

KTEMA

CIVILISATIONS DE L'ORIENT, DE LA GRÈCE ET DE ROME ANTIQUES

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The Modalities of Economic Control at Pylos*

RÉSUMÉ. — Cette communication discute les témoignages épigraphiques concernant les hiérarchies institutionnelle, officielle et personnelle dans l'organisation administrative de l'économie palatiale régionale mycénienne au Bronze récent en Messénie. Elle souligne que les modèles à trois niveaux proposés par l'auteur en 1985 sont simplement un cadre général pour comprendre les modalités du contrôle économique, et que nous ne devrions pas nous attendre à trouver une efficacité extrême dans un système économique à grande échelle qui a évolué pendant une période de plusieurs centaines d'années. L'analyse des tablettes de la grande série « fiscale » Ma, et de la tablette Jn 829, qui traite de la collecte de bronze « recyclé », révèle à quel point le système de transactions devait être étendu, pour rendre possible le fonctionnement d'une économie palatiale hautement spécialisée. Les tablettes inscrites, et les scellés, inscrits et non inscrits, sont simplement la « partie émergée de l'iceberg administratif ».

ABSTRACT. — This paper discusses the textual evidence for institutional, official and personal hierarchies in the administrative organization of the Mycenaean regional palatial economy of Late Bronze Age Messenia. It stresses that the three-level models proposed by the author in 1985 are simply a general frame-work for understanding the modalities of economic control and that we should not expect to find streamlined efficiency in a large-scale economic system that evolved over a period of several hundred years. Analysis of the major Ma "taxation" series and of tablet Jn 829, which deals with the collection of "recycled" bronze, reveals how extensive a system of standard transactional relationships must have existed in order to keep the highly specialized palatial economy operating. The inscribed tablets and the inscribed and unscribed sealings are merely the "tip of the administrative iceberg".

Using the evidence of the Linear B tablets and inscribed sealings, the modalities of economic control within Mycenaean palatial culture can be viewed from many different perspectives and at many different levels of economic and administrative activity. Our views of economic control differ site to site, depending on the periods and contexts from which inscribed records or administrative sealing devices come and the extent to which they cover a representative range of economic activities at Mycenaean palatial centers on Crete or on the mainland¹. Even with the rather unbalanced data now available (see below), it is clear that there are some fairly universal phenomena. For example, individuals of high social/political/economic status known as "collectors" from their role in managing livestock and cloth manufacture have been identified at the

* I have herein used footnotes to make reference to key articles. For an overview of the Mycenaean economy, cf. J. T. KILLEN, "The Linear B Tablets and the Mycenaean Economy", in A. MORPURGO-DAVIES, Y. DUHOUX (éds), *Linear B: A 1984 Survey* (Louvain La Neuve, 1985), p. 241-305.

(1) Cf. C. W. SHELMEARDINE, "A Comparative Look at Mycenaean Administration(s)", in S. DEGER-JALKOTZY, St. HILLER, O. PANAGL (éds), *Floreat Studia Mycenaea. Akten des X. Internationalen Mykenologischen Colloquiums in Salzburg vom 4.-5. Mai 1995*, II (1999), p. 555-576, and the papers by J. DRIESSEN and V. ARAVANTINOS in this volume.

two most fully textually documented sites, Knossos and Pylos². Certain administrative features carry over from one sphere of economic activity to another. This is demonstrated by Van Alfen's recent analysis of the purpose of the Linear B inscriptions painted on transport stirrup jars³. He makes use of what we know about inscribed sealings and the role of collectors in other economic activities in order to argue that the inscriptions placed on a small percentage of the stirrup jars were used and to be understood within the process of manufacturing oil and its containers and did not serve as labels for later shipment and trade. Moreover, all the painted inscriptions would have been "legible" by those who needed to read them within this restricted environment.

A complete picture of how written records and clay sealing devices worked within the economic system of the Mycenaean palatial period can only be formed by putting together pieces of the puzzle from individual sites into an overall composite. Thus, for example, no other site has any collection of inscribed records comparable in quantity, extent, details or particular formats to the Room of the Chariot Tablets (especially series Sc, Vc and Xd) at Knossos, the records of wool and cloth production and related livestock management (D- and L- series) at Knossos, the land tenure documents (E- series), the Ta inspection/inventory tablets, bronze manufacturing (Jn series) tablets, or women's ration records (Aa, Ab and Ad) at Pylos, or the sealings (Wu series) which monitor deliveries of animals from outlying locales to the palatial center of Thebes for the probable purpose of some form of commensal banqueting ceremony. The Thebes sealings give a good example of how we must work at any given site by extrapolating from fuller documentation, if it exists, at other sites. The Wu sealings have been interpreted in reference to tablet inscriptions from the Un series from Pylos and the C (2) series from Knossos, and by nuancing their contents through study of technical terminology (*qe-te-o*, "to be paid as a [religious] penalty" and *o-pa* "bringing to a full state of readiness or completion" or "refurbishing") and ideograms (*134, *171 and *190) as attested more fully in documents at other sites⁴.

My assigned brief is to discuss Mycenaean Pylos. Already fourteen years ago I spoke in Ohrid, Yugoslavia about the macro- and micro-economic aspects of Mycenaean regional and palatial administrative organization⁵, and this is still a useful dichotomy for understanding how economic production is being controlled in separate Mycenaean palatial territories and how control is reflected in written and sealing administration. We must keep in mind, however, two important reservations. First, no culture, ancient or modern, operates strictly along the lines of the theoretical economic models that we may use to interpret evidence. Explanatory models are neat and logical and reductionist. Systems relating to human behavior, especially in the realm of bureaucratic administration, almost always have quirky *ad hoc* deviations and complexities that defy streamlined explanation. Systems also evolve through time and therefore will preserve outmoded or even counter-productive elements, *i.e.*, they will hardly ever approach being the most efficient

(2) J. BENNET, "'Collectors' or 'Owners'? An Examination of Their Possible Functions Within the Palatial Economy of LM III Crete", in J.-P. OLIVIER (éd.), *Mykenaiika, BCH suppl. 25* (1992), p. 65-101, and other articles on "collectors" by P. CARLIER, J. DRIESSEN and L. GODART in the same volume.

(3) P. VAN ALFEN, "The LM IIIB Inscribed Stirrup Jars as Links in an Administrative Chain", *Minos* 31-32 (1996-97) [1998], p. 251-274.

(4) Chr. PITEROS, J.-P. OLIVIER, J. L. MELENA, « Les inscriptions en linéaire B des nodules de Thèbes (1982) : la fouille, les documents, les possibilités d'interprétation », *BCH* 114 (1990), p. 103-184 ; J. T. KILLEN, "Observations on the Thebes Sealings", in J.-P. OLIVIER (éd.), *Mykenaiika, BCH suppl. 25* (1992), p. 365-380, et "Thebes Sealings, Knossos Tablets and Mycenaean State Banquets", *BICS* 39 (1994), p. 67-84.

(5) Th. G. PALAIMA, "Mycenaean Seals and Sealings in Their Economic and Administrative Contexts", in P. H. ILIEVSKI, L. CREPAJAC (éds), *Tractata Mycenaea. Proceedings of the 8th International Colloquium on Mycenaean Studies, Held in Ohrid, 15-20 September 1985*, (1987), p. 249-266.

systems that could be devised. Second, our evidence is not only uneven, but it represents only a small part of what we must imagine to have been the administrative work of the persons whom we have palaeographically identified as "scribes" at the various sites⁶. This poses serious problems for our interpretation of "singleton" texts like PY Tn 316⁷ or KN V 52, or unique series like the PY Ta and Jn sets. Even if one judiciously combines lexical interpretation (Chadwick) and contextual interpretation (Palmer), texts for which we lack further comparanda are open to a broad range of explanations.

Also the number of texts that have survived from the destruction phases of their architectural units represents only a portion of the administrative activities of the identifiable tablet-writers. At Pylos, we probably have preserved three to five months of records⁸. But even the most prominent identifiable "scribal hands" (Hands 1, 2, 21, 41) have produced total numbers of tablets that might well represent the output of a few relatively brief sessions of concerted recording : ca. 211, 68, 68 and 109 non X- series tablets, labels and sealings respectively⁹. We are at a loss to know whether these individuals wrote other texts during this time in other locations or locales that have not been preserved or whether their work had much more to it than writing down information. We cannot be sure that economic organizational structures (e.g. *ta-ra-si-ja* bronze production) textually attested at only one site (e.g. Mycenaean Pylos) would have been in operation at other sites that had different resources, different histories of development as palatial territories, different ethnic mixtures within their populations, and different relationships among the main competing economic interests (palatial center, second-order centers, the local *damos*, sanctuaries and their own internal institutions, the *wanaks*, the *lawage(r)tas*, the *qa-si-re-we*, the "collectors"). Furthermore, I believe it is necessary now to consider as a separate aspect of economic control, the administration that directly affects the palatial centers proper. For this I would propose a silly term, which probably sounds more elegant *en français*, the centro-economic level.

In macro-terms, as John Bennet has shown for Bronze Age Crete¹⁰, the Mycenaean economy works through a hierarchical system of control, a network of decreasing authority as one moves from (a) central regional controlling sites to (b) principal second-order centers in control of sub-regions or districts to (c) lesser settlements and even exploitable areas within these districts. This system is clearly seen in the extant Pylos regional taxation records¹¹. Tablets of the Ma series, written by the highly competent scribal hand 2, vary in their administrative purposes, and seem to come from two separate stages in the administrative process. Most give the assessed quotas of six different commodities or raw materials expected from the nine and seven districts into which the territory of Pylos was administratively divided. These may also contain reference to exemptions granted. A subset of four tablets (Ma 123, 222, 346, and 393) also list quantities so far delivered

(6) On the meaning of "scribes", "archives", and "administration" in the Mycenaean period, cf. "'Archives' and 'Scribes' and Information Hierarchy in Mycenaean Greek Linear B", in M. BROSIUS, A. K. BOWMAN (éds), *Papers of the Workshop "Archives and Archival Tradition : Concepts of Record-Keeping in the Ancient World" held at the Center for the Study of Ancient Documents, Oxford University, September 17-19, 1998, forthcoming*.

(7) Th. G. PALAIMA, "Kn02 - Tn 316", in S. DEGER-JALKOTZKY, St. HILLER, O. PANAGL, *Floerant Studia Mycenaea* (1999), p. 437-461.

(8) Th. G. PALAIMA, "The Last Days of the Pylos Polity", in R. LAFFINEUR, W.-D. NIEMEIER (éds), *Politeia. Society and State in the Aegean Bronze Age, Aegaeum* 12 (1995), II, p. 623-637 (with discussion).

(9) Th. G. PALAIMA, *The Scribes of Pylos* (1988).

(10) J. BENNET, "The Structure of the Linear B Administration at Knossos", *AJA* 89 (1985), p. 231-249, and "Knossos in Context : Comparative Aspects on the Linear B Administration of LM II-III Crete", *AJA* 94 (1990), p. 193-211.

(11) J. T. KILLEN, "Last Year's Debts on the Pylos Ma Tablets", *SMEA* 25 (1984), p. 174-188, with references to previous scholarship ; and "A Note on Pylos Tablet Ma 120", *Minos* 29-30 (1994-95), p. 113-116.

(specified as *a-pu-do-si* or "payment") and calculate shortfalls. The Ma tablets focus on the sixteen primary second-order centers and the specific sub-regions they oversee.

Tablets of the Na series monitor in roughly the same way flax production and the quantities of flax that the central palatial administration controls and anticipates being able to use in its specialized cloth industry. But the concentration here is mostly on the specific local settlements within areas that produce the flax, *i.e.*, the administration does not seem to be working down through a set hierarchy of economic administration as in the Ma series. Although some of the primary second-order centers are recorded (e. g. *ka-ra-do-ro*, *pa-ki-ja-na*, *pi-*82*), they seem to be mentioned for their own contributions, not for the aggregate contributions of the provincial districts for which they serve as capitals. The Na tablets also record a more explicit mechanism for being exempted from contributions (*e-re-u-te-ra-ro* and *e-re-u-te-ro-se*). As in the Ma tablets, the chief beneficiaries of exemptions/non-payments are the *ka-ke-we* ("bronze workers"), but some additional specialist groups also are listed (e. g. *na-u-do-mo* "ship-builders" and **ku-na-ke-ta* "hunters"). Thus the Na documents demonstrate that the central palatial administration uses records that peer at what is going on in minor settlements and conducts regular transactions with such third-order centers that make their way into tablet records. The Ng texts, which record the aggregate totals for flax production for the two main provinces of the palatial territory of Messenia, bring us back again to the macro-perspective which the central administration obviously needs to have in order to run the economy efficiently.

In micro-terms we may move in reverse direction. The (c) smallest units (individual ship-builders, wall-builders, shepherds, bronzesmiths, agricultural workers, dependent workers within the cloth industry, "royal" and *lawagesian* crafts personnel, "servants of the deity", priests, priestesses, "key-bearers") operate in relationship to (b) workshops and their stewards, collectives and collector/owners, guilds and their leaders, perhaps the enigmatic religious entities attested in the allative forms *do-de* and *wo-ko-de* on the Thebes Of tablets, and lessors or the collective *da-mo*. These (b) in turn are responsible to (c) officials at settlements, centers and sanctuary locales. This way of viewing things separates individual relationships, commitments, responsibilities and rewards from their institutional counterparts, but it would be unusual if there were not some "gray" areas, as for example, in the institutional obligations and privileges of an official like the *wanaks* and his personal obligations and privileges¹² Furthermore, transactions were not always conducted between contiguous hierarchical levels. As we have seen to some degree with flax production, the central administration can bypass the middle levels of economic organization. Moreover, I would like to emphasize here modalities of transactions that must lie behind the records we possess, but which the central administration has no need to keep in written records. There must have been, in this still primarily oral culture with a very specialized and narrow form of literacy, considerable reliance on traditional transactional arrangements that may never have been recorded in writing. The continued use of uninscribed sealings or minimally inscribed sealings is best understood in this way¹³. I hope thereby to shake us out of some of the security we feel about knowing how the palatial economic system operated.

(12) Th. G. PALAIMA, "The Nature of the Mycenaean Wanax: Non-Indo-European Origins and Priestly Functions", in P. REHAK (éd.), *The Role of the Ruler in the Prehistoric Aegean, Aegaeum* 11 (1995), p. 119-139, plates XLI-XLII, and C. RUIJGH, "Wanax et ses dérivés dans les textes mycéniens", in S. DEGER-JALKOTZY, St. HILLER, O. PANAGL (éds), *Florent Studia Mycenaea* (1999), p. 521-535.

(13) Th. G. PALAIMA, "Comments on Mycenaean Literacy", in J. T. KILLEN, J. L. MELENA, J.-P. OLIVIER (éds), *Studies in Mycenaean and Classical Greek Presented to John Chadwick, Minos* 20-22 (1987), p. 499-510; and "Seal-Users and Script-Users / Nodules and Tablets at LM I B Haghia Triada", in P. FERIOLI, E. FIANDRA, *et alii* (éds), *Archives before Writing* (1994), p. 307-337, with discussion.

Having taken these first few steps into Bronze Age Messenia, we might ask ourselves what modalities of control would be necessary to make such a system work effectively. What forms of control or monitoring would a palatial center need to have in place in order to make sure that commitments it was counting on for its economic well-being were fulfilled? Notice that I speak of "control" and "monitoring" as two potentially separate aspects of a functioning palatial-territorial economy. In some cases, the palace doubtless had more direct control over production. We certainly think this was so in regard to the *ta-ra-si-ja* system of economic production whereby raw materials allocated to specialist workers directly from the palace would be worked on and then returned as finished products to the palace. In other cases, the palatial center relied on obligatory contributions or work performance from individuals, collective groups, or communities. These in their turn received some form of benefit from being part of the palatial economic system. At Pylos there are at least two attested mechanisms on which the central palatial administration relied for its interaction with outlying centers, settlements and areas. These are (1) the above-mentioned "collectors" or individuals of high status who helped control economic activities for the palatial centers and (2) *ko-re-te-re* and *po-ro-ko-re-te-re* who I believe were regional officials appointed by and directly responsible to the central palatial administration. The usual translation for these officials is "mayors" and "vice-mayors". This is misleading insofar as the modern analogy suggests that their power was derived *from* the local level and they were responsible *to* local communities. This is a role that seems rather to have been played by the *qa-si-re-we*. The *ko-re-te-re* and *po-ro-ko-re-te-re* monitored and took a hand in economic affairs on behalf of the palatial centers. In addition the palatial centers relied, when necessary, on locally powerful collective institutions such as the *da-mo* or *damos* and *qa-si-re-we* or *basilewes* when some particular aspect of the economy, such as land-holding or *ta-ra-si-ja* bronze-working, fell under their local control.

Here I shall discuss as examples of these modalities of economic control tablets Ma 124, Ma 244 (formerly Ma 335), 346, 365 and 378 from the Pylos regional taxation series and tablet Jn 829 which deals with the recycling of "temple" bronze for use in manufacturing points for spears and javelins.

Ma 124

- .1 a-pu₂-we *146 23 RI M 23 KE M 7 *152 10 O M 5 ME 500
- .2 o-da-a₂ , ka-ke-we , o-u-di-do-si *146 1 RI M 1 *152 1 ME 20

Ma 244

- .1 a-te-re-wi-ja *146 23 RI M 23 KE M 4[] *152 10 O [M 5 ME 500
- .2 [[a[] , pe-ru-si-nu-wo *146] []

Ma 346

- .1 ka-ra-do-ro *146 18 RI M 18 KE M 4 *152[8 O M 4]ME 200[
- .2 a-pu-do-si *146 14 o *146 4 RI M 16 o 2 KE M 4 *152 8 O M 4 ME 440[
- .3 []

Ma 365

- .1 ro-u-so *146 17 RI M 14[] KE M 5 *152 8 O M 4 ME
- .2 o-da-a₂ , ka-ke-we , a₂-te-ro , we-to , di-do-si *146 1 RI M 2 ME 10

Ma 378

- .1 sa-ma-ra *146 24 RI M 24 KE M 7 *152 10 O M 5 ME 500
- .2 { a *152 2 ME 60
- o-da-a₂ , ka-ke-we , o-u-di-do-si *146 3 RI M 3 KE M 1 pe-ru-si-nu-wo , o-pe-ro *146 1 *152 2 ME 100

These five tablets, from the complete set of eighteen Ma tablets, have been chosen almost at random. But they illustrate the complexity of the taxation procedure and the amount of information that is understood by the officials involved in compiling this information and that therefore is not explicitly recorded. We must think of what economic mechanisms and activities must have been in place in order to make the system attested in the Ma series function properly.

Each tablet begins with the entry of a toponym. In four cases (*ro-u-so*, *ka-ra-do-ro*, *sa-ma-ra*; *a-pu₂*) these sites are among the canonical nine and seven principal second-order centers of the Hither and Further Provinces of Pylos respectively, as we shall see them listed on PY Jn 829¹⁴. In one instance (Ma 244) a site (*a-te-re-wi-ja*) that can be located in relation to both a Further Province (*e-ra-te-re-wa*) and a Hither Province (*me-ta-pa*) locale is recorded. Its expected contributions match those of second-order capitals such as *a-ke-re-wa* and *a-pu₂*. As on Jn 829, in this series several sites are recorded in the locative case¹⁵. This means that from the scribal perspective, these assessments are literally being conceived as located at a specific center, rather than generically listed as assessed to them or due from them. We are given no information as to why the non-canonical locale (*a-te-re-wi-ja*) is here listed with its assessment. That this is not an anomaly specific to this particular administrative period is suggested by the text originally written on Ma 244 line .2, but then erased :

[[*a-te-re-wi-ja* , *pe-ru-si-nu-wo* , *o-pe-ro* *146]] [

This implies that there was at least an initial idea of a carry-over obligation for this locale from the preceding administrative "year". The six items being taxed in proportional quantities district by district are listed by ideograms and by phonetic abbreviations standing for logograms. *146 = cloth, *153 = oxhide, and *RI* perhaps = *linon*, i.e. "flax, linen or linen thread". But the other abbreviated items (*KE*, *O* and *ME*) have not yielded any convincing interpretation and again remind us that the Linear B accounting tablets served mnemonic functions within established systems of economic control and need to be understood within their specific economic record-keeping contexts.

Ma 124 and 378 specify by the declarative phrase *o-da-a₂* , *ka-ke-we* , *o-u-di-do-si* that the "smiths" "are not giving" the thereafter mentioned amounts. We deduce from contextual associations and comparanda that this means that they have been granted an exemption. The entry *o-da-a₂* , *ka-ke-we* , *a₂-te-ro* , *we-to* , *di-do-si* on Ma 365 indicates that the "smiths" in the district of *ro-u-so* are obliged to contribute the recorded quantities the following year, i.e., that they do not receive an outright exemption, but merely a postponement. We do not know on what basis such a differentiation between "exemption" and "postponement" was made. The entry *pe-ru-si-nu-wo* , *o-pe-ro* that follows the exemption granted to the smiths in Ma 378.2 marks out the following three items and quantities and what is owed from the preceding year. However, it is unclear to me whether these items are meant to be included in the exemption being granted to the "smiths" in the current year and specified in the immediately preceding phrase (i.e. the entry *pe-ru-si-nu-wo* , *o-pe-ro* is governed by *o-u-di-do-si*) or whether they are logged as a separate entry to be carried over as "owed" into the next administrative period (i.e. the entry *pe-ru-si-nu-wo* ; *o-pe-ro* is not governed by *o-u-di-do-si*). Ma 346.2 records the amount that has been "paid" (*a-pu-do-si* = payment) by the district designated as *ro-u-so*, and shortfalls in the taxation targets are listed as owed (*o* preceding the items and quantities). It presumably then comes from a later stage in the process of assessment

(14) Cf. J. BENNET, "The Linear B Archives and the Kingdom of Nestor", in J. L. DAVIS (éd.), *Sandy Pylos* (1998), p. 111-133.

(15) Here *a-pu₂-we* the dative locative form of *a-pu₂*, but also *pa-ki-ja-pi* instrumental plur. with locative value of *pa-ki-ja-ne*, and *e-ra-te-re-we* sing. dat.-loc. vs. *e-ra-te-re-wa-pi* instrumental plur. with locative value in Jn 829.17.

and collection. But here we have no indication as to the reason for the shortfalls or any exemptions or postponements granted to specific groups within the community.

The brevity, abbreviations, technical terminology and heterogeneity of entries of these records indicate that the complex process for managing these assessments, their fulfilment and any special conditions like exemptions and postponements was understood fully by the administrators who would be called upon to use this information. But how was this information assembled, manipulated and managed? How were *apudoseis* registered and where in fact were the commodities at the time of "payment"? It has been assumed that these "payments" have been received by the central palatial administration from the outlying provincial centers. However, the unambiguous locative form *a-pu₂-we* is then puzzling. One could interpret the form as a dative and somehow "recipient" of an assessment, but then the plural instrumental-locative form *pa-ki-ja-pi* would be anomalous. We are also uninformed about the officials who oversaw and would therefore be responsible for this entire process. The records deal entirely with the communities/locales and seem to have no concern for how these communities were themselves organized or what measures they took so as to try to meet their assessment obligations. The records are not concerned at all with explicit personal or official responsibility. But there must have been such responsibility both on the district and local level of economic production and at the palatial center controlling the entire process.

If the amounts "paid" have in fact been shipped to the palatial center, how do we imagine these shipments coming in? Would they have been accompanied by sealings like the Wu livestock deliveries? There was found in Room 8 of the central Archives Complex, where tablets of the Ma series were also found, a single potentially relevant inscribed sealing Wr 1457. It has a counter-inscription of commodity *152 on its seal-impressed facet and the word for payment *a-pu-do-si* on another facet. If related to a delivery of commodity *152 to meet an assessment for a site in the Ma series, it would indicate by its seal impression one of the authorities or individuals involved in the payment/delivery transaction. Did all commodities that are listed on the four *a-pu-do-si* tablets (Ma 123, 222, 346, and 393), arrive simultaneously or over time? What forms of economic control must have been operating at *ro-u-so* and *sa-ma-ra*? Why were the *ka-ke-we* the principal group granted exemptions in various districts and what does this imply about *their* normal involvement in the process of fulfilling the obligations for this range of six commodities? That is, are we to imagine that, when not subject to exemption, the *ka-ke-we* would have been involved in providing some or all of the six taxation items? Or do communities with *ka-ke-we* receive special exemptions because of their support in the bronze-working industry? What is the significance of the bland term *ka-ke-we*? Which *ka-ke-we*? We know from the Jn series that there are collective groups of *ka-ke-we* on the local level who receive *ta-ra-si-ja* from the central palace and there are *ka-ke-we* associated with the sphere of the deity *po-ti-ni-ja*. Are the "palatial" *ka-ke-we* the only *ka-ke-we* referred to in the Ma tablets? Is this known by Hand 2 or the administrator who is dictating this information, and therefore left unrecorded? Who saw to the collection of these commodities and their possible shipment to the palatial center, *i.e.*, whose "head would roll" if there were significant shortfalls or if quantities were found missing when local collection statistics were compared with records of the deliveries to the palatial center? Lastly, to what use were these commodities eventually put? It is clear that the information given by the Ma tablets themselves are the proverbial tip of the administrative iceberg.

Tablet PY Jn 829 which deals with the recycling of "temple bronze" helps us to see the kind of official hierarchical apparatus for control of economic activities that must have been in place to

manage the regional assessments and payments of commodities in the Ma series. I translate the text here in order to explicate it better¹⁶.

Jn 829

.1	thus will give the <i>ko-re-te-re</i> , and <i>du-ma-te</i> ,			
.2	and <i>po-ro-ko-re-te-re</i> , and <i>ka-ra-wi-po-ro</i> , and <i>o-pi-su-ko</i> , and <i>o-pi-ka-pe-e-we</i>			
.3	temple bronze as points for light javelins and spears			
.4	at pi-*82 ^{PL} <i>ko-re-te</i>	BRONZE 2 kg.	<i>po-ro-ko-re-te</i>	BRONZE 0.75 kg.
.5	at me-ta-pa ^{PL} <i>ko-re-te</i>	BRONZE 2 kg.	<i>po-ro-ko-re-te</i>	BRONZE 0.75 kg. [] blank
.6	at pe-to-no ^{PL} <i>ko-re-te</i>	BRONZE 2 kg.	<i>po-ro-ko-re-te</i>	BRONZE 0.75 kg.
.7	at pa-ki-ja-ne ^{PL} <i>ko-re-te</i>	BRONZE 2 kg.	<i>po-ro-ko-re-te</i>	BRONZE 0.75 kg.
.8	at a-pu ₂ ^{PL} <i>ko-re-te</i>	BRONZE 2 kg.	<i>po-ro-ko-re-te</i>	BRONZE 0.75 kg.
.9	at a-ke-re-wa ^{PL} <i>ko-re-te</i>	BRONZE 2 kg.	<i>po-ro-ko-re-te</i>	BRONZE 0.75 kg.
.10	at ro-u-so ^{PL} <i>ko-re-te</i>	BRONZE 2 kg.	<i>po-ro-ko-re-te</i>	BRONZE 0.75 kg.
.11	at ka-ra-do-ro ^{PL} <i>ko-re-te</i>	BRONZE 2 kg.	<i>po-ro-ko-re-te</i>	BRONZE 0.75 kg.
.12	at ri-jo ^{PL} <i>ko-re-te</i>	BRONZE 2 kg.	<i>po-ro-ko-re-te</i>	BRONZE 0.75 kg.
.13	at ti-mi-to-a-ko ^{PL} <i>ko-re-te</i>	BRONZE 2 kg.	<i>po-ro-ko-re-te</i>	BRONZE 0.75 kg.
.14	at ra-]wa-ra-ta ₂ ^{PL} <i>ko-re-te</i>	BRONZE 2.75 kg.	<i>po-ro-ko-re-te</i>	BRONZE 0.75 kg.
.15	at sa-]ma-ra ^{PL} <i>ko-re-te</i>	BRONZE 3.75 kg.	<i>po-ro-ko-re-te</i>	0.75 kg.
.16	at a-si-ja-ti-ja ^{PL} <i>ko-re-te</i>	BRONZE 2 kg.	<i>po-ro-ko-re-te</i>	0.75 kg.
.17	at e-ra-te-re-wa ^{PL} <i>ko-re-te</i>	BRONZE 2 kg.	<i>po-ro-ko-re-te</i>	0.75 kg.
.18	at za-ma-e-wi-ja ^{PL} <i>ko-re-te</i>	BRONZE 3.75 kg.	<i>po-ro-ko-re-te</i>	0.75 kg.
.19	at e-ro ^{PL} <i>ko-re-te</i>	BRONZE 3.75 kg.	<i>po-ro-ko-re-te</i>	0.75 kg.
.20-.23	blank			

Jn 829 is a good example of a prospective text, *i.e.*, one that sets out the future obligations of the nine and seven major provincial centers/districts in the two provinces of LH III B Messenia¹⁷. As such, the entries of the place names and the quantities are equivalent to the first lines on the individual Ma tablets, and we can imagine that as these obligations were fulfilled by each district a text similar to the four Ma *a-pu-do-si* or "payment" tablets would have been drafted to document the delivery and any special arrangements concerning shortfalls or exemptions. What is different about Jn 829 is that it gives us an insight into the mechanisms for controlling and implementing the collection of the specified commodity, here "temple bronze", and it also is explicit about the intended use of the bronze in the manufacture of weaponry. Both of these elements were missing from the Ma tablets, four of which, of course, record information at a stage well beyond the initial assessments for the particular administrative period.

The central palatial administration is here interacting with religious institutions and their officials. This is clear from the use of the term *na-wi-jo* to describe the *ka-ko* or "bronze". *na-wi-jo* is the adjectival form of the noun *nawos*, literally "the dwelling place" or "temple" of a deity. In the heading, too, are recorded two officials of considerable standing¹⁸. There are several points about economic structure that can be deduced from this tablet and several questions that must be asked. First, by what authority does the palatial center assess these future contributions? What is the relationship between the palatial center and apparent religious institutions called **na-wo* that

(16) The superscription ^{PL} designates the lexical item it follows as a toponym.

(17) Cf. BENNET (*supra*, n. 14).

(18) For the *ka-ra-wi-po-ro*; cf. Pylos tablets Eb 338 and Ep 704.7-8. For the religious affiliations of the *du-ma-te*, cf. Fr. AURA JORRO, *Diccionario Micénico* (1985), s. v. *du-ma*, n. 9.

makes it possible for the palatial center to expect these quotas to be fulfilled? Notice the uniformity of contributions district to district. There are three target numbers for *ko-re-te-re*, and one target number for *po-ro-ko-re-te-re*. The plural numbers of *ko-re-te-re*, *po-ro-ko-re-te-re*, *du-ma-te*, and *o-pi-ka-pe-e-we* in the heading would seem to indicate that *ka-ra-wi-po-ro* and *o-pi-su-ko* are also plural. The further implication then is of a clear uniformity whereby each of the sixteen major districts of Pylos would possess one or several religious institutions called *na-wo* from which bronze could be obtained, and each district would also have the full array of officials, "palatial" and "religious", as listed in the heading and documented for the "palatial officials" in the itemized list. The bronze is universally called *ka-ko na-wi-jo*, so its source in each district must be a *na-wo*. This precludes the possibility that some districts might lack sources of *ka-ko na-wi-jo* (and the corresponding religious officials) and provide the bronze from a purely "agricultural" source (or from agricultural officials like the *o-pi-su-ko* "overseers of figs" and the *o-pi-ka-pe-e-we* "overseers of digging"). Likewise the scribe of this tablet Hand 2 took care intentionally to construct the following parallelism:

ko-re-te-re : *du-ma-te*
po-ro-ko-re-te-re : *ka-ra-wi-po-ro o-pi-su-ko o-pi-ka-pe-e-we*.

He did so by erasing *po-ro-ko-re-te-re-qe* which he had first entered in line .1 after *ko-re-te-re*. This would have led to an arrangement whereby palatial officials in line .1 were followed by religious officials (*du-ma-te* and *ka-ra-wi-po-ro*) and agricultural "religious" officials (*o-pi-su-ko* and *o-pi-ka-pe-e-we*) in line .2. The final arrangement also seems to indicate that the "agricultural" officials are of a status to deal directly with the *po-ro-ko-re-te-re* perhaps through the mediation of the *ka-ra-wi-po-ro*. They are at least subsumed in the religious sphere, because their bronze is also *na-wi-jo*. Thus we might imagine an arrangement such as that documented in the Pylos E- series tablets, whereby religious personnel are rewarded with landholdings in religious territories and are called upon in turn to render payments both of agricultural produce and, as here, of scrap bronze from worn implements. The palatial center clearly here "farms out" the responsibility for such collections to its regional officials (the *ko-re-te-re* and *po-ro-ko-re-te-re*) and does not, at this point at least, meddle in how these officials raise the stipulated quantities. We can imagine, however, administrative procedures in place both at the second-order centers and within the religious districts to document the transfer of quantities of bronze from specific *na-wo* to the representatives of the central palatial administration. These local transactions might have made use of sealings, inscribed or uninscribed, and even written records.

These few examples of tablets dealing with assessments of commodities and materials by the central palatial administration I hope have served to illustrate the complicated nature of economic organization in the Mycenaean palatial territory of Messenia and also to pose the kinds of questions that still remain to be answered about these and similar records as we continue our attempts to understand the textual evidence for modalities of economic control in the Mycenaean palatial period.

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