

JUDITH WEINGARTEN

MORE UNUSUAL MINOAN CLAY NODULES: ADDENDUM II\*

The surprising and rapid accumulation of noduli since 1986 prompts yet another consideration of this mini-document — that is, ‘sealings that do not seal’, clay nodules without any form of attachment whatsoever. With this second Addendum, we have collected 184 noduli: 169 from Crete and 15 from mainland sites.<sup>1</sup> As this now equals nearly 5% of all Minoan-Mycenaean ‘sealings’, our description of noduli as ‘occasional’ documents (*Noduli* 21) can no longer be maintained. True, noduli are unevenly spread over time and space (e. g. at Knossos noduli actually outnumber true sealings in the Temple Repositories [A19–A29; *SSMC* II 3–4], while the LM IIIA:1/2 destruction deposits have but a handful [28, A41–A42]; Table 1). Yet their widespread distribution in LM IB sealing deposits — no such deposit is without noduli — argues that they had, at least at this time, a pan-Minoan function, understood and effective throughout Crete.

Noduli begin very early in Minoan administrative history, possibly as early as the first true sealing deposits. The new noduli from MM IIA Knossos (A14) suggest that noduli are already playing a role in

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\* This addendum further supplements ‘Some Unusual Minoan Clay Nodules’ (Kadmos 25, 1986, 1–21; hereafter *Noduli*) and its Addendum (Kadmos 26, 1987, 38–43; hereafter *Addendum I*).

Other abbreviations used:

*SSMC* I, II = J. Weingarten, The Sealing Structures of Minoan Crete, Part I, The Evidence until the LM IB Destructions, OJA 5, 1986, 279–298; Part II, The Evidence from Knossos until the Destruction of the Palace, OJA 7, 1988, 1–25.

*TUMSA* = J. Weingarten, Three Upheavals in Minoan Sealing Administration: Evidence for Radical Change, *Aegaeum* 5, 1990, 105–120.

Wt numbers = E. L. Bennett, Jr. & J.-P. Olivier, The Pylos Tablets Transcribed, I, Rome, 1973, 264–66.

Ws numbers = J.-P. Olivier, La serie Ws de Cnossos, *Minos* 9, 1968, 173–183.

<sup>1</sup> NB: the following numbers have been suppressed: *Noduli* 4 and 5 (subsumed under A–20), 6 (these pieces were not found in the HM), 29 (replaced by A–53 – A–56), A–11 (subsumed under A–19).

Table 1 Distribution &amp; Chronology of noduli

MM IIA/IIIA	MMIIIB	LM IB	LMIIIA:1/2	LHIII
Phaistos (8) Mallia (18) Knossos (8)	Knossos (39)	Khania (3) Tylissos (1) Sklavokampos (1) Ayia Triada (55) Gournia (12) Zakro (5) Palaikastro (3) Pyrgos (2)	Knossos (4)	Pylos (14) Mycenae (1)

palatial administration not long after the foundation of the first palaces.<sup>2</sup> If the system of sealing administration was indeed imported from the Near East early in the Old Palace Period (*SSMC* I 280–281; *TUMSA* 105), it now seems more likely that noduli came to Crete as part of the same bureaucratic establishment (*Addendum I* 39–40). During MM II, the shapes of noduli evolve as their use expands geographically, to Phaistos (**A1**–**A2**) and, especially, Mallia (**1**–**3**, **A3**–**A7**). They are thereafter found in every sealing deposit on Crete and – outliving both roundels and flat-based ‘document sealings’ (*SSMC* II 10) – survive until the final destruction of the Palace of Knossos; on the mainland, noduli make up as much as 15% of the LH IIIB Pylos sealings and there is a single nodulus from Mycenae (Table 1).<sup>3</sup> Such longevity suggests that noduli filled a specific, continuing administrative need, a need that could not be filled either by true sealings or roundels, still less by clay labels or tablets. If, as we have proposed, noduli were dockets – mini-documents given in return for occasional work, to be exchanged for rations or other forms of payment – this latest cascade of noduli nonetheless suggests a slightly broader interpretation of their function.

With the possible exception of the earliest round-based noduli (**A14**) and parallelepipeds (**A1**), noduli never have an absolute identity: they

<sup>2</sup> The Old Palace of Knossos ‘was most likely built after the end of MM IB during the MM IIA period’: J. A. MacGillivray, *The Foundation of the Old Palaces in Crete*, in *Proceedings of the 6th Cretological Congress, 1986* (forthcoming). If this radical view is accepted, the first palatial sealings could also be coincident with the first phase of the Palace: the three sealings from the Vat Room Deposit may now be dated to MM IIA (A/R 1987–1988, 69), though this might still be disputed (dating problems: *SSMC* II 2 and n. 2; *TUMSA* n. 1).

<sup>3</sup> See J. Weingarten, *Some Notes on Mycenaean Sealing Administration* (forthcoming).

always mimic or even prefigure sealing shapes<sup>4</sup>. This suggests a close relation between sealings and dockets: since noduli (by definition) could never have sealed anything, the connection must be that the same people literally moulded both artifacts. These are most probably the seal-owners, a hypothesis supported by the number of seals which stamped both noduli and true sealings (10, 13–16, 18, A42, A43–A45, A48–A49).<sup>5</sup> Thus, the class of person (though not necessarily the same individuals!) responsible for sealings is most likely also responsible for dockets.

The large number of noduli in the MM IIIB Temple Repositories (A19–A29) possibly represents exceptional workers brought in to help clear and repair earthquake damage. Our interpretation of noduli as simple dockets, dispensed in return for occasional work, under the authority of a seal-owning ‘overseer’, seems sufficient explanation. Yet it is noteworthy that, in this deposit (as indeed in all earlier deposits) there is no overlap between seal-owners who stamped noduli and those who stamped true sealings; it is not unreasonable to see this as evidence of a certain functional specialization within the palaces. Later, when the same seal-owners sealed documents or packages as well as noduli (as at LM IB Khania, Ayia Triada, and Zakro, in the Knossos destruction deposits, and at Pylos) some evolution in nodulus function seems probable.

The LM IB distribution of noduli is striking (Table 1). Not only are they found in every sealing deposit (8–27, A12–13, A34–35) but two sites, Palaikastro (A31–33) and Pyrgos (A36–37) have only noduli and no true sealings at all. At Gournia (as in the earlier Temple Repositories: *SSMC* II 3) most of the published ‘sealings’ are in fact noduli: there are 12 noduli (11, A34–35) and only two sealings. The noduli from Gournia are crucial for, once it is clear that there are virtually no *sealings* at this well-burnt and almost entirely excavated site, the geographical spread of the true sealing deposits takes on a new

<sup>4</sup> E. g. the early three-sided pyramidal nodulus (A15) and the prismatic noduli of Mallia (1, 2, A3–A7) appear as sealing shapes only in LM IB deposits. The MM IIIB Temple Repositories provide continuity for both noduli shapes (A21 and A20, A25 respectively). The round-based noduli of MM IIA Knossos might have evolved into the cone-shape or, more likely, the dome-shape with oval base, both of which are represented in sealings as well as later noduli.

<sup>5</sup> Unlike roundels (E. Hallager, *Roundels among Sealings in Minoan Administration*, *Aegaeum* 5, 1990, 121–149) there seems little reason to postulate the intervention of a second official or scribe.

significance — Khania (West), Ayia Triada (South), Zakro (East), and Sklavokampos and Tylissos in the environs of Knossos (North) — which we interpret as marking the four administrative centres of LM IB Crete (*TUMSA* 111–114). The noduli of Gournia, Palaikastro and Pyrgos need not indicate any local administrative functions, certainly not those associated with storeroom administration.<sup>6</sup> These sites are, however, natural staging posts on the routes between the main east-west and north-south centres. If land travellers or coastal traffic halted at Gournia, for example, noduli could identify them to local authorities or local agents, entitling them to provisions, fresh pack animals and so forth. That is, they may have had a specific inter-city communication value.

There is indeed some evidence that noduli were transported from one site to another. Nodulus **13** from Zakro House A, a dome-shaped Class XI nodulus, bears the same Potnia Theron gem impression as three-dome-shaped sealings; these are the *only* dome-shapes at Zakro but the shape is common — especially for noduli — at Ayia Triada (*Noduli* 10, 21). We therefore suggest that the bearer, presumably from the Mesara, arrived at Zakro with both docket and packages under the authority of the same seal-owner. Nodulus **11** from Gournia has already been discussed at length (*TUMSA* 112–113; *Noduli* 11). This nodulus was stamped by a Taurokathapsia ring, the same ring which had stamped document sealings at Ayia Triada and Sklavokampos; it is itself a very close ‘look-alike’ of another Taurokathapsia ring on a document sealing (HM 102) found together with **11** in the West Court of the ‘Palace’. In this case the messenger, probably from Knossos, arrives carrying both Taurokathapsia docket and Taurokathapsia document.

If correct, the function of noduli (at least in LM IB) expanded to take on something of the role of tokens.<sup>7</sup> They now serve to identify the carrier, though this is still, I suspect, in addition to their primary

<sup>6</sup> The Gournia roundel, GO Wc 1, and Palaikastro tablet, PK 1, are most probably of LM IA date. GO Wc 1 comes from House Cf 25, one of the older houses on the eastern slope of the hill; Quarter C probably went out of use after an LM IA destruction (*TUMSA* n. 30). PK 1, from House B 10–13, was found in a lower stratum, on a floor below the plaster floor on which lay the vases of the LM IB destruction (*TUMSA* n. 29). The Pyrgos tablet, PYR 1, however, is from an LM IB level (as probably PYR 2); but see remarks in *TUMSA* 113–114.

<sup>7</sup> Compare the 4th century B.C. military stamped *symbola* carried as credentials by official messengers and private individuals to guarantee safe passage: J. H. Kroll & F. W. Mitchel, *Clay Tokens Stamped with the Names of Athenian Military Comman-*

function as dockets: that is, the document is now exchanged for goods and services on route or on arrival in another centre. The clearest evidence is again from Gournia. Official noduli would be directed to the 'Palace', surely the best explanation of the Taurokathapsia nodulus (11) from the West Court and A34, three noduli (with the impressions of an elegant lion couchant under a palm<sup>8</sup>) from within the 'Palace'. Private travellers would be directed elsewhere, such as to House Fg, a prosperous house with some fine pottery<sup>9</sup> (but which nothing identifies as official) where eight *noduli* (A35), impressed by a crudely-engraved talismanic goat,<sup>10</sup> had been carefully collected in the inverted lid of a pyxis. The collection of 'worthless' bits of clay suggests that they had not yet exhausted their function: might not the resident of Fg have had to account to a third party for the reception of agents stopping at Gournia and the goods dispensed to them?

The new LM IB noduli thus provide evidence which reinforces our view (*Noduli* 21) that noduli could represent an interlocking system of obligations operating at more than one site. Such a system is needed when there is fairly regular communication between sites. On the other hand, constant and intense communications would probably have resulted in resident officials or personnel, perhaps family members, able to identify and provide for travellers without impersonal noduli. In that sense, perhaps, even the LM IB noduli remain, not occasional documents, but documents for occasional use.

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ders, Hesp. 49, 1980, 86–96. IG II<sup>2</sup>, 141: the *boule* was to exchange *symbola* with the King of Sidon so that Athenians and King would be able to recognize each other's messages (*ibid.* 94). Cf.: also M. Lang & M. Crosby, *The Athenian Agora*, X, *Weights, Measures and Tokens*, Princeton, 1964, 124–140, on different types of *symbola*, presumably designed for different purposes (though their exact functions are speculative), in public and private use.

<sup>8</sup> An uncommon theme, cf. especially seal impressions from Ayia Triada and Zakro probably impressed by the same ring — two lions in flying gallop in front of palm (J. Betts, *New Light on Minoan Bureaucracy*, *Kadmos* 6, 1967, 18–19). This ring apparently survived to impress a sealing found in the Knossos destruction deposits (*ibid.*).

<sup>9</sup> E. g. H. Boyd-Hawes, Gournia, 1908: V 7, VIII 36, and especially VII 29, a polychrome style pithoid jar.

<sup>10</sup> So crude indeed that it might have been taken as a modern forgery: the goat's body is composed on four drill dots instead of the canonical three.

## Catalogue

- A-14.** HM 1100, P/73/35-36, Strat. Mus. P87/C/8, Knossos, South-west Palace angle, MM IIA, three dome-shaped noduli with round bases, stamped by (damaged: shape uncertain) standing quadruped (goat?) to left; A/R 1987-1988, 67.<sup>11</sup>
- A-15.** HM 151, Knossos, South-east Pillar Room/Kamareis Pit Area (MM); three-sided pyramidal nodule stamped by plate signet (?) with quatrefoil motif; *SSMC* II 2-3; BSA 60, 1965, 85, Pl. 17 (T2).
- A-16.** HM 131, Knossos, Hieroglyphic Deposit, MM IIB; three-sided pyramidal nodule stamped by round-faced seal ('Romulus'); as **A-15** (Pe).
- A-17.** HM 169, location as **A-16**; crescent-shaped nodule with three hieroglyphic inscriptions, no seal impression; as **A-15** (P76).
- A-18.** HM 107, Knossos, Magazine 4, MM IIB; bun-shaped nodule stamped by two different hieroglyphic seals; SM I P51a,b; as **A-15** (G2).
- A-19.** HM 333 i-vii, 334 i-ii, 335 i-iii, 387 i-ii, AM 1938.1439 a-c, Knossos, Temple Repositories, MM IIB; 17 thick oval noduli impressed (a) discoid (sea-shells) and (b) rectangular seal (standing goat/Cretan sheep) on either side; J. Weingarten, *Old and New Elements in the Seals and Sealings from the Temple Repositories*, *Aegaeum* 3, 1989, 39-52; BSA 60, 1965, 70-71 (L 13 + L 25-26)<sup>12</sup>.
- A-20.** HM 383 i-ix, 395, AM 1199 u,z, location as **A-19**; 12 noduli of which seven are dome-shaped (Class XI) and five triangular prisms, ring impression - goddess with lion; as **A-19** (L 46).
- A-21.** HM 349, 398, location as **A-19**; two three-sided pyramidal noduli stamped by lentoid (quadruped); as **A-19** (L 31-33).
- A-22.** HM 347, location as **A-19**; dome-shaped Class XI nodule with ring impression - griffin-drawn chariot; as **A-19** (no L-nr).
- A-23.** HM 354, location as **A-19**; quadratic prism nodule impressed by (a) discoid? ('boat prow') and (b) rectangular seal (cross with dots) on either side; as **A-19** (L 16-17, no L-nr).
- A-24.** HM 384 i-ii, location as **A-19**; two dome-shaped Class XI noduli with ring impression - 'Trees in the wind'; as **A-19** (L 22).
- A-25.** HM 386, location as **A-19**; triangular prism nodule stamped twice by discoid or lentoid (revolving goats' heads); as **A-19** (L24).
- A-26.** HM 389, location as **A-19**; quadratic prism nodule impressed by (a) discoid? (grain-like stalk) and (b) flat, round-faced seal (zigzags); as **A-19** (L 16-17, no L-nr).
- A-27.** HM 390a, location as **A-19**; dome-shaped Class XI nodule impressed by discoid or lentoid (circular pattern); as **A-19** (no L-nr).
- A-28.** HM 390b, location as **A-19**; dome-shaped Class XI nodule impressed by amygdaloid? (whirly pattern); as **A-19** (no L-nr).
- A-29.** HM 396, location as **A-19**; dome-shaped class XI nodule impressed by flattened cylinder (Taurokathapsia); as **A-19** (L 48).
- A-30.** HM 116, Knossos, Corridor of the House Tablets; irregular dome-shaped nodule stamped by round-faced seal (C-spirals); BSA 60, 1965, Pl. 12, 011.

<sup>11</sup> I am indebted to Mr S. Hood and the Managing Committee of the British School of Athens for permission to mention these unpublished noduli, and to Professor Dr I. Pini for details of their shapes.

<sup>12</sup> Gem shapes in the Temple Repositories after: I. Pini, *The Hieroglyphic Deposit and the Temple Repositories at Knossos*, *Aegaeum* 5, 1990, 33-60.

- A-31.** Sitea Museum PK 88.1311, Palaikastro, closet of Building 5, LM IB destruction level; dome-shaped nodulus — ring impression: stag to left attacked by three dogs, man in centre; BSA 84, 1989, 438—442.
- A-32.** Sitea Museum PK 88.1316, Palaikastro, location as **A-31**; irregular nodulus stamped by lentoid (couchant lion); *ibid.*
- A-33.** Sitea Museum PK 88.1317, Palaikastro, location as **A-31**; high-domed nodulus stamped by lentoid (effaced); *ibid.*
- A-34.** HM 103 i—iii, Gournia, 'Palace', LM IB destruction; three cone-shaped noduli stamped by lentoid (couchant lion under palm); H. Boyd-Hawes, Gournia, 1908, 54, fig. 30.5; *TUMSA* n. 31.
- A-35.** HM 105 i—v, Gournia, within the inverted cover of a pyxis in House Fg, LM IB destruction; eight triangular prismatic noduli (of which five can be located) stamped by amygdaloid (talismanic goat); *ibid.* (fig. 30.7); *TUMSA* n. 31.
- A-36.** HM 1097, Pyrgos, 'Country House', rooms 1/12, LM IB destruction; triangular prism nodulus impressed by lentoid (two boars); G. Cadogan, A probable shrine in the Country House at Pyrgos, in (R. Hägg & N. Marinatos, eds.) *Sanctuaries and Cults in the Aegean Bronze Age*, Stockholm, 1981, 169—171, fig. 3; *TUMSA* n. 27.
- A-37.** HM 1098, <sup>13</sup> location as **A-36**; high domed nodulus impressed by amygdaloid? (lion attacks bull) on base; *ibid.* (fig. 2); *TUMSA* n. 27.
- A-38.** HM 127, Knossos (unpublished); Class VI nodulus stamped by amygdaloid (lion crouching to right).
- A-39.** HM 312, Knossos (unpublished); Class V nodulus stamped by discoid or lentoid (bukranium, impaled triangle above).
- A-40.** HM 355a,b; 356a,b, Knossos (unpublished); two cone-shaped noduli stamped by (a) flattened cylinder (quadruped to left en regardant) on side, (b) lentoid (agrimi to left en regardant) on base.
- A-41.** HM 291, Knossos, Landing on Grand Staircase, LM IIIA:1/2 destruction; Class IV nodulus stamped by lentoid? (standing griffin); BSA 60, 1965 (Pl. 14, R 35).
- A-42.** HM 258 i, Knossos, South-West Corner, LM IIIA:1/2 destruction; Class VI nodulus of (beige)white clay stamped by lentoid (hindquarters of bitch), inscribed on two sides: .2 *ku-wa-ta* .3 *o-pi a-nu-wi-'ko'* (Ws 8754); *ibid.* Pl. 10 (F2)14.
- A-43.** NM 8490 '34', Pylos, N-E Building (Corridor 95/Room 99), LH IIIB destruction; ridged and slightly gabled Class VI/A nodulus stamped by CMS I 329; inscribed *CAP<sup>m</sup>* across seal impression (= WR 1334). C. W. Blegen & M. Rawson, *The Palace of Nestor at Pylos*, Princeton, 1966, *passim*.
- A-44.** NM 8490 '29', location as **A-43**; ridged and slightly gabled Class VI/A nodulus impressed by gem as **A-43**; inscribed *WI* across seal impression, *o-pa* on gable (= WR 1332); *ibid.*
- A-45.** NM 8490 '3', location as **A-43**; ridged and slightly gabled Class VI/A nodulus impressed by gem as **A-43**; not inscribed; *ibid.*
- A-46.** NM 8496, Pylos, N-E Building (Corridor 95/Room 99), LH IIIB destruction; roughly circular nodulus stamped by CMS I 366; *ibid.*

<sup>13</sup> E. Hallager, *supra* n. 5, has claimed this piece as an oddly-shaped roundel but the seal impression is on the flattened base rather than an edge so most probably it is a nodulus.

<sup>14</sup> HM 258 i and 258 ii (Room of the Warrior Seal) seem to have been reversed in BSA 60, 1965.

- A—47.** NM 8482, Pylos, N-E Building (Room 99 = Workshop storage area), LH IIIB destruction; ridged and slightly gabled Class VI/A nodule stamped by CMS I 331; *ibid.*
- A—48.** NM 8489, Pylos, N-E Building (Room 98 = Workshop storage area), LH IIIB destruction; ridged and slightly gabled Class VI/A nodule, stamped by CMS I 320; *ibid.*
- A—49.** NM 8489 '31', location as **A—48**; ridged and slightly gabled Class VI/A nodule impressed by gem as **A—48**; *ibid.*
- A—50.** NM 8480 '19', location as **A—48**; ridged and slightly gabled Class VI/A nodule stamped by CMS I 314; *ibid.*
- A—51.** NM 8485, location as **A—48**, ridged and slightly gabled Class VI/A nodule stamped by CMS I 316; *ibid.*
- A—52.** NM 8492 '22', location as **A—48**, roughly dome-shaped Class XI, nodule, stamped by CMS I 322; *ibid.*
- A—53.** NM 8513, Pylos, N-E Building (Room 105 = Wine Magazine), LH IIIB destruction; ridged and flattened prismatic nodule stamped by CMS I 348; *ibid.*
- A—54.** NM 8511, location as **A—53**; roughly domed circular nodule stamped by CMS I 346; *ibid.*
- A—55.** NM 8540, location as **A—53**; medallion-shaped faceted nodule stamped by CMS I 362; *ibid.*
- A—56.** NM 8520, location as **A—53**; ridged, roughly circular nodule stamped by CMS I 355; *ibid.*
- A—57.** NM 6246, Mycenae, 'Rhyton Well', with LH III pottery; ridged and slightly faceted Class VI/A nodule with ring impression — CMS I 19 (antithetic bulls, birds); BSA 24, 1919/21, 205, Pl. 1.