

## BRONZE-SMITHS OF PYLOS AND SILVER-SMITHS OF UR

The Pylian tablets marked by the ideogram AES and classified as the Jn series can be subdivided into two subseries dealing respectively with the delivery of bronze from various places to the central authority (Jn 829, 881), and with the distribution of bronze to individual smiths (all the rest). The latter is a unique group of texts, unparalleled in other Mycenaean archives, which provides highly detailed information about the organization of this particular craft in the Kingdom of Pylos.

Despite the considerable attention bestowed on these texts in scholarly research<sup>1</sup> they like most other Mycenaean texts continue to reserve some of their secrets. These, I believe, cannot be solved by a repeated reexamination of the evidence, but rather by the introduction of some comparative material from outside the Mycenaean archives.

The texts under consideration are arranged according to the villages (at least seventeen in number), and the smiths of every village are divided into several groups organized on four different principles:

1. Social status: three groups are distinguished according to this principle: *qa-si-re-u* —a leader of the group (βασιλεύς)<sup>2</sup>, *ka-ke-u* — «bronze-smith» (χαλκεύς)<sup>3</sup>, and *do-e-ro* —«servant» (δοῦλος)<sup>4</sup>. The members of the last group are listed anonymously

<sup>1</sup> S. Hiller, «Allgemeine Bemerkungen zur Jn-Serie», *SMEA* 15, 1972, pp. 51-72; A. Hurst, «A propos de forgerons de Pylos», *SMEA* 5, 1968, pp. 92-96; M. Lang, «Jn Formulas and Groups», *Hesperia* 35, 1966, pp. 397-412; M. Lejeune, «Les forgerons de Pylos», *Historia* 10, 1961, pp. 409-434 (= *MPM* II, pp. 167-195); A. Morpurgo-Davies, «Fabri e schiavi a Pilo», *PP* 23, 1968, pp. 220-222; G. Pugliese Carratelli, «I bronzieri di Pilo Micenea», *SCO* 12, 1963, pp. 242-253; M. S. Ruipérez, «En torno a la serie J- de Pilo», *Mimos* 8, 1963, pp. 136-166.

<sup>2</sup> M. Lindgren, *The People of Pylos*, Uppsala 1973, II, pp. 126-130.

<sup>3</sup> *Ibidem* II, pp. 61-70; F. Aura, *Diccionario micénico*, Madrid 1985, pp. 307-308.

<sup>4</sup> M. Lejeune, «Textes mycéniens relatifs aux esclaves», *Historia* 8, 1959 (= *MPM* II, 1971, pp. 63-81).

being represented by numerals attached to the names of smiths in the genitive. Neither the *qa-si-re-u* nor the *do-e-ro* received any bronze.

2. Category of the population: according to this principle smiths are designated as either GN *ka-ke-we* «bronze-smiths at GN», or *po-ti-ni-ja-we-jo ka-ke-we* «bronze-smiths of the Lady». The first group probably belonged to the category of population called *da-mo* (δᾶμος)<sup>5</sup> — members of the village community, since smiths are frequently mentioned in taxation<sup>6</sup> and tax-exemption<sup>7</sup> records, and it is known from Cn 608 that at Pylos taxation units were called *o-pi-da-mi-jo* (ἐπιδήμιος)<sup>8</sup>. Members of the second group were probably part of the cultic personnel attached to the shrines of the Lady, though the exact meaning of the word *po-ti-ni-ja-we-jo* is not clear<sup>9</sup>.

3. Profession. One record dealing with two villages (*A-to-mo* and *Ro-u-so*) distinguishes two types of smiths: *pa-ra-ke-te-e-u* (one person) and *a-ke-te-re* (Jn 832), and another text (Jn 750) calls all smiths recorded there *pa-ra-ke-te-e-we*. Of these two groups the *a-ke-te-re* did not receive any bronze, and this word should be analysed as a male counterpart of a well-known female occupational term *a-ke-ti-ri-ja*, both words meaning «finishers»<sup>10</sup> *i. e.* these smiths worked with the output produced by the *pa-ra-ke-te-e-we* smiths<sup>11</sup> and therefore they did not receive any raw material.

4. Allocation of bronze. All smiths could be either *ta-ra-si-ja e-ko-te* (ταλανσίαν ἔχοντες) «having allocation»<sup>12</sup> or *a-ta-ra-si-jo* (ἀταλάνσιοι) «without allocation»<sup>13</sup>. This opposition cuts across principles (2) and (3), and the distribution of smiths into various

<sup>5</sup> M. Lejeune, «Le damos dans la société mycénienne», *REG* 78, 1965, pp. 18-21 (= *MPM* III, 1972, pp. 135-154).

<sup>6</sup> Ma 90, 120, 123, 124, 193, 221, 225, 365, 378, 397.

<sup>7</sup> Na 104, 106, 252, 425, 529, 923, Nn 831, Xn 1357.

<sup>8</sup> Lindgren, *op. cit.*, II, pp. 103-104.

<sup>9</sup> J. T. Hooker, *Linear B: An Introduction*, Bristol 1980, p. 67 (§ 148).

<sup>10</sup> J. T. Killen, «The Knossos Ld(1) Tablets», *Colloquium Mycenaeum*, 1979, pp. 165-167.

<sup>11</sup> Lindgren, *op. cit.* II, pp. 65-66.

<sup>12</sup> M. Lejeune, *MPM* II, pp. 179-180.

<sup>13</sup> I. Tegyeý, «Ἀταλάνσιοι χαλκῆρες», *ACD* 4, 1968, pp. 3-5.

groups can be seen in table I where *ta-ra-si-ja e-ko-te* is abbreviated as *t*, and *a-ta-ra-si-jo* as *a*.

TABLE I

place name	text No.	GN ka-ke-we		po-ti-ni- ja-we-jo		pa-ra-ke- te-e-we		a-ke-te-re		do-e-ro	qa-si- re-u
		t	a	t	a	t	a	t	a		
		A-ka-si-jo-ne	389	11	5						
A-ke-re-wa	310	8	4	4	1					4	
	693	2									
	725	4									
A-pe-ke-i-jo	431	10	15	6	8					48	2
A-pi-no-e-wi-jo	605	6	3							6	
A-pu <sub>2</sub> -we	693	7	2								
A-si-ja-ti-ja	750					17	4			1	
A-to-mo	832					1		5	6		
E-ni-pa-te-we	658	16									
	725	26									
Na-i-se-wi-jo	692	2	6								
	725	8									
O-re-mo-a-ke-re-u	320	12	3								
Pa-to-wo-te	706	10	4							5	
Po-wi-te-ja	601	14	5								1
Ro-u-so	832							3	7		
Ru-ko-a <sub>2</sub> -ke-re-u-te	415	7	5								
Wi-ja-we-ra	478	7	1								
[ ]-me-no	937	12									
[ ]-nu-we-jo	725	5									
[ ]	413	2	1							1	
[ ]	895	8	7								1
[ ]	927		4								

The meaning of the last distinction remains obscure since there is no explicit explanation in the texts why *a-ta-ra-si-jo* - smiths did not receive any bronze, and none of the explanations proposed so far can be corroborated by the evidence. Lejeune's hypothesis<sup>14</sup> that *a-ta-ra-si-jo* - smiths were less privileged than the *ta-ra-si-ja e-ko-te* is not generally accepted. It is true that they are usually listed between *ta-ra-si-ja e-ko-te* and *do-e-ro*, but the *do-e-ro* themselves could belong to both groups. Another solution which treats this

<sup>14</sup> M. Lejeune, *MPM* II, p. 195.

distinction as evidence for the shortage of bronze at Pylos has seemed more attractive, especially to those scholars who try to perceive some trace of an «emergency situation» of military<sup>15</sup> or economic<sup>16</sup> nature in the Pylian archive. Yet it too should be rejected.

One of the texts discussed — Jn 725 — is a recapitulative record of four villages: *A-ke-re-wa*, *E-ni-pa-te-we*, *Na-i-se-wi-jo*, and [ ]-*nu-we-jo*. The sections dealing with smiths at the three first places correspond to four other tablets: Jn 310, 658, 692, 693. Smiths of *A-ke-re-wa* are recorded on Jn 310 and 693 (none of them reappear on Jn 725), smiths of *E-ni-pa-te-we* on Jn 658 (about half of the smiths of Jn 725 reappear there), and smiths of *Na-i-se-wi-jo* on Jn 692 (the same eight persons in both texts).

These duplications are instrumental to our understanding of the allocation policy of the central authority. At *Na-i-se-wi-jo* the eight smiths recorded on Jn 725 are all *ta-ra-si-ja e-ko-te*, whereas on Jn 692 only two of them receive bronze, while the rest are *a-ta-ra-si-jo*. Nevertheless, the amount of bronze is the same in both cases (M 12). At *E-ni-pa-te-we* the 26 smiths recorded on Jn 725 receive even slightly less bronze (L 2 M 18) than the 16 smiths of Jn 658 (L 2 M 20)<sup>17</sup>, the ration of bronze per person being in the first case M 3, and M 5 in the second. At *A-ke-re-wa* the four smiths of Jn 725 receive the same amount of bronze (M 12) as the eight *ta-ra-si-ja e-ko-te* of Jn 310, their individual rations being respectively M 3 and half of that amount — M 1 N 2. These variations in the distribution of bronze are shown in table II.

TABLE II

place name	A-ke-re-wa		E-ni-pa-te-we		Na-i-se-wi-jo	
text No.	310	725	658	725	692	725
<i>ta-ra-si-ja e-ko-te</i>	8	4	16	26	2	8
<i>a-ta-ra-si-jo</i>	4				6	
Total of bronze	M 12	M 12	L 2 M 20	L 2 M 18	M 12	M 12
bronze per person	M 1 N 2	M 3	M 5	M 3	M 6	M 1 N 2

<sup>15</sup> J. Chadwick, *The Mycenaean World*, Cambridge 1976, pp. 140-142.

<sup>16</sup> J. T. Hooker, «The End of Pylos and the Linear B Evidence», *SMEA* 23, 1982, pp. 209-217.

<sup>17</sup> The total in the text itself incorrectly gives L 3 M 20, but the actual amount of bronze distributed is L 2 M 20.

It is clear from this representation that the number of smiths was irrelevant to the total amount of bronze for distribution. It should be understood that the palace allocated a fixed amount of bronze to a village and not to an individual smith. Locally this amount was divided into individual rations which could be increased or reduced according to the number of smiths. In two cases, at *A-ka-si-jo-ne* (Jn 389) and *Po-wi-te-ja* (Jn 601), a certain amount of bronze was left undistributed<sup>18</sup> which did not prevent the appearance of five *a-ta-ra-si-jo* - smiths in each case. With such a system in operation, even if there was a real shortage of bronze at Pylos, it could be reflected only in a reduction of the total amount of bronze per village, but it could not in any way affect the distribution of the metal to individual smiths. It should be admitted that the information found in the Jn series alone does not enable us to understand why some smiths received bronze while others were left «without allocation».

Before presenting our comparative material it should be noticed that besides the opposition *ta-ra-si-ja e-ko-te* — *a-ta-ra-si-jo*, another pair of oppositions — *ta-ra-si-ja* — *ke-ri-mi-ja* can be found in Mycenaean Greek. It appears at Knossos where certain cloths<sup>19</sup> are described this way in one of the texts connected with the textile industry (KN Lc 535). Though the etymology of the word *ke-ri-mi-ja* is not known<sup>20</sup>, it has been suggested that *ta-ra-si-ja* — cloths were produced at home through the system of wool allocation to the weavers, while *ke-ri-mi-ja* — cloths were manufactured in the work-shop<sup>21</sup>.

Among the ancient craft archives suitable for comparison<sup>22</sup> the most elaborate set of documents was uncovered at Ur<sup>23</sup>. It deals with the work-shop of Īr-<sup>d</sup>Nanna and consists of attendance rostra of workers of different professions issued daily through the years 15-17 of the reign of the last king of the III Dynasty of Ur Ibbī-<sup>d</sup>Sîn.

<sup>18</sup> Jn 389: *to-so-de e-pi-da-to ka-ko pa-si* AES M 6 - «so much bronze was shared among them all - BRONZE M 6» (*Documents*<sup>2</sup>, p. 354).

<sup>19</sup> *pa-we-a* (φάρσα) and *tu-na-no*.

<sup>20</sup> Lindgren, *op. cit.* II, p. 78.

<sup>21</sup> S. JA. Luria, *Jazyk ; kul'tura mikenskoi Grecii*, Moscow 1957, p. 353.

<sup>22</sup> The largest craft archives were discovered at Ebla, Ur, and Isin.

<sup>23</sup> Published by L. Legrain in *UET* III, and by D. Loding in *UET* IX; interpreted by D. Loding in *A Craft Archive from Ur*, Ph. D. diss. University of Pennsylvania, 1974, and M. Van de Mierop in *Crafts in the Early Isin Period* (OLA 24), 1988, pp. 81-87.

There are 52 published lists of named workers<sup>24</sup> and 13 anonymous lists of professional groups<sup>25</sup> in this archive. The largest professional group and the core of the manpower in this work-shop was a team of silver-smiths (*kù-dim*) to whose structure we now turn our attention.

All silver-smiths were divided into two groups called respectively *gîn-lal-me-ēš* «those with allocation»<sup>26</sup> and *šā giš-kin-ti-me-ēš* «those in the work-shop»<sup>27</sup>. The first group was subdivided in turn into two work-teams under the supervision of two overseers (*ugula*): Ha-ba-at and Lugal-hé-gál. The second team consisted of two workers only - the supervisor himself and his single subordinate <sup>d</sup>Lama-ra-ì-ša<sub>6</sub>. The team of Ha-ba-at included up to 15 workers, but no more than seven of them were present on any given day. The presence of workers was expressed by the numeral «one» before every name, and their absence could be expressed in three different ways: 1. the absence of the numeral, 2. the sign *la(l)'u<sub>6</sub>* (LĀXNI) «absent» before the name, 2. absence of the name. Those marked by the sign *la(l)'u<sub>6</sub>* were probably absent for some acknowledged reason, illness for example (sick workers are summarized separately in anonymous lists as *tu-ra* «sick»); the name without any sign before it probably stands to indicate that the reason for absence is not known; and the names of the workers not supposed to attend are not recorded at all. The pattern of attendance of these silver-smiths can be seen in table III where those present are marked by X, those whose names are not preceded by the numeral by zero, and those whose names are absent by short dash.

From an examination of the table it is not difficult to understand why Ha-ba-at's workers were never present in full strength — they replaced each other. The first such replacement took place on

<sup>24</sup> UET III 1475-1478, 1480, 1481, 1486, 1487, 1490-1492, 1495, 1496, UET IX 489, 512, 532, 533, 539, 542, 548, 552, 553, 559, 560, 562, 564-568, 571, 577-583, 585, 587-594, 597, 598, 608-610.

<sup>25</sup> UET III 1474, 1482-1485, 1488, 1489, 1493, 1494, 1497, 1502, UET IX 586, 595.

<sup>26</sup> The sequence of signs *gîn-lal* was used in Akkadian as an ideogram (TÜN.LĀ) with several meanings: *assinnu* - «member of the cultic personnel of Ištar» (CAD A/II, pp. 341-342), *mušpalu* - «low lying place, depth» (CAD M/II, p. 278), but none of these is suitable to our context. In this case it would be better to interpret the signs separately as *gîn* - *šiqḷu* - «sheqel» (ŠL p. 1093), and *lal* - *šaḡālu* - «to weigh» (ŠL p. 931), *gîn ... lal* - «to pay» (SPD B p. 119).

<sup>27</sup> *giš-kin-ti* - Akkadian *kiškattû* - «furnace» or «craftsman» (CAD K, pp. 453-454).

TABLE III

year	Ibb̄r- <sup>d</sup> Sîn 15											Ibb̄r- <sup>d</sup> Sîn 16											17
month	1	2	2	7	8	8	8	10	11	12	2	3	6	7	8	8	8	10	11	11	11	5	
day	6	4	[ ]	12	4	20	25	27	10	18	3	4	26	20	5	29	30	[ ]	6	10	[ ]	[ ]	
gín-lal-me-éš	5	2	3	7	9	7	9	9	9	7	6	6	8	4	8	7	7	8	7	8	6	7	
<i>Lugal-hé-gāl</i>	x	-	-	x	x	x	x	x	x	x	x	x	x	-	x	x	x	x	x	x	x	x	
<sup>d</sup> Lama-ra-ì-ša <sub>6</sub>	0	x	x	x	x	x	x	x	x	x	0	x	x	-	x	0	x	0	x	x	x	x	
<i>Ha-ba-at</i>	x	0	0	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
Lú- <sup>d</sup> Nanna	x	0	0	-	x	x	x	x	0	x	-	x	-	-	-	x	-	-	-	-	-	-	
Lú- <sup>d</sup> Dumu-zi-da	0	0	x	-	x	x	x	x	-	x	-	x	-	-	-	0	-	-	-	-	-	-	
Šu-ku-bu-um	x	x	x	-	-	-	x	x	-	x	-	-	-	-	-	-	-	-	-	-	-	x	
Šeš-kal-la	x	0	0	-	x	x	x	x	-	x	x	-	x	-	-	-	x	x	-	-	-	-	
Puzur <sub>4</sub> - <sup>d</sup> Ma-ma	-	-	-	x	-	-	-	-	-	-	-	x	-	x	x	x	-	-	x	x	x	x	
Ma-šum	-	-	-	x	x	0	-	-	x	-	-	x	-	x	x	x	-	-	x	x	x	-	
Lugal-murub <sub>4</sub> -e	-	-	-	x	-	-	-	-	-	-	-	-	-	-	x	x	-	-	x	x	0	-	
Lú- <sup>d</sup> Utu	-	-	-	x	-	-	-	-	-	0	0	x	0	-	-	x	x	-	-	-	-	x	
Lú- <sup>d</sup> Amar- <sup>d</sup> Sîn	-	-	-	0	-	-	-	-	-	-	-	x	-	x	x	x	-	x	x	x	-	-	
Īr- <sup>d</sup> Nanna	-	-	-	-	x	x	x	x	x	x	-	-	-	-	-	-	-	-	-	-	-	-	
Īr-mu	-	-	-	-	x	0	-	-	x	-	-	0	-	-	-	-	-	-	-	-	-	x	
Ur- <sup>d</sup> Šul-pa-è	-	-	-	-	-	-	x	x	-	x	x	-	x	-	-	-	x	x	-	-	x	-	
Lú- <sup>d</sup> Ba-ba <sub>6</sub>	-	-	-	-	-	-	-	-	x	-	-	-	-	-	-	-	-	-	-	-	-	-	
Ī-ti-ilīr	-	-	-	-	-	-	-	-	-	-	-	-	-	-	x	x	-	x	x	x	-	-	
<i>šā giš-kin-ti</i>	[ ]	[ ]	-	-	1	-	1	-	[ ]	-	-	[ ]	2	[ ]	3	3	3	[ ]	3	[ ]	3	[ ]	
Ī-lī-an-dul	[ ]	[ ]	-	-	x	-	x	-	0	-	-	[ ]	x	[ ]	x	x	x	[ ]	x	[ ]	x	[ ]	
<sup>d</sup> Abad-ba-ni	[ ]	[ ]	-	-	-	-	-	-	[ ]	-	-	[ ]	x	[ ]	x	x	x	[ ]	x	[ ]	x	[ ]	
Īr- <sup>d</sup> Nanna	[ ]	[ ]	-	-	-	-	-	-	[ ]	-	-	[ ]	-	[ ]	x	x	-	[ ]	x	[ ]	x	[ ]	
Lú- <sup>d</sup> Nanna	[ ]	[ ]	-	-	-	-	-	-	[ ]	-	-	[ ]	0	[ ]	-	-	-	[ ]	-	[ ]	-	[ ]	
Lú-dingir-ra	[ ]	[ ]	-	-	-	-	-	-	[ ]	-	-	[ ]	-	[ ]	-	-	x	[ ]	-	[ ]	-	[ ]	

12/VII/15 when Lú-<sup>d</sup>Nanna, Lú-<sup>d</sup>Dumu-zi-da, Šu-ku-bu-um, and Šeš-kal-la were replaced by Puzur<sub>4</sub>-<sup>d</sup>Ma-ma, Ma-šum, Lugal-murub<sub>4</sub>-e, and Lú-<sup>d</sup>Utu. Other collective replacements also can be perceived on 4/VIII/15, 4/III/16, 26/VI/16, 20/VII/16, 30/VIII/16, 6/XI/16. On the other hand, several workers replaced each other on an individual basis, so that their names appear in the relation of a complementary distribution, at least during one year. Thus Šu-ku-bu-um worked in pair with Ma-šum, Īr-mu with Ur-<sup>d</sup>Šul-pa-è during the year 15, Šeš-kal-la with Puzur<sub>4</sub>-<sup>d</sup>Ma-ma, and Lugal-murub<sub>4</sub>-e with Lú-<sup>d</sup>Utu during the year 16. According to *UET IX 532* such workers were called *šeš-tab-ba* «companions»: Ur-<sup>d</sup>Šul-pa-è *šeš-tab-ba* Īr-mu «Ur-<sup>d</sup>Šul-pa-è a companion of Īr-mu».



The reason for such a rotation system is revealed in *UET* III 1482 (19/II/15) where the whole group of *sā giš-kin-ti* - workers is said to be *buru<sub>14</sub>-šē šu-bar-ra-me-éš* «released for the harvest». From a business letter BM 85735 it is known that the second group of craftsmen also possessed land, since *a-sā giš-kin-ti lú-gín-lāl-ra* - «field of the work-shop for those with the allocation»<sup>28</sup> is mentioned there. Thus we can be certain that the silver-smith of Ur, both those who were allotted silver by their work-shop manager and those who worked in the work-shop itself, had to alternate their craft with agricultural work on their fields.

The situation could not have been very different at Pylos. The Bronze-smiths there certainly possessed some land, since they paid taxes in flax<sup>29</sup> and six other unidentified (probably agricultural) commodities<sup>30</sup>. If the distinction between «those with allocation» and «those in the work-shop» finds a parallel only in the textile industry at Knossos (*ta-ra-si-ja* — *ke-ri-mi-ja* opposition), the peculiar system of rotation which characterizes the employment pattern of the silver-smiths of Ur most probably corresponds to the distinction of bronze-smiths with and without allocation found at Pylos.

In no circumstances can *a-ta-ra-si-jo* - smiths of Pylos be called «unemployed». This would imply the existence of a modern system of hired labour leaving metal workers unemployed when the supply of raw material is interrupted. The Pylian records faithfully reflect a normal situation when bronze-smiths had to alternate agricultural work with craft, a feature characteristic of Ancient Mesopotamia nearly a millennium earlier.

*Mount Scopus, Jerusalem ISRAEL*  
*Department of History,*  
*The Hebrew University of Jerusalem*

ALEXANDER UCHITEL

<sup>28</sup> This text was transliterated and translated by E. Sollberger in *The Business and Administrative Correspondence under the Kings of Ur* (*TCL* I), 1966, p. 26. My interpretation of this sentence differs from that of Sollberger. I assume that the sign *lāl* here is a phonetic writing for *lal*.

<sup>29</sup> See note No. 7.

<sup>30</sup> Ma series, the ideograms \*146, *RI*, *KE*, \*152, *O*, *ME*.