

IDENTICAL SEALS ON ROUNDELS AND OTHER DOCUMENTS

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True to my tradition, I start with further additions and corrections to the corpus of roundels:¹ First and foremost is the addition of two new uninscribed roundels from Samothrace presented by Matsas at the 1992 Cretological Congress, of which one has so far been published.² Next, an inscribed roundel from Knossos (*KN Wc 48*) was discovered among the KN-sealings.³ We should delete the doubtful *PH Wc <47>* from the corpus of roundels: although listed by Carratelli among the 'cretule', there is no mention of any seal impression⁴ and Levi explicitly states that the 'document' is a "Fr. vaso con segno inciso".⁵ On the other hand, we may add at Phaistos three uninscribed roundels (of which two are complete): *PH Wc 49* (HM 692α), *PH Wc 50* (HM 820) and *PH Wc 51* (HM 927).⁶ Another complete roundel in the Heraklion Museum, without any known provenance, may tentatively be designated *CR Wc 1*.⁷ At Hagia Triada, *HT Wc 3021* (HM Bk) is not a roundel,⁸ but more probably a direct sealing comparable to Fiandra's type M or possibly type O;⁹ *HT Wc 3013* (HM 71) does not bear Levi's seal type 40¹⁰ but seal type 50.¹¹ At Khania,

* I wish to thank Judith Weingarten for correcting the English text and for her valuable comments on this paper. Source of illustrations: Fig. 4: J. Boeltoft. Remaining photographs and drawings are stated by the author. Since the CMS does not use bold script, references to inscriptions are given in italics.

¹ Some corrections were presented by E. Hallager in: CMS Beih. 3, introductory note and 77, addendum, and id. in: ASSA 121f. Pl. XXI.

² D. Matsas, *Studia Troica* 1, 1991, 159ff.; id. "Η μινωική παρουσία στο ΒΑ Αιγαίο κατά την μέση χαλκοκρατία. Στοιχεία απο Σαμοθράκη," presented at the 7th International Cretological Congress at Rethymnon, August 1991.

³ E. Hallager – J. Weingarten, *BSA* 87, 1992, 177ff.

⁴ G. Pugliese Carratelli, *ASAtene* 35/36, 1957/58, 378.

⁵ D. Levi, *Festòs e la civiltà minoica* (1976) 810 (F 239). The fragment is now probably in the Heraklion Museum, cf. id., 770.

⁶ These roundels were Class R in Fiandra's typology (E. Fiandra in: *Pepragmena* 2, 383ff.), a category which contained only roundels and noduli.

⁷ I am most grateful to Dr. Kritsas for permission to mention this roundel.

⁸ Godart – Olivier, *GORILA* 2, 78.

⁹ HT 'Wc' 3021 has at the bottom imprints from a smooth surface ground in a right angle; from box?, stone vase?. On the inside close to the outer surface possible remains from a string. On surface turning away from rim, fragment from the impression of probably a lentoid where two legs from an animal is preserved. On the surface 'above' rim one slightly bent incision (or could it be imprint from long nail as is often seen on the Phaistos direct sealings in addition to the seal impressions)? H 1.7; W 1.7; Th 0.55 cm.

¹⁰ Printing error in D. Levi, *ASAtene* 8/9, 1925/26, 82, repeated in J. Raison – M. Pope, *Corpus transnuméré du linéaire A* (1980) 133 and Godart – Olivier, *GORILA* 2, XL.

KH Wa 1021 and *KH Wa 1025* are not fragments of hanging nodules¹² but are roundel fragments.¹³ *KH Wa 1021* should be joined, in all probability, to the fragmentary roundel (with *KH 5*) *KH Wc 2087*;¹⁴ *Wa 1025* is probably a fragment from yet another roundel with *KH 28*.¹⁵

For the topic under discussion, these corrections add one example of similar seals on roundels and other documents: CMS II,5 No. 272 (*PH Wc 49* [HM 692a]), while dropping two examples: HT 40 (*Wc 3013*) = HT 50; *KH 28* (which does now not occur on nodules). We are thus left with eight certain and one probable examples (the one from Phaistos is open to question) where identical seals were impressed on roundels and on other documents.

At MM II Phaistos, the seal CMS II,5 No. 272 on HM 692 (*Fig. 10*) is found on an uninscribed roundel (*PH Wc 49*) and on a sealing of Fiandra's type M.¹⁶ The sealing, of brick red finely gritted clay, had been pressed against an edge and a second 'surface'; the single seal impression was on the surface otherwise entirely filled with finger prints. The almost-complete impression is well preserved.¹⁷ We thus have evidence for a recipient of goods (although, as the roundel was uninscribed, we do not know what product) who was also responsible for securing goods (type M). This suggests that the seal user may have belonged within the administration.

A second example from MM II Phaistos is the seal CMS II,5 No. 97 (*Fig. 10*): one can make a fairly good case for this seal appearing on the roundel *PH Wc 41* as well as on an incompletely-preserved sealing of Fiandra's type D (HM 858).¹⁸ The sealing, of rather light porous clay, had sealed a cylindrical peg tied by a cord at the bottom; on its surface were four partial seal impressions. All visible details of these seal impressions seem to match the impression on the roundel (*Fig. 1*) but the latter impression is 8–10% larger than the impression on the sealing. This, however, may be explained by the baking of their very different clay-fabrics (the roundel is of a solid clay, the sealing of a rather porous clay) which may have caused a slight reduction of the original size. If accepted as the same seal, this roundel-recipient of wine apparently also had the authority to seal doors or chests within the palace. As with HM 692, the user of the roundel again appears connected with the local palace administration.

¹¹ Levi (*supra* n. 10) 99.

¹² Papapostolou, *Sphragismata* 166f.

¹³ I have discussed these two fragments with Judith Weingarten, who agrees with me that they are not fragments from nodules.

¹⁴ This fragment has same clay, colour, burning, way of fracturing, same reading (horizontally) as *2087* to which it shall tentatively be ascribed.

¹⁵ The fragment – which is read horizontally – did not fit the missing part of *2055*. Neither could it possibly fit *2059*, *2090*, *2091* nor *2090* since those two roundels are read vertically.

¹⁶ Fiandra (*supra* n. 6) 389 Fig. PNE'.

¹⁷ Good photographs of the seal impressions are found in CMS II,5 No. 272: Top is from the sealing and bottom is from *Wc 49*.

¹⁸ Fiandra (*supra* n. 6) 388 Fig. PMA'.



Fig. 1 Left: Seal on HM 1530 (PH Wc 41); right: HM 858 (sealing type M). Scale 2:1.



Fig. 2 Left: KN-Rl on HM 399; right: KN-Rl on HM 345 (KN Wc 30). Scale 4:1.

At the MM III Temple Repositories at Knossos, it has been suggested that the seal impression on *KN Wc 29* (KN-Rc) might be the same or similar to the impressions found on two parcel nodules (HM 349, 398) of Class V from the Temple Repositories; likewise it has been suggested that seal KN-Rk on *KN Wc 40* is the same or similar to two other parcel nodules (HM 384,1–2) from the Temple Repositories with Evans's motif 'trees in the

wind'.¹⁹ However, in both cases, it can be positively stated that the seals on the roundels and nodules are not identical and (in my opinion) cannot even be considered as 'look-alikes'.

This leaves us with one example of the use of same seal on different documents at Knossos: Seal KN-R1 (*Fig. 10*) found on a roundel (*KN Wc 30*) and on a sealing (HM 399) of Class Pseudo-IV (incompletely preserved).²⁰ HM 399 bear impressions of two different seals: the couchant ox of KN-R1 and an architectural design. On *Fig. 2* left, is seal R1 on HM 399, and right on the roundel. The small, thin half-circle below the horizontal line proves both impressions to have come from the same seal.²¹ If correctly interpreted as some kind of parcel nodule (the imprint from the object sealed is missing) we have here a case of a person receiving goods (the roundel) who also had the authority (or obligation) to seal documents.

LM IB Hagia Triada supplies three examples of the same seal appearing on roundels and other sealed documents: HT 79. 112. 125.

1. HT 79 (*Fig. 10*) is found on a roundel (*HT Wc 3022*) and on 42 nodules²² (*Fig. 3*) apparently all of Class XI. All but one of the nodules are inscribed with one of five Linear A signs/symbols: AB 77, KA (11 times); AB 81, KU (5 times); AB 02, RO (8 times); AB 41, SI (12 times); and AB 04, TE (5 times).

Both the large number of nodules (4% of the total at Hagia Triada) and their spread across several activities (5 different signs) suggest that HT 79 is one of the elite (Group I) administrative seals in use at Hagia Triada.²³ The hanging nodules shed no further light on his responsibilities or activities, but the inscribed roundel *Wc 3022* may indicate some involvement with personnel (AB 100/102).

2. HT 112 (*Fig. 10*) is found on three roundels plus a triangular prismatic clay bar and a hanging nodule.²⁴

The prismatic clay bar (*Fig. 4*) cannot now be traced; it was described by Levi as a "Sbarra prismatica di argilla, con la triplice impronta nn. 20, 47 e 112, su una delle tre facce lunghe; nell'altra v'è l'iscrizione, mentre la terza è liscia".²⁵ The inscription on this bar is similar to those of roundels (*Fig. 10*).²⁶ No dimensions nor descriptions of clay or of finger-

¹⁹ J. Weingarten in: *Transition* 42 n. 13 and appendices 1 and 2.

²⁰ Weingarten (*supra* n. 19) 42. 50.

²¹ Already noted by Gill, *KSPI* 70 (L 27), Weingarten (*supra* n. 19) 42 n. 14, and I. Pini in: *ASSA* 53, and Pl. VIIe.f.

²² *HT Wc 3022* and HM 455–458, Firenze 94757 (incised with TE) and 94758 (incised with RO), Pigorini 71961–71963. Levi (*supra* n. 10) 109. Weingarten (based on GORILA 2) enumerates 41 inscribed nodules although only 37 are listed in her table 4, all type VII. Weingarten, *SSMC* I 286 Table 2; 288 Table 4. The discrepancy is due to the fact that only 37 specimens are in the Heraklion Museum; the rest are in the Pigorini Museum and Firenze Museum.

²³ Weingarten (*supra* n. 22) 284ff.

²⁴ *HT Wc 3016. 3017. 3024, HT Wa <1021 bis>* and HM 587.

²⁵ Levi (*supra* n. 10) 83 *Fig. 25* Pl. IX.

²⁶ Identical to the inscriptions found on the 'reverse' of two roundels stamped by seal 112: *HT Wc 3016. 3017*.



Fig. 3 HM 455/10 with HT 79. Scale 2:1.



Fig. 4 HT Wa <1021>, composite drawing based on D. Levi, *ASAtene* 8/9, 1925/26: photograph (Pl. IX) and drawings (Figs. 46, 68 and 128).



Fig. 5 HM 587 with HT 112 (uninscribed). Scale 2:1.

prints is given. HT 20 is stated to be impressed once²⁷ while HT 47 is wrongly stated to be impressed twice.²⁸

What is noteworthy is that HT 112 appears together with two other seals on a unique document: this is the only document from Hagia Triada with three different seal impressions and the only document described as a clay bar.

If, as stated by Levi, the bar had not sealed anything, it might best be compared to a type of nodulus. In that case, the seals would probably have been those of the administration since it only — in my opinion — makes sense for administrators to issue docketts (as interpreted by

²⁷ Levi (*supra* n. 10) 91 Fig. 46.

²⁸ Levi (*supra* n. 10) 98 Fig. 69.

Weingarten²⁹). However, we could also compare the bar to two roundels from Mallia (*MA Wc 13–14*) each stamped by two ordinary, apparently non-administrative seals.³⁰ A detail which makes its identification as a kind of roundel tempting is that the clay bar has three seal impressions and its ideogram is followed by the number '3'; in other words, this may be the same system as on roundels. There is no way of knowing whether or not the three seal impressions were made by the same person.³¹

The last document, with HT 112, is a well-preserved hanging nodule of Class VII (HM 587) (*Fig. 5*). Clear finger prints are visible on two sides, with a single impression of HT 112 on the third side. The nodule is uninscribed.

HT 112 who acknowledged the receipt of CYP (*Wc 3016. 3017*) and sheep (*Wc 3024*) on roundels³² apparently may also be connected to the administration through the use of his seal on a hanging nodule. Whether or not he was also 'issuing' CYP (if *Wa <1021 bis>* is understood as a nodulus) must for the moment remain uncertain.

3. HT 125 (*Fig. 10*) is found on a single roundel and on 255 hanging nodules.³³ Of the hanging nodules, 248 are inscribed with signs in Linear A: AB 77, KA (57 times); AB 81, KU (42 times); AB 02, RO (31 times); AB 41, SI (49 times), A 301 (14 times); AB 74, ZE (7 times); AB 28, I (20 times); and AB 59, TA (11 times) or with combinations of signs: AB 01–77, DA-KA (5 times); AB 28–76, I-WE (7 times); AB 41–77, SI-KA (4 times); and AB 28–A 301 (1 time).³⁴ The clay of the nodules varies greatly in appearance, from badly burnt light slightly porous to very hard black burnt pieces; by far the most common, however, is a red finely gritted, relatively well baked clay. The height of the nodules vary from 1.7 to 2.6 cm with corresponding variations in diameter. All of these nodules were made in a surprisingly homogeneous manner: first of all, the clay is always pressed around a cord tied with a big knot. Then, the seal impression always shows the man in front upside down. The triangular piece of clay was then turned left (in a vertical position) and inscribed on side B. Side C, now slightly curved, was left untouched. There are only a very few exceptions to this rule.

If the number of impressions and the number of Linear A signs used — single or in combination — is significant for the importance of the seal-user we are here most definitely dealing with the top administrative leader at Hagia Triada, as shown by Weingarten,³⁵ he was furthermore — as his colleague HT 112 — seen to be a recipient of CYP.

²⁹ J. Weingarten, *Kadmos* 25, 1986, 1ff., and ead., *Kadmos* 29 (1990), 16ff.

³⁰ E. Hallager — J. Weingarten, *BCH* 117, 1993, 1ff.

³¹ It is obvious from one of the Samothrace nodules (*SA Wa 1*), that one person could have had more than one seal in a string — and secondly we have both two- and three-sided gems. In the forthcoming E. Hallager, *The Minoan Roundel* (Proceedings of the Danish Institute in Athens, Monographs 1) it is, however, argued that the impressions were done by three people.

³² E. Hallager — L. Godart — J.-P. Olivier, *BCH* 113, 1989, 431ff.

³³ *HT Wc 3015* and 252 nodules HM 141–151. 538. 557, Firenze 94761 (incised with KA). 94762 (incised with KU), Pigorini 71950–71955.

³⁴ Weingarten (*supra* n. 22) 28 Table 2.

³⁵ Weingarten (*supra* n. 22) 283–285.

At Hagia Triada we have thus three examples of identical seals used on roundels and other sealed documents. There are some grounds for arguing that the user of HT 112 was himself an administrator, and this is most definitely the case with the users of seals HT 79 and HT 125, two leaders within the central administration.

At LM IB Khania there are again three examples of identical seal-use on different types of documents: KH 5, KH 20 and KH 26.



Fig. 6a–b Two hanging nodules with KH 5 (KH Wa 1019, left and KH Wa 1020, right)
a) Face A with seal impressions; b) Face B with inscription. Scale 2:1.

1. KH 5 (Fig. 10) (CMS V Suppl. 1A No. 162) is found on four roundels as well as two hanging nodules of Class VII (Fig. 6).³⁶ *Wa 1019* is completely preserved while *Wa 1020* is fragmentary. On the A side, both bear a single impression:³⁷ on 1019 the motif is impressed along the length axis of the nodule while on 1020 the motif is upside down compared to the hanging position. When the two nodules are turned left, we find on side B the inscriptions, probably the same on both, although the sign is not immediately recognizable in the corpus of Linear A.³⁸ Turning the nodules left once more, sides C are blank.

So, although the seals are impressed in a different manner on the nodules, they probably both have the same inscription. On roundels, KH 5 dealt with the so-called ship-ideogram (A 566) on *KH Wc 2062*. The fact that KH 5 is also found on nodules of Class VII probably places him within the central administration.

³⁶ *KH Wc 2056. 2057. 2062. 2087* and *KH Wa 1019. 1020*.

³⁷ Papapostolou, *Sphragismata* 46ff. Pls. 16f.

³⁸ GORILA 5, 318 suggests the fractional sign 704 E as an uncertain possibility.



Fig. 7a Eight hanging nodules with KH 20 (KH Wa 1005–1012). Face A with seal impressions. Scale 2:1.



Fig. 7b Eight hanging nodules with KH 20 (KH Wa 1005–1012). Face B with inscriptions. Scale 2:1.

2. KH 20 (*Fig. 10*) (CMS V Suppl. 1A No. 169) is found on eight roundels and eight hanging nodules of Class VII (*Fig. 7*).³⁹ All nodules were impressed with the seal on Side A along the length axis of the nodule, although not always in the same direction. When the nodules are turned left, this B-side is inscribed: on *Wa 1005–1010* we find the ZE sign (AB 74), all incised upside down compared to hanging nodule, and on *Wa 1011–1012* the sign A 301 is incised across the side of the nodule.

In Weingarten's terminology, KH 20 would be an elite administrator of Group II (i.e. connected to the signs ZE and A 301).⁴⁰ What is being administrated by those signs is unknown, but KH 20 seems to have received units of a textile (AB 164) on the roundels. If AB 164 is correctly interpreted, his roundels acknowledged receipt of at least 19 units of this textile product.⁴¹



Fig. 8a–b Two flatbased nodules with KH 26 (KH Wa 1536–1537)
a) Face with seal impressions; b) reverse with string marks. Scale 2:1.

3. KH 26 (*Fig. 10*) (CMS V Suppl. 1A No. 174) is found on one roundel and two parcel nodules of Class IV and V (*Fig. 8*).⁴² The seal is in both cases impressed in the same direction compared to the stringmarks on the reverse. It is interesting that the clay of nodule 1537 is of a type not normally used for LM IB sealings but rather is definitely the same as the famous Local Kydonian pottery workshop clay.⁴³

While KH 5 and KH 20 were found on hanging nodules, KH 26 is found on parcel nodules, indicating that the user had the authority (or obligation) to seal written documents. In connection with the discussion whether or not some parcel nodules may actually have

³⁹ *KH Wc 2036–2042. 2111* and *KH Wa 1005–1012*.

⁴⁰ Weingarten (*supra* n. 22) 285.

⁴¹ Hallager (*supra* n. 1) 142 Table 8.

⁴² *KH Wc 2060* and *KH Wa 1536. 1537*.

⁴³ Y. Tzedakis, BCH 93, 1969, 396ff.

'travelled' from where they were made,⁴⁴ it is noteworthy that *Wa 1537* is of local clay, probably showing that the seal-user worked within the local administration. The ideogram on the roundel sealed by KH 26 is incomplete; it may be the same 'ship-ideogram' (A 566)⁴⁵ that was also inscribed on a roundel stamped by KH 5.

In total, there are nine examples where the same seal was used on roundels and on other sealed documents. Thus, of 74 different seal devices on roundels, ca. 12% are also found on nodules. On the other hand, of more than 866 different seal devices on sealings, less than 1% also appeared on roundels (*Table 1*). Though few, these nine examples do reveal some positive information (*Fig. 9*):

1. We note that such overlaps persist throughout the entire history of roundels, i.e. from MM II Phaistos, at MM III Knossos to LM IB Hagia Triada and Khania.

2. Overlaps are not confined to any particular site.

3. Most important, these help answer the question: who was obliged to give roundel-receipts within the administration? I think it very reasonable to accept Weingarten's identification of Hagia Triada HT 125 and HT 79 and Khania KH 20 as elite administrators working within the local administration. Since HT 26 at Khania had sealed using a local clay, he too may be considered as a local administrator. If Fiandra's sealing type D had sealed a door rather than a portable chest, we could also argue with confidence that the same applies to Seal 858 from Phaistos. We cannot be certain about the remaining three examples but I see no reason why their sealings should not equally be products of local administration.

In six of the nine cases at least, we can be certain that roundels were stamped by people already otherwise employed in local administration, and that these people were obliged to acknowledge the receipt of items/goods from the administration through the medium of roundels.

In LM IB, this covers most of Weingarten's types of administrators:

1. those authorized to seal documents (KH 26)
2. those connected with "Group II administrators" (KH 20)
3. those connected with "Group I administrators" (HT 79)
4. the overall elite administrator (HT 125)

The only group missing are those who were authorized to seal noduli, an omission perhaps due to chance given the relatively small number of noduli.

⁴⁴ J. Weingarten in: N.H. Gale (ed.), *Bronze Age Trade in the Mediterranean*. Papers Presented at the Conference held at Oxford in December 1989, SIMA 90 (1991) 303ff.

⁴⁵ Also Godart – Olivier, *GORILA* 5, 271.




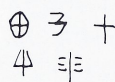
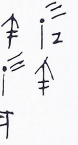
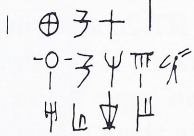


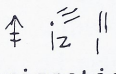


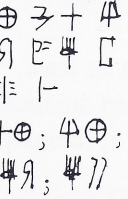
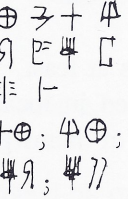
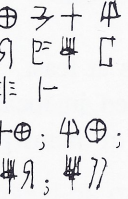
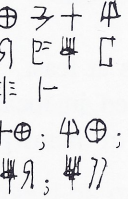
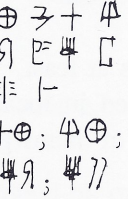
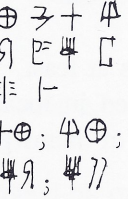

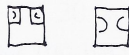


	Seal	Roundel	Sealing document Class I-V	Sealing Goods or documents Class VI-X	Other
PH	692	—			Type M
MM II	858				Type D
KN	R1		Pseudo Class IV		
MM III					
HT	79				
LM IB	112			 	 1 uninscribed prismatic bar
	125			Class IV	     
KH	5			?	
LM IB	20				
	26		Class IV class V		

Fig. 9 Table showing information concerning roundels and other documents with use of identical seals:
 Col 1: site and date; Col 2: Seal number as used in this paper; Col 3: The roundels and their inscriptions;
 Col 4: Parcel nodules; Col 5: hanging nodules with indication of inscriptions; Col 6: Types under Phaistos
 are those of Fiandra (supra n. 6).

What products did these administrators receive from the storerooms (*Fig. 9*)?

- It seems to be wine at Phaistos;
- at Knossos we cannot tell;
- at Haghia Triada HT 112 and HT 125 both receive cyperus while HT 112 also receives sheep;
- at Khania we can only be reasonably sure that KH 20 received some kind of textiles.

The results are not in themselves impressive, but do allow us to raise some further questions: may we, for example, learn that Group I administrators were connected to certain commodities, while Group II were connected to others? Also, were the inscriptions on roundels sealed by HT 112 and HT 125 (KA-KU-RO-SI respectively) connected to the inscriptions found on the hanging nodules of Class VI–VII?

As it is, the evidence is too sparse to allow more than speculation. Nonetheless, we have seen that even elite administrators had obligations to the administration; even the most active elite administrator (HT 125) at Haghia Triada was obliged to give receipts.

Some seal-user's are more active on roundels than others. I call the most active the 'main-roundel-users'⁴⁶; curiously, these are not found also stamped on sealings.

Just four seal-users accounted for for 44% of the total number of roundels: KH 13. 22. 11 (CMS V Suppl. 1A No. 163. 158. 156) from Khania (representing more than half the roundels from the site) and HT 31 from Hagia Triada (almost 60% of the HT roundels) (*Table 2*). Why were they not also found on nodules from the same site?

Two possible explanations may be offered: One explanation is, of course, pure chance. On *Table 1*, we compare the number of roundels with all other sealed documents; there is no consistency as to their relative frequency, varying from 0.2% at Zakro and Phaistos to 56% at Khania. Where we have many sealings/nodules there are few roundels, and where there are many roundels the proportion of sealing/nodules is relatively small. Given this situation, simple chance cannot be ruled out.

On the other hand, if roundels acknowledged receipts from the administration, we would expect people at all levels within the bureaucracy to have given such receipts each time he or she got something out of a storeroom. If, for example, le chef de cuisine, gave a roundel-receipt every time he got two units of (for example) olive oil, he might appear very frequently on the roundels but, at the same time, he need not have the authority (or obligation) to seal documents or minor valuable goods. In my opinion, it is therefore not necessarily surprising that we do not find the main-roundel-users among the nodules: they are more probably large-consumers, not administrators having the task or the responsibility of themselves sealing nodules.

⁴⁶ My definition of a 'main-roundel-user': 1) those sealing at least five roundels and at least 10% of the number of roundels from the site; 2) the number of roundels at that site must consist equal at least 10% of the total corpus of roundels. These criteria leaves only the sites Hagia Triada and Khania with 'main-roundel-users'.

Table 1

	Number of seal types			Number of documents		
	R	N/S	Com	R	N/S	%
GO	1	5	0	1	14	7
HT	7	150	3	22	1081	2
KE	1	0	0	1	0	100
KH	21	31	3	118	91	56
KN	19	86+	1	14	111+	11
MA	5	1+	0	5	1+	?
PH	9	326	2	11	6500	0.2
PYR	3	1	0	2	1	67
SA	5	3	0	2	3	40
TY	2	3+	0	2	3+	?
ZA	1	260	?	1	559	0.2
	74	866+	9	179	8364+	2.1
%	12	1.0				

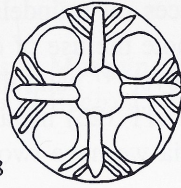
R Roundels
 N/S Nodules and sealings
 Com Number common to the two types of documents
 % Roundel percentage of total (R and N/S)

Table 2

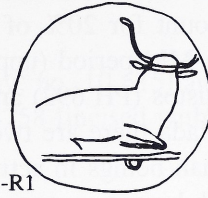
Main roundel users	Number of Roundels	
KH	22	31
KH	13	21 of 116 = 55%
KH	11	12
HT	31	13 of 22 = 59%
		77 of 176 = 44%



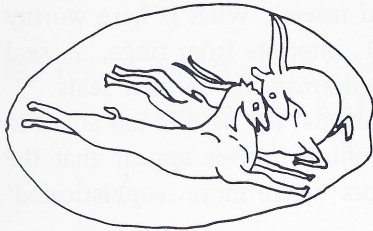
PH 692



PH 858



KN-R1



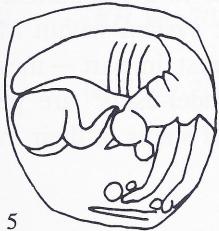
HT 79



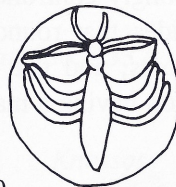
HT 112



HT 125



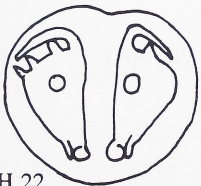
KH 5



KH 20



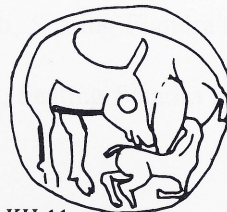
KH 26



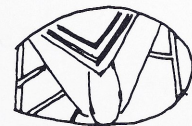
KH 22



KH 13



KH 11



HT 31

Fig. 10 Table showing the nine seal devices common to roundels and other documents (upper three rows) and the seal devices of the "main-roundel-users" (bottom row). The numbers are those referred to in this paper.

We may probe a little further by investigating briefly the actual seals and seal devices that were used on roundels (*Fig. 10*). In the three upper rows are the nine seals common to roundels and other documents; in the bottom row those of the main-roundel-users. These 13 seals account for 20% of the seal devices on roundels and 55% of the corpus of roundels. From the MM period (upper row) we note the use of one of the few naturalistic seal devices from Phaistos (PH 692) and one 'high level'⁴⁷ naturalistic device from Knossos (KN-R1). At Hagia Triada there are two (HT 79 and HT 125) metal rings and two of the impressions are with human beings in activity; in Khania we have two (KH 5 and KH 20) or three lentoids, again with human representations.

In the bottom row we find that 'main-roundel-users' used two lentoids (1 with animals, 1 bucranium), and 2 amygdaloids (1 with lions, 1 rather stylized insect). What is here worthy of note is that we do not find among main-roundel-users any 1. imprints from rings, 2. seal devices with human beings, nor 3. exceptionally high quality workmanship on their seals.

Although these seals accounted for a high percentage of roundels, the base is too small to draw firm conclusions. Nonetheless, on current evidence, I think it does appear that the main-roundel-users did not belong to the top-elite administrators where more 'sophisticated' seals are often found.⁴⁸

In conclusion, the investigation of identical seals used on roundels and other documents has shown that, during the MM II—LM IB period, local bureaucrats — even important ones — were among the 'individuals' obliged to give stamped receipts to the administration. This strengthens the hypothesis of a strongly controlled bureaucratic system within Minoan administration. It also emphasizes the idea that roundels are — at least in part — means of control for disbursements from storerooms, and that the 'main-roundel-users' are perhaps 'employees' within the local administration having a markedly different status of their own.

⁴⁷ Weingarten (*supra* n. 19) Table 1 and *ead.*, OxfJA 11 (1992), 30f.

⁴⁸ Of course, 'low level' seals/designs are also frequent on the nodules. Whether this means an arbitrary choice of seal use or different levels of administrators working on nodules is a problem yet to be solved, e.g. Weingarten (*supra* n. 47) 31.

LIST OF DOCUMENTS DISCUSSED WITH DESIGNATION OF MUSEUM NUMBERS: ⁴⁹*Hagia Triada*

- HT 79 (*HT Wc* 3022 [Allard Pierson Museum, Amsterdam, inv. no. 10.615] and HM 455–458, Firenze 94757 [incised with TE] and 94758 [incised with RO], Pigorini 71961–71963)
- HT 112 (*HT Wc* 3016. 3017. 3024 [HM 68, 69, and 1110], *HT Wa* <1021 bis> and HM 587)
- HT 125 (*HT Wc* 3015 [HM 78] and 252 nodules HM 141–151. 538. 557. Firenze 94761 [incised with KA] and 94762 [incised with KU], Pigorini 71950–71955)

Khania

- KH 5 (*KH Wc* 2056. 2057. 2062. 2087 and *KH Wa* 1019–1021)
- KH 20 (*KH Wc* 2036–2042. 2111 and *KH Wa* 1005–1012)
- KH 26 (*KH Wc* 2060 and *KH Wa* 1536. 1537)

Knossos

- KN-RI (*KN Wc* 30 [HM 345] and HM 399, nodul, Class Pseudo IV)

Phaistos

- PH 692 (*PH Wc* 49 [HM 692a] and HM 692b, Sealing Fiandra's type M)
- PH 858 (*PH Wc* 41 [HM 1530] and HM 858, Sealing Fiandra's type D)

⁴⁹ In Khania the museum nos. and 'linear A' nos. are the same.