. We cannot help but notice that the examples found at Akrotiri belong to large and common categories of Neopalatial seals, while seals that might potentially have been used in formal administrative practices, as known on Crete, are absent. The Neopalatial seals retrieved at Akrotiri were overwhelmingly made of soft stone; a high proportion are lentoids, a common Neopalatial seal shape; their colours, red and green, are also common. Examples of hard stone seals are rare: the few made of jasper are also red, which happens to be the most common colour associated with this stone. Their decorative motifs range from simple geometric to 'talismanic' and simple versions of the 'tectonic' motif. In a nutshell, the seals that ultimately reached Akrotiri, so far known from archaeological investigations, were definitely not among the highlights of Cretan glyptic in terms of materials, shapes and decorative motifs. By contrast, the highlights of Cretan glyptic can be seen among the administrative seals used to impress the imported sealings that have been recovered in the vicinity of these seemingly unimportant, yet mainstream Cretan seals.

What also emerges are conspicuous contrasts between the imported seals and those produced locally. The latter are defined in this study as 'traditionalist', i.e. showing tendencies and priorities that stem from earlier times and bear little, if any, relation to the dominant, overtly minoanizing narrative in LC Thera, as expressed in architecture, pottery manufacture and wall painting, among other social activities. Local manufacture should have been by definition a dynamic process, expressing local choices, preferences and needs. Yet in the case of seals it seems to have looked for inspiration and prototypes in the past and to have largely ignored trends, achievements and habits of the times. The importation of seals appears to have stagnated at the static level of reception of finished products, since no imitation or creative reproduction is known to have taken place.

1005 Notice at the other end of the spectrum the extremely well assimilated wall painting iconography at Akrotiri (Blakolmer 2016).

THE IMPRESSED NODULES

The extensive overview of the findspots of the Akrotiri sealings and the shorter survey of sealings in Crete do not provide us with a consistent picture of the locations where sealings were found and/or kept. Although these sealings have always been considered 'official' documents, many have been retrieved in Crete in what appear to have been 'private' buildings and establishments, such as House A in Zakros and the Agia Triada and Sklavokambos 'villas'. Relevant finds in palatial settlements and in the palaces themselves have caused researchers fewer difficulties in interpretation. So far no building at Akrotiri can be regarded as a 'palace' in the Cretan sense. The Xeste buildings are viewed as 'public' buildings, but their character is mostly seen as ceremonial; no administrative functions have ever been claimed for the Xeste 'public' buildings. The findspots of sealings at Akrotiri point to 'private' houses, but this does not rule out a potential 'public' character for the transactions between Crete or specific localities in Crete, and Akrotiri.[1006]

In the broader scheme of things, however, we do not know what part of the settlement is represented by its excavated portion. More importantly, we have no means of comparison, since no other pre-eruption settlements have been investigated as extensively on Thera as Akrotiri.[1007] Based on our present knowledge concerning the extent of the settlement, and thanks to the trenches investigated for the new shelter, it seems that the town of Akrotiri extends further in all directions. Trenches opened on the periphery of the modern archaeological site show more buildings in all directions; their architecture, as well as the arrangement of open spaces and streets, show no elements that are new or of inferior quality in comparison to those already known. The only element they seemingly lack is a room or rooms with wall paintings, though conceivably this is a *lacuna* in our finds. We are, however, still uncertain as to the significance of rooms with wall paintings, as opposed to other rooms in the building that were undecorated, or indeed buildings that lack wall paintings altogether.[1008] These observations mean that although the building where the sealings were found was apparently a residential building, like many more in the excavated part of Akrotiri, the characterization of its status or that of its inhabitants is by no means readily available.

A potential function of a room in the building unit Delta-East, the main findspot of sealings at Akrotiri, as a centre for exchange, one of many on the site, has been suggested in this study. A number of arguments have been put forward with regard to such a function, thought to have been fulfilled by the largest ground-level room in the unit, Room D21. The interpretation of one room in a building as an exchange centre does not cover

1006 A relevant discussion about Crete in Tsangaraki 2006, 281–312; *pace* Argyrou-Brand 2012. The instance of the LBA Ugarit-Ras Shamra on the Syro-Palaistinian coast is instructive on the matter, since all excavated private houses with archives belonged to higher officials, priests or scribes, i.e. professionals serving the state hierarchy; their archives, although stored in private property, were also always connected with state bureaucracy (van Soldt 2000).

1007 That habitation was not limited to Akrotiri during the latest pre-eruption period is suggested by numerous surface finds. Only one other site, however, has been partly excavated so far in the locality of Raos to the N of the modern village of Akrotiri and facing the caldera (Marthari 2004, where a number of sites of similar date, especially in the region around Akrotiri, are listed).

1008 Doumas 2005. For the presentation of one of these 'peripheral' sections of the settlement, see Moschou – Karnava forthcoming.

for the whole building, which retains its characterization as a habitation and storage site. An involvement of a further stamped clay nodule in exchange transactions elsewhere in the settlement, while not exactly comparable with the finds of Delta-East, appears to reinforce the connection between sealings and trade functions at Akrotiri.[1009] What weakens this interpretation is the fact that rooms in different buildings that have been previously described in literature as probable exchange centres, namely D16 and A1, have produced no relevant finds.

A probable archival role for the hoard of sealings found in Room D18b does not preclude the possibility that the same sealings played roles other than this final one. Moreover, the fact that the sealings functioned as archival dockets does not mean that the room(s) in which they were found — including the ones where they may have been kept initially and those to which they were apparently transferred subsequently — qualify as archives per se. We are far from establishing the existence of archival rooms in Cretan Neopalatial sites, and this problem extends to Akrotiri. In Crete, our tablet and sealing 'archives', which are at times found fallen from the upper floor, or scattered between rooms because of the violent destructions of the buildings they were kept in, cannot be easily listed under 'living' or 'dead' archives, with the former being functional and operative collections of documents and the latter considered more or less as discards.[1010]

So, before sealings had assumed their archival role, it seems that they were first and foremost administrative documents intended to be dispatched. Whether such a purpose applied to all sealings remains to be established by investigating examples found throughout Crete. It seems unlikely, however, that what we are seeing at Akrotiri is the exception, since all the characteristics of the Akrotiri sealings agree perfectly with those of sealings from Cretan Neopalatial sites.

Akrotiri has produced evidence to indicate that almost all categories of stamped Neopalatial administrative documents were meant for transportation at some point during their use. The only category not attested at Akrotiri, that of roundels, can be in any case included under 'documents for transportation', since they are thought to have functioned as 'dockets' issued in exchange for products. The main and most numerous type of sealings attested at Akrotiri, the flat-based nodules, are regarded in current scholarship as document sealings; they were intended to accompany leather documents containing written texts. The archival hoard of documents in Room D18b thus consisted of leather documents and/or their clay sealings, together with one single-hole and one two-hole hanging nodule. The initial question, concerning the 'indexical' role of seals and sealings at Akrotiri, should also be extended to the potential 'indexical' role the leather documents had before and after they reached Akrotiri.

The techniques involved in making flat-based nodules suggest that the preparation of these sealings must have been some sort of taught and learned process. The standard methods of manufacture — some also observed on Cretan examples that postdate the Akrotiri nodules by some 80–120 years — indicate a well-established process, which had been practised for

1009 That sealings could have been somehow involved in exchange transactions at Akrotiri is far from supporting the theory of a 'commercial Aegean koiné' in the LC I period, as suggested in Argyrou-Brand 2014; sealings are too fragile to carry the burden of proof of such broad interpretations on their own.

1010 Lauinger 2011, 23. The notions of 'living' and 'dead' archives have been devised on account of Neo-Babylonian material (Jursa 2005).

some time before the sealings were dispatched to Thera and which persisted after Thera was destroyed by the devastating volcanic eruption. For this observation, we consider: the flat-based nodules of the Knossos 'Hieroglyphic Deposit', probably the earliest specimens of the type;[1011] the sole flat-based nodule from the Malia palace deposit, dated to the later part of MM III (1630/1730 BC); the Knossos Eastern Temple Repository evidence, placed at the transition between MM III and LM I (1600/1700 BC); then the Akrotiri evidence, dated at or near the end of LM IA (1530/1623 BC). Akrotiri seems to fall within the first 100 years of flat-based nodule manufacture and use in Minoan Crete; the next node in our time-line is the main bulk of the flat-based deposits from all over Crete, evidenced in the widespread destructions of LM IB (1450/1500 BC).

The transport of written documents from Crete to Thera could be seen as a form of correspondence. Correspondence, however, involves the notion of reciprocity; as things stand, there is no evidence to suggest that anything similar, either written leather documents, or stamped clay sealings, could have been prepared at Akrotiri and sent elsewhere. We lack all evidence for the necessary administrative tools, namely seals that could have participated in administrative practices. In Crete we have the instance of sealings strongly reminiscent of one site that are found at another, such as a sealing with seal impressions readily recognizable among the Zakros material, found at Sklavokambos (see *Fig. 101*). This sealing could be seen as evidence of 'correspondence' only if we assume that the sealings found at Zakros truly reflect locally-practised administrative actions. But the Akrotiri evidence argues against the idea of non-mobile sealings; and no longer can we view sealings recovered at any given site as, by definition, indicative of local administration.

We do have evidence at Akrotiri for locally-made clay tablets written in Linear A; hence the presence on-site of scribes is undeniable. The few attestations of Linear A in the Cycladic islands of Kea, Melos and Thera have been discussed elsewhere[1012] and it has been established that the writing system we are seeing in the Cyclades is precisely the same as that employed in Crete: the same syllabic and logographic signs, the same ligatures, the same numerical and fractional system. More importantly, however, the graphic varieties of Linear A signs in the Cyclades, what we would call today hand-writing styles, correspond to graphic varieties of Linear A signs in Crete. This does not, however, allow us to determine whether the Linear A scribes active in Thera were local individuals trained in Cretan 'scribal schools', or even actual scribes of Cretan origin.[1013] Nonetheless, the fact remains that Linear A in Thera was constantly and closely connected to the Cretan version(s) of

1011 Müller, in *CMS* II,6 p. 349. Hallager (1996, 135) suggests that 'proto'-flat-based nodules are attested in the Phaistos sealing deposit.

1012 Karnava 2007–08; 2008. A correction is due, in that one of the inscribed vases from Akrotiri compared in Karnava 2007–08 to Cretan evidence (THE Zb 2) with the purpose of establishing paleographic affiliations between Thera and Crete is not of local origin, but is most probably imported from Crete (see Chapter 3, n. 803; also Notti 2011, where the comparisons, including the mistaken local attribution, are repeated).

1013 *Pace* Argyrou-Brand 2014, 128, who argues that scribes at Akrotiri were of local origin because one of the ligatures attested on the Akrotiri Linear A tablets is unique (Boulotis 2008, 77, tablet THE 8, ligature AB 54 + AB 09). The argument is, however, very thin because the remaining signs on the tablets and on all the other documents found at Akrotiri do not exhibit any peculiarities or novelties with regard to the Linear A attested in Crete. From the paleolographical point of view, Linear A documentation in general is so scanty that the existence and future discovery of more logograms should not surprise us.

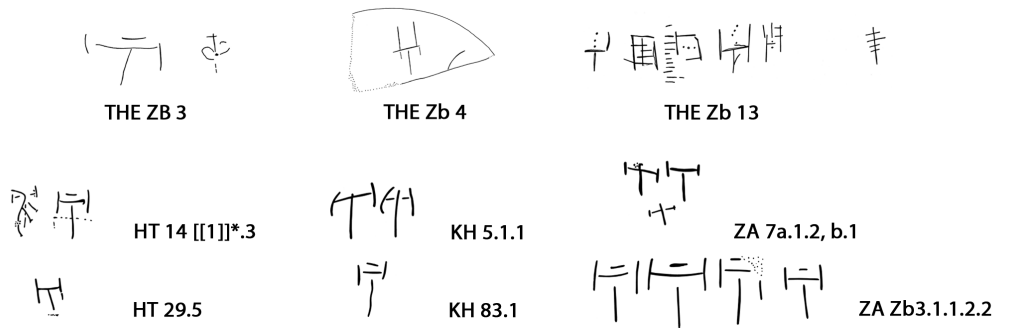

Fig. 118. Linear A inscriptions from Akrotiri and comparable palaeographical evidence from Cretan sites (adapted and corrected from Karnava 2007–08, 406, fig. 8).

Linear A, as Theran Linear A graphic varieties attested on documents found in Agia Triada, Chania and Zakros, demonstrate (*Fig. 118*).

Yet the exact relationship between scribes of clay tablets and administrators with the authority to stamp remains a matter of debate; individuals literate in Linear A would certainly have been able to read any information written on the leather documents, since there is no reason to suggest that this was written in anything other than in Linear A.

Evidence from the Akrotiri flat-based nodules indicates that the leather documents sealed by the clay nodules corresponded in size to Linear A tablets (*Fig. 119*). The small size suggests that the information written on these documents may have corresponded in format and content to that found on the clay tablets, i.e. the leather documents could also have contained logistic data in tabular form. A leather document could have offered the possibility for information to be written on both its sides and, as it happens, among Linear A tablets the phenomenon of opisthography, i.e. inscribing on both sides of a clay tablet, is also attested. Such registration contents would reinforce the relationship between the scribes working on tablets and leather documents; one might even go so far as to identify one group with the other. Whether administrators who handled seals should also be identified with scribes is best left open. At Akrotiri the presence of Linear A scribes is attested by the existence of clay tablets made on the spot; there is nothing, however, to indicate the presence of administrators with seals on the site.

We should note here that leather (to be made into writing material) was a relatively costly product to manufacture and consume, and we have very little evidence for leather being used in antiquity for such mundane purposes as logistic accounts. In the Egyptian context, which provides our closest evidence, leather as a writing carrier appears to have been reserved for more formal activities, such as the copying of religious texts, whereas papyrus was the medium reserved for day-to-day bureaucratic transactions. Writing on leather in Egypt is reported in the sources as early as the Fourth Dynasty, but the earliest surviving example has been until recently a fragmentary roll dating to the Sixth Dynasty.[1014] Now, a leather roll of 2.5 m written on both sides, dating to the end of the Old Kingdom and the beginning of the Middle Kingdom, is suggested to be the oldest leather document

1014 Diringer 1982, 172.

Fig. 119. A specimen of a typical Neopalatial Linear A clay tablet from Agia Triada measuring 5.1 × 5.7 × 0.7 cm (GORILA I no. HT 35; image courtesy of the *ÉfA*/J.-P. Olivier).

with religious texts discovered in Egypt so far: it attests to the so-called Coffin Texts, and has 'colourful drawings of superb quality'.[1015] Although the document was meant to be portable, it is thought that leather documents served as master copies of texts that were later copied on papyrus, a considerably less expensive writing material. These portable documents were carried by priests who recited religious hymns; throughout the Middle Kingdom they were copied in burial monuments.

Again from Egypt come the oldest inscribed papyri from a port site on the Red Sea coast, Wadi al-Jarf;[1016] they date to the Old Kingdom and refer to the reign of pharaoh Khufu of the Fourth Dynasty. They include accounts of daily and monthly food deliveries from different areas as far as the Nile Delta, but also a sort of daybook of activities kept by a Memphis official who oversaw more than 200 men working on the construction site of the Khufu pyramid in Giza, a site totally unrelated to the findspot of the papyri. Both categories of papyri contained registrations in tabular form, and they both pertained to financial and administrative duties (*Fig. 120*).

The use of leather as a writing medium is widely regarded as an invention of the second century BC, when the discovery in the city of Pergamon in Ionia of a specific method of turning animal hide into what came to be known as parchment, proved to be the beginning of a new era in the literate cultures that followed.[1017] Yet, earlier still, Herodotus in a famous passage confirms that the use of leather for writing had been known in his time

1015 Sherbiny 2017a; 2017b.

1016 Tallet – Marouard 2014; Tallet 2017.

1017 Diringer 1982, 170–95, where the 'invention' is described as a gradual process and not sure to be have originated in Pergamon. Parchment, in Greek *περγαμηνή* > of *Πέργαμος*.

Fig. 120. The oldest papyri discovered so far in Egypt dating to the reign of Khufu (Fourth Dynasty) (Tallet – Marouard 2014, 9, fig. 12; image courtesy of Pierre Tallet and Gregory Marouard).

among Ionians.[1018] Herodotus claims that the use of leather for writing is something that barbarians would do, but his contemporary Thucydides, and others in the same century, recounts the Spartan method of dispatching *σκυτάλαι*, i.e. staffs or buttons around which rolls of leather was wound.[1019] It is therefore probably safe to assume that the use of leather for writing was known throughout the Mediterranean world in the fifth century BC and even before.[1020]

The difference between sheep or goat's leather, which had been used as writing material in the millennia before the invention of parchment, lies in its process of manufacture. Leather was tanned, namely treated with vegetable products, a process which causes an irreversable chemical change in the dermal network and turns skin into leather; parchment, on the other hand, was dried under tension, a procedure that causes a restructuring of the dermal network and a henceforth permanent stretching of fibres. Investigations into animal skin manuscripts from Egypt have pointed out that the distinction between the two is not always clear-cut.[1021] Whether the technique of producing parchment had already

1018 Hdt. 5.58: *'καὶ τὰς βύβλους διφθέρας καλέουσι ἀπὸ τοῦ παλαιοῦ οἱ Ἴωνες, ὅτι κοτὲ ἐν σπάνι βύβλων ἐχρέωντο διφθέρῃσι αἰγέῃσί τε καὶ οἰέῃσι: ἔτι δὲ καὶ τὸ κατ' ἐμὲ πολλοὶ τῶν βαρβάρων ἐς τοιαύτας διφθέρας γράφουσι'* (The Ionians have also from ancient times called sheets of papyrus skins, since they formerly used the skins of sheep and goats due to the lack of papyrus. Even to this day there are many foreigners who write on such skins.).

1019 Thuc. 1.131*: 'πέμψαντες κήρυκα οἱ ἔφοροι καὶ σκυτάλην'* (and the Ephors … sent him a herald and a scytale with orders); see Jeffery 1961, 578, for how the *skytale* functioned, as explained in later authors.

1020 Reed 1972, 118, 277, where the earliest parchment appears to have been made of camel skin and was found in what is today Jordan dating to the eighth century BC.

1021 Leach 1995.

been invented in Minoan times or not, is presumably a question that cannot be answered on the basis of the leather imprints we are left with.

In Minoan Crete we have no evidence of papyrus use for writing and, in any case, papyrus would have been an imported writing material.[1022] Leather, on the contrary, could have been locally produced, notwithstanding the fact that its manufacture was never easy or inexpensive. An extra benefit would be that the text on it could be erased and a new text could be written creating the so-called *palimpsests*, so well known to paleographers who study parchment manuscripts; on the other hand, a document that could be tampered with and its information altered was more likely to require safeguarding, such as that provided for by the clay sealing. If Minoans had indeed chosen leather for bureaucratic or any kind of administrative accounts, they seem to have made an exclusive and relatively high-valued choice.[1023] In addition, whichever method they used for the preparation of the writing surface, it must have been perfected rather well, because the leather imprints appear smooth and even, with no left-over traces of animal hair or their roots, as are visible on a preserved, roughly contemporaneous, mathematical leather roll from Egypt.[1024]

THE MINOAN NEOPALATIAL ADMINISTRATIVE SYSTEM

The study of the Minoan administrative evidence at Akrotiri permitted a number of observations to be made on how administration was organized in the Neopalatial period. The observations derived from the Akrotiri flat-based nodules, as well as comparanda from various Cretan sites, which were examined by the author in the museums of Herakleion and Chania in Crete, and the Ashmolean in Oxford. These reveal that there is no difference whatsoever between the Akrotiri sealings and those found in LM IB layers in Crete, whether in terms of manufacture or stamping patterns. In other words, unless we were told of their findspots, we would have no way of telling where they had been found.

The flat-based nodules found in Room D18b of building unit Delta-East at Akrotiri appear macroscopically to have been made from three different clay pastes (*Fig. 107*). These macroscopic identifications are bolstered by the simple fact that the Akrotiri nodules are unfired, thus preserving the original colour of the clay paste from which they were made. The very existence of a variety of clay pastes implies that the manufacture of the Akrotiri hoard should be attributed to different episodes in time and, most probably, also in space.

The Akrotiri flat-based nodules, as well as the flat-based nodules retrieved in Crete, present us with the phenomenon of collaboration between administrators with seals. Apart from those with a single seal impression, most flat-based nodules were stamped by two different seals. A total of 16 seals had been used for stamping the Akrotiri flat-based nodules;

1022 Although not necessarily from Egypt, if we take into account the instance of the ancient Greek word for the papyrus roll, namely *βύβλος/βυβλίον*, 'which shows clearly that their [the Greeks'] original source for it was not Egypt itself, but the Phoenician port of Gebal, which they called Byblos'. As far as the papyrus cost in the Greek world is concerned, 'even in the late fifth century it [papyrus] was an expensive import' (Jeffery 1961, 56–57).

1023 Jeffery (1961, 56–57) suggests that the production of leather as a writing medium could not have been cheap even in the first millennium BC, since its manufacture was a lengthy and multi-stage process.

1024 Diringer 1982, 174, fig. V2.

of these 11 collaborated amongst themselves in different cases and in different combinations to stamp the nodules. It also proved possible to distinguish two 'groups' among the Akrotiri flat-based nodules by using additional criteria (*Fig. 106*). These included: two distinctive ways of preparing the clay nodule in relation to the leather document beneath; two distinct sizes of the clay nodules, namely large and small; and the differentiation by clay paste. It is not suggested that these 'groups' constitute different types or subtypes of flat-based nodules and they do not necessarily hold good for nodules found elsewhere.

The seal impressions in 'Group 1' provide a graphic illustration of the interaction between seals and, consequently, the adminstrators who used them. While both groups demonstrate that administrators collaborated to produce sealings, only in 'Group 1' do we find that certain administrators not only collaborated with others, but also had the capacity to stamp flat-based nodules single-handedly with a single seal. These are defined in this study as 'first rank' or 'dominant' administrators, as opposed to their stamping partners, who never stamped anything single-handedly and who are here termed 'second rank' or 'subordinate' administrators (*Fig. 111*). The same phenomenon of solitary-cum-collaborative stamping can also be observed among sealings from House A in Zakros and Agia Triada (*Figs. 112, 113*). Together with observations derived from the Sklavokambos sealings, the picture emerges of an administrative organization with a defined hierarchical structure, one which extends from Akrotiri to multiple sites in Neopalatial Crete (*Fig. 115*).

A consideration of the seals used by the administrators embedded in this hierarchical system shows that these were indicative of status. The size of seals, and especially of signet rings, appears to have played some role in their being assigned to such adminstrators. Furthermore the motifs on these seals also seem to have been significant, in terms of the chosen theme and the level of complexity of its rendering.

The picture that emerges from examining this set of Neopalatial sealings from Akrotiri in combination with their Cretan counterparts is that of an administrative system with repetitive, strict and long-lasting features. Its seemingly uninterrupted administrative continuity throughout the LM I period, during which as many as three generation of scribes and administrators worked, ended, as all administrative systems do, with the demise of the state authority that ran it.[1025]

PARALLELISMS TO THE MINOAN NEOPALATIAL ADMINISTRATIVE SYSTEM

It is not clear when the Neopalatial adminstrative system was first devised. The transition from the administrative practices of the Old Palaces, as observed at Petras, Malia and Phaistos, seems to have taken place over the course of MM III. Our best guess is that this occurred towards the end of that period, some time between the Malia *Depôt hiéroglyphique* and the Knossos Temple Repositories. Consequently, the system seen at Akrotiri had not been established very much earlier in time.[1026]

1025 Recent evidence suggests that the LM IB destructions in Crete were not contemporaneous (Christakis 2011, 253, and various papers in the same volume).

1026 See Chapter 2, pp. 147–49.

The system seems to have been a Minoan invention, but the extent to which it developed out of earlier Protopalatial practices is unclear. It certainly bears no relation to the Egyptian evidence mainly from the Middle Kingdom, the period roughly preceding the establishment the Cretan Neopalatial sealing system. The Egyptian material mostly comprises direct sealings that evidently sealed bags, boxes, pegs, jars and textiles,[1027] which is why any comparisons with the Aegean evidence attempted in the past resort immediately to the third millennium BC Greek mainland material, primarily from Lerna, and Protopalatial Phaistos in Crete.[1028] In addition, document sealings with a single seal impression are attested in Egypt on letters in the form of folded papyri, which contained correspondence dealing with administrative affairs (at various levels, higher and lower).[1029] But these resemble more what one would define in the Aegean as 'two-hole hanging' nodules. Papyri sealings similar in shape to the Minoan flat-based nodules only appear in Persian layers in Egypt, such as one from debris layers dating to the 27th Dynasty in the site of Tell el-Dab'a.[1030] It seems, furthermore, that *noduli* were also present in Egyptian contexts.[1031] But there they have been interpreted as 'seal impression models', found together with seals in administrative offices or where the sorting and registration process took place.[1032] The Near Eastern and Mesopotamian evidence bears even less resemblance to any Aegean stamping habits of the second millennium BC, with the extensive use of cylinder seals, stamped clay tablets and 'bullae';[1033] regarding the latter, the Hittite 'bullae' refer to a type of impressed clay document that was wrapped around a knot and hung on a string, a variety that recalls the Minoan single-hole hanging nodules.[1034]

A further note is reserved here for potential parallels for parts of the Minoan Neopalatial administrative system. In surveying the literature, to see if there was any recurrence of the system, two instances kept coming up, wholly unrelated to Minoan Crete in time and space. They both concern Mesopotamia and each is interesting on its own merit. The first instance is the Neo-Assyrian empire of the ninth to sixth centuries BC, where seals could be used by private individuals,[1035] but also adhered to what was considered their original and most fundamental function, namely as vehicles of state administration.[1036] Privately-owned seals were meant to be unique, but state seals had a specific and repetitive range of motifs. Moreover, while personal seals were overwhelmingly restricted to the typical Mesopotamian shape, the cylinder seal, state seals reverted to what again became *en vogue* in the Neo-Assyrian period, the stamp seal.

1027 Evidence deriving from the Uronarti and Askut fortresses (Reisner 1955; Smith 1990); from the town of Elephantine (von Pilgrim 1996); from a mortuary temple in Abydos (Wegner 2007); more recently, some 1400 sealings from Tell Edfu seem to be of the direct type (Moeller – Marouard 2011).

1028 Heath Wiencke 1976.

1029 An illustration of the various types of Middle Kingdom sealings in Picardo 2015, 258, fig. 11.8.

1030 Collon – Lehmann 2011, 69 no. 9437, measuring 1.82 × 1.58 × 0.7 cm.

1031 Foster 2001, and more examples to be found in various articles in the same volume.

1032 Gratien 2001, 68.

1033 *RLA* 12, 469–74, *s.v.* 'Siegelpraxis. B. Archäologisch'; 466–69, *s.v.* 'Siegelpraxis (sealing practice). A. Philologisch'; a useful overview in Tsouparopoulou 2014, 46–52.

1034 Herbordt 2010, 214, 224, fig. 6.

1035 Herodotus even mentions that every Babylonian owned a seal (Hdt. 1.195: *'σφρηγῖδα δὲ ἕκαστος ἔχει'* [every man has a seal]) (quoted in Radner 2008, 482).

1036 For an overview, Herbordt 1997; Radner 2014 discusses state correspondence.

Certain Neo-Assyrian state seals have been interpreted as 'bureau seals',[1037] denoting 'seals that are associated with a particular administrative department — a "bureau" — rather than a specific person and that exist in a number of copies'.[1038] People of high authority, the king, the queen, the crown prince, a governor, had their 'bureau'; the seals used within their 'bureau' were characterized by simple motifs and were deliberately made to resemble one another when used during the same period. None of these 'bureau seals' survives, but in a striking comparison with Minoan material: 'from references in the textual record it is clear that these objects, which are always called "signet ring" (*unqu*) rather than "seal" (*kunukku*) or "neck seal" (*kišādu*), were made of gold'.[1039] It is suggested that the stamping with rings rather than cylinders was a habit already attested in the LBA to the W of Assyria, namely in the kingdom of Aštata and its capital Emar, modern Tell Meskene in Syria, with finds from levels corresponding to the Mycenaean period in Aegean terms.[1040] The ring seals in question are said to have been issued by the king himself and bore iconography that was well known and recognized as royal; that copies of royal seals circulated was known to the king, as shown in textual references of the time. The seals stamped documents dispatched to the king's subjects with orders regarding administrative or economic affairs. Again, strikingly similar to the Minoan material, the sealings stamped by these 'bureau seals' appear to have been used 'in a wide range of administrative contexts: they were impressed on sealings protecting writing tablets, on sealings securing the contents of sacks, boxes and jars and on clay tags … that were originally attached to an object by means of a loosely hanging string.'[1041]

The case just described exhibits remarkable similarities to evidence from Neopalatial Crete in terms of the materiality of the administrative practices used. It goes without saying that similarities in formal attributes are in this instance purely coincidental, since the time span separating the Minoan from the Neo-Assyrian world is unbridgeable. Neo-Assyrian 'bureau' seals do however recall the Minoan administration rings, especially the ones with the bull-leaping iconography, in that both systems are based precisely on the repetition of motifs on seals. In this respect it is interesting that the Neo-Assyrian evidence is interpreted as an administrative technology devised to assist the running of a newly-developed empire and grew out of the need to delegate bottom-down royal authority.[1042] Scholars have even gone as far as suggesting that the Assyrian state became successful and stable partly due to 'innovations in administrative technology, the kind that allowed a world-empire to act like a world-economy'.[1043]

1037 Not to be confused with the so-known 'office seals' in the Achaemenid period, the seals that were used, among others, to stamp the Persepolis Fortification Tablets (509–494 BC) (Root 1999, 166). In the Near Eastern literature, 'office seals' were unique seals presumed to have been handed down over generations and used by subsequent holders of the same office. A closer reading of bibliography reveals however that this theory is based merely on the later use of antique seals and there is no instance of these seals actually attested through their impressions to have been used over time (Klengel-Brandt – Radner 1997, 147–49; Radner 2008, 486).

1038 Radner 2008, 486.

1039 Radner 2008, 488.

1040 Beyer 2001; Herbordt 2010, 221.

1041 Radner 2008, 490.

1042 Radner 2008, 481–82, 508.

1043 Allen 2005, 76.

The second parallel for Neopalatial practices concerns flat-based nodules that were reserved for securing leather documents, which were dispatched to places other than where the sealed document was prepared. Sealings that strongly resemble the shape and overall appearance of the Minoan flat-based nodules are to be found again after a millennium had elapsed in the realm of the Achaemenid Empire from the fifth to the fourth century BC. Leather makes its appearance as material for writing letters of administrative and financial nature among a cache of documents kept in the Bodleian Library in Oxford and dating to the late fifth century BC.[1044] These letters were part of a small archive, mostly composed of letters sent from Arshama, a Babylonian prince, to people in Egypt: a fellow Persian official of high rank and two Egyptians, Psamšek and Nakhthor, who were managing his estates in Egypt. It is most likely that the cache — of unknown provenance since it first surfaced in the antiquities market in pre-war Berlin — derives from Nakhthor's archive kept in Egypt. The letters include: 'accountancy-culture, land tenure, satrapal remuneration, corvée labour, cross-regional ethnic movement, storage and disbursement of resources for state use, military systems, long-distance travel, the employment of skilled craftsmen, religious language and belief'.[1045]

The cache preserves the actual leather letters written in imperial Aramaic, the *lingua franca* of the period; their sealings, eight in total, stamped by two different seals; and fragments of two leather bags in which the leather documents with the sealings were most likely kept (*Fig. 121*). Seven of the sealings were stamped by the same cylinder seal with the motif of a combat scene and the name of Arshama and his title, and only one sealing was impressed by a stamp seal with a geometric motif. The leather documents were folded, wrapped in yellow thread, which is also preserved, and sealed by the sealings. Although evidently of a considerably larger size than the leather documents sealed in Minoan times,[1046] these letters present us with a vivid image of what a leather document would look like after it had been unfolded to be read. A second cache of leather documents from Bactria dating to some 80 years after the Arshama evidence, which has recently been published,[1047] waver between sizes such as 7.2 × 27.7 cm for the smallest[1048] and 29.1 × 49.6 cm for the largest.[1049] The Bactrian leather documents are additionally impressive in that they offer a unique glimpse into what a folded leather document with its clay sealing on top looked like, since one of the documents was acquired unopened (*Fig. 122*).[1050]

What is noteworthy in the Arshama letters is that the line between the public and the private sphere does not appear to have been fixed. Arshama was a satrap, but at the same time a landlord who tended to his affairs. In the letters, over and over again, he transcends

1044 Driver 1954. The Arshama letters offer an almost unique case of leather documents preservation from the ancient world besides leather documents from Egypt in the second millennium BC (see pp. 227–30 above).

1045 Ma *et al.* 2013, 2; also, *Arshama Letters*.

1046 Their publication unfortunately makes no mention of the sizes of the leather documents or the sealings, but they appear to be of sizes larger than the leather documents accommodated by the Minoan flat-based nodules. This suggestion is corroborated by the Bactrian evidence, see n. below.

1047 Naveh – Shaked 2012; see also, *Khalili Collections*, Aramaic Documents.

1048 Naveh – Shaked 2012, 152–56 no. B4.

1049 Naveh – Shaked 2012, 198–212 no. C4.

1050 Naveh – Shaked 2012, 187–91 no. C2: 'the document was opened for photography and re-sealed. It is preserved in its entirety and is clearly legible. Addressed to a superior officer, it announces the dispatch of 40 sheep.'

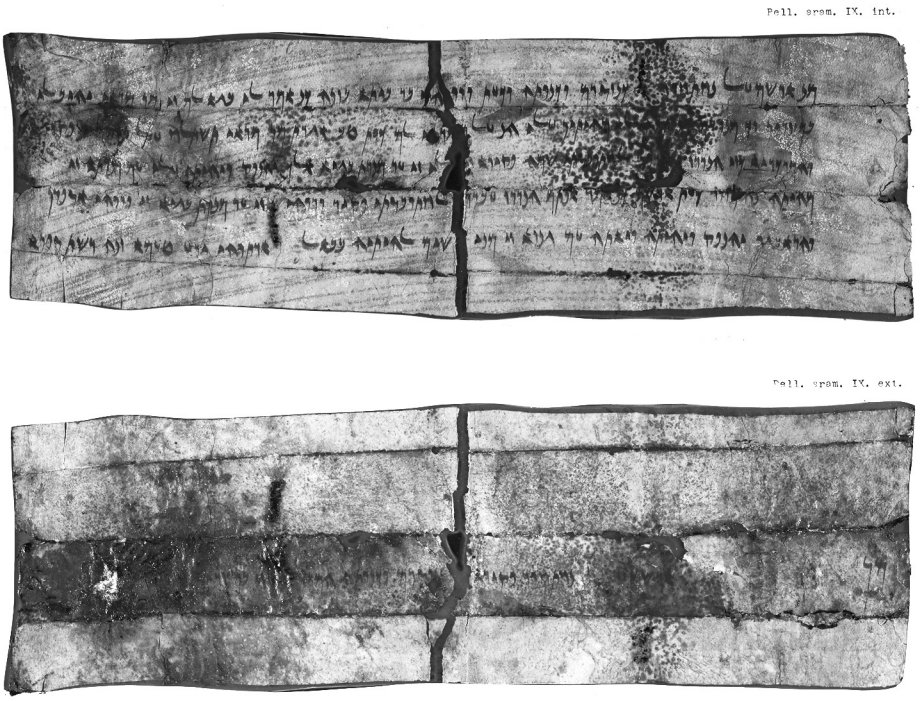

Fig. 121. A leather document sent by Arshama, an Achaemenid prince (late fifth century BC, Egypt; image © Bodleian Library, University of Oxford, 2018, Pell. Aram. IX. int./ext.).

Fig. 122. A leather document from the Khalili collection, found closed under its sealing, (right) and opened for a photograph (left) (Naveh – Shaked 2012, 187–91 no. C2; also, *Khalili Collections*, Aramaic Documents no. IA20).

the dividing line in order to service one or the other of his preoccupations and duties. The division was most certainly there, but the letters show an effort to negotiate and even abuse the prerogatives of public office to the benefit of his private business.

The examples from historic periods mentioned previously are remarkable in different ways. In the Neo-Assyrian instance an explanation is proposed for the multiple specimens of seals with similarly rendered motifs within the same administrative environment, which is strongly reminiscent of the Minoan repetition of certain motifs. In the Achaemenid administrative paradigm, when compared to the Minoan evidence, it is impressive how two administrative phenomena separated by a millennium can be conceived with such an impressive resemblance in their material attributes. The common denominator between these two historical examples, so distant in time, is that the act of stamping indicated the authentication of transactions at an official state level, as suggested in this study was also the case in Minoan Crete.

AND SOME THOUGHTS ON THE MINOAN THALASSOCRACY

Two important issues seem to lie at the heart of Minoan studies: on the one hand, the relationship Akrotiri enjoyed with Neopalatial Crete, a matter that constitutes an essential component in the discussion on Minoan thalassocracy and the process of 'minoanization' in the Aegean; and on the other, whether Crete formed a single polity or more during the LM IA period. The nature of interaction between Thera and Crete was discussed extensively in the 1980s.[1051] The site of Akrotiri, which by the mid-1970s had been revealed more or less to the extent that is known to us today, became the most prominent case-study, since its minoanizing features during its latest pre-eruption occupation phase required some explanation.[1052] The discussion initially concentrated on whether Akrotiri had actually become a Cretan colony in its final days,[1053] but soon expanded to define and explain 'minoanization' in the Aegean, not only at Akrotiri, but in other areas where Minoan features had been detected.[1054]

A fundamental aspect in the process of 'minoanization' was the political organization of Neopalatial Crete, an issue which still remains problematic today. From the time of Evans onwards, *opinio communis* among scholars of Minoan Crete has attributed some sort of Knossian supremacy over the rest of the island. But political institutions are notoriously difficult to detect in prehistory, hence the 'special' relationship between Knossos and

1051 The question had been posed well before that date and was first introduced by the excavator of Knossos, A. Evans; see Renfrew 1964.

1052 But a fact probably indicative of how much Akrotiri was discussed in relation to the process of minoanization is its near disappearance from the latest volume on the matter (Gorogianni – Pavúk – Girella 2016).

1053 Setting the overall agenda: Branigan 1981. Regional case-studies: Agia Irini in Kea (Davis 1980; Schofield 1982; Davis *et al.* 1983). In addition, a conference was organized on this very topic, the Minoan thalassocracy: Hägg – Marinatos 1984.

1054 Recently, discussions encompass more holistic approaches, but also new regional case-studies: Abell 2016; Broodbank 2004; Karnava 2007–08; Davis – Gorogianni 2008; Girella – Pavúk 2015; Nikolakopoulou – Knappett 2016; Whitelaw 2005; Wiener 2013. Another conference was organized on the topic of Minoans in the Aegean: Macdonald *et al.* 2009.

other Cretan palatial sites seems more like a matter of conviction than a conclusion based on archaeological facts. In the 1990s the picture of a unified Neopalatial Crete under one ruler was challenged,[1055] and evidence was used to support the interpretation of political fragmentation.[1056]

The Minoan sealings found at Akrotiri could, in theory, provide ideal evidence for both these issues, i.e the relationship between Thera and Crete, as well as the vexed question of Neopalatial political organization. Brief thoughts on both problems are offered here. With regard to the first problem, it appears that the custom of seal manufacture and use, as known and attested in Crete, did not exist in Thera. It was evidently something foreign and peculiar and seems not to have been adopted. In this connection, we must assume that the presence of sealings at Akrotiri was a purely Cretan affair. Thus, their arrival at Akrotiri can only be seen in two ways: either as tokens of a Cretan administration settled at Akrotiri or as administrative documents destined for Cretans living among the local population. This study has suggested that the sealings served in product exchange or trade taking place at Akrotiri; the administrative branch dealing with these matters on-site would function as an *emporion*, a trading station.[1057] A role in trade for sealings issued by high-ranking officials does not preclude a political character: rather it brings together the political system and its desire and potential to control economic transactions, as is always the case in human history. Whether the presence of foreign sealings can be translated into political domination or annexation of Akrotiri by Crete is not something that the sealings alone can answer; the question is bound to remain unresolved as long as we are ignorant of the precise content of the leather documents.

With regard to the second problem, that of the political system in LM I Crete, what emerges from the Akrotiri sealings is that they were products of this highly original, complex and strictly-organized administrative system. It was implemented during the LM I period in Crete under a set of principles that appear to have been all-pervading and centrally organized. Sealings were manufactured on the basis of set and rigorous requirements, which suggest that the *modus operandi* was even taught. The Akrotiri sealings found in Room D18b demonstrate a certain homogeneity on account of the limited number of seals used for their stamping in different combinations. An administrative hierarchy is discernible in action: some, dubbed here 'first rank' or 'dominant' administrators, appear to have been hierarchically superior to their stamping partners, the 'second rank' or 'subordinate' administrators.

In addition, no administrative changes between LC I/LM IA Akrotiri and LM IB Crete can be detected, since the technical characteristics and the rationale on which the system was based appear to have remained unchanged. The continuity of the system is demonstrated through the apparent uninterrupted use, under comparable circumstances, of one signet ring bearing a chariot scene in LM IA and LM IB. The chariot ring stamped flat-based sealings single-handedly in LM IA, and continued to do the same in LM IB. Moreover, on at least one occasion in LM IB, the chariot ring cooperated with another seal to stamp a flat-based nodule jointly. Thus the capacity to stamp alone or in collaboration

1055 Driessen – Macdonald 1997.
1056 Schoep 1999b; Christakis 2011.
1057 See also the relevant discussion in Müller 2005b; Panagiotopoulos 2015.

with another seal does not reflect changes in administrative practices between LM IA and LM IB. On the contrary, apart from the chariot ring, the large bull-leaping ring at Akrotiri also provides evidence for both single-handed and joint stamping. The ring with the bull-leaping motif is the most 'active' among the seals used for the Akrotiri sealings. By use of the characterization as 'active' I do not refer to the high number of sealings this administrator stamped, rather to his/her manifold responsibilities, which included his single-handed stamping of sealings but also his/her collaboration with two different 'subordinate' administrators. It is noteworthy that this ring is no longer represented in the LM IB sealing deposits, which may indicate that it had been somehow deactivated and withdrawn from circulation. Nevertheless, impressions from more than 17 other rings with bull-leaping scenes are present in the LM IB deposits (*Fig. 66*).

By analogy with the Neo-Assyrian example described previously, the suspicion arises that the administrative system itself became one of the vehicles for the success and the stability enjoyed by Neopalatial Crete. The combined use of writing and stamping allowed for a more effective management and regulation of resources and product exchange. But, whatever effect the demise of Akrotiri had on the economy of the Aegean area, its absence as a node in a trading network does not seem to have affected Cretan administration and its intricacies, which continued to function and prosper for quite some time afterwards.