

INSCRIBED PYLIAN NODULES:  
THEIR USE IN THE ADMINISTRATION  
OF THE STOREROOMS OF THE PYLIAN PALACE \*

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INTRODUCTION

The study of the economy of “prehistoric” and “protohistoric” societies has already emphasized the primary importance of the function of clay sealings as accounting devices for two purposes. These purposes are the collection of raw materials and products in centralized storerooms and their subsequent distribution to the community’s members for secondary processing or consumption<sup>1</sup>. According to our present knowledge, the first use of clay sealings for securing and administering stored property at a communal level was made in northern Syria in the late 6<sup>th</sup> millennium BC<sup>2</sup>. The principles of the use of sealings, which during the following millennia developed in the Near Eastern urban centres and rural communities as an efficient mechanism for controlling their “capital”<sup>3</sup>, had a well recognized

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<sup>1</sup> Ferioli and Fiandra 1988-1989, 561-584; Curvers and Schwartz 1990, 20, 22-23; Smith 1996, 69, 78.

<sup>2</sup> A distinction has to be drawn between the sphragistic use of seals on various artefacts, attested in the Near East since the Pre-Pottery Neolithic B, and the first use of sealings as securing and economic recording devices at Tell Sabi Abyad, see Akkermans and Duistermaat 1996, 17-20, 26 figs. 2-4.

<sup>3</sup> This term does not refer to the modern notion of production process, but has the

impact on the genesis of Aegean sealing systems. These were applied primarily in centres with high – and middle-rank production and storage capacity (palatial complexes, villas and redistribution centres)<sup>4</sup>. During the Postpalatial Period particularly, the use of Mycenaean nodules was combined in the most systematic way with the keeping of records in the form of the Linear B tablets, not only for recording the storage and production process in the relevant areas but also for partly monitoring the taxation and tribute system<sup>5</sup>. The complete process ensuring the efficient control of the “mobilisation” of commodities or raw materials towards the Mycenaean hierarchy and the craftsmen dependent on the palace or the sanctuaries, consisted of three stages of registration: the recording of the single entry on a nodule or a leaf-shaped tablet, the collection of the single entries, mainly on a leaf-shaped tablet, and the recapitulation of interrelated records on a page-shaped tablet.

However, although much emphasis has been put on the evolution of the Aegean sealing practices not only from a technical point of view<sup>6</sup> but also from the perspective of bureaucracy<sup>7</sup>, the issue of the use of the individual sets of Aegean sealings in their specific archaeological context has to be addressed<sup>8</sup>. At an intrasite level the study of the distribution of the sealings in specialized functional spaces will clarify their use as a control mechanism for the respective specialized functions<sup>9</sup>. It would also be very instructive to conduct a scientific analysis of the clays of the Mycenaean sealings, in order to find out where the objects accompanied by them had been initially sealed<sup>10</sup>. This sort of information would elucidate the activity of the palace officials in the peripheral centres and the status of the latter within each

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sense of “a form of abstract wealth” as analysed by Ekholm and Friedman 1979, 41-42. For the evolution of sealing systems and their use in conjunction with writing, see Driessen 1994-1995, 239-252.

<sup>4</sup> Fiandra 1968, 392, pl. PAE'-PNA'; Wiencke 1975, 129 and n. 13, fig. 1; Weingarten 1986, 280, 295 n. 7; Aruz 1994, 211-235; Godart et al. 1996, 582-583, 584-585, 578; Schoep 1999, 269-272, Table 1. For a comparison of the Aegean bureaucratic principles to the Near Eastern ones, see Ferioli and Fiandra 1990, 221-232.

<sup>5</sup> See Killen 1985; Halstead 1992; Halstead 1999.

<sup>6</sup> E.g. Wiencke 1975; Weingarten 1986; eadem 1988; Hallager 1996; Müller 1997; Müller, in Müller and Pini 1999, 339-399.

<sup>7</sup> E.g. Bennett 1958, 102-105; Palaima 1987; Palaima (ed.) 1990; Ferioli et al. 1994; Godart et al. 1996; Hallager 1996; Schoep 1996-1997 [1998]; Perna 1999.

<sup>8</sup> See, for example, the analysis made by Shelmerdine 1999, 569-572, concerning the Mycenaean nodules.

<sup>9</sup> See e.g. Rothman 1994, 104.

<sup>10</sup> For an analogous case study and the applied methodology, see Rothman and Blackman 1990, 24-33.

Mycenaean polity. On the other hand, the possible interaction of the inscribed Mycenaean nodules with the tablets has to be further studied.

In this paper I seek to examine to what extent the use of the inscribed nodules from the Pylian palace fits proposed views about the general function of the broader Mycenaean category. The method employed is contextual analysis; not only their "closed context" is studied, but also their inscriptions are compared with the tablet entries from the same spaces. Nevertheless, the focus of the paper is on the way this analysis can be used in order to reconstruct the function of the spaces in which the inscribed nodules have been found. In particular, I aim to demonstrate my contention that the Northeast Building was not used as a major industrial workshop, but rather as a "centre of collection and distribution".

#### ANALYSIS OF THE USE OF THE PYLIAN INSCRIBED NODULES ACCORDING TO THEIR ARCHAEOLOGICAL AND EPIGRAPHIC CONTEXT

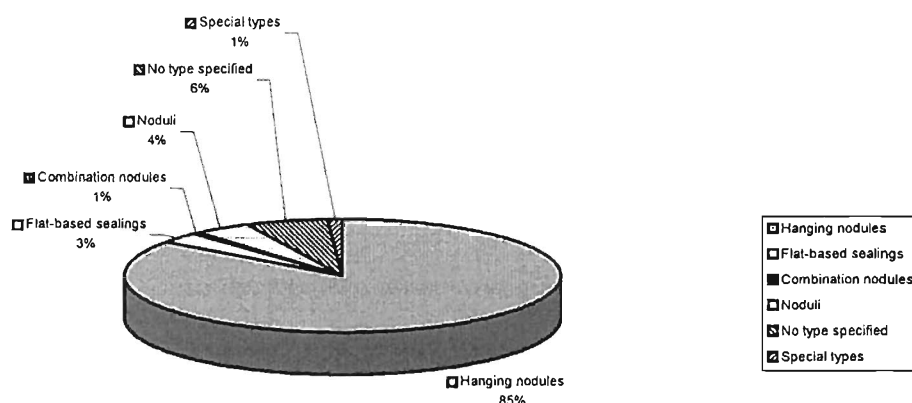
The set of Pylian sealings, probably the latest of all the Mycenaean ones<sup>11</sup>, comprises a wide variety of nodules and sealed documents (*noduli*)<sup>12</sup>: "two-hole hanging nodules" (141, i.e. 85% of the whole, see Table 1)<sup>13</sup>, "flat-based sealings" (5, i.e. 3%), "combination nodules" (1, i.e. 1%), *noduli* (7, i.e. 4%) and special types (2, i.e. 1%). A quite high percentage of them bears inscriptions in Linear B, although this may have been affected by preservation factors (14%, see Table 2)<sup>14</sup>. On the other hand, since most of the uninscribed nodules belong to the type of the "two-hole hanging" ones, they don't bear any object-imprints and the only available evidence we can deduce about their use derives from their shapes. Thus, the contextual analysis will inevitably be confined to the inscribed nodules.

<sup>11</sup> On the alternative views about the dating of the destruction of the palace, see: Davis et al. 1997, 424-427; Pini 1997a, 82-83; Mountjoy 1997, 124-135.

<sup>12</sup> For the classification of the various types see: Weingarten 1988, 5-10; eadem 1994, 184-185, fig. 1.

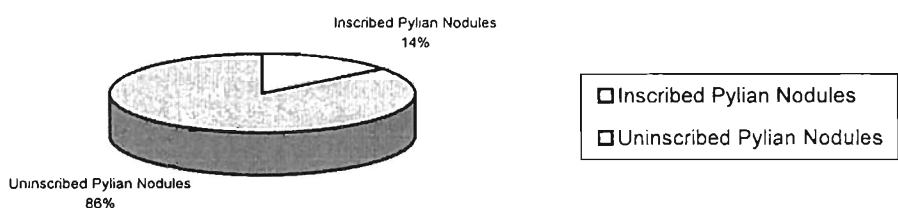
<sup>13</sup> The prevalence of this type of nodules in the Pylian set has been explained by their functional shape, thanks to which they could serve as means of preventing the unauthorised access to the sealed objects as well as temporary labels, see Müller 1997, 55. For the individual sealings found at other sites see: Hallager et al. 1992, 61, 63, 70-72, fig. 5 (Kastelli, Chania); Driessen and Farnoux 1994, 62, pl. IV.3 (Mallia); Demakopoulou and Divari-Valakou 1994-1995, 324-326, fig. 1; Walberg 1996-1997 [1998], 133-134 (Midea).

<sup>14</sup> The percentage has been calculated on the basis of Pini (ed.) 1997, 115-118 (Konkordanz), where 24 inscribed nodules (classes Wr and Wn) out of a total of 166 sealings are listed. The corresponding percentages from Thebes (Wu), Mycenae (Wt) and Knossos (Knossian classes Wm, Wn and Ws) are 93%, 29% and 4% respectively, see Tables 3-5.



Hanging nodules	141	Noduli	7
Flat-based sealings	5	No type specified	10
Combination sealings	1	Special types	2

Table 1 – Percentages of different types of Pylian Nodules  
[Data extracted from: Pini (ed.) 1997, 106-110 Tabelle 5].



Inscribed Nodules	24	Uninscribed Nodules	142
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Table 2 – Quantitative analysis of Inscribed and Uninscribed Pylian Nodules  
[Data extracted from: Pini (ed.) 1997, 106-110 Tabelle 5].

In order to analyse the use of the inscribed Wr nodules in each specific context, some points about their general function should be discussed first. The fact that the majority of them belong to the type of the “two-hole hanging nodules” with a gabled rear surface has been attributed to their shape, facilitating the scratching of inscriptions<sup>15</sup>. The inscriptions, and the single, thin string from which nearly all of them hung, suggest that they

<sup>15</sup> Müller 1997, 57.

accompanied various objects as labels not only specifying the identity of the official validating the transaction<sup>16</sup> but also details about the transaction<sup>17</sup>. However, from the high number of individual seal-impressions preserved on the Wr nodules, it has been inferred that a large number of palace administrators/officials owning seals made, impressed and possibly also inscribed them, a phenomenon also observed in regard to the uninscribed ones<sup>18</sup>. This pattern possibly suggests that most nodules reached the palace accompanying goods, which had been collected by various palace officials and/or scribes in peripheral sites and sent as supplies to the palace storerooms and working spaces<sup>19</sup>. On the other hand, none of the seal-

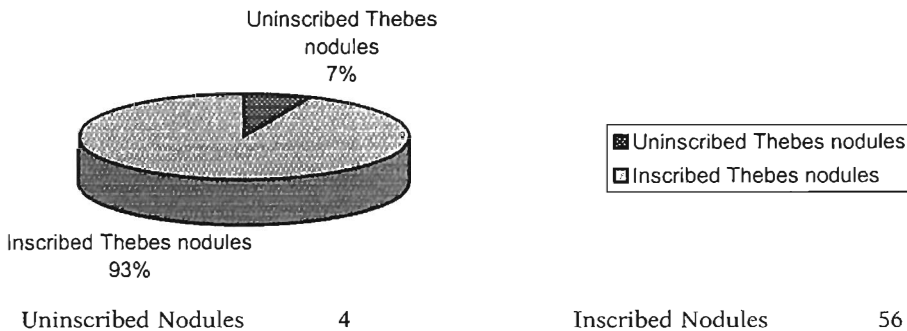


Table 3 – Quantitative analysis of Inscribed and Uninscribed Thebes Nodules  
[Data extracted from: Piteros et al. 1990, 116-132].

<sup>16</sup> Aravantinos 1984, 44; Piteros et al. 1990, 171.

<sup>17</sup> On the principles of the use of Mycenaean nodules as accounting devices see for example: Aravantinos 1984, 44-48; Palaima 1987, 249-266; idem 1996a, 37-66; Olivier 1997b, 314-317.

<sup>18</sup> Pini 1997b, 94-96; Pini (ed.) 1997, 97-101 Tabelle 3. For the reasoning behind the view that the seals or signet rings must have belonged to palace officials, see Palaima 1987, 256-258, 261 n. 256. On arguments which support that the persons making the Mycenaean nodules also impressed them, see Piteros et al. 1990, 166-167, 170. Although Piteros et al. 1990, 169-171 have stressed some instances in which two or even three different officials have participated in the process of impressing and inscribing the Thebes nodules, there is strong possibility that the Pylian scribes had made and inscribed the nodules by themselves, see: Pini 1997b, 96; Kyriakidis 1996-1997 [1998], 202.

<sup>19</sup> Palaima 1987, 259 n. 343; Piteros et al. 1990, 182; Pini 1997b, 95. The latter assumes that each official may have had more seals at his disposal. On Pylian tablets registering the regular transactions between the Pylian palace and its periphery, monitored mainly by "collectors", see: Bennet 1988, 32-34; Bennet 1992, 97.

impressions on the Pylian nodules can be correlated with any of the few seals found in the palace and the Englianos tombs, in find contexts contemporary with the palace destruction<sup>20</sup>. If we exclude the preservation factor, this fact can be accounted for by the assumption that the seal owners took their seals with them after the palace was burned.

The reconstruction of the use of the inscribed nodules in the individual spaces of the palatial complex is supported by the chronological “unity” of the archive of tablets and of the various “tablet deposits”, which were found outside the Archive Complex. The latter had not been removed from the original spots where they had been made and written, and, therefore, they represent the stage of recording various transactions and of temporary storage of the recorded items in their find-spots<sup>21</sup>. The same applies to the inscribed nodules found outside the Archive Complex. If they are examined in correlation with the tablet registries and the other finds from the same room context, they can hint at the activities taking place in each room during the last accounting period and accordingly at their specific use<sup>22</sup>. In

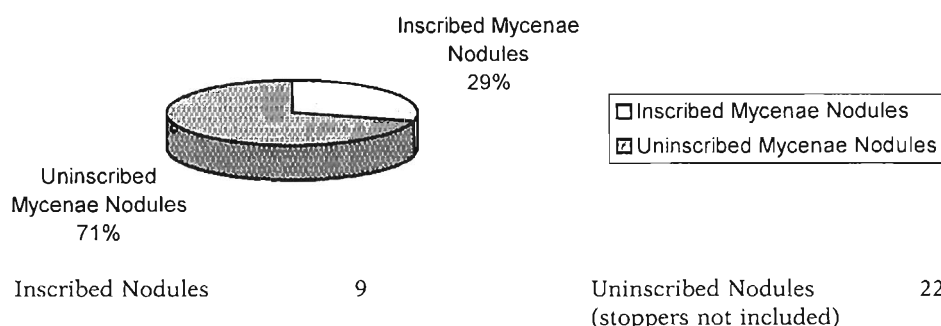
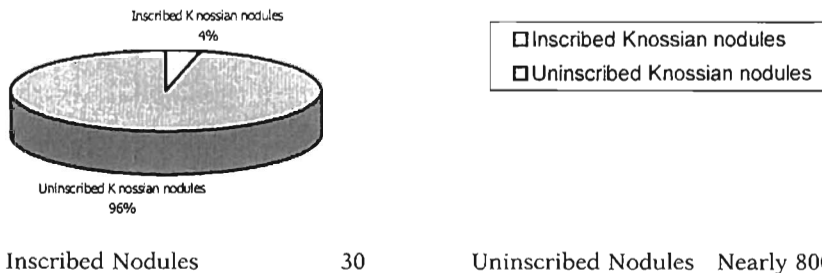


Table 4 – Quantitative analysis of Inscribed and Uninscribed Mycenaean Nodules  
[Data extracted from: Müller et al. 1998, 52 Tab. 2].

<sup>20</sup> Pini 1997a, 82-91.

<sup>21</sup> Palaima and Shelmerdine 1984, 81; Palaima and Wright 1985, 257. The case is different in Knossos, where most of the tablets and the sealings seem to have been displaced from their original findspots. Moreover, the “unity” of the various tablet “deposits” has not been equivocally accepted yet. I consider the recently proposed identification of chronologically distinct “deposits” as very persuasive; see Driessen 1997, 133 n. 55, 134 n. 56; idem 1999, 205-226; Firth 1996-1997 [1998], 75.

<sup>22</sup> Palaima 1984, 39.



Inscribed Nodules

30

Uninscribed Nodules Nearly 800

Table 5 – Quantitative Analysis of Inscribed and Uninscribed Knossian Nodules  
 [Data extracted from: Killen and Olivier 1989, 348-356; Popham and Gill 1995, 29-35 Concordance A]

addition, their attribution to scribal hands<sup>23</sup> helps to specify the duties of specific scribes inscribing them.

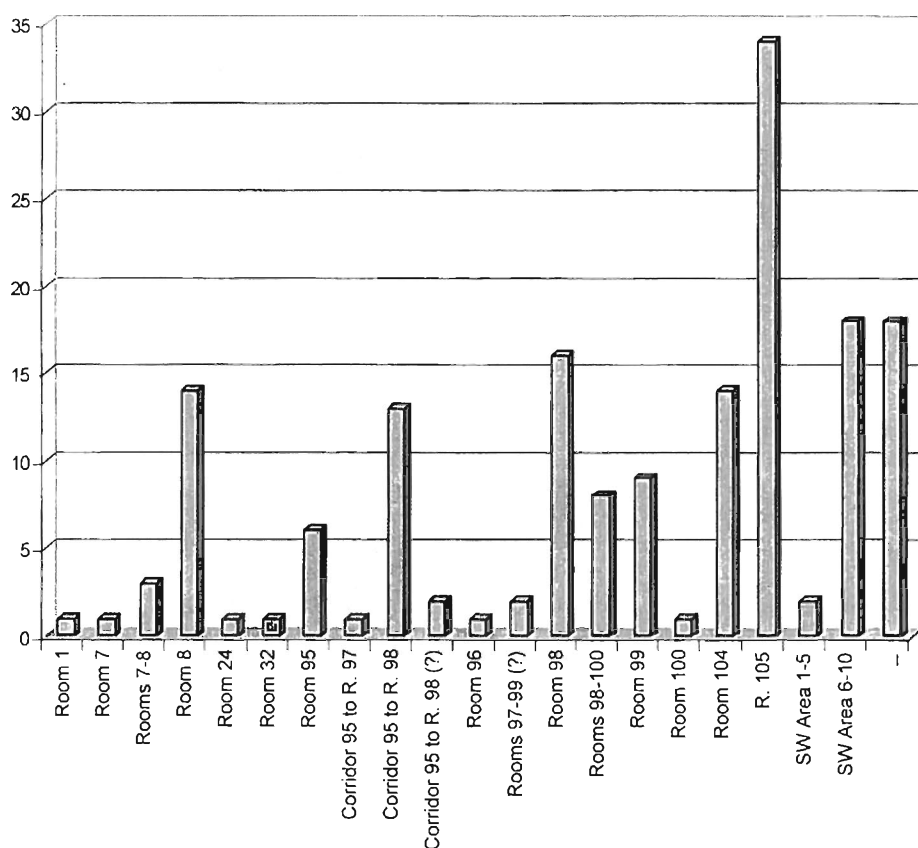
A last point to be made concerns the distribution of the Pylian sealings in the palace. Thus, the richest groups of sealings have been found outside the Main Building (Tables 6 and 7), in rooms 95-100 of the Northeast Building<sup>24</sup> and in the Wine Magazine. Rooms 7 and 8 of the Archive Complex, 1 and 24 of the Main Building, 1-5 and 6-10 of the South-western Area contained a few single sealings. On the other hand, rooms 98 and 99 of the Northeast Building are not only distinguished by having the second highest percentage out of the total of sealings (10% and 5% respectively), but are also the richest in inscribed nodules (room 99 with 29% and room 98 with 21%). Room 105 of the Wine Magazine not only has the third highest percentage of inscribed sealings (17%) but also contained the greatest set of sealings in the palatial complex (20%). In order to explain this distribution, the specific function of these rooms has to be examined.

### *Northeast Building*

Research so far has laid much stress on the use of this building as a storeroom and also, according to some scholars, as a major industrial

<sup>23</sup> My source regarding the palaeographical attribution is the recent study by Palaima 1988. No palmprints have been identified on the nodules, from which we could infer information about scribal interaction, see T. G. Palaima, in *Sjöquist and Åström 1985*, 100.

<sup>24</sup> See Pini (ed.), 1997, 1-51, 101-104 Tabelle 4. The unstratified nodule Wr 1480 most probably comes from the debris of the Blegen excavation in the Northeast Building, see Shelmerdine and Bennet 1995, 121-122.



Room 1	1	Rooms 97-99 (?)	2
Room 7	1	Room 98	16
Rooms 7-8	3	Rooms 98-100	8
Room 8	14	Room 99	9
Room 24	1	Room 100	1
Room 32	1	Room 104	14
Room 95	6	Room 105	34
Corridor 95 to R. 97	1	SW Area 1-5	2
Corridor 95 to R. 98	13	SW Area 6-10	18
Corridor 95 to R. 98 (?)	2	-	18
Room 96	1		

Table 6 – Distribution of Pylion Nodules in the Palace Spaces  
 [Data extracted from: Pini (ed.) 1997, 101-105 Tabelle 4].



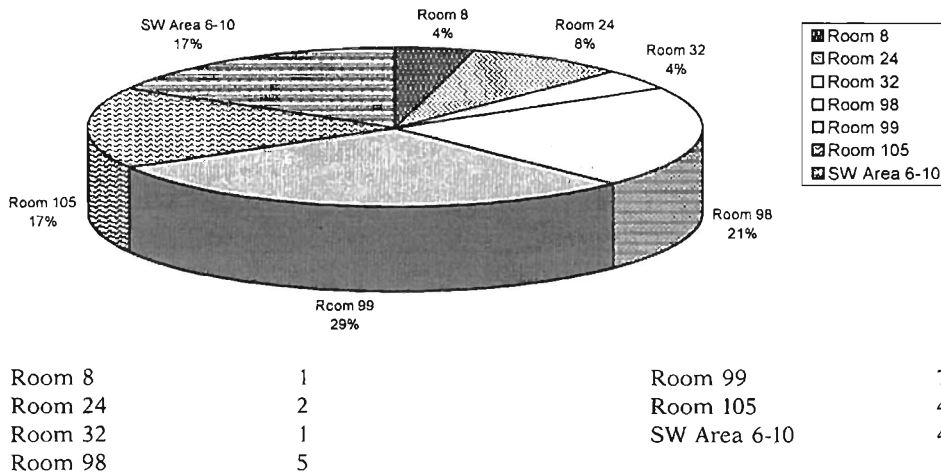


Table 7 – Distribution of Inscribed Pylian Nodules in the Palace Spaces  
[Data extracted from: Pini (ed.) 1997, 101-105 Tabelle 4].

workshop, where ivory objects, offensive weapons, sets of armour, wheels and chariot parts were produced<sup>25</sup>. I cannot fully accept the latter argument, since the registration of the specific objects in the tablets does not necessarily imply their production in the building. Its dimensions (32.60 × 16.01/16.23 m) would not provide adequate space for the practice of the various tasks, which have been proposed as taking place in it. In any case it does not satisfy the established criteria for the identification of permanent palatial workshop spaces, mainly that of the finding of half worked pieces, wastes or mistakes, a wide range of tools and built-in facilities<sup>26</sup>. According to a re-examination by S. Hofstra the unpublished “thin decorated fragments of ivory” from room 100 are inlay-pieces, which seem to belong to a piece of furniture<sup>27</sup>. Moreover, a chisel from room 99 and a semi-circular

<sup>25</sup> Blegen and Rawson 1966, 299; Tegye 1984, 65-95; Jasink 1984, 11-37; Shelmerdine 1987, 333-342. On its association with a *po-ti-ni-ja* sanctuary, see Tegye 1984; Lupack 1997, 375; eadem 1999. I have not been able to see: R. Schon, *PU-RO A-MO-TE-JO-NA: A Detailed Study of the Northeast Building of the Palace of Nestor at Pylos* (unpublished M.A. thesis, Bryn Mawr College), 1994.

<sup>26</sup> Tournavitou 1988, 447-459, and mainly p. 454.

<sup>27</sup> Blegen and Rawson 1966, 324; S. Hofstra, “Small finds from the Palace of Nestor”, in *AR 1998-1999* (1999), 52-53. Thus, no precious ivory objects were produced in room 100, as argued by Tegye 1984, 67.

blade from room 100 are the only published implements, which could belong to a substantial tool-kit<sup>28</sup>. The blade would not even be adequate for the alleged leather-working that was taking place in this room<sup>29</sup>.

On the other hand, no evidence of metalworking has been found, such as slag, but only a few finished metal products and other stored commodities of various kinds<sup>30</sup>. The scrap metal found in the building has been convincingly interpreted as a source of bronze, i.e. another type of stored commodity. In addition, no smiths designated as working in the palatial complex are registered in the PY Jn tablets. The large number of smiths summed up in tablet Jn 829 from the Archive Complex, who were devoted to the production of points for spears and javelins, is located in the peripheral centres of the nine regions of the Hither Province and the seven regions of the Further Province<sup>31</sup>. Anyway, the choice of a building adjacent to the palace as a place for foul-smelling industrial activities does not seem suitable. Further evidence in support of this proposal is offered by the study of the inscribed nodules, which were found in it. Since it has been demonstrated by the excavators that the Northeast building had no second storey, the find-spots of the nodules are the original<sup>32</sup>.

*Room 98.* The function of room 98 as a storeroom is inferred not only from the thick black deposit of burnt organic materials covering the floor, but also from the considerable quantity of bronze excavated in all parts of the room, "representing sheeting, strips, wire, rivets, pins, and shapeless chunks melted by the heat of the fire". The various storage vessels found in its eastern part, e.g. two wide-mouthed jars and clay vessels with inflammable contents, further corroborate it<sup>33</sup>.

Furthermore, the 16 hanging nodules, which formed groups in different spots of the room, attest to its use as a storeroom, since they document the

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<sup>28</sup> Blegen and Rawson 1966, 322, fig. 316 No. 6, 325, fig. 319 No. 6; Melena 1983, 279. For the complete set of ivory-working tools used in Neopalatial Crete, see Evelyn 1992, 7-16, fig. 1-3.

<sup>29</sup> The well documented tool-kit of the Egyptian tanners and saddlers from the Old Kingdom period onwards consisted not only of a copper or bronze knife like this but also of metal hide-scrapers, awls and needles, see Scheel 1989, 54, fig. 59. For the Egyptian carpenters' tool-kit, see: Killen 1980, 12-22, fig. 2; Killen 1996, 15-16, fig. 7, Pl. 6-7.

<sup>30</sup> Muhly 1991, 186-187; Gillis 1997, 505 n. 4, 508 n. 15.

<sup>31</sup> Godart 1987, 251-253.

<sup>32</sup> Blegen and Rawson 1966, 314-318, fig. 222.

<sup>33</sup> Blegen and Rawson 1966, 315-318 list a spindle whorl and a total of about 30 clay vessels including wide-mouthed jars, and also open shapes, e.g. kylikes, cups, bowls etc. Two deposits of dye materials, one red and one yellow, were also found in this room and room 97.

collection of incoming goods in it. The five inscribed nodules included in them have all been sealed with different seals. Only nodule Wr 1326 [40A]<sup>34</sup> is associated through the same seal-impression with a group of hanging nodules from the adjacent rooms 98-100, to which also Wr 1330 [40B] from room 99 belonged. On the other hand, nodules Wr 1326 [40A], 1327 [10] and 1328 [51] were concentrated in the north corner; but these would not constitute a homogeneous set, since they register different commodities. In particular, Wr 1326 (by Hand 12)<sup>35</sup> bears only the word *de-mi-ni-jo*/δέμνιον, interpreted as 'bed'<sup>36</sup>. Another reference to beds occurs in tablet Vn 851 from the Archive Complex, obviously written in the Northeast Building, where the activity of the same scribal hand has been demonstrated<sup>37</sup>. Wr 1328 registers an object called *pe-di-je-wi-ja*, which has recently been convincingly interpreted as a chariot part, partly because of its registration together with other chariot parts in Va 1324<sup>38</sup>. Wr 1327 bears the ideogram of pig (SUS') or horse (EQU)<sup>39</sup>. Finally, Wr 1329 [45], preserving only the number 20, was found on the floor, together with other sealings, while Wr 1325 [42] (by S 1331-C i) was situated near the door next to Sa 1313<sup>40</sup>. The latter refers to at least one pair of *we-je-ke-e* type chariot wheels, being delivered as *wo-ka/worgā*, i.e. 'work performed by a specific craftsman'<sup>41</sup>. All these inscribed nodules were thrown away in those spots after being detached from the commodities they accompanied.

So far the attested activity of the same scribal Hands, Styli or Categories on these nodules, cannot lead to further conclusions about their use in the administrative process, apart from the fact that the scribes who inscribed them did not specialize in the recordings of only one specific sector. The most significant point is the relation of Wr 1325 to nodules Wr 1330-1334 from room 99 through the attestation of the same Stylus-Class (S 1331-C i).

<sup>34</sup> The numerals in brackets, used from this point onwards, refer to the inventory numbers of the recent publication, see Pini (ed.) 1997, 101-105 Tabelle 4.

<sup>35</sup> Palaima 1988, 156-157, 218. Nodules Wr 1327-1329 have not been attributed to a specific scribe and bear seal-impressions unparalleled on other nodules.

<sup>36</sup> Aura Jorro 1985, 166.

<sup>37</sup> Shelmerdine 1987, 333 n. 3.

<sup>38</sup> Bernabé 1996, 202, 204. For the meaning of *a-ko-so-ne* and *e-ke-i-ja*, see Bernabé 1996, 200, 202 respectively.

<sup>39</sup> Bennett and Olivier 1973, 263.

<sup>40</sup> According to Palaima (1988, 156, 213-214; idem 1996b, 382 n. 10) the entire Sa series was originally written in this building. Scribal Hand 26, which wrote Sa 1313, has not inscribed any nodule according to our available evidence.

<sup>41</sup> Duhoux 1976, 126-128. Bernabé et al. 1990-1991, 152 interpret this adjective as denoting wheels "which rotate on an axle of the *ἐγχοῦς* type". For alternative interpretations, see Aura Jorro 1993, 417 s.v. *we-je-ke-a<sub>2</sub> /we-je-ke-e*.

Even more striking is the interrelation observed between the subject-matter and the syntax of their inscriptions. All, with the exception of Wr 1334, bear the technical-economic term *o-pa/Fopā*, denoting 'work to be made on a previously manufactured item'<sup>42</sup>. This expression has also been encountered on Wr 1480 [37 C] and on KN Ws 1704, 1705 and 8495 from the Knossian Arsenal, accompanying shafts or heads of *pa-ta-ja/παλταῖα* 'javelins'<sup>43</sup>. On the other hand, the syllabogram *WI*, inscribed on Wr 1332 and also on the only nodule from the Archive Complex (Wr 1457), is used as an acrophone for the word *wi-ri-no/ῥῖνός*, meaning 'ox-hide'<sup>44</sup>. Consequently, both nodules accompanied an ox-hide delivered either as *o-pa* (Wr 1332) or as *a-pu-do-si/\*ἀπύδοσις*, i.e. 'paid contribution' (Wr 1457)<sup>45</sup>. The animal ideograms CAP<sup>m</sup> and OVIS<sup>m</sup> on Wr 1325 (room 98), Wr 1334 and 1331 (room 99) may also be taken as indicating hides rather than whole animals, as suggested by relevant entries of tablets from room 99<sup>46</sup>. The same suggestion has been proposed in the case of ideogram CAP<sup>f</sup> in the Mc tablets from the Arsenal<sup>47</sup>. So, Wr 1325 and 1330-1334 possibly shared the formulation ".α hide .β *vacat* .γ *o-pa*", specifying the performed delivery of *o-pa* ox- or goat-hides rather than live animals, as suggested, at rooms 98 and 99. They would have been detached from the hides and gathered temporarily as receipts for the delivery. Last but not least, if Wr 1327 really bears the ideogram SUS<sup>f</sup>, it might have served a relevant function, but the number 350 preserved on it hinders any specific interpretation.

<sup>42</sup> Killen 1999a, 330-331. According to the previous view expressed by Melena 1983, 284-285 it specified "work to be performed".

<sup>43</sup> Shelmerdine and Bennet 1995, 131-132; Shelmerdine 1998, 92. The three Knossian nodules preserving the ideogram \*254 JAC also have a string hole, see Popham and Gill 1995, pl. 18: Vd, Vc, pl. 31.

<sup>44</sup> Melena 1983, 279. On a different interpretation, see Olivier 1997a, 75. Wr 1457 has been inscribed by scribal hand S 90-H 2, whose activity has not been attested in the Northeast Building, according to Palaima 1988, 218.

<sup>45</sup> Aura Jorro 1985, 88-89. Wr 1457 bears additionally the hide ideogram \*152. The reference to 24 units of \*152 as *a-pu-do-si* in the series of the Ma tablets, which comes from the same spot and was written by the same scribe (Hand 2), made Olivier 1997a, 71-72 conjecture the rejection of the nodules originally accompanying the rest 23 hides, after having been compared with the above tablet entries.

<sup>46</sup> I follow this interpretation proposed by Duhoux 1976, 129. The respective ideograms on the Thebes nodules have been interpreted as recording the issue of single animals: see Piteros et al. 1990, 171-184; Killen 1994, 71-74. On a similar interpretation of the Pylian nodules, see Tegye 1984, 71; Aravantinos 1990, 162; Olivier 1997a, 75-76; Killen 1999a, 333-334, 336.

<sup>47</sup> Melena 1972, 41-42.

Summing up, the inscribed nodules from room 98 represent the delivery either of finished objects, like a bed and a chariot part, or of raw materials, i.e. animal hides. The procurement of hides may be related to beds, since leather could be one of the raw materials for their construction. In Egypt, before the adoption of the use of animal glue, leather was used in the form of strips for the fitting of furniture parts, as well as for the construction of the protective cover of beds and stools<sup>48</sup>. On the other hand, since the rest 32 tablets of the Sa series are thought to have been written in the Northeast Building like Sa 1313, we cannot exclude the possibility that wheels or other chariot parts were being stored in room 98.

*Room 99.* This room was also destined for storage<sup>49</sup>, since, apart from the mainly storage vessels disposed along the Wall A such as wide-mouthed jars and stirrup-jars<sup>50</sup>, “vast numbers of fragments, bits and scraps of bronze fragments”, lead, crystal, obsidian, steatite buttons and fragments of chert arrowheads were also excavated. This picture is completed by many bronze arrowheads, a bronze chisel, four fragments of a bronze strip slightly concave on one face and provided with rivets and rivet-holes, thought to be the rim of a chariot wheel<sup>51</sup>. Moreover, scholars reconstruct wooden shelves along Wall A, where among other things related sets of tablets were kept<sup>52</sup>.

Apart from the tablets, the inscribed nodules had also been gathered in groups. The fact that six out of seven had been sealed by the administrator-owner of seal CMS I, 329 [39] implies that the commodities they accompanied had been collected by the same person. Even more important is the fact that Wr 1330 [40B], 1331 [39F], 1332 [39D], 1333 [39C] and 1334 [39B], possibly recording delivered hides as already discussed, had been inscribed by the same scribe (S 1331-C i)<sup>53</sup>. Nodules Wr 1458 and 1459 must

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<sup>48</sup> Killen 1980, 8; Nakhai 1997, 355. The large horizontal surfaces of the beds would be constructed from mat straw or woven materials.

<sup>49</sup> On its contents, see Blegen and Rawson 1966, 318-323, figs. 315-316. In the adjacent room 100 a rivet, a fragment of a bronze folded band and more than 501 small arrowheads have been found. For a summation of the arrowheads found in the rest of the spaces of the NE Building, see Tegye 1984, 72 and n. 44.

<sup>50</sup> Tegye 1984, 66 also suggests the presence of a pantry in the Building because of the important number of broken fine-ware kylikes found in rooms 91, 92, 93, 94, 97, 98 and 99.

<sup>51</sup> See Blegen and Rawson 1966, 322, fig. 316 No. 7-8; Shelmerdine 1998, 94, fig. 47.

<sup>52</sup> Those, like the pottery would have been stored in groups, mainly on the shelves along Wall A, as indicated by their find-spots: see Palaima 1988, 157-158.

<sup>53</sup> The three first, coming from Section D, and Wr 1334, which has been found in Section B, are considered as belonging to a closed context, see Palaima 1988, 159, 218. On the assignment of the discussed nodules and tablets from this room to scribal hands, see Palaima 1988, 158-159, 218, and Concordance A.

have also accompanied some of the objects, but their inscriptions are illegible<sup>54</sup>.

Most of the tablets found in this room deal with the delivery of various commodities from individuals or peripheral centres<sup>55</sup>, such as small numbers of animal hides (Cc 1284, Cn 1286 and in my opinion also Cn 1287<sup>56</sup>, Ub 1316, Ub 1317), textiles (Qa tablets recording the textile ideogram \*146<sup>57</sup>), wheat (Un 1319, Un 1321), wine (Un 1321) and some unidentified objects (Un 1314, 1319, Un 1320 + Xn 1447 + Xn 1448 + \*1455<sup>58</sup>). The subject-matter of these inventories provides some interesting links to single tablets which were found in the other rooms of the building. I particularly believe that tablet Cc 1284 has to be connected with Cc 1283 from room 94 and Cc 1285 from room 92, which probably record the delivery of a small number of OVIS<sup>m</sup> hides<sup>59</sup>; besides both tablets have been written by the same scribe (S 4-H 21). In addition, textiles are not only recorded in the Qa series but also in Mb 1336 from room 97 and in Un 1322 from room 92. The latter has convincingly been interpreted as a payment record, which lists grain and textiles (\*146) offered to a net-maker (or net-makers) and a male weaver (or weavers) probably in return for commodities acquired<sup>60</sup>.

However, a group of tablets relating to the order and collection of chariot parts clearly stands out. Among the records, which note down the labour available to the palace and its management (An 1281, 1282 and the Ac series), tablet An 1282 lists craftsmen to whom the manufacture of chariot and horse equipment is assigned<sup>61</sup>. On the other hand, the page-shaped tablets Vn 1339 + Xn 1340 + Xn 1449 + *fr.* and Vn 1341 record the delivery of *ki-wa-[ra/skiwra/* 'wickerwork' and wood to the Northeast

<sup>54</sup> For the possible reading of *e-ri/* on Wr 1459 see Palaima 1996a, 52 and Katalog, in Pini (ed.) 1997, p. 23.

<sup>55</sup> Shelmerdine 1987, 334, 338. Tablet Xa 1335 belongs to a series which has not been interpreted: see Bennett and Olivier 1973, 271.

<sup>56</sup> On a different interpretation of Cn 1287 as recording animals, see Aravantinos 1990, 162; Killen 1999a, 334; Kyriakidis 1996-1997 [1998], 210, who considers the tablet as a payment record.

<sup>57</sup> Chadwick 1964, 24; Duhoux 1976, 131, 133; Killen 1984, 61.

<sup>58</sup> For this new join, see Melena 1992-1993 [1994], 81-82.

<sup>59</sup> In the latter the hides are delivered by *ma-se-de*, a person coming from outside the palace, but clearly connected with it, see Jasink 1990-1991, 218.

<sup>60</sup> Duhoux 1976, 133, 147-148; Killen 1995, 218-219.

<sup>61</sup> Shelmerdine 1987, 334-335, 338-342; Jasink 1990-1991, 220-221. On the form *a-qi-ja-i* (An 1282), see Aura Jorro 1985, 92 with previous bibliography; also Killen 1999b, 349. For the religious connotations of the Qa series and of An 1281, see: Tegye 1984, 73, 78-79; Lupack 1999, 25-34.

Building as raw materials for the construction of several items, among which wooden frames of chariot boxes, draught poles, possibly 127 wheel spokes, and shafts or quivers for at least 200 javelins<sup>62</sup>. Wood as raw material for chariots is also recorded in tablet Vn 10 from the Archive Complex, interpreted by some scholars as an inventory of woodcutters, delivering saplings, i.e. raw material for axles, *a-mo-te-jo-na-de*, i.e. to the "chariot workshop"<sup>63</sup>. Moreover, the leaf-shaped tablets Va 1323 and 1324 register the storage of a large number of *a-ko-so-ne*, i.e. chariot axles, and of *e-ke-i-ja* and *pe-di-je-wi-ja*, i.e. draught poles and another kind of chariot part respectively<sup>64</sup>. Last but not least a specific set of tablets within the Sa series mentioning anthroponyms in the genitive case, has been interpreted as a collection of inventories of storage of *we-je-ke-e/a<sub>2</sub>* type wheels, delivered from small workshops in the framework of a *wo-ka* contractual obligation<sup>65</sup>. It has also been suggested that the set of Sa tablets registering wheels designated as *no-pe-re-e/a<sub>2</sub>* records wheels of a distinct type, which have not been obtained by the palace through the direct-production *ta-ra-si-ja/o-pe-ro* system<sup>66</sup>.

But let us examine how the content of the inscribed nodules can be correlated with the aforementioned tablets from the same room. Apart from tablets Cc 1283-1285 (by S 4-H 21) and Cn 1286-1287 (by a scribe of Class ii and H 31 respectively) recording the issue of hides to the palace as raw materials, parallel with that recorded by the Mc tablets from the Knossian Arsenal for the purposes of chariot manufacture<sup>67</sup>, special attention has to be payed to series Ub. Tablets Ub 1316 and 1317, written by Hand 32, most probably record the delivery by two individuals of deer leather owed since the previous year (*e-ra-pi-ja pe-ru-si-nu-wa* and *e-ra-<pi->ja-o pe-ru-si-nwa-o* respectively)<sup>68</sup>. Ub 1318, which has been written by the same scribe, notes the allocation of worked leather and raw hides to individuals, and specifies horse equipment items to be produced from them, such as

<sup>62</sup> On these new joins, see Killen 1999b, 350; Melena 1996-1997 [1998], 165-168.

<sup>63</sup> Ruijgh 1967, 348, n. 55; Aura Jorro 1985, 223 s.v. *e-pi-[.]ta*. For this interpretation of *a-mo-te-jo-na-de*, see Palaima 1980, 201-203.

<sup>64</sup> Shelmerdine 1987, 334.

<sup>65</sup> Bernabé et al. 1990-1991, 165; Driessen 1996, 483 and n. 19.

<sup>66</sup> Bernabé et al. 1990-1991, 158. On alternative interpretations, see Aura Jorro 1985, 477-478 s.v. *no-pe-re-e/a<sub>2</sub>*.

<sup>67</sup> Melena 1972, 29-54; Driessen 1996, 492 and n. 87. On the interpretation of \*142 as a raw material for the production of other items of military equipment, see Perna 1996, 114-115.

<sup>68</sup> See Duhoux 1976, 129-130.

saddlebags, bands for pack-saddles, lining for three yokes, but also clothing items<sup>69</sup>: *pe-di-ra*<sup>70</sup> ('sandals'), *e-ra-pe-ja e-ma-ta*<sup>71</sup> ('sandal-strings from deer leather?'), *e-pi-u-re-te-we*<sup>72</sup> ('bands' or 'leather used as a garment') and *ka-ro*<sup>73</sup> (most probably 'tightly woven textiles'). All these craft goods were therefore to be produced under the *ta-ra-si-ja* system, through which the palaces supplied fully and semi-dependent craftsmen with raw materials<sup>74</sup>. On the other hand, tablet Ub 1315<sup>75</sup> (by Hand 31) is an inventory of worked animal hides and other finished items of horse equipment, which must have been stored in the room: at least 16 preserved units of *di-pte-ra*<sub>3</sub><sup>76</sup> *e-ru-ta-ra*<sup>77</sup> ('red worked leathers'), 6 units of *ro-u-se-wi-ja*<sup>78</sup> (*di-pte-ra*<sub>3</sub>) ('sumach-dyed, i.e. yellow, leathers'), *ne-wa*<sup>79</sup> *a-ni-ja*<sup>80</sup> *a-na-pu-ke*<sup>81</sup> ('new reins without head-bands'), *a-ni-ja te-u-ke-pi*<sup>82</sup> ('reins with their accessories'), *a-ni-ja-e-e-ro-pa-jo-qe-ro-sa*<sup>83</sup> ('two reins from deer leather?'), *a-pu-ke a-pe-ne-wo*<sup>84</sup> ('head-bands' of a 'four-wheeled chariot') and *ne-wa po-qe-wi-ja*<sup>85</sup> ('new halters').

On the basis of the scribal activity analysed so far, it can be suggested that scribe S 1331-C i has personally collected the *o-pa* hides (Wr 1325, 1330-1334) in the periphery and brought them back to the palace, so that they would be finally allocated to craftsmen<sup>86</sup>. The hanging nodules were then

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<sup>69</sup> Ventris and Chadwick 1972 (2<sup>nd</sup> ed.), 490-493; Ruipérez and Melena 1990, 171-172, 251, both with previous bibliography. On its interpretation as a payment record, see Jasink 1990-1991, 221-222.

<sup>70</sup> Aura Jorro 1993, 95-96.

<sup>71</sup> Aura Jorro 1985, 216; idem 1993, 38.

<sup>72</sup> Aura Jorro 1985, 226-227.

<sup>73</sup> Aura Jorro 1985, 326.

<sup>74</sup> Killen 1985, 272-273.

<sup>75</sup> For an analysis see: Lang 1958, 191; Palmer 1963, 328; Tegye 1984, 73-74.

<sup>76</sup> Aura Jorro 1985, 176.

<sup>77</sup> Aura Jorro 1985, 250.

<sup>78</sup> Melena 1987, 215-216.

<sup>79</sup> Aura Jorro 1985, 472.

<sup>80</sup> Aura Jorro 1985, 66-67.

<sup>81</sup> Aura Jorro 1985, 63.

<sup>82</sup> Aura Jorro 1993, 343.

<sup>83</sup> Duhoux 1999, 235.

<sup>84</sup> Bernabé 1996, 199 interprets *a-pe-ne-wo* as genitive plural or singular of the word \**apēna/ἀπηνᾶ*.

<sup>85</sup> Aura Jorro 1993, 142.

<sup>86</sup> This task can be connected with information inferred from the pylian records about the activity of a small number of "collectors", i.e. palace officials, entrusted with the management and/or the produce of about 40% of the region's flocks, most of which were situated in the Hither Province, see Bennet 1992, 97.



detached and thrown onto the floor, possibly waiting for their inscriptions to be transferred onto tablets. This is why they had remained in rooms 98 and 99 and not been transported to the Archive Complex for the final stage of the audit, like the receipt nodule Wr 1457. The remaining 46 hides registered in tablets Cc 1283-1285, Cn 1286-1287 and Ub 1316-1317 must have been delivered to the aforementioned scribes (H 21, a scribe of Class ii, H 31 and H 32) in person, a hypothesis strengthened by the detailed registration of personal names in those tablets. Thus, it is here suggested that on the basis of those tablets Hand 32 has finally compiled the allocation tablet Ub 1318, since in the latter a total number of at least 32 hides has been preserved. All collected hides could have served not only for the production of the aforementioned items but also for the production of the flooring of interwoven rawhide thongs of chariot boxes and for the production of the covering of their sides<sup>87</sup>. They could also have been used in order to make the fitting material for many chariot parts and for the wheels<sup>88</sup>. Moreover, they could have been collected for the construction of quivers and of the skeleton of corslets, since not only arrows but also armour plates are associated with the Northeast Building<sup>89</sup>. The deposits of dye materials, which were stored in rooms 97 and 98, were also destined for the dyeing of the collected rawhides; this may have taken place *in situ*, since red and yellow leathers are recorded in the stock record Ub 1315.

This picture arising from the records dealing with the order or the collection of the horse and chariot equipment items is supplemented by the Sa tablets, which are considered to have been originally written in the Northeast Building. The ones recording the names of the suppliers, each of which contributes a small number of *we-je-ke-e* wheels as a *wo-ka* contribution should be considered as delivery receipts, whereas Sa 787 and 843, and probably also Sa 483 [+] 1079 must be the totalling records<sup>90</sup>. A second set, which consists of tablets Sa 682, 751, 790 and 794, and registers ROTA and ROTA+TE wheels acquired as *no-pe-re-e/a<sub>2</sub>*, can in my opinion be identified as inventories of storage. Consequently, the Northeast Building can be seen as the place where these wheels were delivered; they could also have been temporarily stored here separately from vehicle bodies, because if

<sup>87</sup> Ventris and Chadwick 1973 (2<sup>nd</sup> ed.), 519-520 have suggested that the red hides especially may have been for the frame of a chariot body.

<sup>88</sup> Hooker 1980, 167; Crouwel 1981, 112-113, 116 fig. 7. The use of rawhide for constricting and solidifying the naves and the felloes of the chariot wheels is attested in the Aegean, Egypt and the Levant: see Crouwel and Littauer 1997, 344.

<sup>89</sup> Based on the conjecture that the Sh tablets from the Archive Complex had initially been written in the Northeast Building, see Palaima 1996b, 382, n. 10.

<sup>90</sup> See Palaima 1996b, 379, 396 fig. 6; Driessen 1996, 483.

left on the axle they had a tendency to warp<sup>91</sup>. On the other hand, the evidence of at least a pair of *ka-ko de-de-me-no no-pe-re-e* wheels recorded in tablet Sa 794 possibly documents the storage of wheels having bronze hoops fitted around the nave ends or most probably functional bindings of the felloes as attested in Egypt<sup>92</sup>. It is not impossible that tablet Sa 1313 which had not been transported to the Archive Complex, recorded such a pair of wheels still kept in room 99<sup>93</sup>. So, we can accordingly suggest that the bronze remnants from room 98 and mainly from room 99 may be the remainder of a small number of such wheels stored here or even waiting in order to be recorded on tablets, before their eventual fitting to the vehicle body. This would perfectly explain the thick black carbonized deposit excavated throughout the floor of room 98<sup>94</sup>. The fragments of a bronze concave strip coming from room 99 might have constituted the metal bindings of the wheel felloes, as already suggested by C. Shelmerdine<sup>95</sup>. The strip could alternatively have constituted one of the bronze rear semicircular [*wo-]ra/wo-ra-el*:*Fóρᾱ(ε)* 'protections'<sup>96</sup> described in the Sp inventories found in the Knossian Arsenal, although no evidence of them exists in the Pylian tablets. The final assembly of the various chariot parts, which were delivered and stored in Northeast Building, was possibly taking place in this extraordinarily large room.

Furthermore, I believe that the allotment of the fair quantity of bronze written down in Ja 1288<sup>97</sup> might relate to the shapeless chunk of bronze found in room 98. On the other hand, it is unclear, whether tablets Un 1319 and 1321, the first referring to quantities of wine and the latter to quantities of both wine and wheat, ought to be considered as storage records<sup>98</sup>. They should rather be regarded as collection records of quantities destined to be distributed as rations to the craftsmen charged with various tasks<sup>99</sup>. The reason why these tablets were still being kept in the room, may be that the

<sup>91</sup> See Crouwel 1981, 86-87 on documentation of this practice also in Homer, *Iliad* V 722-723 and in cuneiform texts.

<sup>92</sup> On these and other possible interpretations, see Crouwel 1981, 88-89; Bernabé et al. 1990-1991, 144-145.

<sup>93</sup> For a different suggestion, see Shelmerdine 1998, 95-96.

<sup>94</sup> Blegen and Rawson 1966, 315.

<sup>95</sup> Shelmerdine 1998, 94, fig. 47. Its shape and the disposition of rivets at regular intervals look very much alike the later examples of the Halstatt culture, see Emiliozzi (ed.) 1997, Tav. II.2.

<sup>96</sup> Bernabé et al. 1992-1993, 143; Plath 1994, 55-57; Bernabé 1996, 203.

<sup>97</sup> Teghey 1984, 72; Shelmerdine 1987, 334 and n. 8.

<sup>98</sup> Palmer 1992, 494, 495 n. 85.

<sup>99</sup> Morris 1986, 102 (on Un 1319 and also on Un 1314, which records some kind of drug); Shelmerdine 1987, 334.

registered resources had not been distributed yet. Last but not least, the few stirrup-vases from room 99 might have contained oil, since its use in the working of hides and in the textile industry is documented by the Pylian and Knossian oil tablets<sup>100</sup>.

In conclusion, during the last accounting period before the destruction of the palace a wide variety of commodities would have arrived to the Northeast Building at different intervals: finished craft goods produced under a direct production system (*ta-ra-si-ja*) or an indirect one (*no-pe-re-a<sub>2</sub>*, wheels), as well as foodstuffs and raw materials collected through the *o-pa* mechanism and destined for secondary processing or rations. The registering of the two latter categories of commodities, which was taking place in this building, reminds of the proposed function of the building at the corner of Epameinonda and Demokritou (formerly Metaxa) streets at Thebes and of the "Ivory Houses" at Mycenae as "centres of collection and distribution", i.e. storerooms where commodities and raw materials coming from the periphery were introduced into the accounting system of the palaces<sup>101</sup>. Furthermore, the management of the labour dealing with the manufacture of horse and chariot equipment would be monitored here by the scribes. As evidenced by the analysis of the inscribed nodules and the tablets, the scribes did not work exclusively in any one room of the building, controlling a single activity sector. They recorded all items on tablets temporarily stored on the shelves of room 99, a fact, which justifies its exceptionally large dimensions. Hence, it is my contention that all this evidence substantiates the function of the Northeast Building as a place with "temporary filing" facilities for multiple activities in the Pylian palace. In addition, I believe that the suggested contents of it can be paralleled with the various items, such as wheels, armoury, missiles for far-shooting weapons and raw materials possibly stored in the Knossian "Arsenal", which is also an independent building subject to the palatial administration<sup>102</sup>. Last but not least, the weapons and the items of horse and chariot equipment referred to in the Northeast Building inventories recall to my mind the similar storage context discovered at the "Arsenal" at Pelopida Street in Thebes, which consists of defensive and offensive weapons, horse and chariot equipment and the Ug tablets<sup>103</sup>.

<sup>100</sup> Shelmerdine 1985, 103.

<sup>101</sup> Shelmerdine 1997, 394.

<sup>102</sup> For the inventories and the function of the Arsenal, see Hiller 1992, 309-310, 314 and Driessen 1996, 483-487.

<sup>103</sup> On this find-context, which can be correlated to the Ug tablets found at the same plot, if we accept the phonetic abbreviation *O* as standing for *o-pa-wo-ta*, i.e. "suspension pieces" for armour and helmets, see: Aravantinos 1987b, 34 ("complex of magazines"); Ara-

At any rate, the evidence presented here is against the function of the Northeast Building as a workshop for manufacturing horse and chariot equipment and weaponry. This function would anyway require a wide range of metallurgical activities for which we have no evidence *in situ*. Nevertheless, the term *a-mo-te-jo-na-de* of tablet Vn 10, the meaning of which seems controversial<sup>104</sup>, cannot be considered as conclusive proof of the character of the building as a “chariot workshop”. It might simply denote the place where the final assembly of chariot parts coming from peripheral workshops was taking place.

#### *Wine Magazine, Room 105*

In this building no tablets but only 49 impressed nodules, grouped together in four clusters in room 105 have been found<sup>105</sup>. The large number of storage jars and the registration of wine in four of the nodules (Wr 1358 [31E], 1359 [31B], 1360 [31C] and Wr 1361 [1A] have led to its identification with a magazine for the storage and distribution of wine<sup>106</sup>. So, the highest concentration of nodules in room 105 (20%) can be accounted for by the frequent shipment of wine resources to the building.

Since all inscribed nodules belong to the “two-hole hanging type” and bear the ideogram of wine<sup>107</sup>, it seems possible that they initially hung from flasks or other containers full of wine, delivered to the magazine and rejected after the transfer of the wine into jars. Furthermore, due to the fact that these, as well as all nodules from room 105, have been found behind the jars along the wall, it has been suggested that the officials receiving the wine had temporarily stored them above the jars<sup>108</sup>. Although the words *me-ri-ti-jo* and *e-ti-wa-[no]*, inscribed on Wr 1360 and 1359 respectively, have been interpreted as epithets indicating the quality of the wine, it seems more likely that they are personal names referring to its source in the periphery of the palace<sup>109</sup>. The two different seal-impressions (CMS I, 363 and 361) and

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vantinos 1995, 619-621; idem 1996, 186-189; idem 1999, 47, Plan of the Site; Palaima 1999, 368.

<sup>104</sup> For its alternative interpretations, see Aura Jorro 1985, 59-60.

<sup>105</sup> Palmer 1994, 144. With the exception of the five *noduli* (Cat. Nrs. 81, 52, 55, 73, 67) all nodules from the Wine Magazine were hanging, see Pini (ed.) 1997, 101-105 Tabelle 4.

<sup>106</sup> Blegen and Rawson 1966, 342-349, fig. 428; Palaima 1988, 159-162, fig. 21; Palmer 1994, 159-160; eadem 1996, 280.

<sup>107</sup> Palmer 1994, 157.

<sup>108</sup> Palmer 1996, 281.

<sup>109</sup> Aura Jorro 1985, 258 s.v. *e-ti-wa-[no]*, 440-441 s.v. *me-ri-ti-jo*; Palmer 1996, 275, 280; Olivier 1997a, 77.

the inscriptions of three scribal hands (S 622-H 13, S 628-C iii, C i) attested on the four nodules<sup>110</sup> indicate that at least three administrators responsible for the collection of the wine on behalf of the palace had fulfilled their responsibility. Moreover, the fact that in nine instances the same seal impressed two or more nodules hints at multiple shipments from an individual seal-holder<sup>111</sup>. Last but not least, the clustering of the nodules, inscribed or not, in four different deposits represents four respective deliveries of goods, after which the nodules were temporarily preserved as receipts.

### *Main Building, Rooms 24 and 32*

Room 24, containing eleven jars encased in benches along the walls<sup>112</sup>, provided us with no tablets but contained the hanging nodule Wr 1437 [54] with the ideogram AREPA/ἄλειφαρ, 'ointment oil'<sup>113</sup> and document Wn 1247 bearing *a<sub>3</sub>-wo-di-jo-no*, possibly a personal name in the genitive<sup>114</sup>. They both may have functioned as labels of jars filled with oil, sent by a specific individual coming from the palace periphery<sup>115</sup>.

Room 32 also contained a large number of jars set along its west and south walls, comprising a variety of vessels for the storage and transport of a liquid commodity, namely oil as indicated by three relevant tablets<sup>116</sup>. Two of them had been written by scribes who also worked on the recording of oil in other parts of the palace: Fr 1198 (S 1202-H 2: rooms 23, space above room 38), Fr 1200 (S 1203-Cii: space above room 38)<sup>117</sup>. Tablet Fr 1194 has not been attributed to a specific scribe. All these were inventories recording small

<sup>110</sup> Palaima 1988, 76-77, 129, 218; Shelmerdine 1999, 565 n. 76 (Hand 13). Based on the fact that the first two of them had also written tablets relating to aspects of textile production Palmer (1994, 159) has conjectured that the jars might also contain a wide variety of dry or wet commodities or even woven textiles. This assumption, however, cannot be proved without the existence of relative inventories from the same room.

<sup>111</sup> For such an analysis, see Palmer 1996, 281, Table 17.1.

<sup>112</sup> Blegen and Rawson 1966, 139-142, fig. 442; Palaima 1988, 166-169.

<sup>113</sup> Aura Jorro 1985, 100; Olivier 1997a, 72.

<sup>114</sup> Olivier 1997a, 80.

<sup>115</sup> Shelmerdine 1985, 88. On the morphologically idiosyncratic class of Pylian Wn nodules and its function, see Aravantinos 1984, 44; Bennett 1992, 125.

<sup>116</sup> The elaborate manufacturing and the small size of the vessels of room 32 have led Shelmerdine 1985, 120 to the assumption that this storeroom was exclusively destined for perfumed oil, while some at least of the large jars in rooms 23 and 24 contained unmixed olive oil.

<sup>117</sup> Palaima 1988, 145, 147.

quantities of oil. The tablets from the Archive Complex referring to oil are more detailed, since they are comparisons and summaries of single tablets, such as those from room 32<sup>118</sup>.

Apart from these tablets, label Wn 1199, bearing the male name *ka-ra-ni-jo*, has been also found in room 32. Like the name inscribed on Wn 1247 from room 24, it specifies the origin of oil, which came from an outside provider and not from palatial produce. The fact that Wn 1199 has been inscribed by Hand 34<sup>119</sup>, which also wrote tablet Un 1321 referring to wheat and wine (room 99), doesn't necessarily indicate that room 32 had a further function, apart from oil storage<sup>120</sup>. It can be attributed to the diversity of subjects that each scribe had to record.

### *South-western area*

All three nodules coming from the area along the outer west wall of the South-western Building are surface finds (Wr 1415 [7], Wr 1416 [15], Wr 1374 [24]) with a different content<sup>121</sup>. Nodule Wr 1415 records the word *pa-ke-te-re/pākteres/πηκτῆρες*, which in other contexts has been interpreted as a 'vessel' or a 'construction item'<sup>122</sup>. On Wr 1416 only the ideogram SUS<sup>1</sup> can be detected over the seal-impression, which is also common on many of the Thebes sealings and possibly on Wr 1327, as discussed above<sup>123</sup>. Finally, Wr 1374 includes the inexplicable expression *Jpu2-\*34-[.]* and the ligature TELA+PU, namely the ideogram TELA and the expression *pu(-ka-ta-ri-ja)*, which has been interpreted amongst other things as a plural number of the adjective *\*πυκτάλιαν*/i.e. 'of double thickness'<sup>124</sup>.

## CONCLUSIONS

In the last section it has been argued that the inscribed Wr and Wn nodules were used as devices for the monitoring of the collection of a variety

<sup>118</sup> Shelmerdine 1985, 120.

<sup>119</sup> Shelmerdine 1985, 93; Palaima 1988, 159, 218. An alternative interpretation is suggested by Olivier 1997a, 81.

<sup>120</sup> Shelmerdine 1985, 93.

<sup>121</sup> Palaima 1988, 162-166, fig. 22; Olivier 1997a, 77. According to Shelmerdine and Bennet 1995, 132 the tablets which have been found in the South-western Area might come from the South-western Building.

<sup>122</sup> Melena 1983, 278 n. 97; Olivier 1997a, 78.

<sup>123</sup> Melena 1983, 278 n. 97.

<sup>124</sup> Ventris and Chadwick 1973 (2<sup>nd</sup> ed.), 575; Olivier 1997a, 77 n. 54.

of resources (incoming tribute) and produced commodities to be stored, mainly animal hides and wine but also textiles and oil. This use accounts for the concentration of most of them firstly in the Northeast Building, which should be regarded as a building devoted to the collection, control, recording and storage of finished products and raw materials, and secondly in the Wine Magazine. It is also in complete agreement with conclusions about the function of the Thebes, the Mycenae and the Knossos nodules<sup>125</sup>. Thus, the 56 inscribed Thebes nodules (TH Wu 44-99) had also been collected together in a room, which has been variably interpreted as a storeroom<sup>126</sup> or as a workshop<sup>127</sup>, because they documented the collection of the contributions for organizing a religious feast<sup>128</sup>. Apart from serving as receipts they were kept in this space in order to be used as notes for the compilation of a recapitulative tablet stating the shipment of the animals<sup>129</sup>. With regard to the Mycenae nodules, seven out of the eight inscribed nodules from room 1 of the House of the Sphinxes (MY Wt 501-507) had been impressed by the same seal-owner<sup>130</sup>. The contextual analysis of their inscriptions and of the entries of the relevant tablet MY Ue 611 from the same building has led to the conclusion that they had been gathered as receipts of delivered vessels in order to be used for the compilation of a summary tablet<sup>131</sup>. Last but not least, although the distribution of the Knossos inscribed nodules is more diverse, it documents in some instances the use of storage and workshop spaces<sup>132</sup>.

At the intrasite level, the comparative study of the inscriptions on the Pylian nodules and on the tablets has suggested that the activities taking place in the various functional spaces, mainly the storage of various goods and secondarily the production of perfumed oil, were strictly defined. So, the inscribed nodules from the Northeast part of the Main Building, where vessels for storing and transporting oil and also tablets relevant to oil, oil storage and production of perfumed oil have been found, relate to oil. In addition, the nodules from the Wine Magazine support the frequent

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<sup>125</sup> Weingarten 1997 (Knossos); Piteros et al. 1990 (Thebes).

<sup>126</sup> Aravantinos 1984, 44.

<sup>127</sup> Aravantinos 1987a, 18; Piteros et al. 1990, 105; Tournavitou 1997, 233, 238-240, Tables 4-5. Ferioli and Fiandra 1996, 94 regard it as an "actual archive deposit" in the process of collecting sealed documents.

<sup>128</sup> Aravantinos 1984, 44, 47-48; Piteros et al. 1990, 172, 181-184; Killen 1994; idem 1996.

<sup>129</sup> Killen 1992, 365.

<sup>130</sup> Bennett 1958, 103-104; Aravantinos 1984, 44, 46; Tournavitou 1995, 265-266; Müller et al. 1998, 14-16.

<sup>131</sup> Shelmerdine 1999, 571-572 and Table 3.

<sup>132</sup> Hiller 1992, 303-314.

shipment and storage of wine in the building. On the other hand, the great amount of nodules found in the Northeast Building reinforces the testimony of the tablets that worked and raw hides (Cc, Cn, Ub tablets), as well as weapons (Sh tablets), and horse and chariot equipment (Sa, Ub, Va and Vn tablets) were stored. The fact that in some cases, such as tablets Cc 1283-1285, Cn 1286-1287 and Ub 1316-1317, the inscriptions on the sealings relate to tablet entries from the same space, particularly those on leaf-shaped tablets, supports the view that the scribes noted on tablets the single transactions recorded by the nodules<sup>133</sup>.

Furthermore, it has been here argued for the identification of the Northeast Building as the major palace storeroom for raw materials and commodities acquired as tax contribution (*a-pu-do-si*) or through other contractual mechanisms (*o-pa*, *wo-ka* or *no-pe-re-e/a<sub>2</sub>*). In this storeroom they would be collected, measured or weighed and recorded, in order to be stored or distributed as supplies for further processing or as rations. In addition, the management of part of the working labour took place here. This function finds parallels in the case of the building at the corner of Epameinonda and Demokritou streets at Thebes and of the "Ivory Houses" at Mycenae. Even more definitive is the parallel drawn between the Northeast Building and the Knossian "Arsenal", each of them serving as the main storeroom of equipment for military purposes. Nevertheless, tasks such as the processing and dyeing of rawhides and the final assembly of chariot parts could also have taken place in the Northeast Building. Its function, however, as a major workshop for the manufacture of horse and chariot equipment and weaponry cannot be supported by the finds or the evidence of the term *a-mo-te-jo-na-de*.

With regard to the activity of specific scribal hands, one of the many scribes who wrote on tablets in room 99 incised all five of the seven inscribed nodules (S 1331-Ci). On the contrary, three scribes worked in rooms 98 and 105, each inscribing a single nodule: S 1272-C iii, S 1331-C i, C i and S 622-H 13, S 628-C iii, C i respectively. Wr 1457, the only inscribed nodule found in the Archive Complex, was the work of scribe S 90-H 2, whose activity has not been attested in the aforementioned storerooms. Even if elements of specialization by the specific Pylian scribes in particular spaces have been observed, the resulting impression supports the general assumption that they were working in many different parts of the palace<sup>134</sup>. Corresponding activity by many different scribes has also been evidenced

<sup>133</sup> See also Olivier 1997b, 316-317.

<sup>134</sup> However, they had more strictly defined tasks in a working sector than their Knossian colleagues, see Shelmerdine 1999, 565-568.



regarding the Thebes and Knossos nodules<sup>135</sup>, while the same scribe incised the inscriptions on the seven out of the nine inscribed nodules from Mycenae<sup>136</sup>. In any case, the scratching of inscriptions would be done by the Pylian scribes during the collection of the commodities.

Consequently, the homogeneous groups of inscribed nodules found in rooms 98, 99 and 105 do not always constitute “deposits” in the strict sense of the term specified for the tablets<sup>137</sup>, since the nodules had not all been written by the same scribe and they did not always refer to the same subject. Their distribution also confirms that the majority of the inscribed nodules preserved during the destruction of the palace belonged to a stage of temporary storage in their find-spots. The same interpretation has been given to a few inscribed Knossian nodules with a secure provenance from storage and workshop areas<sup>138</sup>. The final stage of rejection has not been documented with regard to the Pylian nodules, while it is represented by the tablets and nodules found together under a sealed corridor in the East Wing of the Knossian palace<sup>139</sup>.

Summing up, the “two-hole hanging” inscribed Wr nodules primarily served as certificates, since the responsible administrators by impressing their official seal validated the delivery of an object. Nevertheless, their most significant use, and the one that differentiates them from the uninscribed nodules, was their function as labels. Although the preserved inscribed nodules bear no place-names, which could hint at the places of origin of the commodities, they help us restore the process of storage (oil, wine, hides, beds and military equipment) and specialized production (textiles, oil) in specific spaces of the Pylian palace. Moreover, they have also served as mobile “primary documents”. Thus, the mixing of all Pylian nodules, inscribed or not, with coherent tablets, mainly in storerooms 32 and 99, is evidence that the scribes kept account inventories at least for a part of the movement of the sealed goods<sup>140</sup>. As the seal-impressions identified the seal-owners responsible for single transactions, they were temporarily kept in the room together with the incoming objects as receipts. The final audit via the processing of the data of the nodules, as evidenced by Wr 1457, and/or the leaf-shaped tablets and their recapitulation in page-shaped tablets, the

<sup>135</sup> Piteros et al. 1990, 137 (Thebes); Killen and Olivier 1989, XIII-XIV, 348-356 (Knossos).

<sup>136</sup> For nodules MY Wt 501-507, 700, 712, see: Melena and Olivier 1991, 11, 74-75 Müller et al. 1998, 13-43, 52-55.

<sup>137</sup> Palaima 1988, 180-181.

<sup>138</sup> Rehak and Younger 1998, 159.

<sup>139</sup> Hooker 1964, 114-121; Rehak and Younger 1998, 160.

<sup>140</sup> Weingarten 1997, 519.

“secondary documents”, took place in the Archive Complex, to which they would be transported in baskets<sup>141</sup>. After its completion the summary tablets were stored in sealed baskets filed in shelves, whereas the nodules would be rejected.

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<sup>141</sup> Palaima 1987, 264; Piteros et al. 1990, 181-184; Olivier 1997a, 72. On the latest evidence for their transport in baskets and the Pylian Wa documents labelling the latter see Palaima 1996b, 380 n. 3 ff.

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