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MYCENAEAN PALATIAL TECHNOSCAPES: ECLECTIC PALATIAL INTEREST IN CRAFT PRODUCTION IN THE LATE BRONZE AGE AEGEAN (c. 1400-1200 BCE)

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Abstract. Between the 14th and the early 12th century BC, during the era termed 'Third Palace Period', various regions of the southern Aegean were under the seminal political and economic influence of institutional complexes that we conventionally term palaces. These entities exercised what has been termed 'control' over the activities taking place within their immediate vicinity (usually termed their 'territory').

The concept of 'control' is, however, one that we must thoughtfully reflect upon, as it can bear shades of intensity and expansion that affect our visualization of the Mycenaean palatial economy. In this initial articulation the term 'influence' may be preferred', as it can be suggested that the political landscape of Third Palace Period Aegean may have been more complex than often assumed. It is broadly acknowledged that, although dominant as economic entities, Mycenaean palaces were highly eclectic in the way they intervened in regional economic systems. This has been clearly born out in the case of a juxtaposition of the diverse range of animal and plant species identified in Late Bronze Age Aegean archaeological contexts and the very limited references that appear as commodities on contemporary administrative records, namely the Linear B tablets and inscribed nodules. Palatial records are also notoriously lacking in references for activities whose role in the economy is shown archaeologically to have been highly significant, such as external (overseas) mobility of goods, whether in commercial profit-oriented trade or for other purposes, and the importation of materials that were not locally available in raw form (e.g. metals, ivory, glass-paste).

This paper wishes to focus on one aspect of such eclectic intervention that has received relatively less attention: craft production. Drawing on the evidence afforded by the Linear B tablets studied in their archaeological context, both synchronic and diachronic perspectives of palatial interests can be explored in various areas of craft production. The asymmetrical placement of the palace with regard to various industries such as textile, pottery, copper/bronze, metal, chariot, perfume, will be outlined and scenarios will be assessed with regard to the role and purposes of palatial interest and the formation of the (ultimately political) will to intervene, or its lack thereof.

Keywords: Mycenaean, palatial, craft production, Linear B, economy

1 Introduction

1.1. Historical framework

During the era termed ‘Third Palace Period’ (c. 1400-1200 BCE), various regions of the southern Aegean were under the seminal political and economic influence of institutional complexes that we conventionally term palaces. For book-keeping purposes, the administrations residing in these complexes used the Linear B script, the final development within a Cretan ‘family’ of syllabographic scripts. Linear B documents, recovered from all sites for which palatial status can be confidently suggested,¹ comprise our most numerous and the *only* accessible textual sources (written in an early Greek ‘dialect’ or ‘sociolect’) for reconstructing not just Third Palace Period palatial economies, but, in fact, any economic structure in the Bronze Age Aegean.

It is beyond reasonable doubt that Linear B -often named a ‘Mycenaean’ script- is genetically related to earlier ‘Minoan’ Cretan scripts (but see Petrakis 2017, Salgarella 2020 for more complicated aspects of the relationship of Linear B to other Aegean scripts and administrative systems). The clear Cretan ancestry of this fundamental bureaucratic tool makes it less and less helpful and increasingly more misleading to perpetuate use of the terms ‘Minoan’ and ‘Mycenaean’ (terms that look -and have occasionally be used as- ethnics) in order to refer to features of the institutional contexts in which Linear B was used -including the human agents that made it work. Such a viewpoint may substantiate a preference for a Third Palace Period *Aegean* perspective -although one may continue to use ‘Mycenaean’ in a broader chronological sense, as in the title of the present paper.

The use of this script displays certain unprecedented features. The most apparent of these is the *restriction* of writing to administrative use (unlike, for example, the occurrence of the ‘Linear’ A script on cult-related artefacts, such as ‘libation tables’ or ‘ladles’), also reflected in the greater concern and care invested in formatting and clearly writing clay (and recyclable) tablets. Another notable feature of Linear B script use, already hinted upon in the previous paragraph, is its remarkable geographic expansion, reaching out to regions that had never accommodated any kind of literate administrations ever before, such as the Greek Mainland. Between c. 1400 and 1200 BCE, the script is used in ‘palatial’ sites in coastal Thessaly (Volos, perhaps also Dimini), Boeotia (Thebes), the Argolid (Mycenae and its satellite sites Tiryns and Midea), Laconia (Ayios Vasileios) and Messenia (Pylos and Iklaina), as well as north central (Knossos) and west Crete (Khania). If Knossos, arguably the earliest Linear B-using ‘palace’ (and the only such Aegean site that was functional during the Late Minoan II-III A1 phases, c.1450-1400 BCE), was indeed a kind of *prototype* that Mainland palatial administrations attempted to follow (see also Maran & Stavrianopoulou 2007; Petrakis 2016; 2018 on similar conclusions drawn from the study of kingship and political ideology). If this is accepted, it indicates that the formation of the ‘Mycenaean’ palatial world involved a major flow of technical knowledge of how-to-write and how-to-run-a-palace *from* Crete *towards* the Greek Mainland prior to Late Helladic IIIA2 (c. 1400-1350 BCE) (see also Petrakis 2022).

¹ Such status may be inferred from (inferred from criteria such as architectural elaboration, notable presence of exotica (raw materials and craft products), decoration of interior spaces with figural wall-paintings (see discussion in Darcque & Rougemont 2015).

Perhaps most astonishingly, across this great physical range there is remarkable although not absolute *uniformity*. This is observed in the signary, spelling rules (dictating sound-grapheme correspondences), document typology and -this may be the most impressive aspect- the technical vocabulary employed by the administrators. Such uniformity, which occasionally matches homologies in other aspects of material culture, has often raised the possibility of political *unity* as opposed to just uniformity, (see Eder & Jung 2015) across the Third Palace Period southern Aegean. Although this possibility appears sensational, there are important hints that, despite great and impressive homologies, there is also significant diversity (emphasized e.g. in Dickinson 2019). Still, even if we restrict our focus on administrative practice and institutional structures, uniformity remains remarkable, especially if one considers the quite diverse backgrounds of the different regions that accommodated the Linear B-using administrations.

Despite the unique advantages of the accessibility provided by the fact that we can *read* Linear B, the elliptical nature of the texts on these documents and their resulting interpretative ambiguity (a completely *etic* affair) constitute a frequent complaint among researchers. Although this is understandable to a certain extent, we must also consider two of the unique advantages of such records: the fact they are *contemporary* with the palatial contexts they inform us about, and that they are *authentic*. These observations liberate us of concerns about anachronisms and the unreliability of our sources and allow us to use them as historical documents of no less and, on some occasions, arguably more value than, let us say, the Annals of Mursilis, the Tell El-Amarna correspondence, or even certain aspects of the work of Greek historians.

1.2. Setting some research questions

The above account is intended to provide a very rudimentary background against which the agenda addressed in this paper will be examined. We intend to formulate certain specific questions and attempt to comment on them with the aid of contemporary textual (Linear B) and archaeological evidence:

a) The first question is quite straightforward: What is the extent of palatial economic control? As we shall detail in the next section, it is now broadly acknowledged that palatial 'control' over the economy was not absolute. Our first intention is to attempt to document the extent of palatial interest, specifically in craft production.

b) Our second question is intertwined with the answer already preliminarily given to the first one: Is such *eclectic* interest uniform across the various craft industries?

These are admittedly very broad questions, the subject of monographs rather than a conference paper. What is attempted here is a preliminary sketch of the main patterns in the evidence and a reformulation of our agenda.

2. Palatial 'control' over the economy: extent, degree, and the synchronic/diachronic perspective

In an influential survey of Mycenaean palatial economy on the basis of textual evidence (originally published in 1985 but republished with minor revisions in 2008), John Killen commented on the significance of the palace institution thus:

"the role which the palaces played in the economy of Mycenaean states was not merely significant, but central and dominant. Caution is still certainly in order: as we have seen earlier, it may well be that the tablets give us an unbalanced picture of the state, and one in particular

which exaggerates the importance of the role of the centre in the workings of the economy” (Killen 2008, 180)

Few Aegean prehistorians would argue strongly against this statement, especially as it incorporates a very well phrased *caveat* over the potential biases of extant textual documentation. At the same time, we have been increasingly aware, during the last three decades at least, of the *eclectic* nature of palatial intervention in regional economies. This became apparent first and foremost through a comparison of the findings of archaeobotanical studies and the agricultural commodities recorded in the Linear B tablets: these revealed that only few of the plant species actually recovered from Late Bronze Age Aegean sites are dealt with in the tablets themselves, and careful consideration showed this divergence to be meaningful, rather than accidental or resolvable through alternative interpretations (Halstead 1992; 1995; 2001). Entire categories, very important in contemporary diet, such as legumes, are missing while other areas seem to be focused on a specific *use* of the commodity, rather than its production. An example of the latter is wine, mostly recorded as a commodity to be consumed in feasts, with viticulture being only exceptionally documented (Palmer 1994).

It would seem that palaces had very specific interests over the agricultural production; they were not concerned with the entire production, but only with specific facets of specific areas of that production. This pattern is so consistent that it must reflect a palatial strategy. The issue of whether such ‘eclectic’ intervention is the result of conscious planning or whether the palatial elite had to compromise its aspirations is considerably more difficult to answer (see Petrakis forthcoming), but happily lies beyond the scope of this paper.

This consideration should effect profoundly our study of palatial ‘control’. This is not intended to produce a merely negative conclusion: that palaces were not almighty, nor did they dominate the entire economy. This would be like fighting against a strawman, as the model of palaces as massive economic institutions whose function revolved around a redistribution-and-command has long been discarded by economic historians (see e.g. Nakassis 2024, 163-165). Rather, understanding the *eclectic* nature of palatial economic interests is a most promising path into gaining some understanding political priorities and strategies by the elite groups in command and this, in turn, offers fascinating insights into the workings of Bronze Age economies in the Aegean. One such insight is provided by the realization that, although palaces held an unparalleled and, in the regions of the Greek Mainland, unprecedented, role in regional economies, they were not the only institutional framework at play in these regions. Economically and ideologically, palaces were certainly exceptional, but they did not exist in an economic or historical void, nor were they omnipresent and omnipotent.

This means that palaces, although arguably “central and dominant” players, of scale and scope that had ultimately no single rival in their respective regions, they were not playing *solitaire*. If the scope of our extant Linear B documentation can be a reliable index of palatial interests, the evidence for a remarkable array of economic activities seem to have been either completely outside or (even more intriguingly) only partially recorded on these records. If the notion of ‘control’ calls for some critical rethinking about its degree and nature, it is possible to use ‘influence’ as a term which is better able to accommodate a variety of shades of the dynamic intervention of palaces in various realms of economic activity.

3. Textual evidence for palatial eclectic interests in craft production: a brief overview

It would be fair to note that a remarkable amount of our extant Linear B documentation is concerned with a variety of craft industries. The evidence has been surveyed a few times, including more focused studies (e.g. Killen 2008, 191-195; Bernabé & Luján 2008), but it may be worthwhile to review it here briefly in a way that summarizes the scope of the extant records on craft production. The evidence is briefly presented in Table 1. The table's columns are intended to approximate the *chaîne opératoire* of the various industries, from the raw materials and their acquisition to the stage of the finished crafted product and, whenever possible, its so-called 'final use'. The latter refers to cases where we have clear evidence that the crafted item is being used in such a way so as to move beyond the realm of palatial book-keeping.

NOTE: Table 1 is included in the Appendix at the end of the article after the Bibliography

An admirably complete *chaîne opératoire* is provided by the perfumed oil industry records, with the Pylian material well surveyed long ago in an exemplary way by Shelmerdine (1985). We must also stress, however, that such thoroughness is exceptional. A document such as tablet **PY Un 267** records the handing over of aromatic substances between *named individuals* (the receiving agent is mentioned as a specialist 'unguent-boiler'). Items are identified by name (e.g. *ko-ri-a₂-da-na* 'coriander') and/ or respective commodity "ideograms" (e.g. AROM, KAPO, *157) and with specific quantities listed. Individuals and their specialized roles are explicitly mentioned, and so is the method of manufacture. We may genuinely ask whether what we see here is a particularly Pylian condition, reflecting the situation at the final phase of the Pylos palace, where architectural modifications and the addition of industrial and storage facilities suggest an administration that has become perhaps increasingly introvert and extremely centralized (Shelmerdine 1987). The observation just made is a good example of concerns that often lurk at the back of the heads of Aegean prehistorians aiming to integrate textual and archaeological evidence: To what extent is the evidence that has come down to us representative? To what extent must contextual associations govern interpretation? Is it legitimate to reconstruct Mycenaean economic institutions, or even *chaînes opératoires* based on a pastiche of fragmentary evidence from more than one site? We may note that such complex pictures may often involve evidence from more than one region or, in the case of Knossos and Pylos that dominate current interpretative paradigms, from more than one chronological phase.

Following such questions, our first observation about Table 1 must concern the *erratic* distribution of administrative information related to craft production across several sites. This may occasionally be accidental, although the uniqueness of the remarkable concentration of documents related to the production of *woolen* textiles in Knossos, including also records of sheep exploited for their wool in most of the **D-** series tablets, seems to be significant, as is also the emphasis on *linen* that we may discern in Pylos.

We may single out the best documented industrial procedures as those that Linear B administrations were potentially more interested in: chariot manufacture, perfumed oil production, textile production and bronze-working. However, we must always be aware that such a conclusion is based partly on the *quantity* of the relevant documentation. Although this is likely not to be accidental, we cannot exclude the possibility that this picture may be distorted through the familiar accidents of discovery or preservation.

That said, certain gaps in our documentation are very likely meaningful. This is likely the case with the lack of *any evidence* for the import of non-local raw materials such as tin which

was needed to produce bronze, but was hardly mentioned at all, as well as most metals, ivory and glass-paste. As this is a consistent, cross-regional feature in all administrative sites, it deserves further discussion. We shall return to it in **section 4**.

Last, but not least, we may take a look at the many dashes in Table 1, indicating gaps in our extant textual evidence. Are these accidents of preservation? Or is there something more significant to be inferred from them?

On the positive side, a potentially meaningful distinction appears to emerge between industries where most (not even in the perfumed oil example mentioned above) of its *chaîne opératoire* stages are indeed documented and those that are only being alluded to, through the occurrence of craftsmen appellatives in certain documents.² Craftsmen that appear in records, even occasionally concentrated on the same document (e.g. **PY An 207**), perhaps suggest a certain degree of dependency from the palace. However, the very fact that their work is not recorded still allows for them to be considered separately from well-documented industries. These cases are marked with asterisk (*) in Table 1. On the basis of the differentiation between industries that are well-documented and those only inferred through the occasional recording of specialized craftsmen, we may *tentatively* identify at least two levels of palatial engagement in craft production: one where stages of manufacture and treatment of final products are being recorded (at least partly); and a further one, in which palaces are involved very peripherally, only in the context of support for certain craftsmen. In **section 5**, we will proceed to look more into the *diversity* of palatial involvement in such industries.

4. Assessing ‘silences’ and ‘testimonies’

It is well known that Linear B documents lack references to activities for which archaeological evidence is abundant (e.g. cross-regional mobility of goods, including crafted products), even ubiquitous (e.g. pottery production, although potters do get mentioned occasionally). At the same time, palatial records display often a clear tendency to record information about specific stages of craft production in remarkable detail. Let us explore the two apparent extremes of the spectrum: fields of action that are virtually invisible in our records, and processes that are meticulously recorded.

a) Invisible imports: We already observed that, no matter what the industry is, the import of materials is lacking from our records. Thus, although exotic materials are clearly mentioned, their origin is never commented upon. We have detailed descriptions of furniture, especially chairs and stools/ footstools, inlaid with glass-paste (*ku-wa-no*), ivory (*e-re-pa*) or gold (*ku-ru-so*) at Pylos; we also have mentions of specialized workers, whose terminology relates them to specific materials (e.g. *ku-wa-no-wo-ko*; *ku-ru-su-wo-ko*). But how do they acquire their materials? Are they provided by the palace? If so, why are they not recorded?

There have been attempts to deal with this apparent paradox either as accidental or systemic (e.g. Killen 2008, 181-185; Bendall 2007, 270-274). As mentioned above, the consistency of this feature suggests strongly its systemic nature. This is hardly the place to deal with the complex problem of palatial interest in trade, but we may note how the Linear B

² It must be noted that references that only concern finished items, without any mention of manufacture details or craft specializations, e.g. the term *ka-ra-to* /kalathos/ ‘basket’ (known from Mycenae, in **MY Ge 603, 605.1, .6A** possibly as ‘containers’ of other commodities; **MY Ui 651.1**, unless it is the name of a basket-like ceramic container there?), are not included in Table 1.

book-keeping apparatus seems to be concerned with 'internal' processing, almost exclusively, across all industries.

There are *possible* exceptions, such as **PY An 35.5-6**, potentially a record of *exchange*, if this is the correct interpretation of *o-no*, of certain commodities for *tu-ru-pte-ri-ja* /struption/ 'alum'. But even this looks odd as a record of a trade transactions: the commodities given out are carefully recorded and are quite impressive (2 units = c. 6 kg of wool, 4 female goats, 3 items of *146 linen? textile, 10 units = c. 288 lt of wine and 4 dry capacity units = 384 lt of dried figs), making it obvious that alum was highly valued. Just how valued we are not informed about, as the quantity of alum that is acquired is not mentioned at all. The tablet-writer here is focused once more on his usual stuff, but is apparently not very interested to record the newly-acquired material.

We must clarify that what we are dealing with is not a complete lack of interest to acquisitions in general. In the Knossos **D-** series, careful recording of large sheep 'flocks' (focused on rams -surely castrated as their rearing aimed at high quality wool) suggests that palaces could go at great lengths to secure a good flow of raw material to feed an industry. **PY Jn 829** also records prospective payments from many important regional officials around the Pylian territory in copper/bronze to be made into spear and javelin points. But none of these documents record commodities mobilized from *outside* the palatial 'territory'. It is likely that the limitation of the record-keeping procedures lies in this spatial dimension, rather than any systemic indifference about recording *any kind of* acquisition.

b) Gaps and testimonies in *ta-ra-si-ja*: One may justifiably be impressed by the comprehensiveness of the records involving the disbursement of raw material to 'outside' workers through the *ta-ra-si-ja* /talansia/ system. The basic logic of this system revolves around the confirmation of an acceptable correspondence, on the basis of equal weight between raw material given to craftsmen *after being measured* and finished product returned by the craftsmen.

The Knossos **Lc(1)** 'production target' records (Nosch 2011) are very good examples. They record groups of female workers with ethnic adjectives (indicating that such groups are located away from Knossos, although still in central Crete) alongside quantities of wool and counts of textile items of *various named types* (apparently standardized 'count' units). Through a study of the quantities of wool and various textiles recorded, it can be discerned that these were governed by specific ratios. This, in turn, supported the idea that the tablets record wool that was *expected to be returned, after being made into woven textile by the workers*. The term *ta-ra-si-ja* is explicitly mentioned (**KN Lc(1) 535.A; 536.A**; once more in the context of a delivery of textiles in **KN Le 642.1**). The process looks, therefore, fairly comprehensively documented, although it is not clearly stated what the motivation for the workers is to ensure their compliance with what, at first sight, appears as *corvée* labor.

The Pylos **Jn** tablets record AES, named *ka-ko* /khalkos/, but whose identity as tin-bronze or copper is still debated (see further Michailidou 2008; later Greek χαλκός can mean both). The metal is distributed through the *ta-ra-si-ja* system, explicitly mentioned on several of the **Jn** 'allocation' records. There are several similarities to the Knossian employment of the system in textiles: raw material is weighed and the workers are located in named places that seem to lie at some distance from the center. But there are important differences too: smiths who participate (*ta-ra-si-ja e-ko-te* /talansian hekhontes/ 'those who have t.') are not recorded as groups, but as *named individuals*. Also named are those that do not accept any amount of material (*a-ta-ra-si-jo* /atalansioi/). Last, but most puzzlingly of all, there is no mention at all of any 'target'. What did the palace expect in return from these smiths? Texts provide no real

clue, unless we integrate **PY Jn 829** (whose heading mentions bronze to be made into javelin and spear points) as evidence for *one* way of acquiring raw material to 'feed' the *ta-ra-si-ja* system. Still, we cannot tell if this is a regular or exceptional payment. On the other hand, the frequent mention of *ka-ke-we o-u-di-do-si* /khalkēwes ou didonsi/ 'smiths do not give' on records of taxed commodities (e.g. **PY Ma 90.2**) may suggest that smiths, specifically those participating in *ta-ra-si-ja*, have fulfilled fiscal obligations and, therefore, 'do not give' because they have already paid -through their *ta-ra-si-ja*-bound work.

At Knossos, *ta-ra-si-ja* is once more employed in the case of chariot wheels (**KN So(2) 4442.b**). The occasional occurrence of the term may suggest that *not all* wheels were manufactured through *ta-ra-si-ja* allocations. Such differentiations may also be alluded to by the *Pylian* terms *wo-je-ke-a₂* and *no-pe-re-a₂*, with the latter term attractively interpreted (Bernabé & Luján 2008, 208) as /nōpheleha/ '<obtained> outside obligation/ obligatory work' (Mycenaean *ophelos* 'obligation') (e.g. **PY Sa 790**). In the light of the Knossian association of wheel manufacture with *ta-ra-si-ja*, it is plausible to consider that a *Pylian* scribe would wish to note how certain wheels were manufactured outside any obligation, *ta-ra-si-ja* or other.

As an institution *ta-ra-si-ja* is of great interest, amongst other things because it seems to link three otherwise completely unrelated *chaîne opératoires*. The main prerequisites appear to be the conformity of both raw material and finished product to be measured *by weight* and the lack of any significant loss of weight during the manufacturing process. In this light, we are unlikely to find *ta-ra-si-ja* to be employed in relation to leather process or perfumed oil production. We might, however, anticipate its application in the processing of other materials, such as precious metals, glass-paste or, depending on the state and form of the allocated material, possibly ivory. A most remarkable feature of *ta-ra-si-ja* is its broad geographic scope: whenever recorded, the actual craft production was taking place in physical distance from the administrative centre. Yet, this feature, inherent in the system, does *not* mean decentralization; quite the contrary, through the careful *recording* of weighed quantities, the palace was apparently able to track and, therefore, substantially *control*, action in its periphery. It thus transcended the disadvantage of physical decentralization of craft production.

These homologous, yet ultimately diverse, *ta-ra-si-ja* records demonstrate, simultaneously, both the ability of Linear B-using palatial administrations to keep track of distant activities, as well as the systemic nature of the decision not to record specific actions. As *internal* documents, Linear B records did not record transactions beyond the palatial/ non-palatial interface, such as goods entering the system through long-distance mobility that we commonly term 'trade'. This had little to do with the *ability* to do so, which is clearly demonstrated in the internal *ta-ra-si-ja* transactions.

5. Captured, sponsored, partly-dependent, extraneous? A variety of trajectories

Our discussion has so far attempted to document and discuss aspects of palatial eclecticism. Although it is still arguable that the basis of such eclecticism was the circumscription of palatial action by pre-palatial (or, in the case of Crete, also of earlier but still palatial) institutions, it is nonetheless clear that 'core' palatial interests were part of a specific administrative strategy.

Table 1 has been designed to make clear that not all stages of the *chaîne opératoire* of mentioned craft industries are equally prominent in the texts. Accidents of discovery (or recovery) considered, we may still observe that the picture is remarkably variable.

In a recent diachronic survey of Mycenaean craft production, John Bennet has looked into the nature of palatial involvement, making the insightful observation that the onset of the palace era saw a shift from 'conspicuous consumption' (exemplified in exquisite -and to a

large extent not mass-produced- crafted objects taken out of circulation to be included in rich funerary assemblages during the Early Mycenaean period, c. 17th-15th centuries BCE) to ‘conspicuous production’ (Bennet 2008). This is an excellent description of a general trend, but cannot be equally applied to all craft industries mentioned in the text. Well aware of that, Bennet has argued that *certain* industries were somehow ‘captured’, while others were not: he cites *ta-ra-si-ja* as evidence for such ‘captivity’ and pottery production as an example for an industry that remained largely outside palatial control (Bennet 2008: 156; cf. Whitelaw 2001 for a quantitative assessment of ‘ceramic needs’ in Pylos). Bennet’s observation that *certain* industries only ‘enjoyed’ such palatial embrace is a very important point, and is in great accordance with the point made here: not all craft industries -even not all industries for which we have *some* textual documentation- enjoyed a similar relationship to palatial administrations.

Exploring this observation further, Bennet ingeniously proposed to view a distinction between ‘captured’ and not ‘captured’ industries as reflected in the difference between the Indo-European Greek nominal compounds in *-wo-ko /-worgos/* ‘worker of X’ and the non-Greek (but see Meissner 2016) derivatives in *-e-u /-eus/*: terms in *-wo-ko /-worgos/* < **werg-* (e.g. *ku-wa-no-wo-ko*) would indicate “specialists normally active within the palaces”, while those in *-e-u /-eus/* (e.g. *ke-ra-me-u, ka-ke-u*) noted “devolved craftspeople managed under the *talasia* system” (Bennet 2008, 158-160). The underlying concept of the background of an industry reflected in the historical preservation of earlier terminology is very sound. In fact, we may also cite at least one example where this is may indeed be the case: the diverse technical vocabulary of non-Greek etymology that is specifically associated with the textile industry (especially various types of textiles, either spelled syllabographically, e.g. *te-pa* or *tu-na-no*, or hinted at through ligatures to the TELA ‘cloth’ “ideogram”, e.g. *KU* or *ZO*) is far more common in Knossos, than on the Greek Mainland (Petraakis 2012, esp. 79-81).³

However, *-wo-ko* and *-e-u* do not seem distributed in a way that would allow, for the time being at least, a plausible distinction between ‘captured’ *-worgoi* and ‘semi-dependent/ partly independent’ *-ēwes*. Although *ke-ra-me-u* seems to be a fitting example of an industry where the palace had little interest (or chance) to ‘capture’, we presently lack decisive evidence that would enable us to view *ku-ru-so-wo-ko* and *ku-wa-no-wo-ko* as dependent artisans, when records of raw materials or their work are missing, unless we interpret a document of ‘payments’ in gold, such as **PY Jo 438**, in such a way. And even if ‘gold’ and ‘glass-paste’ fit the basic *ta-ra-si-ja* requirements (see **section 4**), what are we to infer from the compound forms *to-ro-no-wo-ko* ‘chair-makers’, *to-ko-so-wo-ko* ‘bow-makers’, *de-ku-to-wo-ko* ‘net-makers’ or even the more obscure *ko-wi-ro-wo-ko* ‘hollow-makers’? Although chairs may form part of a tightly controlled production of prestige artifacts (as one might infer from the ceremonial use of furniture in the Pylos **Ta** tablets), it would be very difficult to see the manufacture of nets or bows as under such close palatial control (*ko-wi-ro-wo-ko* being somewhat ambiguous, see Bennet 2023). On the other hand, industries ‘captured’ through *ta-ra-si-ja* regularly feature the */-eus/* suffix (e.g. bronzework: *ka-ke-u*, wheel production: *a-mo-te-u*, textile production: *ka-na-pe-u*). This is strong indication that, whatever the semantic or historical significance of the distinction between */-eus/* and */-worgos/* formation (and Bennet’s

³ That said, it is also true that Knossian documentation of textile production is overwhelmingly dominant in quantitative terms among extant Linear B documents. This generates an inherent Knossian bias in our dataset.

proposal is indeed thought-provoking), these suffixes appear to be used in a way that does not seem to be strictly reflective of the degree of palatial involvement.

It would seem that a safer basis to identify different degrees of palatial involvement might be found in the distinction between, on the one hand, industries where *some* stages are indeed recorded and, on the other, those where we *only* have records of craftsmen, and not of raw materials, technical terms, or the products themselves (marked with asterisks in Table 1). This distinction is occasionally made (Killen 2008, 192-194), and its implications are worthy of some consideration. We must, however, acknowledge diversity even within these two categories. It is important to study each case on its own. An example is the occurrence of 'royal craftsmen', only known so far from Pylos: these artisans are specified as *wa-na-ka-te-ro* /*wanakteroi*/ 'pertaining to the /*wanaks*/ = ruler' and belong to three distinct industries (an *e-te-do-mo* 'armourer', a *ke-ra-me-u* 'potter' and a *ka-na-pe-u* 'fuller', see Carlier 1996; Palaima 1997). These specializations cut through previously made distinctions among the different levels of palatial 'involvement'. Although one might be tempted to view them as parts of a royal mini-sector within the palatial economy, we must observe that the purpose of mentioning the *wa-na-ka-te-ro* quality of these craftsmen is ultimately fiscal, as they are mentioned as such only in landholding records (Pylos **E-** series). The occurrence of these appellations is related, in this specific case, with the *emic* significance of the *wa-na-ka-te-ro* quality for assessing the land-related fiscal obligations (or the lack of them) as far as these specific named land-holders were concerned.

Occurrences of smiths in records suggestive of some palatial support may also indicate a relationship that we might describe better as 'sponsorship'. This may be exemplified by records where diverse appellations are grouped together, such as **PY An 207**, a record of personnel that might have been used to calculate rations for their support.

Last, but certainly not least, we must mention a very seductive 'complication' that is derived from current archaeological approaches. Table 1 followed an ultimately conventional way of classifying different craft activities, aiming at a maximalist presentation. However, even if we restrict our discussion to textual evidence alone it is clear that certain of these craft activities feature a remarkable degree of cross-interaction. Furniture production is a good example: it involves, first of all, carpenters (if *te-ko-to-ne* refers only to this activity), amongst which specialists in specific furniture (e.g. the Knossian *to-ro-no-wo-ko*), but their decoration involves goldsmiths, workers of glass-paste and ivory-cutters, even specialties in inlaid decoration (if *a₃-te /aitēr/* is correctly interpreted as related to this technique). Such cross-craft interaction, resulting in *chaîne opératoires* that can be quite complex, has also been studied through the archaeological record (e.g. Bennet 2023, 78 also citing work by Robert Laffineur; see further Brysbaert 2007; 2015; Vettters et al. 2016).

Finally, we may also refer to another category of evidence, where, although commonly yielding rich amounts of crafted products, features a particularly low visibility of craftspeople as agents. This is true of the mortuary record, specifically during the heyday of the palatial period (Late Helladic IIIB, c. 13th century BCE, see discussion in Phialon 2021, 64-66). The problem can be phrased as one related to the mortuary habitus during the Late Bronze Age Aegean (including, of course, the Third Palace Period), where grave-goods were not accurate biographical markers, but rather expressive of non-individualistic notions of status and prestige. Moreover, it is also possible that part of the explanation lies in the lack of accessibility to formal burial by a significant part of the population. Although this intriguing possibility can be studied independently, it may also call for a careful revision of the textual evidence surveyed herein as well: *named* craftsmen may be studied as distinct from workers cited only

as members of groups modified by 'professional' appellatives or ethnic adjectives; *named* craftsmen, shown by Nakassis (2013, 73-116) to have held multiple roles and tasks within palatial administrations anyway, may not have been buried as craftsmen after all.

6. A few closing words

This paper attempted a holistic look into the problem of palatial interest in craft production. Its ambitious scope notwithstanding, the topic was approached through two main foci: to demonstrate how palatial economic interests were highly eclectic, on the one hand, and to sketch, even roughly, the diversity of palatial involvement in craft production, on the other. It was proposed to view the Mycenaean palatial craft production as a broad network where diverse specializations, materials and practices were, to a substantial degree, interconnected: hence the use of 'technoscape' in this paper's title. The latter term is meant to indicate the overall employment and flow of technological knowledge through the diverse institutional structures relevant to the spatial-temporal framework of Linear B-using administrations.

Our discussion encourages an embrace of the complexity and diversity of the evidence. We observed that, following earlier observations about the eclectic intervention of the palace in agricultural production and husbandry, we noted that similar asymmetrical, 'eclectic' patterns can be observed when evidence for craft production is assessed. A distinction was argued between craft activities where a more or less careful recording of one or more stages of the *chaîne opératoire* could be identified in the texts, and those whose textual references are limited to the recoding of craftsmen alone. Yet, even within this general bipartite division there is diversity related to the exact mode of palatial monitoring (e.g. the employment or not of *ta-ra-si-ja*) or the specific purpose of the textual references (e.g. the 'royal craftsmen' in Pylos).

The focus of this paper has been ultimately textual. The challenge for Aegean prehistorians who aim at integrating textual and archaeological evidence, lies in putting forward even more nuanced integrative discussions. It is hoped that this paper helped in accomplishing a first presentation of approaches that might aid more complete cross-disciplinary syntheses.

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APPENDIX

TABLE 1. Summary survey of Linear B documentation of craft production showing the main trends in the scope of Linear B records across the various administrative centers. For the sake

of brevity, ideogram and tablet references have been suppressed. Note that Linear B terms provided in the ‘Craftsmen appellation(s)’ column must not be assumed to be exhaustively complete.

Site prefixes are as follows (in alphabetic order): **AV** Ayios Vasileios, **KN** Knossos, **MY** Mycenae, **PY** Pylos, **TH** Thebes, **TI** Tiryns, **KH** Khania. X-mark (×) indicates recording of the relevant information in the respective column; dash(–) indicates that no pertinent record has been hitherto securely identified; n/a = does not apply; question-mark (?) indicates current uncertainty over the identification of such information.

Industry/ activity	Raw material(s)	Craftsmen appellation(s)	Importation of raw materials	Disbursement of raw materials	Processing of raw materials/ techniques	Other references to raw material	Finished product	‘Final’ use of finished product
Textile industry	* 145 LANA ‘wool’	E.g. <i>pe-ki-ti-ra₂</i> /pektriali/; <i>a-ra-ka-te-ja</i> /alakateia i/; <i>i-te-we</i> /histewes / and <i>i-te-ja</i> /histeiai/; <i>pe-re-ke-we</i> /plekewes/; <i>ra-pte</i> /raptēr/ and <i>ra-pi-ti-ra₂</i> /raptriali/; <i>a-ke-ti-ri-ja</i> or <i>a-ke-ti-ra₂</i> or <i>a-ze-ti-ri-ja</i> /askētriali/ <i>e-ne-re-ja</i> , <i>ko-u-re-ja</i> , <i>o-nu-ke-u/</i>	n/a (local material)	× (<i>ta-ra-si-ja</i> KN)	×	Perfumed unguent production (PY Un)	* 159 TELA ‘textile <made of wool>’	Religious offering (PY Un 853.6?)

		<i>o-nu-ke-ja, ka-na-pe-u</i> /knapheus/ 'fuller' etc (KN; PY; MY; TH)						
	SA 'linen'; R/ /linon/	<i>ri-ne-ja</i> /lineiai/ (PY)	n/a (local material)	?	–	–	*146?	
Metal-working	<i>ka-ko</i> /khalkos/ 'copper/bronze'; ideogram *140 AES	<i>ka-ke-u</i> /khalkeus/ 'smith' (PY; MY; KN?) <i>pa-ra-ke-te-e-u</i> (specialization within <i>ka-ke-u?</i> PY)	–	– (<i>ta-rasi-ja</i> PY)	–	Payment in <i>ka-ko</i> for production of spear/javelin/heads (PY)	Vessels (PY; KN; AV) Weapons? (KN); chariot wheel decoration? (PY; KN)	–
	<i>ku-ru-so</i> /khrusos/ 'gold'; ideogram *141 AUR	<i>ku-ru-so-wo-ko</i> /khrusoworgos/ 'worker of gold' (PY)	–	–	–	Payment in AUR by officials (PY)	Vessels (PY); decorative element of vessels (KN) and furniture (PY)	Offerings of gold vessels (PY Tn 316)
	<i>a-ku-ro</i> /arguros/ 'silver'; no ideogram certainly identified	–	–	–	–	–	Mentioned as decorative material in chariot wheels (PY)	–

	<i>mo-ri-wo-do</i> /moliw dos/ 'lead'	-	-	?	?	-	-	-
Ivory-working	<i>e-re-pa</i> /elephas/ 'ivory' ⁴	<i>pi-ri-je-te</i> /pri(h)ent ēr/ 'sawyer' (in the context of weapon production, possibly for ivory decoration on grips) (KN ; PY)	-	?	x	Decorative part (inlay) of furniture (KN)		-
Horn-working?*	<i>ke-ra-keras</i> 'horn'	<i>ke-ra-e-we</i> /kerahewes/ 'horn-workers'? (PY Un 1482) ⁵	-	-	-	Decorative part of chariots and weapons, unless <i>ke-ra</i> is metaphorically used for horn-like feature (KN)		
Glass-paste*	<i>ku-wa-no</i> /kuwanos/ 'glass-paste'	<i>ku-wa-no-wo-ko</i> /kuwanoworgos/ 'worker of glass-paste' (MY)	-	-	-	Decorative material for furniture (PY)		
Perfumed oil product ion*	*130 OLE or <i>e-ra/ra₃-wo</i> /elaiwon/	<i>a-re-pa-zo-o</i> /aleiphadzohos/ 'unguent-boiler'	- (most materials probably local)	?	x	Aromatics or condiments mentioned often as offering	Perfumed oil (ligatured OLE)	Religious offerings of oil marked as <i>i-je-ro</i> /hieron/

⁴ Cf. Homeric ἔλεφος, always indicates 'ivory'. The earliest use of ἔλεφος for 'elephant' occurs in Herodotus 3.114 or 4.191 (5th century BCE).

⁵ Interpretation following Killen (2000-2001).

	<p>'olive oil' <i>tu-we-a</i> (generic name); various aromatics noted (PY Un; KN Ga; KN Fh; AV) and inferred also from descriptions of perfumed oil in PY Fr</p>					<p>s (PY; KN)</p>		<p>'sacred' (KN; AV)</p>
<p>Blade/point product ion (potentially overlapping with metalwork)</p>	<p>Metal (AES); wood; horn and ivory (decorative)</p>	<p><i>ka-ke-u</i> /khalkeus / 'smith' <i>e-te-domo</i> /entesdomos/ 'armourer'? (a specialization within <i>ka-ke-u</i>?) <i>ka-si-kono</i> <i>pi-ri-je-te</i> /pri(h)ent</p>	<p>–</p>	<p>x (<i>ta-ra-si-ja?</i> or through fiscal payment in PY)</p>	<p>–</p>	<p>See above on copper/bronze</p>	<p>Weapons (swords, spear heads, javelin points, arrow heads)</p>	<p>–</p>

		ēr/ 'sawyer' for wooden/ ivory parts						
Chariots	Wood; leather ; horn and ivory (decorative)	<i>a-mo-te-u</i> /harmoteus/ 'wheelwright' (original sense 'joiner') (PY)	–	x (<i>ta-ra-si-ja</i> KN for wheels)	–	–	Chariots (fully assembled); chariot parts; wheels (single or pairs) (PY; KN; TI; KH)	–
Furniture*	Wood (basted ebony) ; we-a ₂ -ro(?); glass-paste/ gold/ ivory/ <i>pa-ra-ku</i> / stone (decorative)	<i>to-ro-no-wo-ko</i> /thronoworgoi/ 'workers of chairs' (KN)	–	?	×	×	Tables ; chairs; (foot)stools (PY)	–
Leather processing*	Animal skins	<i>ra-pte-ri-ja?</i> <i>wi-ri-ne-u</i> < <i>wi-ri-no</i> 'hide' <i>di-pte-ra-po-ro</i> ?? 'bearer? of <i>di-pte-ra</i> = 'processed leather'	–	–	–	–	Processed leather (hides: <i>E</i> for <i>e-ra-pi-ja</i> , *150, *154, *154, *180, *247	Hides used in feast contexts (PY; TH?)

							and leather products (PY; KN; TH)	
Pottery *	–	<i>ke-ra-me-u</i> /kerameus/ 'potter' (<i>ke-ra-me-ja</i> likely female PN /Kerameia/)	–	–	–	–	Ceramic vessels (PY; KN; MY); terracotta parts (<i>ka-pi-ni-ja</i> /kapnia / 'chimney'? PY)	? (rarely mentioned, except for honey offerings in amphoras and possibly other vessels in KN, but possibly part of many disbursement records of foodstuff in feasts)
Bow-making *	–	<i>to-ko-so-wo-ko</i> 'workers of bows'	–	–	–	–	*256 'bow'?	–
Ship-construction*	Wood	<i>na-u-do-mo</i> /naudomos/ 'ship-builder'	–	–	–	n/a	–	–
Carpentry?*	Wood	(<i>pa</i> -)te-ko-to /(pan)tektion/ 'carpente	?	?	?	n/a	Furniture?	–

		r' (unless generic for 'craftsman'?) <i>du-ru-to-mo</i> /drutomoi / 'tree-cutters'						
Carving?	Wood, ivory, stone?	<i>ko-wi-ro-wo-ko</i> /kowiroworgos/ 'worker of hollows'? ? (KN)	?	?	?	?	Furniture; ivory inlays; carved stone/stone-vessels/ sealstones? repose decoration in precious metals??	–
Net-making*	–	<i>de-ku-to-wo-ko</i> (PY) /dektuwo rgoi/ 'workers of nets' (later Greek δίκτυον)	–	–	–	–	–	–
Wall-building*	–	<i>to-ko-do-mo</i> /toikhodomoi/ 'wall-builders'	–	–	–	–	–	–



ΑΙΓΙΔΑ

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ΧΟΡΗΓΟΙ



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ΕΛΛΑΔΑΣ



ΟΜΙΛΟΣ ΤΕΚ ΤΕΡΝΑ

ΥΠΟΣΤΗΡΙΞΗ



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