

# The Ideophonetic System of Linear A

## INTRODUCTION

In this study I applied the cryptographic method that John Chadwick taught me. He was convinced that Linear A was above all “a cryptographic problem” and that only an approach like the one Ventris used for Linear B could lead to the final solution. He had become an expert in this science during the Second World War, having been sent to the African coast to decrypt Italian naval signals. He explained the main principles to me in this way: *“The basic technique is to index the texts so as to be able to study a group/word in all its contexts, and thus to deduce its approximate meaning. This leads to the identification of other words, and so to the solution of any word used frequently. There is usually a residue of rare words which remain intractable”*

Following his advice I started from the accounting records because, being repetitive and containing many signs whose meanings we know from Linear B (figs, wheat, wine, oil, olive etc.), they are more suitable to deal with. I gave the value of  $y$  to the terms that we know from Linear B to mean commodities, the value of  $x$  to the terms that have to do with the commodities, the value of  $k$  to the numerals, and I was able to identify five patterns according to which the Minoan scribes used to compile their records (p.11).

The discovery of these structural patterns allowed me two things. The first, suggested by Chadwick: the comparison with the Linear B accounts, and the second: the correct normalisation of the records.

As far as the comparison with Linear B is concerned, there is one difference that stands out immediately, i.e. the division of the tablets into lines, which is present in Linear B and absent in Linear A where the records are written one after the other. Very rarely does the scribe use a line to divide them. They follow one another on the same tablet without any apparent signs of division between them. Mycenaean ones, instead, are arranged in lines and are easier to identify. The Linear B scribe is more precise than his Linear A colleague and plans his work better by dividing the writing space into lines. However the respective patterns are comparable to each other and it is possible both to rewrite a Mycenaean record in the Minoan way (p.13), i.e. without the line division, and to do the opposite, i.e. to rewrite a Minoan record in the Mycenaean way by adopting the line division (p. 15). This last thing is very instructive because it helps us to identify “the potential (or positional) energy of the terms, which in cryptographic terms represents the role that each term acquires on the basis of the comparison of both its own occurrences and those of the terms with which it occurs in a congruent position (p.16).

With regard to the second point, i.e. the correct normalisation of the texts, there is no doubt that, only by correctly normalising the records, is it possible to identify correctly also the terms that make up them. It is useless, for example, to search for a word like A-DU-NI-TA-NA (ARKH5,1) because it does not exist. If we compare all the occurrences of the signs that make up it, we will realise that A-DU is a term that is used many times in the records and TA-NA occurs other times both alone and together with other signs (see, for instance, ZA10a). Since the sign Ni has both a phonetic and a logographic value, it is clear that here it is used logographically, meaning, as it is well known, figs. The word A-DU-NI-TA-NA therefore does not exist. The potential energy of A-DU and TA-NA tell us that the former is a transaction term referring to a type of tax while the latter certainly refers to men. The scribe therefore by writing, on ARKH5,1, A-DU FIC TA-NA followed by a damaged figure (41[)], has simply indicated that the TA-NA men must pay 41[ units of the A-

DU tax of figs . Another word which does not exist is KA-DI. It is pointless to search for it. In ZA 15b,1 the scribe puts a dot between the two signs and if we check the potential energy of KA and DI, both of which appear to be used many times alone, we will realise that the first is a type of offering and DI indicates instead a type of men. Thus, on ZA15b,1 where KA-DI is followed by the symbol of wine and by the figure 3, the scribe simply pointed out that the DI men must give 3 units of the KA offering of wine. These are just two examples of incorrect readings but there are very many others (pp16-17). They stem from the absurd claim, that some have, to normalise Linear A records as if they were Linear B records. They are the reason why Linear A has remained undeciphered until now since not only have they created a lot of non-existent words that no IA (not even Deep) will understand, but, what is more serious, they have made the records unreadable and incomparable to each other.

The last things Chadwick recommended to me were to prepare a grid to search for unknown sign values and to look for a language that would fit the terms as the normalisation of the records revealed them. I also remember him recommending, with regard to the language search, not to be discouraged because I would have to make many attempts before I realised which was the right one. I prepared the grids according to his instructions (p.21) but as far as language was concerned, I had no need to make any attempts since, once the records were correctly normalised and the terms that make up them correctly identified, the language revealed itself.

Let us consider for example:

DA-MA-TE (KYZa2)

I-DA-MA-TE (ARZf1)

I-DA (PKZa18, etc.)

What do we get from it? That I-DA can also stand without MA-TE and that DA can also stand without the initial "I". Let us check the potential energy of "I" and "DA" and we will see that "I" is a logogram also used as transaction sign in many tablets with a potential energy of "sacred" or something very similar. We find instead DA in the vocabulary and see that Δᾱ is an ancient name the Dorians used to invoke mother earth. So, since MA-TE has a very clear meaning, we cannot but conclude that I-DA-MA-TE should be translated sacred (I) Δᾱ μάτηρ and that the first language to be tested is Greek. The solution may seem all too easy, but 'Entia non sunt multiplicanda praeter necessitatem' and, furthermore, if we check all the other words in which DA occurs in the same initial position, we cannot help but be surprised at the Greek words that come out:

-DAsi-tjo (HT85a,3-4 etc.) = DA σιτίον = DA wheat;

-DAqe-ra (HT6a,6 etc.)= DA θήρας= DA of hunting;

-DAku-na (HT103,4) = DA γυνή = DA young bride;

-DAku-se-jo (HT103,4-5 etc.) = DA χύσεως (<χύσειως) = DA of the fusion of the metals;

-DA-na-si (HT126a,1) = DA νῆσις = DA weaving;

-DAta-ra (HT6a,1) = DA θηλή = DA prosperity;

-DAwe-da (HT10a,4etc)= DA ὕδης = DA of the family (Hsch)

-DAminu (HT117a,8) = DA σμῆνος = DA beehive;

-DAu-pu<sub>3</sub> (HT120,3-4) = DA ὄπιον, opium or, less probably, DAοφίων = of snakes;

-DAdu-ma-ta(HT95a,1)= DA δώματα, the houses of DA;

-DA-na-tu DA(ARKH6,1)=DA νηστός, DA spinning.

But, to be more sure, let us also check another term such as, for instance, RE, which definitely refers to the notion of man because it appears in congruent position with terms that occur in

records together with HOMO, i. e. the man pictogram. It too occurs both alone and in many words together with terms that are for the most part names of deities. It, on the basis of all its occurrences, must have the meaning of “attendant” or something like that.

na-daRE (HT117a,5)= RE (attendant) of **Νέδα**, a nymph;  
ne-daRE (HT17,3) = RE (attendant) of **Νέδα** (the same as above);  
te-jaRE (HT117a,5) = RE (attendant) of **Θεῖς**, a divinity;  
pa-ja RE (HT8b,5 etc) = RE (attendant) of **Βαία** (a name of **Δημήτηρ**);  
DA RE (passim) = RE (attendant) of **Dã** (the great goddess);  
MA RE (HT55a,1) = RE (attendant) of MA (**μάτηρ**, a name of the great goddess);  
RaRE (HT117a) = RE of **Ῥῆ**;  
Ara-na RE (HT1,4) = RE (attendant) of the royal (A) **Ῥήνη** (a nymph).

Greek is therefore immediately apparent as soon as the records are correctly normalised and the terms that make up them are also correctly identified. However, following the Chadwick's advice, as I have always done, I tested Greek first on a small number of documents (p.23) and then by translating all of them (p.32).

As for the inscriptions (p.64) on movable objects, to which the patterns are obviously not applicable, I firstly looked for terms that are also present in the accounting texts. IDA, being the supreme divinity, is widely attested on both. I then considered the formular parts that are repetitive and have illuminating variations. Let's take an example: the first word of votive dedications is often A-TA-I-QI-WA-JA, which once alternates with A-TA-I-QI DE-KA (ZAZb3). Since DE-KA is a word in itself, it is presumable that WA-JA is too. In turn, if we look at the accounting texts, we will see that I-QI appears more than once (KN2,2 and HTWa1022, etc.), even ligatured, having a potential energy that makes it equivalent to “sacred offering” or something very similar. So in the case of A-TA-I-QI-WA-JA we have not *one* word but *three* words A-TA, IQI and WA-JA (p.65). Fortunately, they are short, easily identifiable words, but there are of course many others longer and more difficult to understand.

But for a language to be called deciphered, it is necessary, as Chadwick said, for a people to open the door and speak a language that is congruent with the archaeological reality that connotes it. This is the part I did alone, without the help of Chadwick who, had he been alive, would have given me his excellent advice. It was perhaps the most difficult part of the research because without mathematical formulas, without reference patterns and, above all, without Chadwick, it was very difficult to order the data and give voice to a people who had finally decided to speak. However, I organised the discourse according to the words I found most frequent in the documents: taxes and tributes, gods, men and products. The Minoans paid various kinds of taxes that were donated to deities, festivals and palaces. They spoke Greek (p.69), had Greek names (p.24) and worshipped a deity, the sacred goddess **Dã** to whom a large number of brotherhoods were named. They were divided into classes, clan, brotherhoods and presumably tribes, and they were the first major traders in the Mediterranean Sea trading in pots, fragrant oils, spices, textiles, fabrics, foodstuffs and many other things.

Being divided into brotherhoods, clan and classes, and having as their main goddess **Dã**, which is the name by which the Dorians worshipped their ancient deity, since the Greek they spoke has revealing many Doric characteristics (p.70), I am led to believe that they were Dorians. This is in accordance with Homer, who in the XIXth of the Odyssey attests to the presence of Dorians in Crete from very ancient times.

Enrica Patria

## INDEX

1. Structural patterns of the Linear A accounting texts p.5
2. Comparison with the Mycenaean ones p.12
3. Potential energy of the terms p.16
4. Decipherment p.20
5. Linear A language:
  - a) *Graphical rules that allow the correct reading of the words.* p.27
  - b) *Translation of the accounting texts.* p.32
  - c) *Inscriptions.* p.64
  - d) *Rules which allow to recognise the kind of Greek the Minoan people spoke.* p.69
6. Minoan world:
  - a) *Taxes and tribute* p.70
  - b) *Gods* p.73
  - c) *Men* p.74
  - d) *Products* p.75

## Structural patterns of the Linear A accounting texts.

To approach Minoan accounting records in a cryptographic way, we can start with the simplest ones. A tablet, HT21, is an example:

pi-ta-ka-se . ꞑ . GRA	161
roOLE	11
eOLE	3+Lm8
*67 <sup>1</sup>	7+Lm8
OLIV	1+Lm1

It contains a record made up of 1) an initial term (pi-ta-ka-se), 2) a punctuation mark, 3) a transaction sign (ꞑ), 4) another punctuation mark, 5) five symbols that stand for so many commodities (GRA, roOLE, eOLE, \*67 and OLIV), and 6) five figures each of which respectively follows one of the preceding commodities.

Giving the value of  $x$  to the initial term, the value of  $z$  to the transaction sign, the value of  $y_1, y_2, y_3$ , etc. to the symbols that stand for the commodities and the value of  $k_1, k_2, k_3$ , etc. to the figures, it is possible to normalise the tablet in the following way:

$$\begin{array}{l}
 x \cdot z \cdot y_1 \quad k_1 \\
 \quad \quad y_2 \quad k_2 \\
 \quad \quad y_3 \quad k_3 \\
 \quad \quad y_4 \quad k_4 \\
 \quad \quad y_5 \quad k_5
 \end{array}$$

from which we can extrapolate the following structural formula:  $x \cdot z \cdot y_j \cdot k_j$  ( $j=1..5$ ) which can be defined the structural formula of HT21. It means that the record on this tablet is made up of a term  $x$  which, with the presence of a  $z$  term, refers to a  $j$  number -which in this case is the equivalent of five- of  $y$  commodities each of which is followed by a related  $k$  figure.

But, do other tablets exist that have records with this same structure on them? To respond, we can consider HT18:

pa-se	qeGRA	20
	kiOLE	2
	*67	3
sa-ra <sub>2</sub>	GRA	10
	FICUS	10

from which we can observe a) that it has not one but two terms  $x$  (pa-se and sa-ra<sub>2</sub>), and b) that each of these terms is followed by a different number of  $y$  commodities with the related  $k$  figure. So, making the comparison with HT21, we can observe that:

- 1) while HT21 has the transaction sign ꞑ, on HT18 there is no transaction sign;
- 2) while HT21 contains only *one* record of five commodities, HT18 contains *two* records, respectively of three and two commodities;
- 3) all these records, both that on HT21 and those on HT18, have the same structure, i.e. an  $x$  ( $z$ )  $y_j \cdot k_j$  ( $j=1..n$ ) structure, since they all are made up of a term  $x$  followed by several  $y$  commodities, each of which is followed by the respective  $k$  figure. What differentiates them is a) the number of the items that constitutes the lists, i.e. the  $j$  number of the  $y$  commodities, which varies from two to three and five, and

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<sup>1</sup> When I began this study, the L-numeration of the signs was used. I continue to use it because I want to underline the independence of the Linear A writing-system from the Linear B one. However, in order to make the reading easier, and in a preliminary way, I have currently indicated the signs by means of the corresponding values they have in Linear B. When the L numeration has been unavoidable, I have prefixed an asterisk to the numbers that I have recorded in appendix n.1. I must also precise that, by seeing as some signs, such as for instance ꞑ and Ꞓ, appear to be modified by means of a dash or a dot inside them, I have kept them separately. The fonts are in part mine and in part of D.W.Borgdorff.

b) the z term, i. e. the transaction sign, which is in parenthesis because, by adding a further indication and having consequently an accessory role, it is not present in all the records.

But HT18 is not the only tablet on which the scribe recorded two records. HT2, 14, 40, 91, 121, 129, KH7b and ZA6b also contain two  $x(z) y_j k_j$  ( $j=1..n$ ) records on them.

HT2 contains two records of perfumed oils.

HT14 contains two records of different commodities such as wheat, perfumed oils and olives. In the first line there is the transaction sign  $\Phi$ .

HT40 (lines 1-2): two records of wheat. Transaction sign  $\Phi$ .

HT91: two records, the first has nine items, only two items remain of the second one. In the first line there is the transaction sign  $\Phi$ .

HT121: two records, the first of which has the x term  $ki-ri-ta_2$  and has only one item, while the second is made up of the x term  $sa-ra_2$  and has five items.

HT129: two records of wheat and other commodities. The x terms are  $ki-ri-ta_2$  and  $tu-^*79-ri-na$ .

KH7b, lines 2-3, contains probably two records, the first of which refers only to barley, the second to barley and to other commodities.

Za6b, lines 1-3: probably two records, the first of which refers to wheat and to two types of wine. Only one item remains of the second one. The transaction sign is  $\Psi$ .

But this is not all. Since, in fact, the size of the tablets is different from one another and since a larger tablet can contain more brief records, the following tablets HT24a, 30, 92, 108, 123a, KH11, ZA1a, TY3 are all compiled according to the same pattern since they all contain a variable number of  $x(z) y_j k_j$  ( $j=1..n$ ) records on them.

HT24a contains three records, which are referred to LANA, which is modified both with a sign directly premised and with a sign directly postponed. There is no transaction sign.

HT30 begins with a sign ( $\Psi$ ) directly followed by a figure. After this a record begins which is made up of the x term  $sa-ra_2$  followed by various y commodities (barley, figs, wine, etc.). A commodity is indicated by means of a group of signs ( $sa-ra-ra$ ). The record has no transaction sign and it is followed by a deficit of the same commodities.

HT92 contains only one record of GRA and  $^*67$  preceded by the transaction sign  $\Phi$ .

HT108 contains (line 1) a record that refers to one man and to 70 unities of  $Lm7GRA$ .

HT 123a: four records of  $\Psi$  and  $\Phi$ . This latter commodity is followed in each item by the deficit. At the end there is the general total of  $\Psi$  and the general total and the deficit of  $\Phi$ . In the first line there is the transaction sign  $\Phi$ .

KH11: three records of various commodities, among which wine and moreover barley. At the end of the first and the third list there is barley modified with a sign directly premised.

ZA1a: only one record of two commodities preceded by the transaction sign  $\Phi$ .

TY3: seven records, four on side a and three are visible on side b. All the records are separated by means of a horizontal segment. In the first record there is the third item which is modified by a sign directly premised. The third record has two terms x.

But, at this point a question becomes obvious: are there other patterns to which the records on Linear A tablets can be referred?

HT35 represents another pattern. The normalisation of this tablet is the following one:

ti-ti-ku . $\Phi$ . i-ku-ta	HORD	1
	$^*96+PU$	Lm19
	$riOLE$	Lm19
	$^*90$	Lm19
	$taOLE$	[
	$]^*44$	5
	$^*40+PU$	Lm18
	VIN	Lm 23

It is made up of 1) an initial term (ti-ti-ku), 2) a punctuation mark, 3) a transaction sign ( $\Phi$ ), 4) another punctuation mark, 5) another x term (i-ku-ta), 6) eight symbols that stand for so many commodities and

7) eight symbols (one of which is lost) that stand for so many figures. The normalisation of this tablet, according to the above x-y-k terminology, is the following one:

x . z . x <sub>1</sub>	y <sub>1</sub>	k <sub>1</sub>
	y <sub>2</sub>	k <sub>2</sub>
	y <sub>3</sub>	k <sub>3</sub>
	y <sub>4</sub>	k <sub>4</sub>
	y <sub>5</sub>	k <sub>5</sub>
	y <sub>6</sub>	k <sub>6</sub>
	y <sub>7</sub>	k <sub>7</sub>
	y <sub>8</sub>	k <sub>8</sub>

From which we can extrapolate the structural formula: x (z) x<sub>1</sub> y<sub>j</sub> k<sub>j</sub> (j=1..n), which is the equivalent of the first one with the difference that, before the y commodities, there is not *one* but *two* x terms (x and x<sub>1</sub>). Several tablets have a record compiled according to this pattern on them.

HT43 has a record of wheat with the transaction sign 𐀀.

HT99a: a record, without a transaction sign, of various commodities among which barley and wheat, which only on this tablet occur together.

HT114: a record, without transaction sign, of several agricultural products.

ZA11b: although the tablet is badly damaged, a record of wheat, preceded by two terms x, with the transaction sign 𐀀 is recognizable in the first line.

KH14: lines 1-2: a record which refers to various units of barley. An item refers to two dogs.

All the preceding tablets have only one record on them. But there are also tablets that have two or more records of this pattern on them. HT28a, 90, 116a, 120, 128 all have several x (z) x<sub>1</sub> y<sub>j</sub> k<sub>j</sub> (j=1..n) records on them, and they all present the following peculiarity: the x<sub>1</sub> term is different in each record while the x term is always the same and the scribe does not repeat it every time but, by putting it in the heading, he indicates that it refers to all the lists that follow in the tablet. An example will be clarifying. HT 116a must be normalised as follows:

<u>da</u> -ta-ro. 𐀀.	ku-pa-ja	GRA	16
	pu-ra <sub>2</sub>	GRA	40
		diOLE	5
	SE+SI	GRA	16
		kiOLE	1
		miOLE	<u>5</u>
		OLIV	3
	pi-*69-te	GRA	5
		OLE+[ ]	5
		miOLE	1
		tuOLIV	2
	si-ki-*61	GRA	12
		*67	12
	*23_nu-ma	GRA	20
		*67	3

From this we can see that a) each of the six records is made up of an x<sub>1</sub> term (ku-pa-ja, pu-ra<sub>2</sub>, SE+NE etc.) followed by a different number of commodities and b) all the record are preceded by another term x and by the transaction sign 𐀀, which are at the beginning of the tablet, making up its heading. So, rewriting the tablet in a more careful way, that is repeating each term of the records, it becomes:

<u>da</u> -ta-ro. 𐀀.	ku-pa-ja	GRA	16
<u>da</u> -ta-ro. 𐀀.	pura <sub>2</sub>	GRA	40
<u>da</u> -ta-ro. 𐀀.	pura <sub>2</sub>	diOLE	5
<u>da</u> -ta-ro. 𐀀.	SE+SI	GRA	16
<u>da</u> -ta-ro. 𐀀.	SE+SI	kiOLE	1

<u>da</u> -ta-ro. 𐀢. SE+SI	<i>miOLE</i>	<u>5</u>
<u>da</u> -ta-ro. 𐀢. SE+SI	OLIV	3
<u>da</u> -ta-ro. 𐀢. pi-*69-te	GRA	5
<u>da</u> -ta-ro. 𐀢. pi-*69-te	OLE+[ ]	5
<u>da</u> -ta-ro. 𐀢. pi-*69-te	<i>miOLE</i>	1
<u>da</u> -ta-ro. 𐀢. pi-*69-te	<i>tuOLIV</i>	2
<u>da</u> -ta-ro. 𐀢. si-ki-*61	GRA	12
<u>da</u> -ta-ro. 𐀢. si-ki-*61	*67	12
<u>da</u> -ta-ro. 𐀢. *23_nu-ma	GRA	20
<u>da</u> -ta-ro. 𐀢. *23_nu-ma	*67	3

Other tablets are compiled in this same way:

HT28a has five records of various commodities.

HT90: two records of various commodities. The first record has three items, the second four. The transaction sign is 𐀢. It is separated by a punctuation mark from the term that follows.

HT120: four records of wheat. The first term x, which refers to all the records is da-qe-ra. The quantities are very high, although the unit is not the highest one and GRA is modified with metrograms in a way which is very similar to the Mycenaean one. Only the second record has the transaction sign 𐀢.

HT128a contains several records of wheat. At the beginning of the tablet there is the transaction sign 𐀢, (the same as HT35 and HT91).

So, summing up, the second pattern is very similar to the first one; the difference consists in the fact that while the tablets that belong to the first one contain records made up of only one x term which refers to different quantities of y commodities, the tablets that belong to this second group contain records that are made up of two (or more) x terms that refer to different units of y items. Tablets which contain records having more x terms before the commodities are, for instance, KH5 and KH10 (lines 3-4). They respectively have two and one records with the characteristic that there are two x terms before the first x<sub>1</sub> term. There is no transaction sign and while the lists on KH5 refer to two commodities, KH10 refers only to wheat.

Nevertheless, there is a tablet, HT8a, which, compared to the preceding ones, has an inverted type of record on it. On this tablet, in fact, from the term \*01 onwards, there is not a record made up of an x term followed by several y commodities, but, on the contrary, there is the y commodity \*01(=𐀢) which is followed by several x terms. The normalisation of this record is the following:

*01	ka-ra-ti	1+Lm9
	PA	3+Lm9
	te-*88	2
	qa-*63-i	Lm8
	si-ki-ra	Lm1
	ki-re-ta-na	Lm9

which becomes:

y	x <sub>1</sub>	k <sub>1</sub>
	x <sub>2</sub>	k <sub>2</sub>
	x <sub>3</sub>	k <sub>3</sub>
	x <sub>4</sub>	k <sub>4</sub>
	x <sub>5</sub>	k <sub>5</sub>
	x <sub>6</sub>	k <sub>6</sub>

the structural formula of which is:  $y \ x_j \ k_j \ (j=1..6)$

The records that are compiled according to this third pattern are few:



HT8b, from line 3 onwards, contains another list of  $\equiv$ . On HT9b (from line 2 towards) there is a list of KA\*66. On HT103 (from line 2 onwards) there is again a record of  $\equiv$ . On ZA14 there is a record of ME (For ki-di, the term that follows it see HT93a,2).

But the reason, for which this pattern is so rare, is due to the fact that there is another very common pattern, the fourth, which is more nothing than an extension of it. A tablet, HT9a, explains what I mean. It is:

sa-*188 . TE. VIN	pa-de .	5+Lm8
	*83-tu	10
	di-na-u	4
	qe-pu	2
	*07-di-ra	2+Lm9
	ta-i-*65	2+Lm9
	a-ru	4+Lm1
	ku-ro	31+Lm8

according to the above x-y-k terminology it becomes:

x . z . y	x <sub>1</sub>	k <sub>1</sub>
	x <sub>2</sub>	k <sub>2</sub>
	x <sub>3</sub>	k <sub>3</sub>
	x <sub>4</sub>	k <sub>4</sub>
	x <sub>5</sub>	k <sub>5</sub>
	x <sub>6</sub>	k <sub>6</sub>
	x <sub>7</sub>	k <sub>7</sub>
	x <sub>8</sub>	k <sub>8</sub>

from which it is possible to obtain the following structural formula  $x \ z \ y \ x_j \ k_j \ (j=1..8)$ , which means that on this tablet we have a record made up of a y commodity which deals with an x term and a z transaction sign before it and is followed by other seven terms x with the related k figures and by the total of these figures.

So, the third and the fourth patterns are both inverted respect to the first and the second ones. Here the scribe records amounts of several different commodities which deal with one, two, rarely more x terms and there he records amounts of only one commodity which deals with several different x terms. Examples of tablets which have records of the fourth pattern on them are HT7a, 13, 26a, 85a, 86a and b, 95a, 115a, MA1a and b, Za5a, Za15a,etc.

HT7a: a record of HOMO+ $\Psi$ . The list follows on side b. ( For HOMO+ $\Psi$  see also HT 11a,4 and 93a,5.)

HT13 and 19 both refer to various units of wine. On both the tablets there is the transaction sign  $\equiv$ . At the end of the tablet the total is indicated.

HT26a: the commodity, probably an aroma, is in an initial position. It is followed by the first x term, the transaction sign  $\equiv$  and by the other x terms with the respective figures. On side b there is a record of the same aroma.

HT85a: another record of men. The transaction sign is  $\equiv$ . At the end the total is indicated.

HT86a: a list of wheat. Side b contains a list of the same commodity but it is very damaged.

HT95a and (probably) b: a record of wheat, without transaction sign.

HT115a: the list is similar to that on HT86 and 95. It refers to wheat . Transaction sign  $\Psi$ .

MA1a and b: two brief lists of \*102 .

ZA5a: lines 1-3: a list of wine + SU .

ZA8: a record which refers to figs.

As far as this fourth pattern is concerned we must make the following observations:

- a) the y commodity always occurs in the heading of the tablet but it can be both before and after the transaction sign (if it is present) and, rarely, after the first term  $x_1$  (see ZA8);
- b) if the tablet contains more than one record, as happens for instance in ZA15a, the scribe does exactly as he does in the second pattern and he, without repeating it, puts in the heading of the tablet the

term that refer to all the lists on it. ZA15a, for instance, contains two lists that refer respectively to two commodities ( *sa*VIN and *me*VIN ). The normalisation of this tablet is the following one:

*102-ku-na	<i>sa</i> VIN	qe-ne-*101-e	57
		i-ti-ni-sa	10
	<i>me</i> VIN	mi-*23-se	3
		i-nu-ma-re	6
		ne-pi-ki	2
		ja-sa- <u>mu</u>	5
		sa-mi-da-e	4
		*206-si-ma-se	5

From which we can see 1) that the two kinds of wine are respectively followed by two and six x terms 2) that both these lists are preceded by another x term ( \*101-ku-na), which refers to each of them and 3) that this term is in the heading of the tablet and it is not repeated by the scribe before each of the two lists. Rewriting the tablet in a more careful way it becomes:

*102-ku-na	<i>sa</i> VIN	qe-ne-*101-e	57
*102-ku-na	<i>sa</i> VIN	i-ti-ni-sa	10
*102-ku-na	<i>me</i> VIN	mi-*23-se	3
*102-ku-na	<i>me</i> VIN	i-nu-ma-re	6
*102-ku-na	<i>me</i> VIN	ne-pi-ki	2
		etc	

All the tablets which we have dealt with up to now are always made up of a) y terms, i.e. terms that mean commodities (they occur also in Linear B where they have the same meaning) which are almost always represented by ideograms, rarely by phonetic groups b) x terms, i.e. terms that have to do with the commodities c) z terms, i.e. transaction signs which have an accessory role and are not present in all the records, and d) figures, which can be both whole and fractional. There are, instead, some few tablets on which the commodity is not indicated.

The normalisation of HT10a explains what I mean. This tablet is:

ku-ni-su	<i>sa</i> -ma	4
	u-*37-ro	4
PA	da-re	16+Lm9
	*88	6
	u-*37-ro	10[
	*66-ru	2+Lm9
	da-we-da	8
	me-*23	3

Which becomes:

x . x <sub>1</sub>	k <sub>1</sub>
	x <sub>2</sub> k <sub>2</sub>
x	x <sub>1</sub> k <sub>1</sub>
	x <sub>2</sub> k <sub>2</sub>
	x <sub>3</sub> k <sub>3</sub>
	x <sub>4</sub> k <sub>4</sub>
	x <sub>5</sub> k <sub>5</sub>
	x <sub>6</sub> k <sub>6</sub>

from which it is possible 1) to observe that on this tablet there are two records, each of which has the following structural formula  $x \ x_j \ k_j \ (j=1..n)$  and 2) to observe that it is very similar to the structural formula of the fourth group with the difference that there is no symbol that stands for the commodity.

Only few tablets belong to this pattern and I must say that Chadwick thought that “in view of the absence of any indication of commodity they may be the continuation of a document which listed the contributions actually received”.

The above mentioned are the five patterns according to which the Minoan records were compiled. Their respective structural formulae are the following ones:

- 1)  $x (z) y_j k_j \quad (j=1..n)$  which means that an  $x$  term, with the eventual presence of a  $z$  transaction sign, deals with a  $j$  number of  $y$  commodities, each of which is followed by a related  $k$  figure;
- 2)  $x (z) x_1 y_j k_j \quad (j=1..n)$  which means that an  $x$  term, with the eventual presence of a  $z$  transaction sign, is followed by another  $x_1$  term which is in turn followed by a  $j$  number of  $y$  commodities each of which has its own  $k$  figure;
- 3)  $y x_j k_j \quad (j=1..n)$  which means that a  $y$  commodity deals with a  $j$  number of  $x$  terms each of which is followed by a related  $k$  figure. At the moment transaction signs are not attested in this pattern;
- 4)  $x y (z) x_j k_j \quad (j=1..n)$  which means that a  $y$  commodity, preceded (rarely followed) by a  $x$  term, with the eventual presence of a  $z$  transaction sign, deals with a  $j$  number of other  $x$  terms each of which is followed by a related  $k$  figure ;
- 5)  $x (z) x_j k_j \quad (j=1..n)$  which means that a term  $x$  deals with a  $j$  number of other terms  $x$ , each of which is followed by a related  $k$  figure.

Nevertheless, by looking carefully, the above structural formulae can be reduced to only two fundamental ones, the first and the third, since, being the fifth a continuation of some other record, it is clear that the second and the fourth are only an extension of them. In the first pattern there is in fact only one  $x$  term that deals with one or more  $y$  commodities while in the third, on the contrary, there is only one  $y$  commodity that deals with one or more  $x$  terms. What differentiates them from the records of the second and the fourth group is the fact that on these the scribe uses more  $x$  terms to specify the nature of the transaction that concerns the  $y$  commodities.

These are at the moment the fundamental patterns among the Minoan records. The scribe respects them in compiling his lists. The differences among the various tablets consist in the number of the records they contain and in the patterns according to which these records are compiled. But a question is obvious. Are these patterns always respected.? Yes, they are. They are constantly respected and at the moment there are no exceptions but only a few variations to them:

1) some commodities –as it also happens in Linear B (see *o LANA, o ki LANA* ecc.)- present, in the course of the list, the addition of another term directly premised (and consequently closely related) to them.

2) some records of the second pattern have not two but several  $x$  terms in the heading before the commodity. This does not modify the general pattern. It simply means that the scribe explained the nature of the transaction that concerned the  $y$  commodities by using more  $x$  terms.

3) records belonging to different patterns can be written on the same tablet. This point is very important since *the tablets are not to be confused with the records*. A tablet is only the way in which a scribe makes his records visible. So, it can contain more brief records and these records can belong to different patterns. HT132 is a clear example of this. The only two lines that remain of this tablet contain three records, the first and the second of which belong to the first type and the third to the third one. The three records are the following ones:

- |              |     |            |
|--------------|-----|------------|
| 1) a-se.     | *14 | 5          |
| 2) qa-re-to. | *83 | 27         |
| 3) *01.      | *66 | <u>1</u> [ |

they, according the  $x$ - $y$ - $k$  terminology, become:

- 1)  $x y_1 k_1$
- 2)  $x y_1 k_1$
- 3)  $y x_1 k_1$

From which one can observe that the first record has the x term a-se followed by five units of the commodity \*14, that the second record has the x term qa-re-to followed by twenty seven units of \*83 . And the third record has the commodity \*01 which deals with the x term \*66 followed by an unclear figure. Other tablets have mixed records on them: HT32, 93a, 96a, 97a, and so on.

HT32 contains three records; the first occupies the lines 1 and 2 and belongs to the first type and has the t.s.  $\text{A}$  and the x term sa-ra<sub>2</sub>. The others two are respectively on the third and fourth line and are both of the third type. The one on the third line has SU (see VAS with SU inside it on MA10a) as y commodity and has  $\Psi$  and  $\text{A}$  as x terms. The y commodity of the record in the fourth line is a perfumed oil ( $\frac{\text{A}}{\text{A}}$ ) while the x terms are again  $\Psi$  and  $\text{A}$ .

HT93a contains twelve brief records, five of which (1,2, 10,11,and12) belong to the fourth pattern and the other are all of the first type. The final part is damaged.

HT96a: The first record concerns figs, it is of the fourth type and it has the t.s.  $\Psi$  ; both the second, which refers to wheat and the third belong to the third type. The bigger difficult in this tablet is in the fact that the scribe writes the tens in the same way as the punctuation mark (see the first figure in fourth line). This makes confusion among the records which can be recognised only by means of the comparison with others containing the same terms.

HT97a: two records, the first of which belongs to the first type and has the transaction sign  $\frac{\text{A}}{\text{A}}$  ; the second begins in the third line, belongs to the third type and it has \*29 ( $\oplus$ ) as y commodity.

All these are, at the moment, the variations which are possible in the Linear A records. They cannot be considered exceptions and I must repeat that the above structural patterns are at the moment mathematically respected throughout the tablets. So true is this that, once we have compiled two lists respectively for the x terms and the y commodities and once we have ascertained that the respective congruencies are always respected, we can, on the basis of the survived terms, reconstruct the approximate patterns of the records on a tablet even if it is badly damaged or, having no heading and beginning with a term directly followed by a figure, it is the continuation of some other tablet. If, in fact, x terms survive we must assume that a commodity was in the missed heading and if y commodities survive we must assume that they surely dealt with one or more x terms in the missing heading.

Recapitulating, once I have again underlined that a Minoan tablet can contain one or more records and that these records can belong to different patterns, we can also make a structural division of the *tablets* which, on the basis of the *records* they contain, are:

- 1) tablets that contain one or more records with an x (z) y<sub>j</sub> k<sub>j</sub> (j=1..n) structure;
- 2) tablets that contain one or more records with an x (z) x<sub>1</sub> y<sub>j</sub> k<sub>j</sub> (j=1..n) structure;
- 3) tablets that contain records with a y (z) x<sub>j</sub> k<sub>j</sub> (j=1..n) structure;
- 4) tablets that contain one or more records with an x (z) y x<sub>j</sub> k<sub>j</sub> (j=1..n) structure;
- 5) tablets that contain one or more records with an x x<sub>j</sub> k<sub>j</sub> (j=1..n) structure;
- 6) tablets that contain mixed records belonging to more than one of the above patterns.
- 7) tablets that, having no heading and containing only terms directly followed by numerals, are the continuation of other documents.

### Comparison with the Micenaean records

Once recognised the structural patterns of the Linear A tablets it becomes almost obvious to ask ourselves what happens in Linear B, if patterns such as those which are present in Linear A are also in this writing. I owe many things to professor Chadwick who was convinced that Linear A was moreover a cryptographic problem and he always encouraged me to proceed with the research on the structural patterns of the Linear A records. As far as the comparisons between the Linear A and Linear B records are concerned I have followed his advice “*I feel that at this stage you can properly employ the parallel of the Linear B tablets in order to explain the patterns you detect in Linear A. Here we have first, more explicit headings, sometimes containing verbs, and secondly, we have been able to work out much more of the accounting procedures, so that we can often assign tablets very accurately to a type. Although we must never assume that the Linear A tablets will conform exactly the same pattern, it would be useful at this stage to make a comparison*”.

So, to see which, among the structural patterns of Linear A, are present in Linear B, we can begin considering a tablet such as the following one:

Fs 23: 
$$\frac{\text{Ja-pe-re-so} \cdot \text{HORD T 2 NI V 3 VIN V 2}}{\text{FAR V 1 OLE V 1}}$$

Which, since it contains only one x term (Ja-pe-re-so) followed by five commodities with the related figures, contains a record of the Linear A first type. The Mycenaean scribe listed it precisely as would have done his Minoan colleague. The tablet is in fact very similar to HT 21 with the difference that there the lines are not separated by means of a horizontal segment and here there is no transaction sign. There are also other examples in Linear B such as the following ones:

GA (2) 418

$$\frac{\text{Su-ri-mi-jo} / \text{po-ni-ki-jo M 3}}{\text{ko-ri-ja-do-no T 5}}$$

It has a record of the first type on it, i. e. a record made up of only one term x (Su-ri-mi-jo) followed by different amounts of two commodities which, in this case, are indicated by means of phonetic groups. L 520 is another example of the first pattern. It contains three records of LANA and \*164, divided by the horizontal stroke. In the first line a term (pe-re-ke) is directly premised to \*164, precisely as it also happens sometimes in the Linear A records. But the second patterns is also attested in Mycenaean tablets. In this regard we can consider the following examples:

Db 1327 + *alia* 
$$\text{ki-mu-ku} / \text{su-ki-rita OVIS}^m 120 \text{ OVIS}^f 80$$

CO 903 
$$\frac{\text{Wa-to} / \text{a-ko-ra-ja OVIS 60 OVIS 270 CAP}^m 49}{\text{CAP}^f 130 \text{ SUS 17 SUS}^f 41 \text{ BOS}^m 2 \text{ BOS}^f 4}$$

DI (1) 946 + *fr.* 
$$\text{ke-u-sa} / \frac{\text{po-ti-ni-ja-we-jo OVIS}^f 70 \text{ LANA 7}}{\text{si-ja-du-we, o ki OVIS}^m 70 \text{ o LANA 7}}$$

Lc (1) 525: 
$$\text{se-to-i-ja.} / \frac{\text{wa-na-ka-te-ra TELA}^3 \cdot \text{TE 40 LANA 100}}{\text{tu-na-no TELA}^1 \cdot 3 \text{ LANA}}$$

On which we can make the following observations. The first is an evident example of the second pattern. The tablet contains in fact only one record which is made up of two x terms (ki-mu-ku and su-ki-ri-ta) followed by two items with the related numerals. The second is another example of the same pattern with the difference that the list contains more items than the preceding one and it continues in the second line. Both, although there were commodities and here animals, have the same structure as HT35. The third example is still of the second type; it contains two different records of OVIS and LANA and the first x term, which refers to both the lists, is not repeated by the scribe but it is written bigger than the other ones before the horizontal line. The same happens in the fourth tablet. In these regards we can underline the affinity between the Minoan and the Mycenaean scribe. Although we have a large number of Mycenaean tablets and consequently more patterns than in Linear A, in the last two tablets the Linear B scribe does precisely what his Minoan colleague also does. He, in fact, does not repeat the initial term but puts it at the beginning of the tablet to indicate that it refers to both the records on it. This affinity is so remarkable that it leads us to make an experiment. We can for instance rewrite DI(1) 946 + fr. without the line division, according to the Linear A second pattern of normalization. It becomes:

$$\text{Ke-u-sa po-ti-ni-a-we-jo OVIS}^f 70 \text{ LANA 7}$$

si-ja-du-we o ki OVIS<sup>m</sup> 70  
o LANA 7

And we can also rewrite other tablets according to this same way. Co 903, for instance becomes:

Wa-to a-ko ra-ja OVIS<sup>m</sup> 60  
OVIS<sup>f</sup> 270  
CAP<sup>m</sup> 49  
CAP<sup>f</sup> 130  
SUS 17  
SUS<sup>f</sup> 41  
BOS<sup>m</sup> 2  
BOS<sup>f</sup> 4

We can do the same with many other tablets, since a lot of Mycenaean tablets belong to the second type but also the other Minoan patterns are attested among the Mycenaean ones. As far as the third pattern is concerned, for instance, we can consider a tablet such as E (2) 668. Its transcription is:

ru-ki-ti-jo GRA 246 T 7  
tu-ri-si-jo GRA 261 ra-ti-jo GRA 30 T 5

which, according to the x-y-k terminology, becomes:

x<sub>1</sub> y k<sub>1</sub>  
x<sub>2</sub> y k<sub>2</sub> x<sub>3</sub> y k<sub>3</sub>

from which it is possible to extrapolate the structural formula: x<sub>j</sub> y k<sub>j</sub> (j= 1..n), which is perfectly equivalent to the third structural formula of Linear A, with the difference that while the scribe of Linear A puts the commodity at the beginning of the tablet not repeating it, the scribe of Linear B is more accurate repeating it three times. According to the Minoan normalisation, this tablet would become:

GRA ru-ki-ti-jo 247 T 7  
tu-ri-si-jo 261  
ra-ti-jo 30 T 5

The same kind of normalisation is also possible for a lot of other tablets, such as for instance E749+5532+fr.

.1 qa-ra-jo GRA 25  
.2 ru-ki-ti-jo GRA 23[  
.3 ti-ri-ti-jo GRA [  
.4 [su]-ri-mi-jo GRA [ ] 1 T 2 'V 3'  
.5 qa-mi-jo, GRA 12 T 5  
.6 u-ta-ni-jo, GRA [  
.7 pu-si-jo, GRA 6 [

which, according to the Linear A normalisation criteria, becomes:

GRA qa-ra-jo 25  
ru-ki-ti-jo 23  
ti-ri-ti-jo [  
[su]-ri-mi-jo ]1 T 2 'V 3'  
etc.

But we also have tablets belonging to the fourth group. Ld (1) 587 +alia is an example. It is:

Tosa, po-ki-ro-nu-ka TELA<sup>2</sup> 24 re-u-ko-nu-ka TELA<sup>2</sup> 372  
Ko-ro-ta TELA<sup>2</sup> 14 56-ra-ku-ja TELA\* 42 po-ri-wa TELA<sup>2</sup> 1

According to the linear A normalisation it becomes:

Tosa TELA<sup>2</sup> po-ki-ro-nu-ka 24  
 re-u-ko-nu-ka 372  
 ko-ro-ta 14  
 \*56-ra-ku-ja 42  
 po-ri-wa 1

Several tablets of the DK series contain mixed records on them. DK (2) 1064, for instance, contains a record of the first type in the first line and a record which belongs to the second type in the second line..

So, replying to the initial question if the Linear A patterns are also present in Linear B, we must give a very clear answer. Among the Mycenaean patterns, it is possible to find the structural formulae according to which the Minoan records were compiled but they are not immediately recognisable because the Mycenaean division in lines imposes a different disposition of the words. In this regard the Mycenaean scribe has a precision which is unusual to his Minoan colleague. If he does not repeat the common terms that refer to more than a list, he draws attention to them by putting them in the heading and by writing them bigger than the others. But, if it is necessary, he does not hesitate to repeat the same terms also in each line of the tablet. Compared to the Minoan scribe he is more accurate, meticulous, in other words more bureaucratic. He attentively plans his records and, by subdividing them in lines, he also attentively plans the space of the tablets in a way which in my opinion is also visually more organic and coherent. A tablet such as GE603, if we attentively observe it, contains seven records of the first type each of which is disposed on a single line. It does not only represent a perfect example in the spatial possession of the writing material but, in my opinion, is also very agreeable to see.

But this is not all since, if we return to the normalisation of the Mycenaean tablets according to the Minoan patterns, we can also do the opposite, i. e. to rewrite a Minoan tablet according to the Mycenaean way. This will make the terms on it much clearer. Although this is something the Minoan scribe might not like, I must confess that often, when I am studying a Minoan tablet, I rewrite it in the Mycenaean way. This is a very instructive thing since the division into lines allows us to see clearly the position of the terms so to investigate better their role in the records.

For instance, by adopting the line subdivision, a tablet such as HT85a becomes:

a-du	AA	. da-we-da	A	12
a-du	AA	. *01-ni	A	12
a-du	AA	. u-do	A	6
a-du	AA	. da-si	A	24
a-du	AA	. ku	A	5
a-du	AA	. te-ke	A	3
a-du	AA	. da-re	A	4
ku-ro	[ ]		A	66

HT95a becomes:

da-du-ma-ta	da-me	⌈	10
da-du-ma-ta	mi-nu-te	⌈	10
da-du-ma-ta	sa-ru	⌈	10
da-du-ma-ta	ku-ni-su	⌈	10
da-du-ma-ta	di-de-ru	⌈	10
da-du-ma-ta	qe-ra <sub>2</sub> -u	⌈	7

HT6a becomes:

ka-pa da-ta-ra .‡. NI15, pi-ta-ja 24, RU+JA Lm23,<sup>2</sup> ma-\*101 10, \*04-\*58\*di-\*61 2, ka-pa-qe 5+Lm8  
 da-qe-ra . qe-pi-ta 22+Lm8, NI 15+Lm9

It is possible to continue with the Minoan tablets, whatsoever type they belong to, but this is a thing that all who know the Mycenaean way of making records and apply the structural formulae of the Minoan ones, can do. Chadwick invited me to continue along this way and he also taught me how to prepare on their basis a cryptographic table of the signs making up the words. But this happened many years ago when I thought that the following related interpretation corresponded to each of the discovered patterns:

Pattern n.1: one term deals with different quantities of different commodities;

Pattern n.2: two or more terms deal with different quantities of different commodities;

Pattern n.3: different quantities of one commodity deal with different terms;

Pattern n.4: different quantities of one commodity, which is specified by a term (rarely more) in the heading of the tablet, deal with several different terms which constitute the items of the list;

Pattern n.5: two names are followed by a figure.

And I was very longer to think how many years still would be necessary to translate the Minoan words.

### **Potential energy of the terms.**

Once the records have been normalised and once they have been compared with the Mycenaean ones, a question becomes obvious: what advantages do we obtain from this?

At least three advantages:

- 1) the correct normalisation of the *records*;
- 2) the correct identification of the *terms* that make up the records;
- 3) the identification of the *potential energy* (i.e. the *role*) of the terms occurring in the records.

1) With regard to the correct normalisation of the records, we must observe that they, being economical accounts, contain many terms which occur more than once. Since the positions in which these terms occur can be only two (heading or items), and, since these positions must be congruent between them and respectively reciprocal, it is possible to enunciate the following “mathematical” principle: given the two congruent and reciprocal positions of the heading and of the items, each term occurs in them, according to the place it occupies, must be congruent with the terms which occur in congruent position and reciprocal with the terms which occur in reciprocal position. This is useful not only to normalise correctly the records, but also to *prove* the correctness of the normalisation. It is not enough, in fact, that a single term which has been identified as an x term must remain an x term every time it occurs but it is also necessary that *all* the terms with which it occurs in congruent position must remain x terms. Only if all the congruencies and all the reciprocities are respected, we can be certain that the tablets have been correctly normalised. In this way the records will be homogenous and comparable among them.

So, one must pay more attention to the reading of the terms made up of several signs, especially if they are in the heading of the records. To read them incorrectly means not only to create inexistent words which do not exist in Minoan language but – what is more dangerous - it means to make the records incomprehensible and incomparable to each other. This is why Linear A has not been deciphered so far. The ideo-phonetic system expressing it has been treated as if it were the Linear B one and an unreadable language has been created that no one, not even the most advanced computers, can decipher.

Some examples of incorrect normalisation:

HT8a: the word \*01-ka-ra-ti (lines 1-2) must be divided into \*01 (𐀀) which is the heading of the record and ka-ra-ti which is the first item of the list. This reading is confirmed a) by the comparison of all the lists in which the sign \*01 occurs, b) by the comparison of the lists in which the other terms appear, and c) by the observation that this reading makes the interpretation of the record easier: it belongs to the third type and it is comparable with other similar ones such as HT8b (from the line 3 onwards); 9b (line 1); 103 (from line 3 onwards). To persist in considering \*01-ka-ra-ti as it was only one word means not only to create an inexistent word but also to make incomprehensible not one but *several* records, making their comparison impossible.

HT13: the word ka-u-de-ta does not exist. They exist instead the words ka-u and de-ta as the scribe indicates by putting a space between them. The record on the tablet belongs to the second pattern and has TE as transaction sign.



HT16: the initial term must be divided into KA (⊕) and ku-pa. The reading is based on the fact that a) ku-pa also occurs alone (HT110a,2; ZA11a,5 and b,3), b) by the comparison with the other terms as they appear in all the respective records, c) by the comparison of the occurrences of the sign ⊕.

HT20: the initial term must be divided into pa-ro which occurs also elsewhere and SU. The record belongs to the fourth type since the commodity pa-ro is followed by SU which specifies it and by several other x terms that constitute the items of the list.

HT28: the term a-si-ja-ka does not exist in itself. They instead exist A-si-ja and KA, as can be ascertained from the multiple occurrences of KA (⊕) which in this term is written smaller than the other ones.

HT32: SU(□) is the initial term in the third line. RE(Ψ) is the first item of the list, the second is DI(⌈). This reading is confirmed by the analogy with the record that follows in the fourth line, and by all the occurrences of the signs Ψ and ⌈.

HT43: the initial term ma-ne-du does not exist. They exist instead ma-ne and DU, what you can ascertain by considering all the occurrences of DU.

HT44a: i-qa-\*85 does not exist. We just have to check all the occurrences of qa-\*85 (passim) and I (passim) to see that we have here the transaction sign I plus the word qa-\*85.

HT58: qe-ti-ra-du does not exist as word in itself. They instead exist qe-ti-ra and DU (see also ma-ne and DU) of HT43.

HT87: please, don't waste your time looking for ma-ka-ri-te which occurs also on HT117. The Minoan scribe does not know this word. He knows instead two words MA (which occurs also elsewhere) and ka-ri-te.

HT95a: Da- du-ma-ta does not exist as word in itself. If you check all the occurrences of DA in initial position, you will see that they exist two words: DA and du-ma-ta.

HT110: ne-du- \*69b-ku-mi must be read ne-du \*69 and ku-mi where ku-mi is the first item of the list KN1: ja-ku-ti and ja-du-ra-ti, you can search endlessly for these two words. You will never find them since they are ja-ku and ja-du- ra plus TI, as evidenced by the occurrence of TI (a term inherent to the transaction) and by the fact Ja-ku and, possibly, ja] du-ra occur together also elsewhere ( see respectively MA2b,2 and 2a,1).

HT97a: the initial term in the third line has to be read KA (⊕) followed by nu-ti which begins a record of the third type, as it is possible to obtain confirmation by the comparison with other lists in which the sign KA occurs.

PA1: a-ku-ju-pa-\*85 is a word that does not exist. If you compare the occurrences of the signs, you will see that they must be read a-ku FAR and pa-\*85.

PH2,1: the first two signs are the ligature 𐤀𐤁 written with the signs one after the other (𐤀𐤁). The tablet belongs to the fourth type and contains two records. The first concerns the commodity OLE+A (𐤀𐤁), the second begins in the fourth line and concerns the commodity OLE.

ARKH5: a-du-ni-ta-na, must be read a-du NI (=FICUS) and ta-na, as the occurrences of a-du (passim) and ta-na (passim) prove.

ZA6b: i-ku-ju-ti must be read I (transaction sign) ku-ju and TI, as the congruence in using these terms suggests.

ZA14: ME is the initial term of the record. Ki-di (see also HT93a, 2-3) is the first item of the list.

ZA15a: \*102-ku-na the record belongs to the fourth type and must be read \*102 (a commodity) and ku-na.

ZA15b : ka-di does not exist as *one* word but they exist KA and DI. This on the basis of the related occurrences of KA and DI and, moreover, since the scribe puts a clear punctuation mark between them.

These are only a very few examples, almost all occurring in the heading of the tablets, but a tablet can contain more than one record, each having its own heading and one can imagine how many other misreadings arise dealing with the Linear A writing system as if it were the copy of the Linear B one.

This is another reason why I do not follow the AB numeration but I prefer to stick to the traditional L numeration (Raison and Pope). In this way, the two writing systems cannot be confused with each other and it is possible, through the analysis of the texts, to recognise their respective peculiarities.

It does not take much to realise that, on the basis of the acrophonic principle, two ideophonetic systems, although expressed by means of similar signs, can be different. Linear A is older than Linear B and is certainly more ideographic than it, as the numerical count of its ideographic signs (ligatures, pictograms, ideograms, logograms) proves beyond any doubt.

So, lacking indications from the scribe, as Chadwick wrote “it is only by the painstaking analysis of the texts that we can hope to make progress”. Only the comparison of the terms allows us to correctly normalise the records and only the congruence of the normalisations can reassure us that our results are

correct. Very rarely the scribe divides the records by separating them by means of a line. Sometimes he uses a horizontal stroke or a space but, for the most part, the accounts are recorded one after the other without spaces, lines or other dividing indications. Consequently, we have to identify the terms in each record according to the position they occupy and according to the aforementioned principles of congruence and reciprocity.

2) The second point, i.e. the right reading of the *terms* that make up the records, is an obvious consequence of the first one since it is clear that we can read correctly the words that compound the records, only after having correctly identified the records themselves. Regarding this, it is necessary to make some remarks about the type of punctuation the scribe uses. The punctuation mark, which often is written as a little vertical stroke, is the most important above all. But the scribe does not always use it, sometimes he leaves a space in order to divide the words between them and very often the punctuation mark is not easily recognisable or because the tablet is damaged or because it is confused with the units or the tens which the scribes write as little strokes or (sometimes) as points. Some signs appear with a point next to them. I have conducted researches into the sign  $\Psi$  with a point near it ( $\Psi$  and  $\cdot\Psi$ ), but, although I have not reached any final conclusion regarding this, it is certain that there are in Linear A signs which are modified by adding a point or a little stroke to them. There is a difference in the meaning between  $\lambda$  and  $\lambda$ , between  $\ddagger$  and  $\ddagger$ , and between  $\psi$  and the same sign with a little central stroke inside it (see, for instance, ARKH2,1 and 2). I think it is not correct to deal with them without noticing these differences and I consider each of them as a single sign also because I cannot forget what Chadwick told me regarding the sign which in Linear B stands for TELA. A sign which varies by the number of strokes in the fringe at bottom. At first the scholars and Chadwick himself did not give much importance to this but, subsequently, he wrote to me “we now think that the number of strokes in the fringe at the bottom is significant”.

But, returning to the scribe, in addition to the point and the spaces, he writes some signs smaller than the other ones. This can be seen in the group i-ka ( $\# \oplus$ ) where the second sign is smaller than the first one (see HT91,1 and 102, 4) and in the initial group on HT28a and b,1 where the word a-si-ja-ka is written with the final syllable ka (=⊖) smaller than the other ones. Also  $\nabla$  is smaller on KH7a 1 and 4. Once, on HT15,1, the scribe writes a whole group (du-\*65-a) smaller than the ideogram ( $\overline{\nabla}$ ) to which it refers. The preceding ones are only some examples but these peculiarities are evident when examining the photographs and comparing the different publications of the documents. In this respect I must say that the publication of the Linear A texts by Raison and Pope, although incomplete, is very accurate and respectful of the originals.

By comparing the editions with each other, we can immediately realise the high degree of ideographicity still present in Linear A, whose signs fall into four fundamental types:

1) pictograms i.e. signs which depict the notion which they refer to:  $\mathbb{A}$  =HOMO;  $\mathbb{V}$ ,  $\mathbb{C}$ , =VAS;  $\mathbb{L}$ =PELLIS etc;

2) pure ideograms i.e. signs which are exclusively (or almost exclusively) used to indicate ideographically the notion which they refer to:  $\overline{\nabla}$ =GRA,  $\mathbb{H}$ =HORD,  $\mathbb{V}$ =VINUM,  $\uparrow$ =\*67,  $\mathbb{O}$ =OLE,  $\Psi$ =OLIV etc.;

3) mixed ideograms i.e. signs which are both used with an ideographic and a phonetic value:  $\mathbb{Y}$ ,  $\mathbb{C}$ ,  $\mathbb{H}$ ,  $\mathbb{P}$ ,  $\mathbb{A}$ ,  $\mathbb{L}$ ,  $\mathbb{V}$ ,  $\mathbb{O}$ ,  $\mathbb{H}$ ,  $\mathbb{P}$ ,  $\mathbb{A}$ ,  $\mathbb{L}$ ,  $\mathbb{V}$ ,  $\mathbb{O}$ , etc. They are the largest part of the Minoan signs which almost all have two values, although there are several signs, such as  $\mathbb{H}$  and  $\mathbb{L}$ , which can be used in three ways, as ideograms, phonograms and metrograms;

4) phonograms i.e. signs which are used exclusively with a phonetic value. They are very rare. At the moment only  $\mathbb{H}$ ,  $\mathbb{L}$ ,  $\mathbb{X}$ ,  $\mathbb{H}$ ,  $\mathbb{L}$  and some other sign seem to be attested in this way. But it can be a case and one must conclude that, as it also happens in Linear B, almost all the Linear A signs can be used both in ideographic and phonetic way.

Nevertheless, to further prove the high degree of ideographicity present in Linear A, we have in Linear A a high number of the so-called ligatures which, being the *ideographic union* of two, rarely three, of the above signs can be made up in one of the following way:

- 1) pictogram + pictogram:  $\mathbb{A}$ ,  $\mathbb{A}$ ,  $\mathbb{A}$  =HOMO+HASTA, etc;
- 2) pictogram + pure ideogram:  $\mathbb{V}$ =VAS+\*67,  $\mathbb{V}$ =VAS+metrogram,  $\mathbb{V}$ =VAS+OLIV, etc.;
- 3) pictogram + mixed ideogram:  $\mathbb{A}$ =HOMO+KA;  $\mathbb{V}$ =VAS+RU;  $\mathbb{V}$ =VAS+SU etc.
- 4) pure ideogram + pure ideogram:  $\mathbb{H}$ =GRA+metrogram;  $\mathbb{H}$ =HORD+metrogram, etc.;

- 5) pure ideogram + mixed ideogram (and vice versa):  $\overline{\text{𐎗}}$ =VINUM+SA,  $\overline{\text{𐎗}}$ =GRA+QE,  $\overline{\text{𐎗}}$ =OLE+DI,  $\overline{\text{𐎗}}$ =OLE+TA,  $\overline{\text{𐎗}}$ =OLE+RA,  $\overline{\text{𐎗}}$ =OLE+KI etc.;
- 6) mixed ideogram + mixed ideogram:  $\overline{\text{𐎗}}$ =A+TI,  $\overline{\text{𐎗}}$ =KA+E,  $\overline{\text{𐎗}}$ =MA+RU;  $\overline{\text{𐎗}}$ =A+KA,  $\overline{\text{𐎗}}$ =RU+JA,  $\overline{\text{𐎗}}$ =SE+RE etc.

As one can see pictograms are few. They are for the most part limited to the notion of HOMO, VAS, PELLIS. There are few others which depict a flower, an animal, and also a vessel in the bull-shape ( $\overline{\text{𐎗}}$ ). Sometimes the pictographic origin of a sign is underlined by the scribe (see the double axe on IOZa3) or the head of cat on IOZa2d, or the sign  $\overline{\text{𐎗}}$  on PHZa3. Rarely do ligatures made up of three signs occur, see, for instance,  $\overline{\text{𐎗}}$ ,  $\overline{\text{𐎗}}$ ,  $\overline{\text{𐎗}}$ ,  $\overline{\text{𐎗}}$ ,  $\overline{\text{𐎗}}$ ,  $\overline{\text{𐎗}}$ ,  $\overline{\text{𐎗}}$ ,  $\overline{\text{𐎗}}$  and so on. But, there is a very interesting aspect of ligatures that deserves to be emphasised: several of them also occur written in plane, i.e. with the signs written one after the other, see:  $\overline{\text{𐎗}}$  and  $\overline{\text{𐎗}}$ ,  $\overline{\text{𐎗}}$  and  $\overline{\text{𐎗}}$ ,  $\overline{\text{𐎗}}$  and  $\overline{\text{𐎗}}$ , etc.

3) The third point about the identification of the *potential energy* of the words occurring in the records concerns all the terms (both made up of one and more signs), each of which has its own potential energy, which can be deduced a) by the comparison of all the occurrences in which it occurs and b) by the comparison of the occurrences of all the terms with which it appears in congruent or reciprocal position. This potential energy allows us to understand the role each term has and, consequently, to give an answer to three unavoidable questions.

-The first is the following one: in addition to the transaction signs we already recognise, are there additional terms with a similar value? Yes, there are terms such as  $\overline{\text{𐎗}}$  ( $\overline{\text{𐎗}}$ ) (ARKH2,4; ZA14,1; ZA5a,1; KH88,1) whose potential energy is exactly the same as the transaction signs. This is also true for  $\overline{\text{𐎗}}$  (HT7b,1; 87,1; 117b,1), for  $\overline{\text{𐎗}}$  (HT44,1; 96b,1; KH10,3 ecc.) and for  $\overline{\text{𐎗}}$ . And, on the basis of the analogy with similar records, also  $\overline{\text{𐎗}}$  (PA1) and  $\overline{\text{𐎗}}$  (SYZg1) have the same potential energy as the transaction signs. A term inherent to the transaction must be considered also  $\overline{\text{𐎗}}$ . By examining its potential energy one can ascertain that a) it can be used both ideographically and phonetically; b) if it is used ideographically it occurs alone, ligatured, placed after the term to which it refers; c) since it alternates with terms which indicate transaction, is itself a term which deals with the transaction.

-The second question is the following one: do terms exist the role of which is certainly recognisable? Commodities and terms congruent with them certainly have this property but there are four tablets which are very indicative in this subject. They are HT27a, 89, 94a and 100. They all belong to the mixed type (sixth pattern) and, although HT100 is damaged at the beginning, they all have the same structure since an  $x_j k_j$  ( $j=1..n$ ) record is followed by the total and by another record of agricultural products such as barley, figs and wine (on HT100 there are also perfumed oils). What is easily recognisable is that all the terms of the first record deal with the notion of HOMO, since this pictogram is present among them and since they are a sum total. Among these terms there are some such as RE ( $\overline{\text{𐎗}}$ ), TA ( $\overline{\text{𐎗}}$ ), ta-ra ( $\overline{\text{𐎗}}$ ), KI ( $\overline{\text{𐎗}}$ ), which, being present also elsewhere, allow us to understand the value of other congruent terms. Returning, for instance to HT32, we have in the third line a record which has SU as the heading and RE and DI as items of the list. In the fourth line OLE+\*61 is the heading and RE and DI as items of the list. Knowing that RE has the same potential energy as HOMO, we must be sure that also DI refers to the same notion. In the same way, on the basis of the analogy with the perfumed oil recorded in the fourth line, one must be certain that also the term SU refers to a commodity, what is confirmed by the comparison of the occurrences of this sign, which appears also inscribed in a vessel  $\overline{\text{𐎗}}$ .

It is possible to make a lot of similar examples, on the basis of which we can assume that the following terms: RE ( $\overline{\text{𐎗}}$ ), TA ( $\overline{\text{𐎗}}$ ), \*66 ( $\overline{\text{𐎗}}$ ), DI ( $\overline{\text{𐎗}}$ ), \*87 ( $\overline{\text{𐎗}}$ ), \*87+KU, \*35 ( $\overline{\text{𐎗}}$ ) \*35+\*87, PA ( $\overline{\text{𐎗}}$ ), KI ( $\overline{\text{𐎗}}$ ), KU ( $\overline{\text{𐎗}}$ ) refer to the notion of HOMO. And, in the same way, we can assume that the terms: KA ( $\overline{\text{𐎗}}$ ), PU ( $\overline{\text{𐎗}}$ ), \*01 ( $\overline{\text{𐎗}}$ ), SU ( $\overline{\text{𐎗}}$ ), \*81b ( $\overline{\text{𐎗}}$ ), \*90 ( $\overline{\text{𐎗}}$ ) refer to commodities. They all are terms that, once identified, allow, on the basis of the above congruence principle, to identify other similar signs and terms.

-The third is a question I would like to ask everyone: after so many years of failure, facing with some one thousand five hundred documents, shouldn't we stop saying that they are insufficient? Isn't it better to try to approach them consistently and correctly and avoid behaving like Aesop's famous fox? If the normalisations are incorrect, if the words are non-existent, if the role that the terms acquire in the records is not correctly identified, how can one expect the grapes to ripen?

Let us consider, for instance, the case of the sign TI ( $\overline{\text{𐎗}}$ ) and let us consider the respective records on KN1a e KN1b; which, on the basis of the potential energy of TI, must be read:

KN1a ja-ku TI  $\overline{\text{𐎗}}$  240

KN1b ja-du-ra TI  $\text{A}$  105

Reading which is confirmed by the fact that both ja-ku and, perhaps, [ja]du-ra are present also elsewhere (cf. MA2b,2 e MA2a,1). So, once one has ascertained that the sign TI is a word by itself, two important consequences arise: a) the words ja-ku-ti and ja-du-ra-ti do not exist in the Minoan vocabulary and to look for them is only a waste of time b) the records, once they have been read in the correct way, finally acquire a sense. The potential energy of TI (i.e. the comparison of all the occurrences in which it appears) proves that it is a term which deals with the transaction. Giving it the approximate value of “payment” (or something like that), we have: ja-ku, payment of 240 units of the commodity  $\text{A}$ , and ja-du-ra, payment of 105 units of the same commodity.

Other groups, such as, jja-ma-uTI (MA2c,2), ko-sa-iTI (HT117a,7-8), da-\*61-kuTI (HT117a,8-9) ecc. must be read in the same way, seeing as they also are made up of *two* morphological elements, which are different to each other.

But TI ( $\wedge$ ) is not the only sign which keeps a high ideographic input. The compared study of the respective occurrences proves that there are others which have the same characteristics. The more used among them are: KA ( $\oplus$ ), I ( $\Psi$ ), A ( $\Uparrow$ ), and DA ( $\dagger$ ).

Examining the sign KA, its potential energy shows a) that it can be placed both before and after the term to which it refers and b) that its approximate meaning must be “offering” or something similar. To make some examples, it is placed after in a-si-ja KA (HT28a,1;b,1) which must be not read as only one term but as a-si-ja + offering. It is placed before in KA po-ru (HT115a,5), which must be read as offering + poru which, considering the very diffused variation Linear A “ru”/ Linear B “ro”, can be the equivalent of the Mycenaean po-ro with the result that the term means “carriers of offerings” ( $\kappa\alpha\eta\phi\acute{o}\rho\omicron\iota$ ) and it is the *scriptio plena* of the ligature  $\text{A}^{\circ}$ .

The sign  $\Psi$  (I) is used both phonetically and ideographically. If it is used with ideographic value, it can be a transaction sign or a logogram which is placed before the term to which it refers. The potential energy leads us to a meaning such as “sacred”. So, there is no point in looking for a word such as  $\Psi\oplus$  (=IKA HT91,1; 102,4) it is a ligature, as also the fact that the second sign is written smaller than the first one proves, and its meaning is “sacred offering”, and  $\Psi\text{A}$  means “sacred man” i.e. man with sacred duties (HT7a,1-2; on 93a,5 it is inverted) and  $\Psi\dagger$  means sacred DA.

$\Uparrow$  is the sign of the double axe and it indicates the upper most hierarchy since its potential energy leads us to believe that there is a regal significance behind it. It is placed before the term to which it refers as it happens, for instance, in  $\Uparrow\wedge$  (a term which occurs frequently in documents), which consequently assumes the meaning of “royal DU”.

DA ( $\dagger$ ) can be placed both before and (very rarely) after the term to which it refers. But its potential energy indicates that it has a different meaning in both cases. If it is placed before as in DAKu-na, it has the same role that it takes in DAMa-te. If it is placed after as in qa-tiDA it changes its meaning and indicates something having to do with the transaction.

So, by considering Linear A to be an individual graphic system, different interpretations develop from the confused ones that we obtain when we apply the Linear B graphic system to read it. Of course these interpretations must be proved by the decipherment of the texts but they already indicate a writing system very consistent with the time and the places in which it was used.

If we, following the GORILA editions, persist in reading Linear A as it was Linear B, we obtain only the following result: the words that make up the texts will remain indistinct and not comparable among them. To convince ourselves of this we must take into consideration another word such as, for instance, ka-na-ni-ti (KHWc2005). There is no point in trying to translate it since it does not exist as a word by itself. The scribe had no knowledge of the word ka-na-ni-ti. He had instead knowledge of three words: kana (HT23,1), NI (= FICUS) and TI and *these* he wrote: kana-figs- payment!

## Decipherment

It consists in recognizing the peculiar morphological and grammatical features of the language, after one has recognised the graphic ones. Unfortunately Chadwick died before I completed the part concerning the potential energy of the terms but, already after the comparison between the Linear A and Linear B accounts, he recommended that I should begin to prepare grids for the translation of the value of the signs. The last time I saw him, he was very tired and, as always, very worried for the publication of the Corpus of the Inscriptions from Knossos. After giving me his usual advice, he explained to me how to prepare a grid of signs.

Following his advice, I first prepared five, and then I summarized them into two grids which I joined together in a single grid (which is the one which is reported in this work).

In the first of the above two grids I placed the signs the value of which we can obtain by:

- 1) the words which occur in both the languages;
- 2) the signs which alternate among themselves in both the writing systems;
- 3) the signs which alternate among themselves in Linear A.

In the second grid I placed:

- 1) the Linear A signs which respond to the Linear B signs with different vowel sounds;
- 2) the signs whose values can be obtained from the improvement in the study of Linear A.

The first point of the first grid is obvious enough. The following groups are present in both the languages: a-ti-ka (ZAWc 2), da-i-pi-ta (ZA8,5; etc.), ka-pa (HT6a,1; etc.), i-ja-te (PHZb,4), ki-da-ro (HT117a,9 etc.), pa-de (HT9a,2 etc.), se-to-i-ja (PRZa1b), su-ki-ri-ta (PHWa32), u-su (HT117a,2), i-ta-ja (HT28a,6), ma-di (HT85b,5; etc.); ku-mi-na (ZA10a,4, etc.). More problematic are pa-i-to, which probably occurs only on HT97a,3, and a-ra-ko (KO?Zf2), which is too damaged to allow us any certainty. Since these words are the same in both the languages, obviously, one is led to assume that the signs that make them up have the same value in both the writing systems. But a question arises: why are they so few? In two languages spoken in the same area (Crete) and by two closely related people, one would expect a higher number of them.

In response to this, Chadwick invited me to do an experiment. We chose the variation Linear A ku-pa<sub>3</sub>-nu/ku-pa<sub>3</sub>-na-tu and Linear B ka-pa<sub>3</sub>-no/ka-pa<sub>3</sub>-na-to, and he rewrote it in Linear B and I in Linear A. Making this, the variation becomes unrecognisable since, by changing the vowel, the sign also changes and we have in both the cases two words with two different signs. So, I came to the conclusion that, although they exist, it is probable that we are not able to recognize immediately a larger number of terms which are common to both languages because of the vowel differences.

The second and the third point of the first grid are in turn obvious enough. If we have signs which alternate among themselves in two different writing systems, we are led to believe that they have the same value. So, it is proved that in both Linear A and Linear B the sign which stands for “a” alternates with the sign for “ja”<sup>2</sup>, that “qa” alternates with “qe”, “re” with “ri”, “ra” with “re”, “te” with “ti” etc. To these we can add the signs that alternate among themselves in Linear A, which are: u/o, u/wa, ka/ke, ki/ke, ma/mi, me/ma, nu/na, ni/na, ta/te, te/to etc., some of which alternate in turn with signs of the preceding point (for instance te/ti) and consequently, on the basis of the transitive property, we must think that their respective values are the same. But there is a thing which must be underlined regarding this: none of the preceding variations gives precise indications about the vowel sounds of the signs since, by attentively observing, we can see that the Linear B indications are above all related to the consonantal part of the signs.

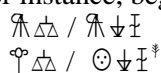
The first point of the second grid is the only one that gives some indications about the vowel part of the Linear A signs but, if it is misinterpreted, it could be deceptive. We can see that Linear B responds to the Linear A following words di-de-ru, ka-sa-ru, a-ti-ru, qa-qa-ru, a-ka-ru, ka-ru and ma-ru etc. with di-de-ro, ka-sa-ro, a-ti-ro, qa-qa-ro, a-ka-ro, ka-ro and ma-ro and the same happens with Linear A a-ta-re, pa-ja-re, te-ja-re, a-ra-na-re to which Linear B responds with a-ta-ro, pa-ja-ro, te-ja-ro, a-ra-na-ro. This, on one hand, confirms the consonantal value “r” for the signs  $\Uparrow$  (=ru) and  $\Psi$  (=re) but, on the other hand, changing the vowel (u/e in Linear A and o in Linear B), it opens a series of interesting questions such as: how extended is this phenomenon? Does it happen also at the beginning and in the middle of the words? Is it also present in other signs? Is it possible to think of a value “rwo” or “rjo” for the sign  $\Uparrow$ ? We will be able to give answers to all these questions only after the language has been deciphered.

At the moment it is only possible to note the following Linear A/Linear B alternances, ka-ra-ti/ka-ra-to, ro-ke/ro-ko, ku-ku-da-ra/ku-ka-da-ro, ku-ma/ka-ma, ku-ru-ku/ku-ru-ka, ka-ku/ka-ko, ka-ju/ka-jo, a-ti-ju/a-ti-ja, ke-ki-ru/ke-ku-ro, a-ki-ro/a-ku-ro/a-ke-ro, a-ka-ru/a-ka-wo/a-ka-re-wo, qe-ti/qe-ti-ja, di-ja/di-wi-ja, a-su-ja/a-si-wi-ja, a-ru/a-ri-wo, sa-ma-ro/sa-ma-ri-jo, ma-ru/ma-ri-wo besides than Linear A ki-rita/ki-ri-te-wi-ja and Linear B ma-ri-ta/ma-ri-ti-wi-jo etc., a-maja/a-me-ja, u-na-ka/a-na-ka, a-ra-u-da/a-re-u-da, sa-ma-ro/sa-ma-ri-jo, etc.

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<sup>2</sup> Since the value of the signs must be confirmed by the translation of the documents and since this part has only the aim to prepare this translation, the respective references of both the languages have been omitted in order to not make the text too heavy.

The second point of the second grid is the most innovative one, since it is based on Linear A itself, on the progress one can obtain in its understanding. It is possible to begin with the terms which have been interpreted as terms that have to do with the transaction, in order to try to read them and to give a value to the signs that make them up. We can, for instance, begin with:



from the first variation  $\Delta\Delta / \psi$  we can argue a consonantal value “t” for the sign  $\Delta\Delta$ , also confirmed by the variation  $\Psi \Delta\Delta / \Psi \Delta$ .

$\odot\psi\ddagger$  is very similar in the consonantal part of the first two signs to Mycenaean qe-te-jo, so, since also their respective potential energy is the same, one can think of a value “jo” for the sign  $\ddagger$ .

The sign  $\text{A}$  remains, but, before we deal with it, a misunderstanding must be cleared up. It is not true that the Linear B sign whose value is “wo” does not exist in Linear A. The sign  $\text{K}$  correspond perfectly to it and the sign  $\text{A}$  is, on the basis of its potential energy, a variant of it with the value of  $o_2$ .

So, summing up, I propose the following values:  $\Delta\Delta = tjo$ ,  $\ddagger = jo$ ,  $\text{K}$  and  $\text{A} = wo$ . These values are obviously only hypothetical and they will be accepted when they are confirmed by means of a homogeneous, congruent and plausible translation of their occurrences in the words.

So, summing up the grid based on the above points is the following one:

A	E	I	O	U	A <sub>2</sub>
JA	JE		JO	JU	JO <sub>2</sub>
WA	WE	WI	WO		Wo <sub>2</sub>
DA	DE	DI		DU	DJA DE <sub>2</sub>
KA	KE	KI	KO	KU	
MA	ME	MI		MU	MNA
NA	NE	NI		NU	
PA		PI	PO	PU	PA <sub>3</sub> PU <sub>2</sub> PU <sub>3</sub>
QA	QE	QI			
RA	RE	RI	RO	RU	RA <sub>2</sub>
SA	SE	SI	SO	SU	SI <sub>2</sub>
TA	TE	TI	TO	TU	TJA TJO
ZA	ZE				

It is possible to make the following remarks:

- 1) up to now the sign  $\text{A}$  (“e”) is attested at Haghia Triada almost always with ideographic value. It occurs alone or in ligature, but only once, on HT34,2-3, with other signs.
- 2) The sign  $\text{U}$  (“u”) alternates with the sign  $\text{O}$  (“o”), (cf. a-mi-da-u/a-mi-da-o).
- 3) The sign  $\text{I}$  (“ri”) is more than once attested without the central stroke ( $\text{I}$ ). In this case it is the equivalent of the Linear B sign for “we”.
- 4) The sign  $\text{K}$  is the same as the sign which stands for “wo” in Linear B. The comparison of the respective occurrences, in which the sign  $\text{A}$  appears leads to believe that this sign is a variant of the preceding one with the value of “wo<sub>2</sub>” or, perhaps, “oi”.

<sup>3</sup> The variation  $\Psi / \odot$  is present also elsewhere.

<sup>4</sup>This sign is inexplicably read 'ne', without any evidence.

- 5) Four signs are very similar. They are : 𐀓, 𐀔, 𐀕, 𐀖. They are continually confused with each other. Can we please free ourselves of the following misunderstanding? It is 𐀔 and not 𐀓 on KH88,1 and on CRZf1,11. There is no doubt in this because, seeing the respective photographs, one can easily ascertain this. The third sign (𐀕) alternates with 𐀗 in the groups 𐀓 𐀗𐀓 / 𐀓 𐀕𐀓 . Since 𐀗 = “de”, 𐀕 = “de<sub>2</sub>” or also “do” on the basis of the similarity with the correspondent sign in Linear B
- 6) The sign 𐀘 appears also with the internal strokes placed crosswise. This does not modify its value in tablets such as HT11a, ZA4a,8 etc.
- 7) The sign 𐀙 appears both with and without a central stroke inside it (see, for instance ARKH2, 1 and 2). In the first case it has the value of “si”, in the second the value of “ne”. When it is used as ideogram, it has the value of NE, but in the other cases, the scribe is not precise and often the sign occurs in damaged contexts, so one must compare the respective occurrences paying much attention to ascertain if it stands for “ne” or “si” .
- 8) The equivalent of the Linear B sign “si” is attested only once on ZA26a,1.
- 9) The sign 𐀚 (also with a little stroke or a point inside it) stands for mi-na or, better, “mna”. This is for the following reasons a) on the basis of the alternances : u-mi-na-si (HT28b,1-2 etc) / u- 𐀚-si (HT15,1 etc.) and pi- 𐀚-te (HT116a,4) / ]pi-mi-na-te ( APZa2,2), b) because it is similar to the Linear B ideogram for moon (μήνη) .
- 10) It is possible to test a value “qe<sub>2</sub>” or, better, “qi” for the sign 𐀛, because of the alternance sa-qe-ri (HT11a,4) / sa-𐀛-ri (ZA11b,1 and because the fact that the sign for qi is similar in Linear B.
- 11) There is the sign \*174 which is very similar to the sign that stands for jo in Linear B. Since it is very rare (a-to-jo-to-i KH11,4), I have recorded it as jo<sub>2</sub>.

So, on the basis of a) the correct normalisation of the records, b) the correct individuation of the value the terms and c) the above grid, it is possible to try a hypothesis about the language. On this subject Chadwick wrote to me that it would have been necessary to experiment on more than one language, because only through experimentations could we hope to find the exact one. But, by reading correctly the records and by recognising the potential energy of the terms, there is only one language which becomes so evident that it is impossible not to see it.

I am speaking of Greek, which is the language I am beginning to test firstly on the basis of the following translations:

#### 1) Items:

IDAma-te (ARZf1 ecc.) = sacred (I) Δᾶ μήτηρ<sup>5</sup>;

DAku-na (HT103,4) =DA γυνή = Δᾶ young bride;

DAku-se-jo (HT103,4-5) =Δᾶ χύσεω<χύσεω i.e. of the production of metals or of richness;

DAqe-ra (HT6a,6 etc.) = Δᾶ θήρας, i.e. of hunting;

DAKA (HTWa 1001-1005) = offering (KA) to Δᾶ;

a-si-jaKA (HT28a,1;b,1) = offering (KA) to Ἄσια (a divinity, daughter of Oceanus and Tetys);

IKA (HT91,1 etc.) = sacred (I) offering (KA);

KApo-ru (115a,5) = KA φόροι i.e carriers of offerings, also in the ideographic form HOMO+KA ( 𐀗<sup>o</sup> κληφόροι);

ADU (passim) =royal (A) donation, DU= δῶς;

IDU (HT104,2-3) = sacred (I) donation (δῶς);

#### 2) Single words:

u-mi-na-si (HT28b,1-2 etc.) =ὑμνησις, celebrations;

qa-qa-ru (HT93a,4-5 etc.) = βέβηλος, uninitiated;

pu-de (KH88,2) =σπονδή, libation;

ku-pa<sub>3</sub>-nu (HT1,3, etc.) =κάβαρνος, priest, (see Hsch: κάβαρνοι. οί τῆς Δήμητρος ἱερεῖς);

<sup>5</sup> In PH15b ]ma-te-re occurs, which, on the basis of the variation re/ri, could be the dative of μήτηρ.

ma-ri-tya (HT90,3) =μεριτεῖα, division.  
pa-ra-jo (115a,4;b,1) = παλαιός, old;  
Ara-ra-jo (HT96a,1-2;b,1) = royal (A) old (παλαιός).

### 3) Proper names:

Ka-ra-ti (HT8a,2) = Κραῖθις, man;  
Ka-qa (PK1,1) = Κάβης,man;  
-A-ja-ku (KNZf13)= Αϊακός, man (Il 21,189 etc.);  
Qe-si-te (MAZe11) = Θερσίτης, man;  
Da-jo-ku (HT117a,8) = Δηίοχος, man;  
Ra-o-di-ki (PH2,1-2) = Λαοδίκη, woman (IL.6.252 ecc.);  
A-ra-tu (ZA7a,1-2) = "Αρητος, man;  
Tu-ju-ma (HT117a,3-4) = Θώυμας (Θάύμας), man;  
Ja-ra-ju (HT109,4; 122b,3)= 'Αρήιος, man(see also 'Αλήιος);  
A-ri-pa (PE2) = 'Αρίσβας, man (IL.17,345);  
A-na-nu (HT159) = "Ανανος, man;  
Ta-ri-na (HT10b,1-2) = Τηλίνης, man;  
Mu-ru (HT3,4)= Μόλος (Il.10,269), man;  
Da-tu (HT123a,6) = Δαίτος, man;  
A-re-da-no (HT29,5) = 'Ηριδανός;  
A-ru-da-ra (HT28a,5)= 'Αριδήλα;  
Pi-ti-jo (ARKH4a) = Φύτιος;  
Sa-pa<sub>3</sub> (PH2)= Σέβης;  
Mi-da (HT41a,49)= Μίδα;  
Qe-ra<sub>2</sub>-u (HT1,1)= Τηρεύς;  
Ma-ne (HT43,1)= Μάνης;  
We-ru-ma (HT118,4)= 'Ερύμας;  
Ku-ra-mu (HT117a,2)= Κάλαμος;  
A-we-su (HT118,3)= Αῦσων;  
Te-qi (HT13,3)= Θέστις;  
A-ki-pi-e (KH10a,3-4)= 'Αλκιβίη;  
A-ra-u-da (KH5,1-2)= 'Ηρώνδας;  
Pa-ja (HT41a,4)= Βαία;  
A-si-ja (HT28a,1)= 'Ασία.

### 4) Brief inscriptions:

**PKZb21** me-wi-ta-ni-te = me-wi-ta NI TE = Μελίτη (woman Il. 18.42), contribution (TE=τέλος)<sup>6</sup> of figs (NI=FICUS).

**HTZb159** a-na-nu ne-ja-se[ = "Ανανος (man) νήησε =Ananos filled (from νηέω, to fill. For ne-ja-se see also PEZb3).

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<sup>6</sup> The group of signs until now has been read me-wi-ta-ni-te, as it was only one word which, of course, does not exist in the Minoan vocabulary. B. Davis reads it ki-ta-ni-te, i. e. ki-ta NI TE. This does not change the sense of the record which becomes Ki-ta (Σκύθης man's name), contribution of figs. Τέλος = tax, from τελέω = to pay or, also, from the root \*tel of τέλλω (regarding this, see Chantraine, Dictionnaire Etymologique de la langue grecque, Paris 1968, p. 1103).



5) Tablets:

**KN1** a) ja-ku TI \*44 240  
b) ja-du-ra TI \*44 105

which means:

- a) ἄργος payment (TI) of 240 units of the commodity \*44 (𐀀)  
b) Ἡδύλη payment of 105 units of the same commodity.

Note

Ja-ku also ἄλλων.

\*44 stands for a commodity which appears frequently and is always followed by high figures. On MAWc<5> it appears in ligature with GRA;

**MA1**

The tablet records that an offering to the goddess Δώς and another to the goddess MA have taken place.

side a) X I DU-wi . \*102 . qe-de-mi-nu  
side b) A MA . \*102 . qe-de-mi-nu

The tablet has no figures and, on the side a, it begins with the sign X which in Linear B indicates that the scribe has checked it. So the meaning of this tablet is the following one:

- side a) it has been checked (X) that the offering (\*102) for the sacred (I) Δώς (DU-wi) has been obtained with profit. (qe-de-mi-nu = κερδημένος);  
side b) for the royal (A) mother (MA) the same offering (\*102) has been obtained with profit.

Note.

Δώς (root in οϝ) means gift and it is a name of Δημήτηρ (Hom122);

\*102 an offering, but, although the symbol is very similar, it seems to have a different meaning than Θ; qe-de-mi-nu = κερδημένος p.p.m. of κερδαίνω, to obtain with profit. One would be expected a dental exitus of the labiovelar but also elsewhere, and in the same Linear B, a velar exitus is not rare. For “mi” instead of “me”, see the Linear A variation i/e (for instance ki-ri-ta<sub>2</sub>/ ki-re-ta<sub>2</sub> and many similar ones.)

**PA1** The tablet is similar to HT43, but the commodity is different:

a-ku YU pa-tjo 35  
ἄργος must sow (pa-tjo= σπαρτέον) 35 units of FAR (YU).

Note. ἄργος represents a man whose name could also be ἄλλων or Αἴγων;

the third sign stands for a commodity which, as it is possible to ascertain on the photo, is FAR (or, more difficulty, FAR+I, i. e. FAR for sacred aims);

**HT43** ma-neDU . pa-tjo . I IGRA 5[

Μάνης, for the donation (DU=δώς), must produce (pa-tjo =σπαρτέον) for sacred aim (I) 5[ units of sacred wheat (IGRA).

Note

Between the second I (=𐀀) and GRA there is no punctuation mark. It is the sign which is damaged on the right side. The notion of IGRA= sacred wheat is also present on other tablets ( see, for instance, HT93a 4-5; 120,4;etc);

**HT41** Line 4) mi-da FIC pa-ja 2+Lm23<sup>2</sup>

Μίδας (man): 2+Lm23<sup>2</sup> units of figs for Βαία

Note.

Βαία, an epithet of Δημήτηρ, could also be Φαία, woman's name.

**HT35** Ti-ti-ku \*41 i-ku-ta HORD 1, \*96+RU Lm19, ri OLE Lm19, \*90 Lm19, taOLE [ ], E 5, \*40+PU Lm18, roVIN Lm23.

Translation: for the religious contribution (\*41) of the sacrifice (ti-ti-ku=θυτικόν), they who come to implore (i-ku-ta =ίκόντες): 1 unit of barley, Lm19 of a unit of \*96+RU, Lm19 of a unit of riOLE, Lm19 of a unit of \*90 etc.

Note.

Θυτικός is an adjective which occurs also on ZAZb3, with the same meaning. In this case it refers to the transaction sign \*41, which appears also in others religious contexts.

i-ku-ta =ίκόντες da ἴκω, to come to implore. However also sacred χύται (m.p), foundry workers, a kind of men here reserved to religious purposes, is possible.

**PH2** The tablet contains two records of two types of oil. The first record refers to oil +A (i.e aOLE) and the second to oil. There is no doubt that OLE+A is the ligature 𐀗 written in plane.

aOLE	tu- <u>me</u> .	ra-o-di-ki	60
		pi-ru-qi-ju	60
OLE		sa-pa <sub>3</sub>	60

The translation is:

Oil of royal kind (A) for the homage (tu-me = τιμή): Λαοδίκη (woman's name) 60 units, Φιλοίτιος (man's name Od.20) 60 units;

oil: Σέβης (man's name) 60 units.

Note

The vertical stroke after tu-me stands in my opinion for a punctuation mark and not for a figure. (See passim).

Pi-ru-qi-ju, the third sign is \*88.

<b>HT2</b>	A ka-ru	uOLE	20[
		]aOLE	17
		eOLE	3[
	Ki-re-ta-na	uOLE	54[
		aOLE	47

Translation: quantity available (ka-ru=καίρός) for the Palace (A) : 20[ units of uOil, 17 of ]aOil and 3[ of eOil. Belonging to Κυρίτα (another name of Δημήτηρ): 54[ units of uOil and 47 of aOil.

Note.

Ka-ru is a transaction term which indicated an agreed, available quantity. Here the term is preceded by the sign A which stands for royal. This means that the quantity has been agreed or it is available for the Palace.

Ki-re-ta-na is ki-re-ta + "na" a suffix which, also elsewhere, means "to belong to".

Ki-ri-ta= Κυρίτα, name of Δημήτηρ. The variation i/u is very frequent in Linear A (see as follows).

**HT96b** Apa-ra-jo qa-tjo ra-re I GRA 40+Lm8, roOLE 4, FIC 2+Lm18.

'Pᾶρος (man's name) must give (qa-tjo) to the royal (A) old (παλαιός) for sacred aim (I) 40+Lm8 units of wheat, 4 units of the perfumed oil roOil and 2+Lm18 units of figs.

Note

Apa-ra-jo, old in the sense of venerable; I prefer this interpretation instead of 'Ασφάλιος (a divinity name).

For 'Pᾶρος, see also HT117a.

**HT92** TE. ADU . GRA 680 \*67 12  
Tax (TE). Donation ( δῶς) for the Palace (A) : 680 units of wheat and 12 of \*67.

Note

The records shows that there is a difference between TE and ADU, because the first stands for tax, imposed contribution, DU means donation ( δῶς), which, since it is very often united to A, means donation for the palace.

**KH88** \*23-nu-ma wo<sub>2</sub>-tjo FICUS 10  
pu-de 8  
\*23-nu-ma must pay (οἰστέον) 10 units of figs and 8 libations (pu-de=σπονδή = libations, generally of wine

### Minoan language

The previous documents show that the Minoans spoken Greek. This truth can be further tested by considering:

- a) *graphical rules that allow the correct reading of the words;*
- b) *translation of the accounts;*
- c) *inscriptions;*
- d) *rules which allow to recognise the kind of Greek the Minoan people spoke;*
- e) *Minoan social organization; if what emerges from the texts agrees with the knowledge we have of this people.*

a) *Graphical rules that allow the correct reading of the words.*

In Minos '88 I declare myself convinced of the fact that Linear A was an agglutinative language. Although Chadwick tried gently to dissuade me, I remained for several years convinced of this. I was, of course, wrong. I made, in fact, an error which many others make. I was then based only on the GORILA publications and I confused the writing system with the language. Not the language but the writing system is agglutinative since, as in the other ideo-phonetic systems, the Linear A words are created by adding ideographic elements to the phonetic ones. My error was in the fact that I erroneously thought that these ideographic elements were agglutinative affixes and not logograms as they actually are. Terms such as A, I, KA, DU, TE, TI, DA to which we must add MA, RE, SA, TA, SE, MI, KI, NE, SU and DI, (which are the most used ones) have a potential energy which demonstrates that they can be used both as phonograms and logograms. Regarding their logographic use two aspects must be taken into consideration: a) their meaning and b) the way in which they aggregate to the other signs, i.e. the word formation.

a)The meaning:

A means “royal” and, since its symbol represents the double ax, which is in turn the symbol of the palace, it is very probably the acrophonic abbreviation, as it is already said, of ἀξίνη (see Hsch: ἀξίνη · δίστομος πέλεκος ). It precedes the term to which it refers and the meaning “royal” has also the value of “belonging to the palace” and, consequently, of “highest quality”.

I means “sacred” and has this meaning also when it is used as transaction sign. It is the logographic abbreviation of the Greek word ἱερός. (see also ἱρος.)

KA means “offering”, it often appears in religious contexts such as a-si-ja KA (HT28a,1;b,1) = offering to Ἀσία, a divinity, and I KA( HT91,1) = sacred offering. In my opinion, it stands for the word ka-na (HT23,1)= κάμμα, κάμεον. Therefore ka-po-ru (HT115a,5) and  $\text{A}^{\circ}$  (passim) are the equivalents of the Greek word κληφόρος.

DU is the equivalent of the Greek word δῶς = donation and it is almost always associated with the palace (see the very used word ADU = royal donation). Rarely it is associated with people's names as in the case of ma-ne DU(HT43,1)= Μάνης donation, i.e. donation of Μάνης (man's name), or to noun as in the case

of DUda-ma (HT6b,4)= δῶς δάσμα, i. e. part (δάσμα) of a donation (δῶς), which indicates a subtotal of the record.

TE means tax, imposed contribution. It is different from KA= offering and from δῶς = donation. It is commonly used as transaction sign in list of agricultural commodities and stands for τέλος = tax, from τελέω = to pay, from the root \*tel of τέλλω (see Chantraine, Dictionnaire Etymologique de la langue grecque, Paris 1968, p. 1103).

TI means payment and occurs both referred to commodities and to men.

DA = Δᾱ refers to the great goddess. It is surprising the number of words in which DA appears:

- DAsi-tjo (HT85a,3-4 etc.) = DA σιτίον = DA wheat;
- DAqe-ra (HT6a,6 etc.)= DA θήρας= DA of hunting;
- DAku-na (HT103,4) = DA γυνή = DA young bride;
- DAku-se-jo (HT103,4-5 etc.) = DA χύσεως (<χύσεως) = DA of the fusion of the metals;
- DAana-si (HT126a,1) = DA νῆσις = DA weaving;
- DAta-ra (HT6a,1) = DA θηλή = DA prosperity;
- DAwe-da (HT10a,4etc)= DA ὕδης = DA of the family (Hsch);
- DAminu (HT117a,8) = DA σμῆνος = DA beehive;
- DAu-pu<sub>3</sub> (HT120,3-4) = DA ὄπιον, opium or, less probably, DAοφίων = of snakes;
- DAdu-ma-ta(HT95a,1)= DA δώματα, the houses of DA;
- Dana-tu DA(ARKH6,1)=DA νηστός,DA spinning;
- IDA (PKZa18 etc.) = sacred DA;
- IDA ma-te (ARF1) = sacred DA μήτηρ.

But regarding the words composed with DA, it is evident that they are for the most part names of groups of people devoted to the great mother DA, i.e. confraternities, which are largely attested in Minoan texts. DA is surely referred to the goddess only when it is preceded by I, i. e. by the sign which means sacred (see IDA=sacred DA or IDA ma-te= sacred DA μήτηρ). Rarely DA occurs after the term to which it refers and, in this case, it has nothing to do with the great goddess but it is the Greek word δαίς and means part, portion ( see HT12 or KH5).

MA, also, refers to the great goddess. It stands for μήτηρ and it occurs in forms such as AMA (MA1b)= royal μήτηρ or AMAja(KH14,1) = belonging to the royal μήτηρ or also MA ka-ri-te (HT117A)= offerings in thanks (χάριτες) to MA.

RE has a meaning such as attendant, supervisor, guardian or something similar. It perhaps has to do with λεῦσσω (cf. λεσῶνις, supervisor in Egypt).

SA is in correlation with RE, but although it designs people with special duties, his meaning remains uncertain.(Hsch: σαίς·κούρος).

TA stands for θής (Od.4.644 and Hsch: θής. δούλος, μισθοτός).

SE is in correlation with TA but it seems to have to do with religious contexts. It is possible that it the abbreviation of σημαντήρ, owner, or σημάτωρ, head, guide.

MI appears in religious contexts and has probably to do with μεδέω, to protect, to heal.

KI refers to a class of men and, in my opinion, stands for κίρων= castrated. In this sense it refers both to animals (HT118) and men (see Hsch: κίρων. ἀδύνατος πρὸς συνουσίαν).

NE is difficult to understand since it is easily confused with SI. It is very used as trade mark referring to a kind of vessels. When it is ligatured, it has the same value as in Linear B and means young (νεός).

SU, also, indicates vessels. On MA10a it occurs inscribed in a vessel. The comparison of all its occurrences confirms that it indicates a kind of vessels.

DI refers to a class of men, as it is possible to ascertain on the basis of the comparisons of its occurrences. He always follows the term to which refers ( MA DI= the di man of MA and KA DI=the KA offering of DI, which on ZA15b is written with a punctuation mark between the two signs). But, if DI occurs at the beginning of the word, in religious context, it refers to a divinity, probably DI-we, the same as in Linear B.

Three words are regularly used in the Minoan documents. They are ku-ro, ki-ro and sara<sub>2</sub>.

Ku-ro. As it is well known, it is the word that means total. It is the equivalent of the Greek word κύρος = check, confirmation, from the verb κυρόω =to verify, to confirm. So, it must be translated “verified total” or, simply, “verified”. Po-to ku-ro means φόρτος =goods which have been verified, that is loaded goods which have been confirmed.

Ki-ro stands for deficit. Minoan people had three words to indicate a deficit. They are ki-ro=χῆρος, devoid, not having, which is the most used one; ki-ra-ja =χρεία lack, lack of, need; and ki-ra which is χρή<sup>7</sup>= it is necessary.

Sa-ra<sub>2</sub> appears on more than a tablet. I have been looking for its meaning for a long time but actually seeing as σάλλω is the Dorian form of θάλλω which means to flourish, to prosper and seeing as θαλία means abundance, prosperity, I am convinced that sa-ra<sub>2</sub> means surplus, reserve, stocks.

b)The formation of the words.

This second, very important, aspect concerns the ways in which the above terms join with the phonetic ones to form the words. I will clarify this by means of an example. For many years I looked for the meaning of the word I-nu-ma-re (ZA4a,5-6, etc.). On the basis of its potential energy I was certain that it was not a proper name but, on the contrary, it indicated a kind of men. So, when I found the Greek equivalent ἐνομήρης= tied, linked, hostage, I felt as though I had touched the sky with my finger. But I remained for a long time unconvinced of this interpretation even after my initial joy. In reality it has taken me many years to understand that also in the case of i-nu-ma-re, the reading is fundamental. In fact this word must be read Inu-maRE, i.e. RE (attendant) of the sacred (I) nu-ma (νομή =pasture or, also, distribution). This reading is confirmed a) by other terms having RE in final position b) by other terms in which one or more of the preceding logograms appear, whose meaning become comprehensible and congruent with other similar groups, if we give up reading them as if they were phonetic sign and we recognise correctly their value as logograms.

Examples of the group “a” are:

na-daRE (HT117a,5)= RE (attendant) of Νέδα, a nymph;

ne-daRE (HT17,3) = RE (attendant) of Νέδα (the same as above);

te-jaRE (HT117a,5) = RE (attendant) of Θεῶς, a divinity;

pa-ja RE (HT8b,5 etc) = RE (attendant) of Βαία (a name of Δημήτηρ);

DA RE (passim) = RE (attendant) of DA (the great goddess);

MA RE (HT55a,1) = RE (attendant) of MA (μήτηρ, a name of the great goddess);

Ara-na RE (HT1,4) = RE (attendant) of the royal (A) Ρήνη (a nymph).

But there is a tablet, HT117a, which is very clear regarding this. It contains a list of ten debtors of offerings to a festival in honor of the goddess MA. The last three of these debtors are preceded by the word mi-ru-ta (μερίτης= included) and are all compounds in RE. The normalization of this tablet, up to the total which is placed at the beginning of the sixth line, is the following one:

MAka-ri-te . ki-ro	u-mi-na-si	u-su	1
		mi-tu	1
		ku-ra-mu	1
		ma-ru	1
		ku-pa <sub>3</sub> -nu	1
		tu-ju-ma	1
		u-di-mi	1
		mi-ru-ta	raRE 1
			te-jaRE 1
			na-daRE 1

with the following translation:

<sup>7</sup> The anaptyctic vowel in Linear A is almost always expressed by means of an “i” (see afterwards).

Hymns of praise (u-mi-na-si = ὕμνησις), offerings in thanks ( χάριτες) to the goddess MA; are all debtors (ki-ro) of one offering: Ἴσος, ( u-su II 11,101 etc.), Μίτυς (mi-tu), Κάλραμος (ku-ra-mu), Μάρων (ma-ru Od. 9.197), the κάβαρνος i.e. the priest of Δημήτηρ (ku-pa<sub>3</sub>-nu ), Θώμας (tu-ju-ma), Idmis (u-di-mi, the female of Ἰδμων); they are also included (mi-ru-ta = μερίτης, nom.pl.) the RE of RA<sup>8</sup>, the RE of Te-ja (θεῖα), and the RE of Na-da ( Νέδα, a nymph).

Note

Mi-ru-ta, see also μεριστής = divisor.

Many words belong to the group “b” and I think that it is more clear to deal with them in the respective contexts in order to underline the congruence of their reading. However to give an idea of them, I will list some few examples of them. But, since, it often happens that, a word, as in the case of Inu-maRE, is made up of more logographic<sup>9</sup> elements, I have divided them in the following way:

1) words which contain one logographic sign, such as:

Ata-re (ZA 8,1), royal (A) τηρός (guardian), a religious office;  
 DAta-re (HT88,6), τηρός of DA;  
 TJAta-re (PK1,2), τηρός of θεά, a divinity;  
 KAre-ro (HTWc 3003), offerings from re-ro a class of men (see the place name Λέρος);  
 KApo-ru (115a,5), carriers (φόροι) of offerings (KA);  
 KAKupa (Wc3016a), KA κύμβη (κύπη), offering of bowls;  
 DUda-ma (HT6b,4), donation (δῶς) part (δάσμα);  
 ma-neDU (HT43,1), Μάνης (man’s name) donation (δῶς);  
 pa-roSU (HT20,1), vessels SU containing βᾶρος (an ointment);  
 qa-tiDA (HT12,1), lacking (χᾶτις) part (δαίς from δαίομαι);  
 a-si-aKA (HT28a,1;b,1), offerings to Ἀσία, a divinity;  
 MAka-ri-te (87,1; 117a,1) offerings in thanks (χάριτες) to MA (a name of the great goddess);  
 du-meDI (HT19,3), DI (a class of persons) of Δύμη (a place name);  
 Aka-ru (HT2,1) κειρός (available) for the palace (A);  
 Asa-ra<sub>2</sub> (HT89,1), stocks of the Palace (A);  
 Ina-wa (PH6,1), sacred (I) ναῦς (na-wa);

2) words which contain two logographic signs:

AMAJa (KH14,1), belonging to the royal (A) MA;  
 Inu-maRE (ZA4a,5,6 etc), attendant (RE) of the sacred (I) pasture (νομή);  
 Ara-naRE (HT1a,4), attendant (RE) of the royal (A) Ρήνη (a nymph);  
 ma-kaITA (PK1,8), sacred (I) θής of the battle (μάχα)<sup>10</sup>;  
 ma-kaISE, (ZA8,4), sacred (I) SE of the battle (μάχα);  
 u-taISE (KH7b,2), sacred (I) SE of ὄρτή, celebration (u-ta = ὄρτή);  
 Iti-niSA (ZA15a,3), SA to the sacred (I) beach ( θίς-θινός ,see Hsch:θίν. ὀ αίγιαλός);  
 Idu-jo-NE (HT13,5-6), NE of the sacred (I) δοίος, duo ( perhaps Demeter and Kore);  
 Iku-juTI (ZA6b,1), payment (TI) of the sacred (I) κοῖον, pledge (from κοέω, Hsch);

<sup>8</sup> The term refers here to the function of a man, who is the RE, the attendant of the goddess Ῥῆ, ( a short form of Ῥέα, see vocabulary), but since the proper names are made up in the same way, the Greek man’s name Ῥάρος (see HT96b,2) has this etymology. This happens also with other terms such as DARE (passim), i. e. attendant (RE) of the great goddess DA, and the man’s name Δάρης (also in IL 5,9).

<sup>10</sup> It is certain that μάχα stands for Μάχα, the divinity of the battle. See Hsch μαχητής (Il. 5.801 etc) · στρατηγός, military leader.

Atu-ri-siTI (KNZb,5), payment (TI) to the royal tu-ri-si, doors (see θυρίς);  
Apu<sub>2</sub>-naDU (HT14,3) = δῶς (donation) as royal (A) ποινή (fine);

3) words which are fully made up of logographic signs:  
KADI (ZA4a,8;15b,1) offerings from DI;  
MARE (HT55a,1), attendant (RE) of the divinity MA;  
ASE (HT93a,3etc.), royal (A) SE;  
MIQI / QIMI (KHwC 2064, 2069 and KH74 and Wc2054-55);  
DARE (7a,4 etc), attendant (RE) of DA;  
KAKI (HT37,1,5), Offerings (KA) of KI, a class of men;  
NEKA (HTWa1014-1018 etc) and KANE (HTWa1027), offerings (KA) of NE;  
ITI (HT25b,2-3), sacred (I) payment (TI);  
AMA (MA1b), royal (A) MA, a name of Δημήτηρ;  
IDA passim, sacred (I) DA;  
MADI (85b,5 etc.), DI (a class of men) of the divinity MA;  
MAIMI (HT89,2), sacred (I) MI of MA;  
IDUTI (HT104,2-3), payment of the sacred (I) donation (δῶς);

On this basis we can begin to enunciate the following Linear A graphic rules:

- the signs, A, I, KA, DU, TE, TI, DA, MA, RE, SA, TA, SE, MI, KI, NE, SU, DI, other than having a phonetic value, also retain a logographic one. The position they have inside the word and, obviously, the comparison of the occurrences, allows us to recognise if they have a logographic or a phonetic value and also allows us to read correctly the words;
- the Minoan words can be consequently made up 1) of only phonetic signs 2) of both phonetic and logographic signs 3) only of logographic signs;
- the phonetic signs stand for open syllables, for isolated vowels, for diphthongs (𐀓 = ai), for syllables with a double consonant (𐀑 = mna), for syllables such as rja (𐀑), tjo (𐀓), tja (𐀑) etc., and for monosyllabic word such as 𐀑 = θής, 𐀓 = Δῶ, 𐀑 = δῶς etc;
- the length of syllabic sounds is not indicated and there are variations in the writing of vowels such as those also present in Linear B: a/e, i/e, a/u, u/o, wo etc. The variation i/u, however, is the most attested one: si-ru/σῦλον, ki-ri-ta<sub>2</sub>/Κυρίτα, u-su/<sup>r</sup>Ισοσ, tu-nu/θῖνος, pi-re-na/πυρήνα, mi-ru-ta/μερίτης, a-ru-da-ra/Ἀριδάρα, A su-ru-wa/A σιπύη, ti-ti-ku/θυτικός, pi-ta-ja/φυτεία, Pi-ti-jo/Φύτιος.  
etc.
- the second element of the diphthongs in “i” is generally omitted;
- “u” can be written we, wa, wo;
- as far as the consonantal sounds are concerned the rules are the same as in Linear B with the following difference:
  - the anaptyctic vowel is often expressed by means of the sound “i” (mi-na=μνα, u-mi-na-si=ύμνησις, ki-ra-ja=χρεία, mi-nu-te=μνοίτης etc.);
  - there are few signs which have more than one value. Sometimes the scribe indicates the difference by adding a little stroke or a point to them (see, for instance 𐀑 and 𐀑 = “ri” and = “we”), The sign which stands for “i” has both an ideographic and a phonetic value. When it has a phonetic value it can have, on the basis of its shape, the value of “i” or the value of “no”. But when it occurs alone and when it is in initial position it has always the value of “I”.

But there is a thing to underline as far as the words fully made up of logographic elements are concerned. They are not an exception in the linear systems, because they exist in the most part of the ideophonetic systems and are present also in Linear B. Many years ago I was very surprised and asked Chadwick for an explanation to the fact that he read two words of Linear B, ku-ma as *ku* LANA (Of37,38,40 etc) and ku-ma-pa as *ku* LANA PA (Of 26,28,31 etc), i.e. as two ligatures written in plane and made up respectively of two and three signs. The answer was a serious explanation about the value the signs assume according to their positions in the contexts they occur. Although at that moment I did not give much importance to this, I am now convinced that it was precisely that explanation which led me to give the utmost importance to the

identification of the ideographic aspects in Linear A. Words fully made up of logographic signs should be expected in the Linear A writing system since they exist also in linear B.

*b) Translation of the accounting texts.*

I have included almost all accounting texts in this section. I only excluded those that seemed to me too damaged to be read safely. I have indicated any grammatical variations but they are not many since, being these economic texts involving contributions, distributions and stocks, the scribe mostly uses the nominative by using “transaction terms” to better specify the type of the transaction he is recording. However, to make the translation plainer, when the arrangement of the terms or a transaction term convinced me, I have used *from* to indicate contribution and *to* or *for* to indicate distribution. As far as the Minoan quantitative system is concerned it is necessary to make the following clarification: the main unit is usually the highest one, which, on the basis of Linear B, has been calculated to be around 96 litres. Thus, when we find, for example, the entry GRA 3, it means that we have of wheat (GRA)  $3 \times 96 =$  roughly two hundred and eighty-eight litres. However, there is a complex system of sub-multiples and fractions that are indicated by means the abbreviation Lm plus the repertory number (1, 2, 20, 18,19 and so on). They generally appear in the figures but also happen to be directly linked to the symbol indicating a commodity, especially if it is wheat, barley, \*67, etc.,. So, if we find, for instance, the entry  $_{lm}19$ GRA 3, this means that we have three parts of the Lm 19 fraction of the main unit of wheat (GRA) . In the Minoan quantitative system it is easy to recognise the symbols indicating units, tens, hundreds and thousands, but it is difficult to establish the value of fractions. There is still no agreement on them, because the scribes are not always precise and there are some of them whose calculations contradict those of others.

**HT1**

The tablet has no indication of commodity. For this reason, it must be the continuation of a preceding tablet on which the commodity was recorded. It begins with a term (qe-ra<sub>2</sub>-u ) directly followed by the word meaning deficit. The normalisation is the following one:

qe-ra <sub>2</sub> -u	.	ki-ro	197
dja-su			70[
]di-rjo-ke			52
ku-pa <sub>3</sub> -nu			109
Ara-naRE			105

Translation:

Τηρεύς (qe-ra<sub>2</sub>-u ) owes (ki-ro= deficit) 197 units of a commodity recorded on a preceding tablet. Since ki-ro follows only qe-ra<sub>2</sub>-u , we must deduce that Ἰάσος (dja-su), ]di-rjo-ke, the priest (ku-pa<sub>3</sub>-nu =κάβαρνος ) and the attendant (RE) of the royal (A) Πήνη (a nymph) have respectively given 70[, 52, 109 and 105 units of the unknown commodity.

Note

Τηρεύς < Τηρηύς (cf. also Τελεύς).

Ki-ro, χῆρος= devoid ( from χηρόω).

Dja-su= Ἰάσος, man’s name (cf. Il 15, 332 etc).

]di-rjo-ke, the word is in my opinion complete. It could be the equivalent of Δριοξ, ( see Δρύοψ, Il.20, 455etc.).

Ku-pa<sub>3</sub>-nu, κάβαρνος, a priest of Δημήτηρ (cf.Hsch, κάβαρνοι· ἱερεῖς Δήμητρος).

**HT2**

A ka-ru	uOLE	20[
	]aOLE	17
	eOLE	3[
Ki-re-ta-na	uOLE	54[
	aOLE	47



Translation: quantity available ( ka-ru=καίρός) for the Palace (A) : 20[ units of uOil, 17 of ]aOil and 3[ of eOil. Belonging to Κυρίτα (another name of Δημήτηρ): 54[ units of uOil and 47 of aOil.

Note.

Ka-ru (καίρός) is a term concerning the transaction. It indicates an agreed, available quantity. Here the term is preceded by the sign A which stands for royal. This means that the quantity is available for the Palace.

Ki-re-ta-na is ki-re-ta + “na” a suffix which, also elsewhere, means “to belong to”.

Ki-ri-ta= Κυρίτα, name of Δημήτηρ. The variation i/u is very frequent in Linear A (see as follows). Also the variation e/i is common (see ki-ri-tja on HT114 and ki-re-tja on HT 85b).

### HT3

Only few words are recognisable:

line 2: ]qe-ra-ia[ = a proper name Τηλέας or Θηραΐα, if the term is complete;

line 3: DI stands for a class of men with special assignment such as RE, KI, SA etc. In the seventh line, it also occurs together with MA in the form MADI, (which is not Μένδης or Σμέρδης), but stands for a confraternity = the *dimen* of MA, where MA= μάτηρ ( the dorian form of μήτηρ, a name of Δημήτηρ);

line 4: mu-ru, a man's name: Μόλος (II 10, 269) or Μορύς (II 13, 792 etc).

### HT6

The tablet is inscribed on both the sides. The side a contains two records of the second type. If we, in imitation of the Mycenaean scribe, adopt the line to divide these records, the tablet becomes clear:

Ka-pa DAta-ra .TE. FIC 15, pi-ta-ja 24, RU+JA Lm23<sup>2</sup>, ma-dja 10, [ . . ]di-jo 2, ka-pa QE 5+Lm8  
DAqe-ra . QE pi-ta 22+Lm8, FIC 15+ Lm9

Translation:

They have been collected (ka-pa):

as tribute (TE) from DA of plenty (DAta-ra =DA θηλή, a religious confraternity) 15 units of figs (FICUS), 24 trees (pi-ta-ja =φυτεία), Lm23<sup>2</sup> of a unit of pomegranate (RU+JA =ρόα), 10 barley buns (ma-dja = μάζα), 2 of [ . . ]di-jo, 5 and Lm8 units of QE suitable for collection (ka-pa);

from DA of the hunting (DAqe-ra =DA θέρα, another confraternity): 22 and Lm8 units of QE in flatbreads (pi-ta=φυστή) and 15 and Lm9 units of figs.

Note

The initial term ka-pa refers to both the records, which are respectively referred to DA θηλή and DA θέρα, two confraternities devoted to DA.

Pi-ta-ja =φυτεία, with the variation i/u (see also the proper name Pi-ti-jo = Φύτιος on ARKH4a).

RU+JA , also ‘ροιά’, ‘ροιή.

DAqe-ra =DA θήρα i.e. of the hunting, a confraternity of hunters.

QEp-i-ta = QE, a commodity, pi-ta= φυστή, buns of QE. QE occurs elsewhere ligatured with wheat.

Side b is the continuation of some other record since it contains, in the line 4, the word DUda-ma= DU δάσμα, i.e. portion, part (δάσμα) of the donation (DU =δώς), a partial total which is followed by a figure which is too high compared to the total of the figures of the items that precede it.

On the fifth line begins another record, the first word of which seems to be ]da-ki, which, in my opinion, could be the equivalent of KI of DA, i.e. *kimen* of DA. This word is followed by sa-ma and pa<sub>3</sub>-ni-na, two other types of men.

### HT7a and b

The tablet belongs to the fourth type. The side b is the continuation of the side a. HOMO+I, i. e. men with (for)sacred duties, is the y term. The translation is the following one:

Lack (qe-ti=χαῖτις) of men with sacred duties (HOMO+I): 3 must be given from ru-ia, 4 from du-ja, 1 has already been given (TI) from ta-na (a class of men), one must be given from DARE i.e. the attendant (RE) of DA, Θέστωρ has given one but he still must give (o<sub>2</sub>-tu-jo=οἰστίον) another one, DA ru-[?] must give 2 of them.

Note

For the variation qe-ti/ qa-ti, see HT12.

Ru-ja is a corporation with the name of the pomegranate (ροιά). Du-ja also is a corporation.

The last sign of the last word in side b is perhaps a variant of the sign “to” (𐀓).

Οἰστίον from οἰστίον, with the alternance i/u (Greek οἰστέον).

### HT8a

The first term, ieDI (a kind of men), is followed by ten units of the perfumed ki Oil. It is the continuation of a preceding record. Then a new record begins which belongs to the third type and has PA<sub>3</sub> (𐀓) as commodity. Seven x terms refer to it. The last of these x terms is on the first line of side b.

The translation of this record is:

Commodity PA<sub>3</sub> (a kind of corn): Κραθίς (ka-ra-ti) 1 and Lm9 units; PA (an association of men) 3 and Lm9 units; Θέστις (te-qi, a person) 2 units; ka-63-no Lm8 of a unit; si-ki-ra Lm1 of a unit; ki-re-ta-na Lm9 of a unit; su-pu<sub>2</sub> [.] 1 unit.

Note

Since on HT 93a,1 the sign 𐀓 occurs in ligature with GRA and since its phonetic value is pa<sub>3</sub>, I think that it stands for a kind of corn and means σπέρμα (plant's seed, Hom,2.307).

Te-qi, also Τελχίς, a proper name.

Ki-re-ta-na, belonging (-na) to Κυρίτα (a name of Demeter), here, as elsewhere, a priestly college.

### HT8b

Lines 3-6, another record of the commodity PA<sub>3</sub> (𐀓).

Of the commodity PA<sub>3</sub>: \*87 (a kind of men) 2 units; qa-\*63-no (a men's name) Lm1 plus Lm20 of a unit, but they have already collected (ka-pa) Lm9 of an unit; the RE of Βαία 1+Lm 2 units; \*35+\*87 (a kind of men) Lm9+Lm9 of a unit.

Note

Pa-ia-RE = RE (attendant) of Βαία, a name of Demeter. Pa-ja-ro in Linear B is a proper name.

\*35+\*87, a ligature, probably sailors since the first sign represents a ship and \*35 also occurs alone in the context of other men (see HT94a).

### HT9a

The tablet belongs to the fourth type.. It has the transaction sign TE and wine is the commodity. The total is indicated.

Translation:

Tax (TE) of wine from sa-22b: παῖδες, a confraternity (pa-de), 5+Lm8 units; ὤτος, (o<sub>2</sub>-tu, man's name), 10 units; the temple (na-u=ναῦ) of DI (di-na-u), 4 units; Θέστις (qe-pu, man's name), 2 units; \*07-di-ra 2 and Lm9 units; ta-no-\*65 2 and Lm9 units; ἄρος (a-ru, man's name) 4 and Lm1 units. The verified total (κῦρος) is: 31 and Lm8 units of wine.

Note

Qe-pu=Θέστις with the variation u/i.

\*07-di-ra cf. \*101-di-ra (HTWc3011, 3012a).

### HT9b

It is very similar to HT9a, the commodity (wine) and the x terms are the same, but the initial terms are KA followed from \*66. KA means offering and \*66 stands for a kind of men. So the translation of the initial part means that all the recorded wine quantities are an offering (KA) of the men \*66 and not a TE tax as in the side a. For analogy with \*66 also sa-22b might be a kind of men.

### HT10a

The tablet contains two records without commodity (fifth type). It is very probable that it is the continuation of a preceding tablet in which the commodity was recorded.

First record: Κνωσός (Ku-ni-su, a place name indicating a group of people): sa-ma (a kind of men) must give 4 units of an unknown commodity and u-do-\*23 (another kind of men) must give 4 units of the same commodity .

Second record: PA (a group of people): da-re, i.e. the RE of DA must give 16 and Lm9 units of the same commodity; \*88 (a kind of men ) 6 units; u-do-23 (a kind of men) 14 units ; \*66-ru (a kind of men) 2 and Lm9 units; DA-u-da , i.e. the confraternity DA ὕδης (of the family, see Hsch) 8 units; me.\*23 (perhaps Μέλιος, a proper name) 3 units .

#### Note

Κνωσός stands here for a group of people (Κνωσίοι), perhaps a tribe or an area group, having the name of the city.

PA stands for another group of people and, by analogy with Κνωσός, it can be a tribe or a area group.

U-do-\*23 perhaps ὕδριος.

### HT10b

It contains two records of the third type. The first concerns a payment of the commodity U. Translation: Payment (TI) of the substance U: the RE of DA 2 units; Τηλίνης (ta-ri-na, man's name) 15 units; 10c-ta 6 and Lm9 units. The second concerns a KA offering of which Σάρπος must pay 6 units; and ta-na (a kind of men) have already paid (TI) 9+Lm1 units.

#### Note

U-ti must be read U and TI, where U is very probable an ointment which appears also ligatured with oil (passim) and with vessels (seeTY3a,3).

Ka-sa-ru= must be read KA (offering) and sa-ru (Σάρπος, a man).

### HT11a and b

The tablet is unfortunately damaged in the initial part. It belongs to the mixte type and contains five records, the last three of which are in side b and are totalized together. The first record is the continuation of some other tablet since it is followed by a total (ku-ro) whose figure does not correspond to the sum of the figures of the preceding items. The record begins with a term(a-ru-ra[]) which is followed by a very damaged sign, which, perhaps could be SU. In this case the translation could be as follows: 3 units of ἀλεύρα (flour) contained in vessels SU; 2[ KA offerings of ῥοινά =pomegranate, and 1 unit of an unknown commodity (\*185b+RI?) for a total of 10 units. The second record follows. It refers to men and, although it is not very clear, could be translated as follows: a-su-ja (a divinity, cf.Linear B a-si-wi-ja) 3 HOMO+I (i.e. men with sacred duties), 15 DI<sub>men</sub> and 1 ]de-nu for a total of 20 units. This total is expressed by means of the word ru-ra<sub>2</sub>, but the first sign is uncertain and I think that it is sa-ra<sub>2</sub> (stocks) since the items refers all to men. Then follows the third record, which has the verified total (ku-ro=κῦρος) of 180 units, which refers to offering (KA). The translation is \*35 (an association of men perhaps sailors, since the correspondent sign represents a ship) has given some kaofferings respectively of 40, 30 and 50 units; ru-\*101-na has given one kaoffering of 30 units and sa-qe-ri has given one kaoffering of 30 units for a verified total of 180 units.

#### Note

The tablet is badly damaged, it was certainly a part of a set which most probably referred to religious aims.

The last sign of sa-qe-ri seems to have the central stroke, so it is the equivalent of “ri”.

## HT12

Normalisation:	qa-tiDA	TE	OLE+DI	5
			*67	5
	qe-tu-jo .		*40+PU	1
			*44	30
			MA+RU *85	5
			HORD+Lm1	3
			FIC	1
			*40+PU+RE	Lm18
			da-no	50

The tablet records a debt (da-no = δάνος, in the last line) which is of fifty unities of different commodities. This debt is of two types: two commodities (*diOLE* and \*67) are lacking in the payment of the tax and there are another six commodities which must be entirely paid.

Translation: Lack (χᾶτις) of a part (DA=δαίς) of the tax (TE): 5 units of *diOLE* and 5 units of \*67; Must be paid (qe-tu-jo) : 1 unit of \*40+PU; 30 of \*44; 5 double mina (\*85) of wool (MA+RU=μαλλός); 3 units of *Lm/HORD*; 1 unit of figs; Lm18 of a unit of \*40+pu-re for a total debt (δάνος) of 50 units.

### Note

Χᾶτις, dorian for χῆτις.

DA is here no a logogram but the Greek word δαίς=part, portion. When it is in initial position it always refers to the great goddess.

Qe-tu-jo > qe-ti-jo (variation u/i) =Greek θετέον; Linear B qe-te-jo (variation i/e).

\*40+PU and \*40+pu-re, since PU= πυρός, wheat, and since pu-re= πυρήν, seeds, grain, it is almost certain that \*40 is a corn.

Δάνος, the scribe has forgotten Lm 18, a fraction. It is not rare that a scribe makes errors in totaling units.

## HT13

It is similar to HT 9 and, like this, refers to wine . The pattern is of the fourth type and the translation is as follows:

For the tax (TE) concerning wine the following quantity (ka-u) has been given (de-ta=:έδότην): 5 and Lm9 from re-\*23 (a kind of men); but they already owe (te-tu= θετός) 56 units; 2/ and Lm9 units from Τελχίς; 18 from ku-\*101-ni; 19 from ΔΑσιτίον (a confraternity); 5 from the NE of the sacred (I) du-jo. For a verified total of 130+Lm9 units.

### Note

Ka-u from χέω, is a measurement for liquids, see χούς.

De-ta= also δοτά=given, verbal adjective from δίδωμι (root de/do), with the variation e/o also present in δέκα/δώρα of ZAZb3.

## HT14

Two records belonging to the first type.

Translation: pu-\*82, must pay as tax (TE): 30 units of wheat; 3 of *miOLE*; 3 of *diOLE*; 9 of \*67; 13 of OLIV. He must also give as Apu-naDU= i.e. donation (DU= δώς) as a fine (pu-na= ποινή) to pay to the Palace (A) 45 units of GRA; 5 units of *miOLE*; 4 units of *diOLE*; 6 units of \*67; 14 of OLIV.

### Note

Although the records are two, the contributor is only one, Pu-\*82, Linear B Πύρρος, who must pay two kinds of contributions, τέλος e δώς. This latter, in this case, is a fine (ποινή) owed to the Palace (A).

## HT15

Two records belonging to the first type. The second is a deficit.

Translation:

Celebrations (ὑμνησις): 684 du-\*65-a quantities of wheat and 570 +Lm20<sup>3</sup>+Lm20<sup>3</sup> quantities of wheat.  
The class of men \*87 owe 400 units of this commodity.

Note

For analogy with Lm20<sup>3</sup>+Lm20<sup>3</sup> also du-\*65-a represents a kind of measurement, I think vessels.  
Otherwise the quantities of wheat would be too high.

### HT16

Fourth type. The commodity is recorded before the two x terms. The tablet records some KA offerings to the temple (ναῶν) of DI.

Translation:

The KA offerings from the men KU to the temple (na-u=ναῶν) of DI are of Lm2 of a unit; the KA offerings from the men \*70 are of Lm19 of a unit. The men \*87+KU must give Lm1+Lm2 of a unit of the KA offering plus a couple (ZE) of σάρπτοι vessels for a quantity of Lm18 of a unit.

Note

DI is equivalent to the Mycenaean *diwe* and is the only male deity to appear in the tablets.

### HT17

First type

Translation:

Payment (TI) of the tax (TE) of 38 units of wine from ra-\*43, 10 units of wine from sa-\*188 and 5 from the attendant (RE) of Νέδα (Ne-daRE).

Note

Νέδα is a divinity. The logogram RE occurs together with other five divinities (see infra).

### HT18

Two records of the first type:

- 1) Πάσης (pa-se): 20 units of *qeGRA*, 2 units of *kiOLE*, 13 units of \*67;
- 2) σάλια (sa-ra<sub>2</sub>, stocks): 10 units of wheat and 10 of figs.

Note

Πάσης, man (vir, arte magica excellens), also Πέρση, woman (Od.10,139) or Πέρσης, man; \*67, in the figure 13, a point substitutes the dash.

### HT19

It contains, like HT17, three records belonging to the first type.

Translation:

Payment (TI) of the tax (TE) of wine: 30 units from ra-\*43; 5 and Lm9 units of wine from sa-22b; 43+Lm9 units of wine from the DI (a class of men) of Δύμη (a place name or a divinity).

### HT20

Two records of the third type.

Translation:

First record) Lm 1 of a unit of the aroma βάρος (pa-ro) in vessels SU from ku-ma-ju;

Second record) millet (qe-ku-re = κέγχρος): Lm9+Lm2<sup>2</sup>+Lm2 of a unit from DI; Lm2 from sa-re-ju; Lm1 from \*70 and Lm9 from \*87+KU.

Note

ku-ma-ju = Κυμαῖος, a person's name (see Κύμα, a place name, II 2.209).

Qe-ku-re = κέγχρος or also κάγχρος = roasted barley.

\*70 and \*87-KU are acrophonic abbreviations which indicate class of men such as DI.

### HT21

First type

Translation:

Tax (TE) of pi-ta-ka-se: 161 unit of wheat; 11 of roOLE; 3+Lm8 units of eOLE; 7+Lm8 of \*67; 1+Lm1 of OLIV.

Note

Pi-ta-ka-se, perhaps the SE πίθηξ or also from φυτεύω=to cultivate.

\*67, probably ζέα a kind of cereal (see afterwords).

### HT23a

First type. There are two records on side a and only one on side b.

Side a) First record: vessels κανᾶ (κάννα, κάνεον) containing: Lm19 of barley, Lm7 of \*90, Lm7 of joOLE, Lm7 of tuOLE, Lm7 of riOLE, Lm7 of 96+RU, 10 units of wine, 10 units of the corn \*40+PU, 10 units of the corn 40, 17 units of \*44.

Second record: \*79+rī : Lm18 of a unit of τύφη (tu-qa, a plant), Lm18 of an unit of σησάμη (sa-sa-me), 10 young (ne=νέον) sheep (ME= μῆλον) 1 little pig (χοῖρος).

### HT24a and b

First type. Three records on side a. Side b is damaged at the beginning.

Translation:

Side a) first record: for commerce (ku-pa<sub>3</sub>-ri-ja =καπηλεία, variation i/e), oLANA+ME the quantity has been lost; there are recorded 10[ units of LANA+ ME and 6 units of LANA.

Second record: pa-sa-ri-ja, LANA+ME[.

Third record: ru-i-ko, LANA[ etc.

Side b) They are legible 1) the ligature ME+NE (young sheep) followed by KI (=castrated) followed by the double mine (\*85) and the figure 1+Lm8 and 2) the ligature JAKA followed by the double mine and by the figure 1.

Note

MARU= μαλλός, tuft of wool.

Pa-sa-ri-ja could perhaps be the equivalent of βασιλεία.

Ru-i-ko, perhaps Ροίκος, a proper name(see Linear B ro-i-ko).

ME+NE refers to the wool of castrated sheep to increase the production.

JAKA = a type of fabric which, as the preceding one, was weighed (the double mina stands for a weight measure).

### HT25a

The tablet is devoid of the upper part and is not possible to normalise it. All the figures are whole. Several x terms are recognisable and it is probable that the terms U ru-wi and DU ru-wi are connected between them and each of them is the beginning of a new list.

### HT25b

The remaining part begins with the ratification of the total of 160 units of a lost record. Then another record follows. It refers to 52 men of two different kind (unfortunately the first symbol is damaged).

The translation is: wi-te-ro, sacred (I) payment (TI) HOMO 28 and HOMO 24 for a verified total of 52 men.

### HT26a

Fourth type with the commodity recorded before the first two x terms.

Translation:

Of the commodity \*110 ( VAS+KE, χέρνιψ = lustral vessel) there are requested ( ze-te-te =ζητηθέν from ζητέω) 21 for the payment to θής (TATI), 15 belonging (-na) to mi-ki-se and 5[ for sale (ῶνιος).

Note

VAS+KE, see Linear B.

Ze-te-te, on the basis of Linear B, the initial sign \*36 has the value of “ze”.

### HT26b

The commodity is the same as the side a, but the tablet is very damaged. The following terms are recognizable:

Line 2-3: ka-u-dja-ni followed by the figure 4 and the ligature MUKI (*muMen KI*) followed by the figure 12.

Line 4: IKA (sacred offering) and \*87\*35, a class of men, probably sailors, since \*35 is the symbol of a boat.

### HT27a

Mixed type. A record of the fifth type is followed by a record of the first type. The first record refers to 355 men, the second refers to three agricultural commodities. The structure of the tablet is the same as HT89, 94a and 100. The transaction sign, in the first line, is \*56.

The translation is:

First record: ti-ni-ta, for aim\*56, there are 70[ men plus other 50 men, of whom only the figure remains, there are 51 \*35 (sailors), 20[ re attendants, 43[ ]i-mi-sa-ra, 21 ]qe, a missed number of ki-da[ and other kind of men, among which there are, in the fifth line, 5 ]sa-raDI and, in the sixth line, 42 men represented by the sign \*99c, for a verified total of 355 units.

Second record: 9+Lm8+Lm19 units of barley, 10+Lm19 units of figs and 7 units of wine.

Note

The transaction sign \*56 is constantly associated to men.

Ki-da[ is perhaps ki-da-ro.

### HT27b

Unfortunately the tablet is damaged at the beginning. It records various quantities of different kind of wine, among which there is also vin+wheat. They who receive the commodities are only two: SA and RE. The quantity of RE are highest than those of SA.

Translation:

\*mi-da (Μίδας): waVIN 7 units to SA

]graVIN : 1 unit to SA and 14 units to RE

neVIN[

Pa-se (Πάσης) : waVIN, 4 units to SA and 70 units to RE

]graVIN : 4 units to SA and ]40 units to RE.

Note

Μίδας and Πάσης are the contributors.

waVIN =wine άπαλός (light), neVIN =wine νέος (young), graVIN, a kind of beer?

### HT28a

a-si-jaKA	ja-wo <sub>2</sub>	GRA+QE	5
		OLE+RO	2
		OLE+KI	Lm9
		OLE+MI	1
		OLE+TU	Lm26 <sup>2</sup>

sa-ra <sub>2</sub>	OLE+DI	1
	FIC	2
	VIN	3
HOMO+KA	VIN	6
a-ru-da-ra	GRA	5
	*67	2
	OLE+DI	3
i-ta-ja	<u>OLE+DI</u>	10

The tablet contains five records of the second type.

Translation: offerings (KA) for 'Ασία (a divinity). 'Ιάων (a man): 5 units of *qe*GRA, 2 of *ro*OLE, Lm9 of *ki*OLE, 1 of *mi*OLE, Lm26<sup>2</sup> of *tu*OLE; the stocks (σάλια) are: 1 unit of *di*OLE, 2 of figs, 3 of wine; the carriers of offerings (a class of men): 6 units of wine; 'Αριδήλα (a woman's name): 5 units of wheat; 2 of \*67, 3 of *di*OLE; Itea (a woman's name): 10 units of *di* OLE

Note

A-ru-da-ra with the variation *i/u* = 'Αριδήλα, a woman's name, see Hsch: 'Αριδήλαν . τήν 'Αριάδνην . Κρητες:

I-te-ja, see 'Ιτέα. In Linear B i-ta-ja= woman's name. It is possible that its etymology is "sacred (I) to Τηά".

### HT28b

a-si-jaKA	u-mi-na-si	sa-ra <sub>2</sub>	GRA	20
			OLE+DI	5
			FIC	2
			<u>VIN</u>	<u>4</u>
		<u>pu</u> -ra <sub>2</sub>	FIC	6
		ja-wo	<u>VIN+DI</u>	6
		wi-di- <u>na</u>	OLE+DI	3
			VIN	3

[

It is very similar to the side a but there is a further evidence of the reason for the offering ( u-mi-na-si = ὕμνησις = hymns of praise, celebration).

Translation: hymn of praise (u-mi-na-si=ὕμνησις), offerings (KA) for the goddess'Ασία: σάλια (stocks): 20 units of wheat, 5 of *di*OLE, 2 of figs and 4 of wine; πολιάς (pu-ra<sub>2</sub>, a class of men): 6 units of figs; 'Ιάων (man): 6 units of *di*VIN, "Υδνη (wi-di-na, a woman's name): 3 units of *di*OLE and 3 of wine.

Note

Pu-ra<sub>2</sub>, Hsch: πολιάς=γῆρας, here to indicate a class of persons.

### HT29

The tablet is damaged in right hand side and it is impossible to identify the type. However it is very probable that it is the continuation of some other tablets. Several x terms remain. The most relevant are:

Line: ru-ma-ta 2 [ ;

Line 2: pa-ja-re = the RE of βαία;

Line 3 ]di-ja I = sacred to ]di-ja, a priest;

Line 4 sa-\*09-MI = MI of sa-\*09;

Line 4 [.] ki-ta = Σκύθης, man;

Line 5 a-re-da-no = 'Ηριδανός;

Line 6 KAdu-ma-jo = offering from du-ma-jo, an ethnic, inhabitant of Δύμη.

Note

In the sixth line, with the term KA followed by du-ma-jo another record begins which has KA as y term.



### HT30

It is the continuation of another tablet. It begins in fact with a term (NE) directly followed by the figure 4. Then follows a long record which has sa-ra<sub>2</sub> as x term followed by eight items standing for so many commodities. Then follows a deficit of five of the preceding commodities  
The commodities are barley, figs, wine, perfumed oils, the corn \*40+PU (πυρός), sa-ra-ra and PA+RO (βᾶρος).

### HT31

The tablet, which is damaged on left side, contains a record of vessels of different form and size, the last of which is followed by a very high figure (3000). The heading is damaged. Since this tablet is very important to understand the general way in which the Minoan wrote their records, it is also very important to attentively observe it. The first thing one must observe is the word karopa<sub>3</sub> written on the upper part of the symbol of a vessel in line 3. To be precise the scribe wrote KA. ro-pa<sub>3</sub>, adopting the point to divide the sign KA from the signs ro-pa<sub>3</sub> which are recorded close together. The other signs, on the upper parts of other vessels, are well distanced. According to the rules that govern the formation of the words in Linear A, the translation of what remains of this tablet is the following one:

line 1: ]ti-sa Πύργος (a proper name) TRIPOD[

line 2: 10 vessels QA containing corn PA<sub>3</sub> (σπέρμα, seed, see Linear B), 10 vessels SU containing corn PU (πυρός);

line 3: 10 vessels KA for offerings containing ἄλοιφή (ro-pa<sub>3</sub>), 30[ containing σάαμον i.e. ointment of sesame;

line 4: ki-de-ma-\*09-na;

line 5: 400 vessels, the content of which is lost, and 300 SU vessels containing pa<sub>3</sub>-ra= πέλλα, bowls, buckets;

line 6: 3000 VAS on the upper part of which the word pa-taQE, i.e. all (πάντα) the qeunits, is written.

#### Note

For QA, see σκύφος (root (s)qap). There is another reading which is possible for line 2: 10 VAS+βαφή = vessels for dying, and 10 VAS+σιπιύς = jars, but, in my opinion, the above is the correct one, on the basis of the potential energy of PA<sub>3</sub> and SU which occurs in other records.

KA.ro-pa<sub>3</sub>. Also offering vessels (KA) of roPA<sub>3</sub>, the same substance as above.

Σάαμον is not written on the symbol of a vessel. Since there is no doubt of its meaning, the type of vessel which contained it must be the preceding one, the same which contained ἄλοιφή (ro-pa<sub>3</sub>, without the initial ἄ, according to the rules that govern the Greek words beginning with a liquid consonant).

ki-de-ma-\*09-na, unfortunately the fourth sign has an unknown value, that makes it difficult to read and consequently to understand its meaning.

Pa-taQE, the figure which follows it (3000) is very high, but it cannot refer to all the preceding vessels for three reasons: a) because they are of different size and form; b) because, even if many figures have been lost, they cannot absolutely be the equivalent of 2300 units; c) because the tablet, although damaged, has a heading and it does not seem to be the continuation of another tablet. So, my opinion is that a) since in the fifth line we have 300 vessels SU containing pa<sub>3</sub>-ra= πέλλα, bowls, buckets, also the preceding 400 vessels, the content of which is lost, must contain bowls, buckets or similar goods; b) there were precisely these 700 (400+300) vessels which contained 3000 qeunits. The logogram QE, besides to indicate a substance, is also used as metrogram indicating a unit smaller than the highest one. Minoans, as other ancient peoples traded vessels and carried them in larger vessels.

### HT32

Mixed type. The tablet contains three records. The first is of the first type and has \*56 as transaction sign and sa-ra<sub>2</sub> as x term. The second and the third are of the third type and have SU and joOLE as y commodities.

Translation:

First record: the reserve (sa-ra<sub>2</sub>) for the aim \*56 is: Lm 9 of a unit of \*90, Lm9+Lm18 of a unit of joOLE etc.

Second record: the men RE and DI have respectively given 108 and 65 suvessels.

Third record: of the commodity *joOLE* [ , RE has given 104 units and DI 53 units.

Note

There is a punctuation mark, after the first RE, before the figure.

### HT34

The tablet is very damaged. The first line is very difficult to read. It, perhaps, means : da-jo, tax (TE) of vessels NE for sacred aim (I), stocks (sa-ra<sub>2</sub>). The vessels contain various commodities, among which there is mu-ku= μήκων, poppy, and E+KA, offering (KA) of the commodity E.

### HT35

Ti-ti-ku \*41 i-ku-ta HORD 1, \*96+RU Lm19, OLE+RI Lm19, \*90 Lm19, OLE+TA [ ], E 5, \*40+PU Lm18, VIN+RO Lm23.

Translation: for the religious contribution (\*41) of the sacrifice (ti-ti-ku=θυτικόν), they who come to implore (i-ku-ta =ίκόντες): 1 unit of barley, Lm19 of a unit of \*96+RU, Lm19 of a unit of riOLE, Lm19 of a unit of \*90, [ ] of taOLE, 5 units of E, Lm18 of a unit of \*40+PU, Lm23 of a unit of roVIN..

Note.

Θυτικός is an adjective which occurs also on ZAZb3, with the same meaning. Here it refers to the transaction sign \*41, which appears also in others religious and cultural contexts.

I-ku-ta =ίκόντες da'ίκω, to come to implore. However, other readings are possible: I=sacred + ku-ta=Σκύθης, a man's name or χύται (m.p.), a kind of workers.

### HT36

Only one record of the first type with transaction sign \*56b.

Translation:

*JeDI* (a type of men) for the \*56b aim: 44 +Lm9 units of wheat plus 7+Lm9 du-\*65-wa units of the same substance.

Note

\*56b = πέμψις (ΑΑ), procession.

Du-\*65-wa, for analogy a measurement (a kind of vessel) more than a commodity.

### HT37

Tablet very damaged, but a record of the third type with commodity \*96+RE as y term is recognisable. It is impossible to normalise the tablet. In line 5 a deficit becomes, the first term is KAKI= offering KA from the *kimen*.

### HT38

Only the last two lines are legible. A vessel, one pig, one ox and three kinds of cloths are recorded on them.

### HT40

A Mycenaean scribe would write this tablet in the following way:

TE nu-du\*75b . GRA 207  
ki-da-ta GRA 134

Translation: A tax (TE) of wheat from two contributors: nu-du-\*75b (207 units) and ki-da-ta (134 units).

### HT41a and b

The tablet is very damaged. The lines 3 and 4 contain three brief records; the first two of which belong to the first type and the third is of the fourth one. Their translation is:

- 1) \*66 (a class of men) has given 10 units of the commodity \*67 ;
- 2) RE (the attendant) has given 10 units of the same commodity;
- 3) Μίδας has given 2 and Lm23<sup>2</sup> units of figs to Βαία.

Note

Μίδας, a man with the same name as the son of the great goddess Ida.

Βαία, nursing mother, is an epithet of Δημήτηρ, but it could also be the equivalent of the woman's name Φαία.

#### HT43

Ma-neDU . pa-tjo . I IGRA 5[

Μάνης, as donation (DU=δῶς), must sow (pa-tjo =σπαρτέον) for sacred aim ( I ) 5[ units of sacred wheat (IGRA).

Note

Between the second I and GRA there is no punctuation mark. It is the sign which is damaged on the right side. The notion of IGRA= sacred wheat is also present on other tablets ( see, for instance, HT93a 4-5; 120,4;etc).

#### HT44

A record of the first type.

The translation is: for religious purposes, it must be given (qa-tjo) the following units of wheat, perfumed oils, etc.

#### HT 45a and b

Not normalisable.

They are recognisable:

side a, line 2: \*66 , a kind of men preceded by the symbol \*35 which indicates sailors;

side a, line 3: the same kind of men (\*66) preceded by 81b;

side b, lines 3-5: a record which is impossible to normalize since one cannot ascertain if the first sign in the fourth line is the logogram PA (𐀡) or the metrogram RO (𐀢). In the last two lines occur twice KU, which could here be the acrophonic abbreviation of ku-mi-na (see ZA 10a) which means cumin.

#### HT47

The tablet is, unfortunately, very damaged. Religious terms such as ku-pa<sub>3</sub>-na-tu, ki-da-ro[ and ]mi-nu-mi are recorded on it.

#### HT49a

Very damaged, but several terms referring to men, such as a-ru, \*67b, ku-pa<sub>3</sub>-nu, tu-su-pu<sub>2</sub> and KI are visible in the sixth and seventh line of side a . At the end of the fourth line there is the word ti-du-ni which means payment (TI) of a tribute (DU=donation) of figs (NI).

#### HT 62

Very damaged. Are recognisable: line19 [ADU]sa-ra.TE.VINUM[; line 2 KAKU, an offering (KA) of KU .

#### HT63

Only the first line is recognisable. It refers to a tax of men \*66. The items which is possible to read are ka-ti (κηθίς, a kind of vessel) and su-pu<sub>2</sub> (σιπυίς[ another kind of vessel).

#### HT64

A little fragment, in which it is possible to recognise: ]ku-dja-na[ , ru-ma[ and 140c (a fractional unit) which, since in this case is followed by the figure 6, stands for a vessel of correspondent capacity (cf. also MA10).

#### HT85a

An interesting tablet which contains a record of the fourth type with HOMO as y term.

The translation is:

Donation (δῶς) to the Palace (A) of men (HOMO) for the procession (𐀀𐀀 = πέμπις): 12 from DAύδης (a confraternity), 12 from pa<sub>3</sub>-ni (men), 6 from u-de<sub>2</sub>-\*23 (ύδρεύς, carrier of water), 24 from DA σιτίον (a confraternity), 5 from ku-dia-ni, 3 from Τελχίς, 4 from the RE of DA, for a verified total of 166 men.

### HT85b

The tablet contains a record of the third type which is the continuation of side a and has KI as y term.

Translation:

Need (ki-ra-ja= χρεία) of castrated men (KI=χίρων, Hsch): the college of Κυρίτα (ki-re-tja) 1; Θήχης (a proper name) 1; PA (a class of men) 1; Θέστωρ 1; ]ka 1; DI (a kind of men) 1; Μολίων 1; the SE of re-di 1; the MI of wa-du-ni 1; the DI of MA 1; qa-\*63-no 1.

Note

Ki-ra-ja, see Hsch: χρηία· πηνία· Κρηῆτες.

For Ku-ri-ta, see the variation ki-re-tja/ki-ri-tja (on HT114).

### HT86a and b

The tablet contains two records separated by means of a horizontal stroke. Both belong to the fourth type with the commodity (wheat) recorded after the first x<sub>1</sub> term. Both the records begin with a transaction term, the difference is in the fact that the first transaction term indicates that the wheat is an agreed quantity available for the palace, the second that the wheat is a donation for the palace.

Translation:

First record: *Lm18+Lm23*<sup>2</sup> GRA agreed (καίρος) with the Palace (A): ku-ni-su (Κνωσίοι) 20 units; sa-ru (Σάρος) 20 units, di-de-ru 20 units; Τηλέας (qe-ra<sub>2</sub>-wa) 10 units.

Second record: *Lm19* GRA for donation (δῶς) to the palace (A), δάμος, people (da-me = δάμος) 20 units and the servant, μνοίτης (mi-nu-te=μνοίτης) 20 units.

Side b is damaged but it seems to contain the same terms as the side a.

Note

Μνοίτης or μνωίτης is a Cretan name which means servant.

For ku-ni-su see HT10.

### HT87

It contains the record of several goods which must be paid for offerings in thanks to the goddess MA.

Translation:

Offerings in thanks (χάριτες) to MA, must be carried (wo<sub>2</sub>-tu-jo= ὀστέον): 1 jar (pi-ta-ke-ne= πιθάχνη), 1 unit of mint (MI) of the kind reserved to the temple (ja-re= ἰαρή), 1 double libation (di-ki-se=δις-χύσις), 1 unit of QE (a spice) in a vessel σιπυίς (su-pu), 1 unit of κρόκος (ku-ru-ku), 1 ra-[.] of royal quality (A), and a royal (A) *tu*vessel.

### HT88

The tablet contains a mixed record followed by a deficit.

Translation:

Royal donation: 20 carriers of offerings and 6 re-\*23 (men), 7 offering plates (ki-ki-na= n. pl. of κερχνίον, offering plate) of figs. Are debtors: ku-pa<sub>3</sub>-pa<sub>3</sub> 1; Σκάιος 1; the priest (ku-pa<sub>3</sub>-nu= κάβαρνος) 1; the RE of Βαία 1; sa-ma-ro (Σέμελος) 1; the τηρός of DA 1; for a verified total of 6 units.

Note

Ku-pa<sub>3</sub>-pa<sub>3</sub>, if it is not an error for ku-pa<sub>3</sub>-nu, it can be the equivalent of Κυβήβη = Κυβέλη, in this case the name of woman.

### HT89

An important tablet which, with HT27a, 94a and 100, constitutes a group a part, very indicative about the Minoan social system. It belongs to the mixed type since it contains first a record of the fifth type, concerning men, and then a record of the first type, concerning agricultural products.

Translation:

First record: Asa-ra<sub>2</sub> (σάλῖα i.e. reserve for A i.e. the palace ), for the procession ( \*56) there are 23 \*66, 22 MI+A+QE , 24 MA+I+MI, 13 HOMO+HASTA and 5 ta-ra (men) for a verified total of 87 units.

Second record: 2 and Lm8 units of barley, 2 and Lm1 units of figs and 6 of wine.

Note

MA-I-MI= Sacred (I) healer (MI) of MA.

Ta-ra, τέλη, soldiers (II 10.56).

### HT90

Two records of the second type with the same transaction sign.

Normalisation

I ku-ri-na sara<sub>2</sub> GRA 20, FIGS 10, OLE+DI 3  
si-ru ma-ri-ta<sub>2</sub> GRA 1, FIGS 1, OLE+MI 1, \*67 1

Traslation:

First record: stocks (σάλῖα) for sacred aim (I), belonging to (-na) to the goddess Κύρη (a confraternity): 20 units of wheat; 10 units of figs and 3 units of diOLE;

Second record: division (ma-ri -tja =μεριτεῖα) of the confiscated goods (si-ru =σῦλον): 1 unit of wheat, 1 of figs, 1 of the perfumed oil miOLE, 1 of \*67.

Note

Ku-ri-na: -na = belonging to, also elsewhere. For Κύρη, see Hsch: Κύρη. ἡ Δημήτηρ.

Σῦλον, spoils, confiscated goods.

### HT91

Two records of agricultural commodities, both belonging to the first type. The transaction sign \*41 indicates a religious aim.

Translation

First record: sacred (I) offering (KA) for religious aim (\*41): Lm5 of a unit of wheat, Lm20 of a unit respectively of \*67, of kiOLE, of uOLE, of miOLE, oliv, ficus and vinum, 5 units of E.

Second record. Te-mi: Lm20 of a unit of miOLE etc.

Note

The reading of the initial term of the second record is very uncertain. Perhaps TE (tax) of MI.

### HT92

Normalisation: TE. ADU . GRA 680 \*67 12

Translation Tax (TE). Donation ( δῶς) for the Palace (A) : 680 units of wheat and 12 of \*67.

Note

The record remarks the difference between TE and ADU. The first stands for tax, imposed contribution, DU means instead donation ( δῶς), which, since it is almost always united with A, indicates a donation for the palace. The quantity of wheat is very high.

### HT93a

This is, in my opinion, the most difficult tablet among the Linear A ones. It is a big tablet which contains twelve very brief records belonging to different patterns. It can be normalised as follows:

- 1) Fourth pattern: pa<sub>3</sub>-ni-na . GRA+PA<sub>3</sub> . SERE 12
- 2) Fourth pattern: di-ri-na . SEREDA 43+Lm9

3)	First pattern:	ki-di	FIC	5+Lm 9+Lm7	
4)	First pattern:	ASE .	I paGRA	26+Lm8,	sa-ra <sub>2</sub> 20
5)	First pattern:	Qa-qa-ru	I paGRA	5	
6)	First pattern	HOMO+I		6	
7)	First pattern	De-ju-ku		1+Lm9	
8)	First pattern	04b-ti[		3	
9)	First pattern	Da-we-da	VAS	2	*114 (FIC) 2
10)	Fourth pattern	Pa <sub>3</sub> -ni-na[	]pa-se-ja	20	
11)	Fourth pattern	HOMO		10+Lm2	
12)	Fourth pattern	IKA		4	

#### Note

Almost all the records concern wheat. The first term on each record refers always to men. Also SERE and SEREDA (=SERE+ δαίς) are men. The record means that they have received or given 12 units of the commodity GRA+PA<sub>3</sub> but their amount is 43+Lm9 units.

The tablet has the following characteristic: if the commodity is the same, it is not repeated in the records belonging to the same type. In fact the commodity (GRA+PA<sub>3</sub>) is not repeated in the second record and the commodity IGRA of the PA kind is not repeated in the records 6, 7 and 8.

The commodity of the tenth record is lost but it must be the same as the following two records which belong to the same pattern.

#### HT94a

The tablet belongs to the sixth type, since it contains two records the first of which is of the fifth type and the second of the first type.

Translation:

First record: ka-pa (collected) : 62 men, 20 sailors (\*35), 7 ATI, 18 men with the lance (HOMO+HASTA), 4 servants (TA= θής). For a verified total of 110 units

Second record: sa-ra<sub>2</sub>: 5 units of barley, 3 and Lm7 units of figs, 2 of a lost commodity, 11 of je-wo<sub>2</sub> etc.

#### Note

The total of the first record seems to be mistaken since it would be 111 and not 110 as it is actually written.

#### HT94b

It contains two records. The first is a deficit which refers to five men. The second is very damaged.

First record: of a commodity which was recorded on another missing tablet the following persons are χῆροι, each of one unit: tu-ma, pa-ta-jo, de-di, ke-ki-ru and sa-ru, for a verified total of 5 units.

Second record: \*35 (sailors) RA[ ] de-me-te 1, wo-tu [ 1[

#### HT95

The tablet records on both the sides a list of wheat (but the symbol is damaged on side b)

Side a

Translation: DAδώματα (to the house of DA), wheat, 10 units from δᾶμος, 10 from μνωίτης, 20 from Σάρος, 10 from Κνωσός, 10 from d-de-ru (perhaps Δένδρον), 7 from Τηρέυς.

Side b

It is the same as the side a, but the terms are placed in a different order.

#### HT96a

A tablet containing more records. The third and the fourth record are separated by means of a horizontal stroke. Only few signs remain of the record after the first horizontal stroke. The normalisation of the tablet until to the first horizontal stroke is the following one:

First record (fourth type) I ti-ti-ku Ficus . Apa-ra-jo 10

Second record (fourth type with the commodity written after the x<sub>1</sub> term):

A\*65 TE . ne-mi-ta GRA 5

ru-sa 4

Third record (third type) \*09 . \*52b 1

pi-ta-ra 1  
\*09+117 1

---

Fourth record (first type) \*ku-ma-ro TE Ficus 20[  
Etc.

With the following translation:

For sacred use (I) concerning the sacrifice ( θυτικός ), to the regal old 10 units of figs;

At A\*65 tax (TE) Νημηρτής 5 units of GRA, Λύση, 4 units of GRA;

Of the commodity \*09, 1 unit from \*52b, 1 from pi-ta-ra, 1 from \*09+\*117

---

]χιμαρρος tax (TE) of figs etc.

### HT96b

Apa-ra-jo qa-tjo ra-re I GRA 40+Lm8, OLE+RO 4, FIC 2+Lm18.

The RE of RA=‘Ρῆ’ (Ρέα) must give (qa-tjo) to the royal (A) old (παλαιός) for sacred aim (I) 40+Lm8 units of wheat, 4 units of the perfumed oil roOLE, 2+Lm18 units of figs.

Note

Apa-ra-jo, old in the sense of venerable.

For the RE of RA see also HT117a and the man’s name ‘Ρᾶρος.

### HT97a

The tablet contains two records divided by a space . The lower part is lost.

Translation of the first record:

Available (ka-ru = καιρός) for the procession (56b): 82 carriers of offerings (HOMO+KA) and 33 \*08men.

Translation of the second record:

KA offerigs: 25 from nu-ti, 6 from Φαῖστος (man’s name), 4 from Νῆστις, 5 from the DI of MA (a class of men), 15 from \*68, 3 from KI, ]3 from dja[, 2 from Θέστις etc.

Note

Φαῖστος, like Κνωσός, stands in my opinion for a group of people.

### HT98a e b

The upper part is lost. Therefore it is possible to read only several terms on both the sides of the tablet, without normalising it:

Side a (lines 2-5) Payment (TI) of ta-na (men), belonging to the DI of di-re (di-re DI-na), te-qi Θέστις, ro-ke ‘Ροίκος, man’s name etc.

side b (line 2) Vin Lm8 DAru-jo TE Lm18

Note

It is possible that on side b there is a record which means that of the tax (TE) of Lm8 of a unit of wine, DAru-jo (a confraternity) has given only Lm18 of a unit of it.

### HT99a

A simple record belonging to the second type.

Translation: donation (DU= δῶς) to the Palace (A) for the reserve ( sa-ra<sub>2</sub> ): 4[ ] units of barley, 4 of figs, 1 plus Lm7 of wine and [ ] of wheat +the spice QE.

### HT99b

A record of the third type concerning figs with the commodity written after the first term x.

The translation is : of the commodity figs, 6 units from SENE, 2 from ΔΑσιτίον, 1 from dja-du, 1[ ]from ru-ma-ta.

### HT100

The tablet has the same structure as HT27a, 89 and 94a. To a total of men ( in this case they are 97) a record of agricultural commodities (which in this case is preceded by the word  $sara_2$  =stock ) follows. The initial part is lost.

The translation is: for a verified total of 97 men, 58 of which are carriers of offerings, [ ? ] are \*67c, 12 are ATI, 2 are KI, 5 are \*66 and 16 are HOMO+HASTA (soldiers), there are the following commodities for the stock: 5+Lm1 units of barley, 2 and 1m23<sup>2</sup> units of figs, 2 and Lm9 units of wine, 2 and Lm7 units of roOLE, 3 of miOLE and 1m8 of a unit of joOLE.

Note

Carriers of offerings (HOMO+KA) = κωνηφόροι

### HT101

The tablet contains more records belonging to the first type. The first record occupies the lines 1 and 2. The second record is the indication of the reserve and occupies the third line. The third record is on the fourth line. Then, there is a division stroke which is followed by another record, which is devoid of the initial part.

The normalisation is:

Dja-17bDI	GRA+QE	40
	OLE+RO	8
	OLE+MI	8
	OLE+KI	2
Sa-ra <sub>2</sub>	GRA	41
	OLE	10
	DI+QE	3
Ku-pa[-nu	]OLE+RO	2
<hr/>		
	]20 ]67	3
	OLE+KI	2[
		]3
	OLIV	1+Lm1
	OLIV+TU	1

### HT102

The normalisation is:

Ka-pa	sa-ra <sub>2</sub>	GRA	976
	pa <sub>3</sub> -ni	GRA	33[
	]HOMO	GRA	33
	Di-we-na .	ma-dja	3
		WI	10
		IKA	5

With the following translation: They have been collected (ka-pa) for the reserve ( sa-ra<sub>2</sub> ) 976 units of wheat; pa<sub>3</sub>-ni (a class of men): 33[ units of wheat; the class of men [I]HOMO: 33 units of wheat; Di-we-na (they who belong to DIwe, a confraternity): 3 μᾶζα, 10 WI and 5 sacred donations (I+KA), for a verified total of 1060 units.

Note

The reserve is very high since it amounts to more than ninety three thousand liters.

The figure 1060 refers to all units of wheat, including ma-dja, WI and IKA, although we know from classical Greek that ma-dja = μᾶζα (also elsewhere) was a flatbread kneaded with barley more than with wheat.

### HT103

The tablet contains two records: the first is the continuation of some other tablet and has only one item; the second begins in the second line. It has PA<sub>3</sub> as heading and belongs to the third type.

The normalisation is:

First record (first pattern)	u-tja .	FIC	40
------------------------------	---------	-----	----



Second record (third pattern)	PA <sub>3</sub> . DAku-se-jo [ ]	6+Lm9
	*87	13
	DAku-na	1
	DAkusejo	1 Ki-ra 5+Lm9

With the following translation:

First record; utja, 40 units of figs.

Second record: of the commodity PA<sub>3</sub> (a corn, probably σπέρμα= seed), ]6+Lm9 units are for the confraternity DAχύσεως[, 13 for \*87 (a class of men), 1 for DAγυνή (another confraternity), one unit for DAχύσεως with a rest (ki-ra =χρή) of 5+Lm9 units.

Note.

PA<sub>3</sub> is a corn (σπέρμα= seed, see Linear B) which occurs in ligature with wheat on HT93a,1.

DAku-se-jo[ ], TI could be the lost sign (see DAku-se-joTI on HT104,1-2). In this case, the repetition of the term in lines 4-5 would indicate that, of the total payment of 6+Lm9 units of PA<sub>3</sub>, the confraternity DAχύσεως has given 1 unit but it must give other 5 +Lm9 units.

\*87, here and elsewhere, a class of men.

DAku-na = DA γυνή= young bride, a confraternity.

Ki-ra = χρή.

#### HT104

ta-pa .	te-ro .	DAku-se-joTI	45+Lm9
		IDUTI	20+lm9
		[pa-da-su-TI]	29
	ku-ro		95

Traslation: baskets, (ta-pa=τάρπη n.pl) containing harvest (te-ro=θέρος), payment (TI) for the confraternity DAχύσεως : 45+Lm9 units; payment (TI) for the sacred (I) donation (DU=δῶς): 20+lm9 units; payment (TI) for[Πήδασος ] 29 units. Verified total (κῦρος): 95 units.

The tablet belongs to the fourth type. The fifth term is very uncertain, except for TI (payment). It records three different kind of distribution of harvest, for a total of 95 units.

Note

Te-ro, Hsch θέρος. σίτος.

IDUTI is fully logographic I+DU+TI.

Ku-ro=κῦρος, check, ratification (see κυρώω= to check, to confirm).

#### HT105

Mutilated in the initial part.

They have been collected ( ka-pa[ ]): ]234 men (\*99); the reserve (sa-ra<sub>2</sub>) is of other 235 men (\*99b).

#### HT106

The tablet has two records separated by means of a horizontal stroke. The second is very damaged. The first record belongs to the first type and has the following translation:

μνοίτης has given 6 and Lm [ ] units of wheat divided into one NE of 5+Lm9 units and another NE containing 1 unit.

Note

Μνοίτης or μνώιτης or also μνώτης = Cretan servant.

#### HT108

Two records, the first of which belongs to the first type and the second is the continuation of some other tablet.

First record, translation: one man and 70 units of wheat of the type Lm7 belong to Κυρίτα.

Of the second record two words, di-na-ro and du-su-ni are recognisable.

### HT109

A fragment. Two terms are recognisable: a total (ku-ro) and the term ]a-ra-ju = ]'Αρήιος or 'Αλήιος.

### HT110a

A record which is the continuation of another record.

Normalisation of the lines 1-2:

neDU 69b ku-mi HORD+Lm1 20  
ku-pa 1[  
ku-ro 100[

Translation: *ne* donation (*ne*DU), monthly (\*69b), Χάρμης (ku-mi) must pay 20 units of *Lm*HORD and 1[ bowl (ku-pa= κύμβη, κύπα). Verified 100[ units.

Note

*Ne*DU, probable new (ne= νέος) montly (\*60b, the symbol of the moon also in Linear B where it is used with the same meaning) donation (δῶς).

The record is followed by a total which certainly refers also to other preceding records.

Only few symbols are recognisable on side b.

### HT114a e b

A record of the second type which continues on side b, where only one item is recorded.

Side a) stocks (σάλια) of ki-ri-ti-ja, a group of persons devoted to Κυρίτα : 10 units of wheat, 1 of figs, 1 of wine, 1 of φᾶρος (PA+RO an ointment).

Side b) 9 units of wine of the kind SA.

Note

For *sa*VIN, see also HT131b,3; SA =σαπριάς = well-matured wine or σάκκος = filtered.

### HT115a

The tablet is palynseptic and appears very confused since the scribe did not erase well the preceding record. It contains a record of the fourth type, with the t.s. I = sacred. The commodity is *Lm*<sup>2</sup> GRA, followed by the word ri-su-ma which is written smaller than the other signs.

The normalisation is:

\*101 nu-ra-ja I *Lm*<sup>2</sup> GRA ri-su-ma nu-wi 2  
qi-u-ra [ ]  
na-wo-jo-mi-na 1  
se-ku-tu *Lm*9  
pa-ra-jo 1  
ASEja *Lm*23<sup>4</sup>  
KApo-ru 1

etc.

Note

Pa-ra-jo = m pl. of παλαιός.

A-se-ja, probably the same as A-si-ja on HT28a,1;b,1) = 'Ασία (a divinity, daughter of Oceanus and Tety).  
KApo-ru = carriers of KA offerings.

ri-su-ma seems to be repeated in sixth line.

### HT115b

Although the initial part is damaged and, consequently, the tablet is not normalisable, the words are more visible than on the side a. The tablet contains probably a record of wheat. The terms which are recognisable are:

Line 1 pa-ra-jo (παλαιός).

Line 2 nu-wi and du-pa<sub>3</sub>-na (Δάφνη)

Line 3 ku-ru-ma followed by the transaction sign I, sacred, which, in this case, refers to wheat, and wo-tu-ja (ὄρθια).

### HT116

Six records are in the side a with the total registered on the side b.

Translation side a: Tribute (TE) for DA ta-ro, the keeper (ta-ro=τηρός) of DA: 16 units of wheat from ku-pa-ja; 40 units of wheat and 5 units of *diOLE* from pu-ra<sub>2</sub>; 16 units of wheat, 1 unit of *kiOLE*, 5 units of *miOLE* and 3 of OLIV from SESI; 5 units of wheat, 5 of OLE, 1 unit of *miOLE* and 2 of *tuOLIV* from pi-mi-na-te; 12 units of wheat and 12 of \*67 from ne-ki-jo; 20 units of wheat and 3 of \*67 from \*23-nu-ma.

Side b: verified total: wheat 100[ ], \*67 15, ole 17.

Note

Data-ro, the τηρός (guardian) of DA, must be an important person.

As it is evident all the units of the perfumed oils of side a are added up, in side b, only as oil.

### HT117a

MAka-ri-te . ki-ro u-mi-na-si	u-su	1
	mi-tu	1
	ku-ra-mu	1
	ma-ru	1
	ku-pa <sub>3</sub> -nu	1
	tu-ju-ma	1
	u-di-mi	1
	mi-ru-ta	raRE 1
		te-jaRE 1
		na-daRE 1

with the following translation:

Hymns of praise (u-mi-na-si =ὑμνησις), offerings in thanks (χάριτες) to MA; are all debtors (ki-ro) of one offering: ἄϊσος, (u-su, II 11,101 etc.), Μίτυς (mi-tu), Κάλαμος (ku-ra-mu), Μάρων (ma-ru Od. 9.197), the κάβαρνος, i.e. the priest of Δημήτηρ (ku-pa<sub>3</sub>-nu), Θώυμας (tu-ju-ma), Idmis (u-di-mi, the female of Ἰδμῶν); they are also included (mi-ru-ta =μερίτης, nom.pl.) the RE of RA, the RE of Te-ja (θεῖς), and the RE of Na-da (Νέδα, a nymph).

Second record. Translation:

Units of wheat (sa-ta): ku-ku-da-ra 1, ko-sa-ITI (κόρη, with the cut heard) 1, DAmi-nu (ΔΑΣΜΗΝΟΣ= DAbeehive, a confraternity), da-jo-ku TI (Δηίοχος has already paid "TI"), ki-da-ro (perhaps a proper name or, perhaps, χυδρός= noblemen).

Note

For sa-ta see Hsch. σάτον . σιτικόν μέτρον (or, also, σάτα . μόρια, sacred olive trees).

RA, see 'Pḥ' for Ρέα.

Mi-ru-ta, see also μεριστής = divisor.

### HT117b

A deficit: two persons are respectively debtors of one unit of the commodity (sa-ta) recorded on the second record of the side a.

Translation: ku-re-ju and di-ki-se must pay (wo-tu-jo) 1 unit of sa-ta.

### HT118

A record of the fourth type concerning pigs.

PIGS for sacred purposes (I): the DI of MA (MADI a confraternity): 15 pigs, 10 of which have been castrated (KI =κίρων, castrated, Hsch), the uninitiated (qa-qa-ru= βήβηλοι) a class of people: 6 pigs, 4 of which have been castrated; Αῦσων (A-we-su, a man's name): 4 pigs, 1 castrated; Ἐρύμας (we-ru-ma, a man's name): 10 pigs; verified (ku-ro= κῦρος ): 30 pigs, 15 of which have been castrated.

Note

Both the “we” of “we-ru-ma” and “a-we-su” do not have the central stroke on them. So, I read them “we” and not “ri”

We-ru-ma, also Ὀρύμας.

The total is mistaken since it would be 35 but the scribe wrote 30.

### HT119

The tablet is the continuation of another tablet. It contains a record of men. There are: 34 men \*08 (spinners according to the pictogram), 68 HOMO (\*99), 13 ri-mi-ne, 10 ko-ja, 7 ku-pa<sub>3</sub>-na-tu, 7 TI, 10 ja-\*101, 2 wo-tu, 8 \*08-\*68b for a verified total of 160 men.

Note

Since Minoan prefer the sound *j* to the Mycenaean sound *w*, in my opinion ko-ja is the equivalent of ko-wa, girls.

TI here refers to people, its meaning is guardians, debt collectors (see also ATI, royal collectors).

Ku-pa<sub>3</sub>-na-tu, priestess, perhaps the female form of ku-pa<sub>3</sub>-nu.

### HT120

The tablet contains a record which refers to various amounts of wheat that the people must give to several associations. It belongs to the fourth type but the scribe does not repeat (as he usually does) the term da-me which refers to all the lists. The tablet becomes clear by adopting the line division and by normalizing it according to the Linear B rules.

DAqe-ra .	Da-me	<i>Lm18+ Lm26</i> <sup>2</sup> GRA	74,	<i>pa</i> GRA	62+Lm9+Lm20
DAu-pu <sub>3</sub>	Da-me	<i>I Lm20</i> GRA	20		
Ki-re-ta-na	Da-me	<i>Lm19</i> GRA	60,	<i>Lm20</i> GRA	48
PA	Da-me	<i>I</i> GRA	3+Lm23		

Translation: the δήμος (da-me) must give 74 units of *Lm18+ Lm26*<sup>2</sup>GRA and 62+Lm9+Lm20 units of *pa*GRA to the confraternity DA of hunting (θήρα); it must give 20 units of sacred (*I*) *Lm20*GRA to the confraternity DAopium (ὄπιον); it must give 60 units of *Lm19*GRA and 48 units of *Lm20*GRA to the confraternity which belongs (-na) to Κυρίτα (a name of Demeter) and it must also give 3+Lm23 units of sacred (*I*) GRA to PA (a class of men).

Note

DAme= DAμῆλον, flock of DA, perhaps the etymology of δήμος.

### HT121

Two records belonging to the first type.

Translation: first record: ki-ri-tja (a college of priestess devoted to Κυρίτα): 10 units of *di*OLE with the spice QE;

second record: stocks, reserve: 5 units of GRA, 4 of OLE, 2 of FIC, 3 of VIN and 3 pa-ro= φᾶρος (pieces of cloth or also βᾶρον, aromatic plant).

### HT122

The tablet is devoid of the upper left part. The heading is lost. Side b is the continuation of side a. It contains two long records, each of which has the respective total. At the end of the side b, there is po-to kuro, which stands for the general total and means φόρτος κῦρος, i.e. loaded goods which have been

verified. Since the heading is missed, it is impossible to establish the type with certainty. In the side b the commodity is \*11, which, comparing its occurrences, is probably a spice, an aroma. In the side a x terms survive, the most part of which are also present on other tablets. The most recognizable among them are: u-de-\*23, ΔΑσιτίον, a confraternity, Τελχίς, a man, qa-\*63-no, the RE of ja-mi-da, the RE of Νέδα, so-di-ra, pa-de, παίδες, ku-pa-nu =κάβαρνος, pa-ta-jo ( see πάστας, cretan owner), wo-tu, ὤτος, DAwe-da Da ὕδης, a confraternity. The figures are low and the total, in the eighth line, is of 31 units. The last term is ku-da 1.

The terms more recognisable on the side b are: ]wo-ki-tja (ὀχέτιον from ὀχετός, a kind of vessel) ; ]a-ra-ju =Ἀρήιος, u-de-\*23, qa-qa-ru = βέβηλος, uninitiated; DI, a class of men, the RE of DA, a man. Then the verify of the partial total follows, which is in turn followed by the general total.

Note

Since ku-da occurs after the total, more than a proper name, it in my opinion means δαίς part belonging to KU (a class of men).

### HT123a

The tablets contains four records of the first type followed by the total. Each of these records refers to OLIV and \*90 . Of this latter substance the deficit is always indicated. At the end the general total of OLIV and \*90 is indicated and the general deficit of \*90 is also indicated. In the first line there is the transaction sign “T”(sacred).

Translation:

Σκύθης (ki-ta, man), for sacred aim (I): 31 units of OLIV and 8+Lm1 of \*90; the deficit of \*90 1+Lm5;  
 Πύρρος (pu-wo, man): 31+Lm9 units of OLIV and 8+Lm8 units of \*90; the deficit of \*90 is of Lm5 of an unit;  
 Σάρος or also Σάλιος (sa-ru, man): 16 units of OLIV and 4+Lm20 of \*90; the deficit of \*90 is of Lm8 of an unit;  
 Δαίτος or Δαίτωρ (IL.8.253, Da-tu, man): 15 units of OLIV and 4+Lm1 of \*90; the deficit of \*90 is of Lm8 of an unit;  
 OLIV, verified: 93 and Lm9 units; \*90, verified: 25 + Lm7 units with a deficit of 6 units.

Note

It is impossible, at the moment, to establish the meaning of \*90 since its occurrences are rare. But it must be a fairly precious substance since the scribe accurately records its deficit.

### HT123b

Mixed tablet containing two records, the first of the third type and the second, which concerns a payment (TI), is of the fourth type. The total refers only to the second record as it is also proved by the fact that it is followed by the deficit, which refers only to the commodity da-ta.

Normalization:

First record (first type)	*87		*90	11	
			*36	1+Lm8	
Second record (third type)	TI	<u>da-ta</u>	.	pi-sa	4
				*87	1
				*87DU	10
				tu-pa-diDA	Lm9+Lm 26 <sup>2</sup>
				ka-na	[
				]neDU	Lm20
				du-ma-i-na	Lm1+Lm2
				Verified 20 units; deficit 5 units.	

Note

Unfortunately many signs have unknown values and many are damaged.

Du-ma-i-na, see Δύμωνα, a tribe. But the reading du-ma-no-na with -na, the suffix meaning belonging to, and du-ma-no= δίμηνος, two months is possible. The sign that stands for *i* is quite similar to the sign that stands for *no* and the preceding term on the tablet is ]neDU which on HT110 means *ne* (new) donation

(DU) monthly (  $\dot{\text{C}}$  ). So the entire record could refer to monthly, bimonthly and other kind of rations.

### 126a and b

Very damaged. The side a is probably of the fourth type. The commodity is \*81b. The terms which is possible to recognise are:

Dana-si= DAVῆσις, a confraternity of weavers consecrated to the goddess DA.

Si-di-ja, perhaps from Σίδη, a place name.

### 127a and b

Very damaged. Two uncertain terms ]du-joMI and \*67c-da-\*102-ku are visible on side a while the lines 4-7 of the side b are normalisable as follows.

Verified for use *56,	156	[
	72	KU
	24	HOMO+ HASTA 24
	15	<u>muKI</u>
	11	*88
	14	<u>muKI</u>
Verified a total of 292		people

Note

\*56= procession. The record concerns various kinds of men.

### HT128a

The tablet is very damaged, but it is possible to normalise the first three lines of the side a:

*41	pa-ra	<u>tu-ru-nu</u>	<u>IME</u>	<u>GRA</u>	10
		Wa-tu- <u>ma</u>	RE	<u>kuGRA</u>	12
		]mi-ta		<u>paGRA</u>	Lm9[, <u>kuGRA</u> 6
					etc.

Translation: For religious aims (\*41), at pa-ra, the sacred (I) ME of tu-ru-nu: 10 units of GRA; the attendant (RE) of wa-tu-ma : 12 units of kuGRA; ]Μέντης (Il 17.73), man: Lm9[ of an unit of paGRA and 6 units of kuGRA etc.

Note

In the fourth line there is ]ma-ri, probably a man's name (see Μάρις, Il 16.319).

### HT129

Two records belonging to the first type.

Translation:

First record: ki-re-tja, a confraternity of women, consecrated to the goddess Κυρίττα: 33+Lm9+Lm19 units of GRA, 10 units of \*67, 22 units of figs;

Second record: tu-wo-ri-na: 40+Lm9 units of GRA, 1[ of OLE+DI, 6 of OLE+KI etc.

Note

Both ki-re-tja and tu-wo-ri-na (na=belonging to) stand for religious kind of people.

### HT130

The tablet is very damaged. The lines 5-6 contain a record of the first type.

Translation lines 5-6:

NE: 8 units of barley, 6 of figs and 3 of wine.

Note

In my opinion NE stands here as in HT 106 for a vessel used as a measurement unit.

### HT132

The tablet belongs to the mixed type. It contains three records, two of the first type and the third of the third type.

Translation: First record: the royal SE (A-se) , 5 units of \*14;  
 Second record: Καλήτωρ (IL 15.419), man (qa-re-to) 27 sheep;  
 Third record: σπέρμα, seed (PA<sub>3</sub>), 1 unit from \*66 ( a kind of men).

Note

A-se, see also ἄρσης, man.

### HT133

Only one record of the second type.

Translation: Tax of 55 units of GRA+DA (δάξ) to give as royal (A) donation (DU= δώξ).

### HT140

The tablet is very damaged. Only the first two lines are normalisable. They contains two records; the first, having two items, belongs to the second type and the second, having an unrecognisable number of items, belongs to the fourth type:

1^ record	u-mna-si.	*35	<i>ne</i> FIC	1[
		jeDI	<i>ki</i> OLE	1+Lm9
2^ record	u-mna-si	*35	si-tjo	KA 3, etc.

Translation of the first record: celebrations (ὑμνησις), \*35 (a class of men): 1[unit of *ne*figs; *Je*DI (a class of men): 1+Lm9 units of *ki*OLE;

Translation of the second record: celebrations (ὑμνησις), \*35 (a class of men): 3 KA offering of wheat (σιτίον), etc.

### HT146

A fragment

MA and ri-ka-ta (Λυκάστη) are congruent x terms.

### KN 1

a)	ja-ku	TI	*44	240
b)	ja-du-ra	TI	*44	105

which means:

- a) ἄργος payment (TI) of 240 units of the commodity \*44.
- b) ἠδύλη payment (TI) of 105 units of the same commodity.

Note.

Ja-ku and, possibly, ja] du-ra occur together also elsewhere ( see respectively MA2b,2 and 2a,1).

ἄργος represents a man whose name could also be ἄλκων or Αἴγων or it could also be ἀρχός = leader, magistrate.

\*44 (𐀓) stands for a commodity which appears frequently and is always followed by high figures respect to all the others in the record. Since the phonetic value of 𐀓 is *e* it could stand for ἐλαία= olives, ἐρέβινθος= chickpeas , ἐλάτη= dates, which are all bulkier than the other commodities.

Ja-du-ra could also be the female equivalent of ἄδωρος = who does not accept gifts, an epithet of Kore.

### MA1

The tablet records that an offering to the goddess Δώξ and another to the goddess MA have taken place.

side a)	X	I DU-wi	. *102	. qe-de-mi-nu
side b)		A MA	. *102	. qe-de-mi-nu

The tablet has no figures and, on side a, it begins with the mark X which in Linear B indicates that the scribe has checked it. So the meaning of this tablet is the following one:

side a) it has been checked (X) that the offering (\*102) for the sacred (I) Δῶς (DU-wi) has been obtained with profit. (qe-de-mi-nu = κερδημένος);

side b) for the royal (A) mother (MA, a name of the great goddess) the same offering (\*102) has been obtained with profit.

Note.

Δῶς (root in of) means gift and it is a name of Δημήτηρ (Hom122).

\*102 an offering, but, although the symbol is very similar, it, perhaps, has a different meaning than KA. Qe-de-mi-nu = κερδημένος p.p.m. of κερδαίνω, to obtain with profit. One would be expected a dental exitus of the labiovelar but also elsewhere, and in the same Linear B, a velar exitus is not rare. For “mi” instead of “me”, see the Linear A alternance i/e (for instance ki-ri-ta<sub>2</sub>/ ki-re-ta<sub>2</sub> etc.).

### MA2c

Line 1 ]u-na-na = belonging to ]u-na

Line 2 ]ja-ma-u-TI payment (TI) of ]'Αμάος. The term is, in my opinion complete since “ja” occurs often in initial position, where, as t happens in Linear B, it varies with “a”.

### MA4-6

Several kinds of PELLIS. On MA9 there is the very high figure of ]2000 skins which perhaps is the total of all the PELLIS recorded. The animal skins appear variously modified, with signs inscribed (SA) placed before to the symbol (TA) or placed after (RO).

### MA10

It is a four-sided bar that has on each side symbols of vessels. These symbols have other signs inscribed inside of them. Some of these signs refer to measurements for liquids (  $\rho$  and  $\rho$  ). One vase has inscribed the sign A, which indicates that it is a vase intended for the Palace. Another has inscribed the sign SU, which also elsewhere indicates a type of vase, and another is preceded by the sign TI which means payment. There are also signs in groups but unfortunately they are too damaged to be recognised. The Minoan use of representing vessels with inscribed symbols indicating their type, content, size or destination is also present elsewhere in the tablets and especially on HT31.

### PA1

The tablet is similar to HT43 , but the commodity is different:

a-ku YU pa-tjo 35

”Αργος must produce (pa-tjo= σπαρτέον) 35 units of FAR (YU).

Note. ”Αργος represents a man whose name could also be ”Αλκων or Αἴγων or it could also be ἀρχός = leader, magistrate.

The third sign stands for a commodity which, as it is possible to ascertain by the photo, is FAR (or, more difficulty, FAR+I, i. e FAR for sacred aims).

Pa-tjo= σπαρτέον from σπείρω to sow, more than φατέον from φημί, because, also elsewhere, as on HT43,1, it has the same meaning.

### PK1

The heading is unfortunately damaged but a long record of SI (the sign seems to have a horizontal stroke at the bottom) is recognisable. SI is repeated also in side of the tablet. The type is the fourth.

Translation: SI[ ]-jo Payment Χάβης, (ka-qa), 2 units; Αἶδωλιος (a-du \*23), 1; the τηρός of Θεά (Tja ta-re), 1; the θυτήρ of Θεά (Tja ti-te),1; o-ka-mi\*23-i-na, 1; Ortea (o-te-ja,1); ra-na tu-su, 1; ni-mi tu-su, 1; ma-ti-\*23-i-te, 1; ma-te-ti, 1; the sacred (I) θής of Μάχα, 1.

Note

For ti-te see Hsch θύτες·μάντις (Minoan variation i/u).

O-ka-mi\*23-i-na, perhaps two words.



Tu-su has the same potential energy o RE. It stands in my opinion for a kind of men.  
For Ma-kaTA, see Hsch μαχητής: στρατεγός.

### PH1

Side a, line 1 ]di-ra-di-na 133[  
Side b, line 2 ]FICUS 2 \*140 Lm18

#### Note

The tablet is damaged on the right side.  
]di-ra-di-na = ]di-ra DI-na, belonging to the DI (a class of men) of ]di-na.  
\*140 is a liquid unit of measure, which is here used to indicate a correspondent liquid commodity.

### PH2

The tablet contains two records of two types of oil. The first record refers to aOLE and the second to common oil. There is no doubt that aOLE is the ligature OLE+A written in plane.

aOLE	tu- <u>me</u>	.	ra-o-di-ki	60
			pi-ru-qi-ju	60
OLE			sa-pa <sub>3</sub>	60

The translation is:  
Oil of royal kind ( A ) for the homage (tu-me = τιμή): Λαοδίκη ( woman's name) 60 units. Φιλοίτιος  
(man's name Od.20) 60 units.  
Oil: Σέβης (man's name) 60 units.

#### Note

The scribe writes the point after tu-me as a vertical stroke. It is not a in my opinion a figure because the figure is too low compared to the others ones.  
Tu-me, the second sign is uncertain. The word, besides than τιμή, can also be the equivalent of θῦμα= sacrifice, or θυμῆ, perfume from θυμιάω;  
Pi-ru-qi-ju, the third sign is \*88.

### PH3a and b

The tablet probably belongs to the first type. In the side a it presents the sign \*211 variously ligatured (with A, MA an RU. If we give the probable value of Ma to it, we have MA of first quality, the ointment MAMA=σμάμα and MARU= μαλλός, wool.

### PH6

The tablet has no figure. It contains six words, four of which begin with I and two with A  
In my opinion it has a religious meaning and must be normalized as follows:  
Sacred (I) ναῦς (na-wa), sacred ἄρις: Ida<sub>2</sub> ri-ni-ta  
Sacred ἄρις: Isa-pa<sub>3</sub> Isa-ri.

#### Note

A-ri= A (rojal) λιῖς, blanket.  
Ida<sub>2</sub>, in my opinion sacred (I) Dia, the name of divinity (see di-ja on IOZa3). Also Isa-pa<sub>3</sub> and Isa-ri are names of divinities or very important pensons. Ri-ni TAta is a people name.

### PH(?)31a and b

It is only a fragment.

#### Side a

Line 2 ]ru CAPER<sup>mku</sup> 1, MADI OVIS<sup>m</sup> 1, OVIS<sup>f</sup>[

Line 2 ]TE 1, ku-pa<sub>3</sub>-nu SUS<sup>sire</sup> 1, pa-ta DA[

Line 3 ]1 ku-ro CAPER<sup>mku</sup> 1, OVIS<sup>m</sup> 5, OVIS<sup>f</sup> 3

#### Side b

Line 1 ]CAPER<sup>f</sup> 2 OVIS<sup>f</sup> 1[

Line2 ]du-ri CAPER<sup>m</sup> 1 , tu[  
 Line 3 ]jo CAPER<sup>m</sup> 1 CAPER<sup>f</sup> 5, te-ri OVIS<sup>m</sup> [  
 Line 4 ]ru-ma-ti BOS<sup>m</sup> SUS si[  
 Line5 [a-mi-da-o BOS<sup>m</sup>1  
 [

Note

A-mi-da-o, see a-mi-da-u (ZA10a,3) = Α μεδέων, royal protector, here a proper name.

### PYR1

The record concerns the payment of a special type of wine:

for the ru-wi of MA payment (TI) of the tax (TE) of 90 units of *te-ro*VIN ( θέρος= well matured).

Note

Ru-wi, in my opinion, from λούω (a form λώς, root in ρ in the same way as δώς).

### TY2

A list of \*105b, \*105, \*105c and \*105d..

* <u>105b</u> +*69-pu-pi	500
* <u>105</u> [ ]	290
*105b+IKIPU	50
*105d+DAPU[ ]	10
DARU*105+*96KI	100
*105d+*96[	
* <u>105</u> [	]6
<u>paHOMO</u>	84
* <u>105e</u> +*67	17[ ]
*105e+RUKA	30
* <u>105d</u> +WA	80
* <u>105b</u> +*96	250
*105b[	

Note

KIPU=σκύφος

### TY3a and b

The records, four in side a and three in side b, are divided by means of a horizontal stroke. They regard various types of perfumed oils among which there is also oil for χρισίς (ki-ri-si), greasing.

Side a

]*23-da <sub>2</sub>	OLE+KI	15 and Lm1
	OLE+RO	22
	<u>joOLE+KI</u>	5
	OLE+*79	3+Lm9
	OLE+MI [	
]OLE+ME		7+Lm9
-----		
ADU [ ]	OLE+KI	51
	OLE+U+KI	2+Lm23
	OLE+ME+KI	1
	OLE+*79	4+Lm9
	OLIV	4
-----		
<u>ADA</u>	OLE+U	21
	<u>OLE</u>	2[
] ko-a du-wa	<u>OLE</u>	7+Lm23



A fragment. In line 1 the word Dana-tu (probably DA νηστός, cloth, a confraternity of weavers devoted to the goddess DA).

#### **ZA4a**

The tablet is unfortunately damaged in the upper part but, since all the terms that remain are x terms, they certainly must refer to a lost commodity. The terms which are visible are:

Ja-to-ja, an ethnical name, see a-to-jo-to-i on KH11,4.

a-ti-ru, a man's name, ἄστυλος.

Jtu-me SE = SE (a kind of man, probably a supervisor) to the τιμή, homage (if the term is complete, as I think).

qe-ne-dja E= for analogy a kind of man.

Inu-maRE= RE (attendant of the sacred (I) νομή= pasture or distribution.

si-piKI= KI (a type of man) of si-pi).

e-tjo, the term refers to all the preceding units and means ἐτέον = must send (ἴημι). In other words, all the mentioned men must send fifty units of the commodity in question.

The KA offering of DI (a class of men) is of three units.

Note

KADI occurs also on ZA15b where KA and DI are clearly separated by means of a punctuation mark.

#### **ZA5a and b**

Only the upper part of the tablet remains. Side a begins with a transaction sign (79b-tjo=wo-tjo) which means that wine in vessels SU must be carried. Then follows the word ki-ni-ma which is followed by a term which is not normalisable since it contains the sign NI and we do not know if it is used ideographically or phonetically.

The side b is the continuation of the side a. It contains three names with the relative units but we do not know what commodity they refer to. The names are RE of the sacred (I) νομή, ne-pi-KI and the sacred θεῖς of Μάχα (ma-ka-i-ta) 3. The respective units are 20, 1+Lm9 and 3.

Note

SU, a kind of vessel, see MA10.

HSC: θῆς μιστωτός and μαχητής στρατηγός.

#### **ZA6a**

The first term is in my opinion \*88=QI which indicates a kind of offering. Then the term wa-na-jo follows which can indicate a divinity.

Note

For QI= offering, see I QI = sacred offering, passim in the inscriptions.

#### **ZA6b**

Translation: For sacred aims (I), payment (TI) of ku-ju (from χέω): 50 units and Lm1 of sacred (I) GRA of the kind PA; 40 units of raVIN, 10 units of kaVIN; \*36-tja: 40[ units of GRa of the the kind PA. The rest of the tablet is very damaged.

Note

RaVIN= ῥάξ.

KaVIN, see καρύινος or wine for offering.

\*36-tja has the position of a transaction terms, see e-tjo on ZA4a.

#### **ZA7a and b**

A few terms are visible. Among them there are: u-ju =υἰός, son; a-ra-tu =Ἀλάστωρ or Ἄρητος; a-re-tu-ju =Ἄρεταίος.

At the beginning of side b there is perhaps the word AMA[ = royal (A) MA.

## ZA8

The tablet belong to the fourth type with the commodity (figs) which is recorded after the first term  $x_1$ . The normalisation, according to the Linear B rules, is the following one:

<u>kira .</u>	<u>A-ta-re .</u>	<u>FIC</u>	<u>Lm9</u>
<u>ki-ra</u>	<u>Ku-to-ko-re</u>	<u>FIC</u>	<u>LM23<sup>2</sup></u>
<u>ki-ra</u>	<u>A ri-ni-ta</u>	<u>FIC</u>	<u>1[] lm19<sup>2</sup></u>
<u>ki-ra</u>	<u>ta-i-nu-ma-pa</u>	<u>FIC</u>	<u>Lm9</u>
<u>ki-ra</u>	<u>ma-ka-i-se</u>	<u>FIC</u>	<u>2+Lm8</u>
<u>ki-ra</u>	<u>da-i-pi-ta</u>	<u>FIC</u>	<u>2+Lm9</u>
<u>ki-ra</u>	<u>ka-i-ro</u>	<u>FIC</u>	<u>4+ lm19<sup>2</sup></u>

Translation:

It is necessary (ki-ra=χρή) that the royal τηρός has Lm9 of a unit of figs; the RE χάτοχος Lm23<sup>2</sup>; the servant (TA) to the royal ri-ni 1[] lm19<sup>2</sup>; the sacred (I) SE of μάχα 2+Lm8; Δηίοπιτης 2+Lm9; Χάιρων 4+ lm19<sup>2</sup>.

## ZA9

Many terms are illegible but it seems that the tablet records in the final part names of men or divinities who receive sheep. Among them the royal (A) ta-na[ in line 4, must receive a young (NE) sheep, ]ma-ju, a female sheep and wi-ra-re-mi-te a female sheep.

## ZA10a and b

The tablet is inscribed on both the sides and, since it has no heading, it is the continuation of another tablet. It belongs to the sixth pattern and contains five records of different type. The scribe, as he does also in other tablets, writes the point as a vertical dash which is confusable with the units. This happens twice after the word ku-mi-na (n. p. of the Greek word κύμινον) which is certainly a spice.

Side a:

First record (continuation of another record)		ta-na TE	2
		PA	1
Second record (third pattern)	Aku-mi-na ' .	Ata-na TE	1
		Ami-da-u	1
Third record (fourth pattern)	ADU ku-mi-na ' .	Da-i-pi-ta	1
		Du-re-*23 SE	2
		Wa-no	2

Side b

Fourth record (first pattern)	Du-re-*23 SE	VIN	5
		u-pu <sub>3</sub>	6
		ma-dja	2
		ma-ki-de TE	5
		sa-ma	5
		a-de	4
		a-mi-ta	3
		ra <sub>2</sub> -ro- re	2
Fifth record (first pattern)	PA	ia[ . ]	1
		KAku-joTE	Lm9
		TA	2
		DU	1[

Translation: side a, first record (third or fourth pattern):

ta-na (a kind of men) must pay the tax (TE) of 2 units of a substance that was indicated in a preceding tablet; PA (another kind of men) must pay 1 unit of the same substance.

second record (third pattern): of the substance κύμινον (n.pl.) of first quality (A), the rojal (A) ta-na (a kind of men) must pay the tax of 1 unit; a-mi-da-u must give 1 unit of the same substance;

third record (fourth pattern): donation (DU) to the Palace (A) of κύμινον: Da-i-pi-ta , Du-re-\*23 SE and Wa-no must respectively give 1, 2 and 2 units.

Fourth record: du-re-\*23-se ' must give 5 units of wine, 6 of ὄπιον (u-pu<sub>3</sub>), 2 μᾶζα (ma-dja), 5 μαγίδες (ma-ki-de) suitable for the tax (TE) , 5 sa-ma, 4 (ἀίδης) a-de, 3 ἀμιθάς (a-mi-ta) and 2 ra<sub>2</sub>-ro- re. Fifth record: the people PA (the same as the first record) must give: one unit of ia-[ . ], Lm9 of a unit for the offering of the ku-jo tax (TE), 2 workers and 1[ δῶς (DU) another kind of doffering.

Note

A-mi-da-u Μέδων (IL 2,727).

Da-i-pi-ta, Δηίοπιτης.

WA-no, the second sign is very difficult to understand. It could also be a ligature.

Du-re-\*23-se, also the SE of the re-\*23 donation (DU).

U-pu<sub>3</sub> = ὄπιον.

Ma-dja = μᾶζα, a kind of flat bread.

Ma-ki-de TE, μαγίς, a kind of flat bread.

A-de, ἀίδης, a kind of flat bread.

A-mi-ta ἀμιθάς a kind of flat bread. But also μίνθη of high quality (A) is possible.

The first record is not legible since the second and the third signs of the first word are very damaged. The initial PA can stand for a kind of people followed from a list of the first type. Ja- [ ] is the first term.

### ZA11a and b

Only the first line of both the sides is normalisable. At the beginning of side a there is a record of paGRA for sacred aims ( I ). The normalisation is:

DI di-ko-ra-me [ ] tja . I . paGRA[.

At the beginning of side b there is the following record:

e-to-ri [ ] I . sa-qi-ri . paGRA 1.

### ZA14

The normalisation of this tablet according to the Linear B criteria is the following one:

Ki-di . o<sub>2</sub>-tjo . ME 1  
Pu-ni-ka-so . o<sub>2</sub>-tjo ME 3  
Qa-ti-ju . o<sub>2</sub>-tjo . ME 8  
Ku-pi . o<sub>2</sub>-tjo . ME 1  
Tu-mi-ti-\*23-se . o<sub>2</sub>-tjo . ME 45 [  
Pa-nu-qe . o<sub>2</sub>-tjo . ME 2  
Ia-wi[

Note

o<sub>2</sub>-tjo = ὀστέον.

Qa-ti-ju = Κητεύς.

Pa-nu-qe = Πανόπη.

Ia-wi[ = Ἄλυσ.

### ZA15a

The normalisation, according to the Linear B system, is the following one:

\*102 ku-na saVIN qe-ne-dja E 57  
\*102 ku-na saVIN i-ti-ni SA 10  
\*102 ku-na meVIN mi-\*23 SE 3  
\*102 ku-na meVIN Inu-ma RE 6  
\*102 ku-na meVIN si-pi-ki 2+Lm9  
\*102 ku-na meVIN ja-sa mu 5  
\*102 ku-na meVIN sa-mi-da E 4  
\*102 ku-na meVIN so-ke-ma SE 5

Note

*SaVin* and *meVin*= aged wine(σαπρίας) and honeyed wine (μελιτόν).  
*Si-pi-ki*, the sign *si* has a vertical stroke inside it.

### ZA15b

Two records, of wine. The first regards a KA offering of 3 unit of wine from DI (a kind of men).  
The second regards a total of 78 units of wine and of 17 units of *ravin*.

Note

The first two signs KA and DI are separated by means of a punctuation mark.  
*Ravin* see ράξ, grape.

### ZA20

A fragment. The terms which are recognisable are *si-te-tu* in the second line; *si-tu*, *te-\**65; and *ru-ma-taSE* in the third line. Then the term *ku-ra* follows. Since this term is followed by a high figure (130), in my opinion, it stands for the total and means to the lady, a divinity or a very important woman (Κόρη) to whom all the preceding items are dedicated.

The others tablets are damaged but ZA21b, 24a, seems to begin with IDA[.  
ZA26a begins with *si-pa* and *si* is written in the Linear B way.

### KH5

The tablet contains two records of the second type having the same heading. It, according to the Linear B way, can be normalized as follows:

ADA ki-si-KA . a-ra-u-da . wi-sa-sa-jo lm1HORD 2, \*09VIN 2  
wi-naDU . qi-na . ku-pa-dja HORD 2 and Lm20, FIC 2 and Lm1+Lm19

The translation is : royal (A) portion (δαίς) which is the intestation and refers to both the record.

First record: σχίσις (*ki-si*) =division of the offerings (KA), Ἡρώνας (*man*) *wi-sa-sa-jo*: barley and wine

...

Second record: donation (DU) for the ὕνα (Hsch), *Qi-na* (woman name in Linear B) *ku-pa-dja*: barley and figs....

Note

ADA, also royal DA.

*Wi-sa-sa-jo* and *ku-pa-dja* are in my opinion two ethnical adjectives, the first masculine and the second feminine respectively referring to Ἡρώνας and *Qi-na*.

### KH6

The tablet is very damaged. Only few terms are recognisable.

*We-ta-je* in the fourth line, which is followed by several y terms (barley and animals) and *au-re-te* (αὐλητής =flutist) in the seventh line, which is followed by female sheep, a lost commodity and barley.

### KH7a

Lines 3-4

*Ija pa-me . ta-ta . qa-ti* *kiHOMO 4, Lm23HORD Lm19*

Translation: for the sacred (I) voice (ἰά) of the oracle (*pa-me=φήμη*) has been confirmed (*ta-ta=ἐθέθην*) a lack (χᾶτις) of 4 *ki* men and Lm 19 of *Lm23HORD*.

Note

*Ija* can also be the equivalent of *ja-ja*, the female of ἰήιος= invoked.

*Ki* is certainly used as logogram since it is written smaller both before HOMO and in the first line, (see κίρων, castrated, Hsch.)

### **KH10a**

Lines 3-4

i-pa-sa-ja . qa-tjo [ ] a-ki-pi-e TE GRA 90.

Translation: 'Αλκιβίτη must give (qa-tjo) as tax (TE) 90 units of wheat to the sacred (I) Psaia (see Ὑψαῖος).

### **KH11**

It contains three lists of the second type concerning a royal donation (ADU). The three x terms are re-23, a-to-jo-to-i and a-ta wo.

Note

A-to-jo-to-i and A-si-da-to-i (dat. pl.) are perhaps ethnical form from Ja-to-ya[ and Si-da (place names).

### **KH88**

\*23-nu-ma wo<sub>2</sub>-tjo FICUS 10

pu-de 8

\*23-nu-ma must pay (οἰστέον) 10 units of figs and 8 libations (pu-de=σπονδή = libations, generally of wine).

Note

The word \*23-nu-ma can be \*23-nuMA, the great mother preceded by a place name. In this case the translation of the record becomes: it is necessary to pay 10 units of figs and 8 libation to the Mother of \*23-nu.

### **KH92**

Very damaged. The first line: ADA riOVIS f Ku-ni TE 10[

Translation : for the royal (A) portion(δαίς) Ku-ni (man) must give as tax (TE) 10[ female sheep of the type ri.

Note

ADA, also royal DA, see also KH5 (ADA and A-ra-uDA) and PE2 (qa-qaDA), where both DA=δαίς and DA=Δᾶ are plausible.

### **PE 1**

Lines 1-3: u-ka-re a-se-si-na ku-pa-ri HOMO 50[ paGRA 26 ecc.

Translation: Ἄγχάρης belonging to (-na) royal SE-SI (a clan) of Cybele (ku-pa-ri=κυβηλῖς): 50[ men, 26 units of pawheat, etc.

Note

SE-SI occurs ligatured on HT116a,3 and *passim*. It refers to a class of persons, in my opinion a clan, which in this case has the appellation of royal (A). It occurs also on PKZb19.

See PEZb3, which contains a similar inscription.

### **PE2**

Few terms are visible. Among them A-ri-pa='Αρίσβας (Il 17, 345) and qa-qaDA =portion (δαίς) of qa-qa= χάλκη (purple) or βαφή (dye) or φακή (lentils).

#### *c) Inscriptions*

The “formula”

It deals with a dedicational formula which we find on religious objects coming from different places. It is mainly divided into several parts, the first of which often ends with the word ja-sa-sa-ra-me, the second



ends with *si-ru-te* and the third, which is not always present, changes and sometimes contains the groups *i-na-ja re-ta* and *i-na-ja pa-qa*.

I have always had a certain defiance for it and, consequently, I started to face up it only after a long time with respects to my study of accounting documents. The explanation is simple. The accounting documents are repetitive and in large amounts. They allow us to verify our interpretations and to correct our mistakes. But not the dedicatory formula, where the variations are several and hard to recognize so to make uncertain even the results of the comparative method. There are many difficulties and only after years of experience on accounting documents, can one, in my opinion, start feeling secure enough to face up the study of the details that these religious documents require.

Of the three parts that compound the formula, the second is the one which remains the most constant, seeing as it is made up of three words: *u-na-ka-na-si i-pi-na-ma si-ru-te*, which have few variations. For these reasons it seems to me the easiest to deal with. In fact, among the three words that compound it, the second “*i-pi-na-ma*” has only one variation “*i-pi-na-mi-na*”. Observing the respective endings “*ma*” and “*mina*” we can see how both find a convincing explanation in Greek, corresponding one to the acc.n. s. of sacred (I)  $\pi\nu\epsilon\tilde{\upsilon}\mu\alpha = \text{nod (consent)}$ , and the other to the acc. n. pl. of the part. pr.m.p.. of the corresponding verb  $\pi\nu\acute{\epsilon}\omega = \text{the (sacred I) things which are consented}$ . The third word *si-ru-te* seems not to have any variation other than once when the ending sign is damaged and that which remains could make one think of a different sign from “*te*”. Actually the ending “*te*” is very indicative, since it corresponds to an imperative 2<sup>nd</sup> p. pl in my opinion from the verb  $\sigma\upsilon\lambda\lambda\acute{\upsilon}\omega$  (Linear A variation i/u) = to make favorable, with the result that the second and the third words of the second part of the formula can be translated “let you make a favorable nod” or “let you make favorable the things you nod”. This implies an immediate observation. Being a plural verb, there must also be a plural subject. A morphological element immediately comes to corroborate this theory. It is the “*ka*” of the first term *u-na-ka-na-si*, which is the equivalent of the Greek conjunction  $\kappa\alpha\acute{\iota}$  and joins *u-na* and *na-si*, which are the subjects to which the verb refers. This has a further evidence in the fact that *u-na* has the variation *u-na-ru* and *na-si* has, in turn, the variations *na-ti* and *na-[ja]-si*. The problem arises when we try to find two plausible Greek words to translate them. The first thing that comes to mind is that they must refer to two gods to whom the offering was made asking for their benevolence. But, although it is possible that *na-si* is a nymph or even a goddess, the only possible translation for *u-na / u-na-ru*, is  $\omicron\acute{\iota}\nu\eta / \omicron\acute{\iota}\nu\alpha\rho\omicron\nu = \text{wine}$ . So, the idea that we are dealing with two gods must be questioned and we must think that we are dealing with two offerings by means of which he, who was performing the rite, asked gods to grant him his request. But what kind of substance is indicated by the word *na-si*? We know that wine, oil, cloth, perfumed oils, barley and honey were offered to the gods. The most evident Greek equivalent for the word *na-si* is  $\nu\tilde{\eta}\sigma\iota\varsigma$ , thread, cloth, weaving. It occurs also in the form *DAna-si = DA νῆσις*, weaving, which represents a confraternity of weavers devoted to the great Goddess DA. *Na-si* alternates with *na-ti* and *na-[ja]-si*. *Na-ti* could be  $\nu\acute{\alpha}\nu\tau\iota = \mu\acute{\eta}\kappa\omega\nu \rho\omicron\acute{\iota}\alpha\varsigma$ , a kind of poppy, while *na-[ja]-si* could be the equivalent of  $\nu\tilde{\eta}\eta\sigma\iota\varsigma$  from  $\nu\eta\acute{\epsilon}\omega$ , another form of  $\nu\tilde{\eta}\sigma\iota\varsigma$ , which also means accumulation, amass. So, it is very probable that this term means bandage, cloth or something similar, what is also confirmed by the fact that on SYZa2 it occurs ligatured with oil and we know that presenting oneself with a band soaked in oil was typical of supplicants (see Homer). However, although I think that  $\nu\tilde{\eta}\sigma\iota\varsigma$  means thread, cloth, I prefer to translate generically “vine and offerings grant me my request”. (This is because, being the first meaning of  $\nu\tilde{\eta}\sigma\iota\varsigma$  thread, ball, I do not want to create, even to myself, easy suggestions with the “Ariadne's thread”).

We are now left with the first part which contains the word *ja-sa-sa-ra-me* (variation *ja-sa-sa-ra / ja-sa-sa-ra-ma-na*), an original brain tease, that has been given an impressive number of interpretations without ever establishing if it was related to a goddess or to a kind of donation. I have interpreted it as *a-sa + sa-ra / sa-ra-me*. *A-sa* female adjective from  $\alpha\acute{\iota}\sigma\omicron\varsigma = \alpha\acute{\iota}\sigma\iota\omicron\varsigma$ , of good omen. *Sa-ra-me*= $\theta\epsilon\lambda\acute{\eta}\mu\eta$ , will, desire, from  $\sigma\acute{\epsilon}\lambda\omega$ , laconic form of  $\theta\acute{\epsilon}\lambda\omega$  (with the variation  $\sigma / \theta$  which is present also elsewhere<sup>11</sup>), although also  $\theta\epsilon\lambda\acute{\eta}$  (which has the same meaning) plus the suffix *me/mana* (this latter from  $\mu\eta\nu\acute{\omicron}\varsigma$ ) is possible. The meaning in my opinion is “will, hope (or also gift) of good omen”.

But the first word of the first part *a-ta-i-qi-wa-ja* seems to me easy enough to take on and to offer a good possibility of translation. In fact, regarding it, one can immediately make the following observation: the third and the fourth sign appear elsewhere in ligature (KN2,2 and HTWa1022), so, occurring always

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<sup>11</sup> See, for instance,  $\sigma\acute{\alpha}\lambda\lambda\omega / \theta\acute{\alpha}\lambda\lambda\omega$ .

together also here, they must constitute a word by itself. The result is that the word a-taIQIwa-ja is made up of three words: ata, IQI and wa-ja, which is confirmed by the fact that, on ZAZb3, we have a-ta IQI de-ka, where de-ka is a word by itself. A-ta has various Greek equivalents, it can be ἄντην=publicly, in the presence of all (a word that occurs also in Homer), ἄντη = prayer, and ἄτα =Cretan word for “fine”. Actually I prefer to give it the value of ἄντη = prayer since it alternates with θέναρ (ta-na), altar. The word I-QI can be translated as sacred QI, but here we have the first problem, because, comparing the occurrences of QI, we can see how it belongs to the group of logograms -there are several even in Linear B- that have two meanings, since in some contexts it refers most to men and in others it indicates certainly a substance. So, IQI can mean either sacred offering or sacred offerer. Since it alternates with ra-te, ραντήρ, that is perfume spreader I am inclined to think that it stands for a substance. In the formula it is followed by wa-ja which is in my opinion a verb because on PKZa1 it appears in the form wa-e, because on ZAZb3 it alternates with de-ka (ἔδωκα, I gave, see Linear B) and because the variation ja/ε,η is attested also elsewhere (see, for instance ne-ja-se/νήησε on PEZb3, ja-du-ra/Ἡδύλη on KN1, etc.) . In my opinion it corresponds to a form of the verb ἀίω= to hear, to receive, to accept . So, linking these three words together, the most probable translation is the following one: ἄντην ἱερὸν QI ἄτε = accept the sacred offering as prayer. With this we naturally suppose the presence of divinity in the words which follow, where, in fact, often IDA, that is the sacred (I) goddess Dã appears, who, we have already seen, how much importance she has in the Minoan world.

Another term which often occurs is du-pu<sub>2</sub>-re, which is the equivalent of λάβρυς = axe. Since the double axe was the symbol of absolute power, there is no doubt that the word is a title of the divinity. It appears on a vessel in the form pa-ta DA dupure which means πάστας Δã λάβρυς= the owner is DA double axe.

We are now left with Ina-ja pa-qa Ina-ja reta, which occurs in the last part of the inscriptions. I have a lot of sympathy for this formula because its meaning in my opinion is very clear. The logogram I means sacred, na-ja is the Cretan word for νόας=snake, and Ina-ja pa-qa Ina-ja re-ta can be translated with the invocation: sacred snake Fébē and sacred snake Léthē , knowing that Lete and Febe were two giantesses included in the list of mythological gods as direct descendants of Ophion, the great primordial snake from whom everything was born.

And, moreover, being the famous snake goddess represented with arms raised and a snake in each hand, I am led to believe that they were actually Léthē (re-ta), representing the oblivion, i.e. the darkness of the night and Fébē (Pa-qa, the Doric form of Phoíbē, the female hypostasis of Phoibos, symbol of the solar disk), representing the sunlight.

Many other observations can be made about the inscriptions but they require a complex and reasoned approach. They are different from each other because they respond to different personal needs. Translation is also difficult because once read, compared and verified, it is a matter of rendering a thought clearly and fluently. I have done my best but I take comfort in the fact that others, more intelligent than me, will do better.

## KIZa2

DA ma-te  
Δã μητήρ

## ARZf1

I DA ma-te ) = sacred (I) Δã μήτηρ

## KOZa1

a-ta IQI wa-ja Tu-ru-sa Du-pu<sub>2</sub>-re . IDAA u-na-ka-na-si . i-pi-na-ma . si-ru-te

Translation: Tu-ru-sa, owner of the λάβρυς (du-pu<sub>2</sub>-re), sacred (I) DA of the Palace (A) receives (ἄτε) as prayer (ἄντην) this sacred (I) offering (QI), Wine and offerings (οἶνη καὶ νῆσις) grant me my request (συλλύετε τὸ sacred (I) πνεῦμα).

Note

A always means royal i.e. belonging to the Palace.

Tu-ru-sa is an epithet of the goddess, perhaps from θύρα.

### PRZa1

ta-na su-te-[i]-ke se-to-i-ja a-sa-sa-ra-me

Translation: Siteia (a Linear B place name) put (συνέθη[ι]κε) this altar (ta-na=θέναρ) as hope of good omen (a-sa-sa-ra-me).

Note

Su-te-[i]-ke. As in Linear B, the aorist temporal increase ε is not noticed, so also the final ν of συν falls.

Another translation is however possible: Σύς (man's name) έθη[ι]κε. In this case Siteia is the place in which the altar has been dedicated.

Tana, I prefer the meaning of altar because of its variation with άντην (prayer) but also the meaning of "this" could be possible since τήνος is the Dorian form of the demonstrative pronoun of the object.

### ZAZb3

VINUM 32. DI di-kaSE . Asa-me-jo . ASE . a-ta IQI de-ka . a-re \_ pi-re-na . ti-ti-ku

Translation: 32 units of wine.

To DI, administrator (SE) of justice (δίκης), royal (A) image (σημείον), royal (A) guide (SE), as prajer (άντην) I "Άλης" (A-re, man's name) gave (de-ka) as sacred (I) gift (QI) grape (πυρήνα) for the sacrifice (θυτικόν).

Note

SE= σημάτωρ, guide, administrator.

De-ka = έδωκα (aor. from δίδωμι, root de/do).

A-re also ARE= royal attendant.

Πυρήν means seed, also grape. It is acc. m. s. like θυτικόν which is an adjective (variation i/u) referring to it.

### PEZb3

A-ka-ra ki-ta-na ne-ja-se HOMO+ZA

Έκάλη, belonging to (-na) to the clan Ki-ta (Σκύθης), filled (ne-ja-se aor. from νηέω, to fill). HOMO+ZA

Note

HOMO+ZA is the trade mark of the clan to which Έκάλη belongs. See also PKZb21 the possible reading (p.24) ki-ta-ni-te =ki-ta FIC TE=Σκύθης, figs tax (TE).

See also another vessel, HTZb159 a-na-nu ne-ja-se[ = "Άνανος (man) νήησε =Ananos filled.

Ne-ja-se, the same variation ja/e as in wa-ja/wa-e.

### HTZb160

Pa-ta DA du-pu<sub>2</sub>-re [

Translation: DA λάβρυς ( is the) owner (πάστας).

### PHZb4

Ne-ma i-ja-te

Translation: healing water.

Note

Hsch: νῆμα . ὕδωρ, ὕφασμα  
i-ja-te = ἰατήρ, physician (Il.II.518 etc.).

### CR(?)Zf1

AMA wa-ne . ka-ni-jaMI . i-ja . \*23-ki-se-nu . TI . a-ta-de

Translation: to the royal (A) mother (MA) Ἄρνη (wa-ne), once again (ka-ni-ja= καινή from καινός) invoked (i-ja) as healer (MI), \*23ξενος (a proper name), the payment (TI) gives (ἀντάδε)

#### Note

Ἄρνη (wa-ne) is Δημήτηρ with the mare-head, worshipped for her medical skills. Since the sign ψ does not present any stroke inside it, I give it the value of “ne”. But Ἄσις, another divinity present also on the tablets, is possible.

MI, logogram for protector, healer (μεδέω), occurs also elsewhere (see IDAMI = sacred DA healer, on SYZa1).

i-ja= several translations are possible: unique (from ἰός) or sacred voice, i.e. oracle (see KH7a), but I think that here it is the equivalent of ja-ja (see PKZa18), female of ἰήσις, invoked (for i/ja see infra), a term which is used for more than one divinity.

Ἄντάδε, pr. 3<sup>^</sup>s. from ἀντάδω, to repay.

### SYZa2

a-ta IQI wa-ja . ja-su-ma-tu OLIV . u-na-ka-na-si+OLE

a-ja

Translation: as prajer (ἄντην), the sacred (I) offering (QI), receive (ἄτε), Ja-su-ma-tu (the name of the divinity), olives, wine and a bandage soaked in oil (οἶνη καὶ νῆσις+oil).

Αἴας (the name of the offerer).

#### Note

Ja-su-ma-tu, in my opinion is a compound name: ἰασώ = health and μῆστωρ advisor, both used as gods' names.

Since the sign that stands for OLIV is written ideographically, I give it the correspondent ideographic value.

OLE ligatured with na-si represents a symbol to ask peace to the divinity (see infra).

### TLZa1

a-ta IQI wa-ja . o-su-qa-re . ja-sa-sa-ra-me u-na-ka[-na-si i-pi]-na-ma si-ru[-te

Translation: as prajer (ἄντην) O-su-qa-re (the name of the divinity receives (ἄτε) the sacred (I) offering (QI), as hope of good omen (Ja-sa-sa-ra-me). Wine and offerings (οἶνη καὶ νῆσις) grant me my request.

### IOZa2

a-ta IQI wa-ja . ja-di-ki-tu . ja-sa-sa-ra[me . u-na-ka-na]-si \_ i-pi-na-ma . si-ru-te . ta-na ra-te u ti-nu . IDA [

Translation: as prajer (ἄντην) Ja-di-ki-tu (the name of the divinity) receives (ἄτε) the sacred (I) offering (QI) as a gift of good omen. Wine and offerings (οἶνη καὶ νῆσις) grant me my request (συλλύετε τὸ ἐπίνευμα). I offer (τίνω) this (ὄν or ho-) altar (θέναρ) as scent spreading (ραντήρ) for the sacred (I) DA[

#### Note

Ja-di-ki-tu, see Δίκτυς;

u ti-nu is ὄν τίνω or ho- (as in Linear B) τίνω (root \*ti, see also TI=payment).

### IOZA3

It is , in my opinion, an invocation:

]I-ja-re Di-ja . I ja pa[

]Sacred temple (ἱερόν) of Dia, sacred (I) voice (ἰά) of the oracle (pa-me=φήμη).

Note

Pa[. For the interpretation of pa-me, see KH7a.

### IOZa6

Ta-na IQI u ti-nu . i-na TA I Da<sub>2</sub> di-ne-ka . ja-sa-sa-ra-me

I offer (τίνω) this (ὄν, ho-) as altar (θέναρ) for the sacred (I) offering (QI), where (ίνα), as servant (TA=θής) of the sacred (I) Da<sub>2</sub> I expressed (di-ne-ka from δινέω) the hope of a good omenI(ja-sa-sa-ra-me).

Note

TA, also Taides (Θαίς) a proper name.

Da<sub>2</sub>=Dja.

### POZg1

Ri-qi TI a-sa-sa-ra DO

Payment (TI) of Ri-qi as DO ( δῶς or δόσις) of good omen.

*d) Rules which allow to recognise the kind of Greek the Minoan people spoke.*

The most evident rules are the following ones:

- all the Linear B vowel variations are also present in Linear A. But the *i/u* variation is the most common one;

- *i* is used also in the graphic anaphthisis, see: u-mi-na-si ὑμνησις (HT117a), wi-di-na ὕδνη (28b,5), minute μνοίτης (86a,5 etc.);

-as it happens also in Linear B, almost all the signs have both a logographic and a phonetic value;

- some signs are very similar and can be easily confused with each other. The sign that stands for *ne* is the same that stands also for *si* and it is difficult to distinguish them because only sometimes the scribe uses a dash or a point to distinguish *si*. The same happens for the sign that stands for *we* which has the value of *ri* when it has a little dash or a point inside it. But the scribe is not always accurate in noting these differences. Nevertheless there is no difficulty in distinguishing *i* from *no*, although the signs that stand for them are very similar, because I= ἱερός is very used and it is always at the beginning of the word.

-the suffix -na means to belong to...;

-the suffix -ja indicates derivation. When it follows a divinity name, it stands for a group of persons, probably a confraternity, devoted to the divinity, see ki-ri-ti-ja (HT114a, etc.) = peoples devoted to Κυρίτα (vowel variation i/u).

Several verbal forms are attested:

-ta-ta (τίθημι) for ἐθέθη on KH7a,3, de-ka (δίδωμι, root \*de/do) for ἔδωκα on ZAZb3, de-ta for ἐδότην (δίδωμι) on HT13,1, which, as it happens in Linear B, have no aorist temporal increase;

-νήησε (ne-ja-se PEZb3 and HTzb159), ind aor..3<sup>^</sup> from νηέω;

-ἀντάδε 3<sup>^</sup>, pr. ind. (CRZf1) from ἀντάδω;

-part. pr. i-ku-ta= ἱκόντες (HT35), part.pr. m.p. qe-de-mi-nu= κερδημένος (MA1) and I pi-na-mi-na (passim)= sacred (I) πνεομένα, from πνέω, without the thematic vowel;

-pr. imp.2<sup>^</sup>pl si-ru-te (passim)= συλλύετε from συλλύω without the thematic vowel;

- also the following verbal adjectives are present: qa-tjo (passim)=θετέον, o<sub>2</sub>-tjo (passim)=οιστέον, pa-tjo (PA1 etc.)=σπαρτέον, e-tjo (ZA4a,7)=έτέον and da-tjo ( Sy zg1)=δατέον. Qa-tjo and o<sub>2</sub>-tjo are very used and, since the variations o<sub>2</sub>-tjo/o<sub>2</sub>-tu-jo (HT7b,1 etc.) and qa-tjo/qe-tu-jo (HT12,3) do exist, I suspect that originally the sign tjo was worth twjo, but since the *i* sound is predominant in records, I prefer to give

it the value of tjo directly.

Among the nominal forms there are attested:

-nom. f. pl. ka-ri-te (HT117a)= χάριτες, from χάρις. nom.n.pl. dumata (HT95a)= δώματα from δῶμα, nom.n.pl. ku-mi-na (ZA10a)= κύμινα from κύμινον, nom. f. pl. makide (ZA10b)= μαγίδες from μαγίς, nom.m. pl. mi-ru-ta (HT117a)= μερίται from μερίτης; nom f. d. ko-a duwa (TY3a)= χόα δύω, (double libation);

-the genitive case is attested by various DA compounds such as for instance: DAqe-ra (HT6a,6 etc.)= DA θήρας= DA of hunting, DAra-ra (HT6a,1) = DA θηλῆς = DA of prosperity and Daku-se-jo (HT103,4-5 etc.) = DA χύσεως (<χύσεως) = DA of the fusion of the metals;

- two plural dative of the second declension are attested (A-to-jo-to-i on KH 11,4 and A-si-da-to-i on ARKH2,3) and a dative of the third declension is also attested: A tu-ri-si TI (KNZb5) tu-ri-si=θυρίσι from θυρίς;

-the following accusative are attested: I pi-na-ma= sacred(I) πνεῦμα (passim) and pi-re-na (ZAZb3)= πυρένα from πυρῆν, a term in ν of third declension. Pi-re-na is acc. m. s and occurs together with θυτικός (ti-ti-ku), which is an adjective referring to it (both with the initial variation i/u).

In the inscription is attested the variation u-na / u-na-ru=οἴνη / οἴναρον, wine and the conjunction καί (οἴνη καὶ νῆσις) is also attested.

So, Minoan spoke Greek and European civilisation was born speaking this wonderful language, but there are some elements that lead me to think that it was a Greek with strong Doric inflections. These elements are:

-the word DA=Δᾶ, which in all vocabularies is a Doric form for Γῆ;

- the prevalence of the vowel sound “a”, even in diphthongs: Νάδα, μάτηρ, μάχα, δάμος, κύρα, κύπα, ἰαρός, pa-me for φήμη, and pa-qa for Φοίβη, pi-na-ma for πνεῦμα etc.;

-typical Dorian words such as μνοίτης=servant, πάστας=owner, χᾶτις for χήτος, χίρων for χείρων, νάας, etc.;

-the Doric variation σ/θ, see σαλία for θαλία, σελήμη for θελήμη, etc.

-the fact that Homer says that Dorians were present in Crete already in very ancient times.

However, for a language to be truly deciphered it needs to reveal the reality of the world of which it is the expression. A reality that in the case of Linear A reveals wide, varied and, at the same time, homogeneous aspects, that is, in line with what the scholars expect from a people like the Minoan one, whose customs and habits can be described with five key words: taxes and tributes, gods, men and products.

## Minoan social organization

### *Taxes and Tributes*

The Minoan social organization is based on a system of taxes to devolve to the gods, religious feasts and Palace administration.

One of the five transaction signs, the most used one, refers to a contribution that represents a real tax, the most important of all. It is the sign whose phonetic value corresponds to TE, in Greek τέλος= tribute (from the root \*tel of the verb τέλλω), which is widely used in the lists and indicates the main tax, a mandatory obligation, recorded very meticulously by the scribes. In fact, a tablet (HT12) records two types of deficit concerning this tax. The first deficit consists of two products whose payment must be respectively supplemented with the addition of five more units and the second one concerns six products that must be paid in full. Since the tablet is the continuation of some other one, we do not know the name of the debtor but other records are more precise and inform us of other debtors, such as, for instance, Mr. Πύρρος (pu-wo, HT14, the name is also present in linear B), who must pay considerable amounts of wheat as well as olives and perfumed oils. Another registration, coming from Khania (KH10), concerns a

woman, Ἀλκιβίη (A-ki-pi-e), who must pay 90 units of wheat as tax (TE) to the sacred Psáia. There are also registrations in which TE is associated with a single substance, sometimes wine, in which case it is paid to confraternities and men's associations.

Although TE indicates the main tax, it is not the only one because there are other terms indicating other types of taxation. The one which is most common among them, second for importance only to TE, is surely DU which is equivalent to the Greek word δῶς= donation. DU is almost always preceded by the logogram A which indicates the palace, and therefore means donation for the Palace. However, it can also be preceded by the names of people as in the case of Μάνης, a man we know by a tablet (HT43) who, for sacred purposes, must produce more than five units of grain reserved to the gods. Considering that DU is the equivalent to the Greek δῶς which means donation, it should be, as the word itself says, a free tax but the registration concerning the already named Mr. Πύρρος (HT14) informs us that he must supplement his TE tax with an additional DU donation due to the Palace (A) as a fine (ποινή). Since we are talking about a fine, the question arises to what extent DU is a real "donation" or if it is not a compulsory tax with a softened name. The term has the characteristic of always being postponed to the word to which it refers. Only once it is before, but the explanation is clear. It is the word DUda-ma (HT6b) which, being followed by a high figure, not in line with the others in the record, indicates the partial total of a donation, well equivalent to the Greek δῶς δάσμα= part of the donation. On another tablet, (HT110a), by normalizing the lines 1-2, we have :

<i>ne</i> DU *69b	ku- <u>mi</u>	<i>Lm</i> <u>I</u> HORD	<u>20</u>
		ku- <u>pa</u>	1[
		ku-ro	100[

by which we find out that for the new (*ne* = Greek νέος, new) monthly (\*69b is the symbol of moon and it has this value also in Linear B) donation (DU=δῶς), Mr Χάρμυς (ku-mi) must pay 20 units of *LMI*HORD and 1[ bowl (ku-pa= κύμβη, κύπα) for a verified total of 100[ units which refers also to other preceding items, of which the tablet is the continuation. So the doubt that DU represents more than a voluntary donation becomes stronger.

Another term indicating a kind of donation is KA which, most likely, is the acronym of kána, from κάσσα, vases for donation. We find it associated with various terms. IKA means sacred offering (HT91), DAKA means offering to the goddess DA (HTWa1001), and A-si-aKA (HT28) means offering to Ἀσία, another goddess, daughter of Ocean and Tethys, The most interesting association is however KΑpo-ru which is equivalent to KA phōroi i.e. bearers of KA, which also exists in the pictographic version HOMO+KA (𐀓𐀓) and it is equivalent to the Linear B κληφόροι carrying "cerni", a type of jars containers containing various kinds of agricultural products, widely used in the sacred processions in honor of Demeter.

Ka-ru, Greek καιρός, agreed measure, indicates a form of transaction. It can also be associated with A in the form Aka-ru, which means a quantity agreed with the Palace. A tablet (HT2) records various types of perfumed oils and contains two lists, the first indicating that some quantities of perfumed oils are available for the Palace and the second indicating that other quantities are indeed reserved for a priestly college devoted to Κυρίτα, an epithet of the supreme goddess.

TI is another term inherent to the transaction. It has the characteristic of being postponed to the term which it refers to. It means payment, or something similar, and it seems to be connected with the Greek verb tínō which means to pay. Its use appears evident in a tablet coming from Knossos, the number 1, which records the payment respectively of 240 and 105 units of the substance \*44, on whose identification there is still no certainty. It is found in association with A in the form ATI, a type of men, perhaps royal tax collectors, and appears in the inscription PSZa2 which must be read ta-na IQI TI whose translation is altar (Greek thénar) paid (TI) as sacred (I) offering (QI). IQI is in fact the term by means of which the sacred offering is indicated in the inscriptions, i.e. the offering addressed to the deity to achieve his benevolence.

Other terms which are very important for the transaction are sara<sub>2</sub>, ki-ro and ku-ro.

Sara<sub>2</sub> corresponds to the Greek word σαλία / θαλία (the sign ra<sub>2</sub> is equivalent to rja and the sound r in Minoan-Mycenaean is also l), which are forms derived from the verb σάλλω, to abound, to flourish.

It therefore means reserve, surplus, stocks. The term is quite frequent and shows that the Minoans were very attentive in preserving and accumulating goods. In fact, a tablet (HT30) records a stock of various products followed by the indication of the relative deficit. Of the products destined to constitute a reserve, the scribe specifies that it is necessary to integrate some of them by means of the addition of further quantities. The highest stocks concern wheat, of which one tablet from Haghia Triada (n.102) records a reserve of more than a thousand units. If we consider that the scholars, although they do not entirely agree, believe that each unit was worth about ninety-six liters, multiplying the two figures, we can think of an overall total of about ten thousand liters.

Ki-ro, as long established, indicates the deficit. It is equivalent to the Greek word χήρος = missing, devoid but it is not the only word that the Minoans used to indicate the deficit. There are also ki-ra which is equivalent to the Greek χρή, there is need, and ki-ra-ja=χρεία which means there is lack.

Ku-ro instead indicates the total. It is the equivalent of the Greek word κύρος, ratification, validation and the scribe writes the sum of the validated figures after it. Po-to kuro, a form used to indicate the sum of several totals, is equivalent to φόρτος κύρος which means validated goods. Since φόρτος often refers to the cargo of a ship, it is possible that the goods validated in this way were be traded.

The verbal adjectives in -τέος are also widely used to specify the transaction and they, by indicating necessity, have the same value as the classical Greek. They, according to Minoan phonetic laws, end in tjo. Particularly used are qa-tjo (Greek θετέον) which means that one must give, pa tjo (σπαρτέον) which means that one must produce and o<sub>2</sub>-tjo (οϊστέον) which means that one must carry.

But it is impossible to conclude the discussion about taxes and tributes without talking about the transactions terms. Chadwick was very interested in them and, after Minos '88, he wrote to me:

*I have said that Linear B tablets basically fall into three types: contributions, distributions, and stocks. That is to say, the palace has to receive supplies moving into its various stores; to send these out again; and keep an inventory of what is available: but we can apply another dimension: time: Contributions may be already made (past time), made repeatedly (present time), or foreseen (future time). Even where there is no verb we can work out as a rule to which of these categories the records belongs. And of course the same applies to distributions. Thus it is possible that some of the "transaction" categories of Linear A refer to past and prospective operations. Linear B tablets refer to obligations ("he ought to do something, but is not doing it"). There is also what the Mycenaeans called ta-ra-si-ja (probably talansia), which is a system by which the palace issues goods (bronze, textiles, etc.) to craftsmen (or women) to be worked on (decorated, worked into weapons, etc.) This establishes a corresponding obligation on the workers to account for the raw material and return the finished goods. I should be surprised if that system were an invention of the Mycenaeans; similar systems are found in the Near East, and I would guess also in Minoan Crete. You might begin thinking about how your transaction signs might fit into such a pattern.*

I checked whether anyone of the Linear A transaction signs fits into one of the Chadwick's suggestions, but referring time I found only HT110a and (perhaps) HT123b. Actually the logographic transaction signs are five: TE, I, \*56, \*56b and \*41. TE means always and everywhere τέλος, tax; I means always and everywhere ιαρός sacred, \*56 and \*56b (pi-pi=πέμψις, procession) have always to do with aggregations of men and \*41 has to do with worship and occurs together with the word sacrifice (ti-ti-ku=θυτικόν). The word ka-pa stands in my opinion for "collection" (from καρπόω, which means also to collect), and there are several tablets which surely refer to a distribution. Four among them (HT27a, 89, 94a and 100) are easily recognizable since they have the same structure. But as far ta-ra-si-ja is concerned, although I have the suspect that some documents refer to a similar usage, I am uncertain because they are unfortunately too damaged to allow sure deductions. I can only add that on an interesting tablet from Haghia Triada (n.24) I have translated καπηλεία=commerce, i.e. for commercial purposes the initial term ku-pa<sub>3</sub>-we-ja which is followed by a long record concerning wool and fabrics. It is a very instructive subject but we would need to have a whole set of tablets on this topic and we unfortunately have no set in Linear A. There are, however, two tablets, HT43a and PA1, concerning respectively sacred grain (i.e. for



the gods) and spelt which both have the same transaction term: pa-ti-jo = σπαρτέον, one must sow, which may represent a commission given by the palace with the supply of raw material which in this case is seed.

### *Gods*

They occupy a very important part of the Minoan world. They are mostly female gods and the most important among them is the great mother DA (Δᾱ) who is worshiped with different names. She is normally preceded by the logogram I (sacred) and appears in the form IDA, i.e. sacred DA. On a silver double axe (ARZf1), being a ritual object, we can read IDAma-te, that is sacred (I) DA mother (Greek μάτηρ). With the name IDA, i.e. sacred DA, the great mother often appears invoked in the inscriptions where the word du-pu<sub>2</sub>-re (λάβρυς), double ax, a ritual symbol of the Cretan deity, is associated to her. On a libation table (IOZa2) the form IDAA appears also attested, which can be interpreted as sacred DA of the Palace. The symbols that indicate the highest authority are in fact two: I which stands for sacred and A which, being the acrophonic sigle of the word axínē, double ax i.e. the symbol of the Palace, stands for belonging to the Palace, royal. They are both associated with the Great Mother, which however is also invoked with other names among which: Βαία the nurse, Κύρα/Κόρη the lady, Κυρίτα/Κυρήτα Cirita, Δῶς the gift, MA the mother and Μάχα, the battle, all representing different hypostasis of the goddess.

Βαία receives an offering of figs from Μίδας (HT41, 4). It also appears in the name pa-jaRE which means attendant (RE) of Βαία that we do not know if it is a title or a proper name whose etymology can be derived, given the evolution it had in B where it became Pajaro.

Κύρα, the Lady, better known as Κόρη, the goddess of the Underworld, appears in a tablet from Archanès (n.2) where she receives as tribute 5 units of wine in the locality of Side. She also appears in the form Κυρίνα which means belonging to Κύρα since the suffix -να indicates belonging. The tablet in question (HT90) contains two lists, the first of which records a stock of products due to the sacred Κύρα and the second records the part due to her of some confiscated goods.

Another name of DA is Κιρίτα (Κυρίτα with the typical Minoan variation i/u), to which the Κιριτία priestly college is dedicated, which appears in more than one registration associated with various types of products such as wheat and figs. Κιρίτα also appears in the form Κυρετόνα which means belonging to Kurita to which are associated both men and perfumed oils and other types of products.

The appellative Δῶς, that is gift, appears in a tablet from Mallia (N.1) which specifies, on each side, how a sacred offering to two divinities was successfully performed. The two divinities are both hypostasis of the Great Mother, who on side a is indicated with the appellation of Sacred Gift and on side b as Royal Mother.

Thanksgiving feasts are also dedicated to the Great Mother. She appears in fact in the heading of two tablets (HT87 and 117a) receiving both thanksgivings and hymns of prayer. MA represents the acrophonic abbreviation of the Greek word μάτηρ, the Great Goddess celebrated as universal mother. A tablet of Chania (n.14) attests the form AMAja which means belonging to the rojal MA (Greek Mater) or could be the name of another divinity, protective of the births, or indicates a priestly college belonging to the royal MA. The strange thing is that, among other products, this college also receives two dogs. Strange but not pilgrim if we consider how to the goddess Artemis, protector of the births, precisely the dogs were sacred.

Μάχα, is not attested by itself but it appears in two very indicative compounds: makhaITA which means sacred (I) servant (TA=θής) of Μάχα, i.e. of the goddess of battle and evidently indicates a type of soldier, and makaISE which means sacred (I) guide (SE) of Μάχα which presumably indicates a type of strategist. The first term then evolved into μαχητής, which in Greek means soldier. However, even in this case, we might also be facing with two personal names, whose etymology can be traced.

Ἄσιᾶ is a goddess in her own right. She is mentioned in the heading of both the sides of a tablet from Haghia Triada (n.28), where she receives KA offerings from various contributors. Side b of this tablet specifies that for the festival reserved to her, in addition to the various offerings, there is already a reserve of various units of wheat, wine, figs and perfumed oil.

Θεά is another divinity in its own right. She also appears to be attested in the form Θjá (PK1) as the two compounds Thja ta-re and Thja ti-te, which mean respectively guardian (Greek ta-re= τηρός) and sacrificer (Greek ti-te=θυτήρ) of Θjá, demonstrate. The notion of guardian also appears in other

meanings such as, for example, DAta-re which is equivalent to guardian (ta-re= τηρός) of DA and Ata-re which means royal (A) guardian (τηρός). In ancient mythology Tea was a prophetess, companion of Artemis, transformed into a constellation by Poseidon.

Of male divinities only one is recognizable at the moment. He is DI, which appears in a long inscription on a vase coming from Zakro (ZAZb3) and, besides receiving 32 units of wine, it also receives various appellations among which the title of “justice administrator”. In all likelihood he is the god who in Mycenaean is identified with Jupiter.

Various terms related to worship are connected to the gods. Among them, in addition to the transaction sign indicating sacred ( I ), there is also another transaction sign (\*41) which, in a record (HT 91), refers to a sacred offering (IKA) of various products and in another record (HT35) is associated with the term θυτικός which means sacrificial.

Χάριτες and ὕμνησις are also two terms related to worship, the first means thanksgiving and the second hymn of praise. Both appear in the heading of HT117a, which refers to a religious holiday. Χάριτες is associated with MA (μάτηρ), in the form MAka-ri-te.

Many congregations are dedicated to the great mother DA. Some of them refer to aggregations of workers but others seem to have a decidedly sacred character and indicate various types of religious colleges. DAγυνή, that is DA young bride, indicates a priestly college of young women sacred to DA. DAθηλή means DA breast and since this part of the female body is associated with the concept of abundance it must be a boarding school with purely religious purposes. In the same way DAῶπιον= opium probably indicates a boarding school of healers, if we bear in mind the medicinal virtues of opium and its importance in the ancient world.

Among the religious terms that refer to men there is the pictogram of man preceded by the symbol I (ιερός), which indicates men with sacred functions, perhaps a type of priest or simple worshipper. It is a fairly widespread notion in the tablets. Ku-pa<sub>3</sub>-nu is equivalent to the Greek word καβάρνοι which, as Hesychius teaches, indicated a kind of priests of Demeter. The term refers to a priestly college that appears several times in the records. Among other terms related to worship there is also the very quoted RE which must be, in my opinion, associated with the Greek verb λεύσσω and means therefore intendent or also superintendent. Lesōnis means in Egyptian superintendent while λείτωρ indicates in Greek a type of priest.

### *Men*

In the Minoan texts there is ample mention of men who are indicated by their own names, by the name of confraternities and associations, by common names, acronyms and trade-marks.

There are many proper names, having Greek equivalents: Ράθις, Τηλίνης, Σκαίος, Ροΐκος, Ιάσος, Μόλος, Πάσες, Τηρέυς, Θεροσίτης, Μίδας, Θέστις, Νήστις, Δείοχος, Σκύθης, Ἄστυλος, Δαίτος, Ἀριδηλα (A-ru-da-ra with the variation *i/u*, a woman's name, see Hsch: Ἀριδήλαν . τὴν Ἀριάδην . Κρητες), etc.. They all were people of a certain rank since the tablets do not show that they have a servile condition. To indicate the people we have three very clear Cretan words: δάμος (people), μνοίτης (servant) and θής( see Hsch: δούλος, μισθοτός). Among the other names there is not rare to find several of them beginning with the sign of the double axe, which has the phonetic value of A and can be omitted, since this use is probably a sign of distinction and respect for the highest authority.

### *Confraternities*

They constitute the peculiar aspect of Minoan society. Many are devoted to the Great Mother, and their name begins with DA followed by a Greek term indicating the type of the confraternity itself. Some of them represent religious colleges, but there are others that are real associations of workers. DAθήρα, DA of hunting, probably indicates a brotherhood of hunters, while DAχύσεως (<χύσεως), that is DA of metal production, refers to a group of specialized blacksmiths. DAsμηνος, i.e. DA behave means an association of honey producers. DAvῆσις = DA weaving, a confraternity of weavers. A separate matter deserves DAME which equals δάμος / δήμος and means people. The etymology of DAME could be equivalent to DA flock, where ME would be the acrophonic abbreviation of the Greek word μῆλον, which

means sheep, flock. A very suggestive image because Homer often compares the people assemblies to a flock that is called to assemble.

Other confraternities are represented by the already appointed priestly colleges and the *καβάρνοι*, the priests of Demeter. However, the Minoans were also divided by age and rank. In the first case the terms that indicate them are *pa-de* = *παίδες* *páides*, children, followed by the *βέβηλοι*, that is, the uninitiated and, as far as we know, the *παλαιοί*, that is, the old men who also appear in the form *Απαλαιοί*, that is, rojal old men, an obviously honorary title. If we make a comparison with Sparta we are led to think that there is something similar between the two social organizations. In this sense we can assume that the *παίδες* were the youngest (up to seven years of age as in Sparta), followed by the "uninitiated" who are perhaps those adolescents who in Santorini are suggestively depicted with their heads shaved in locks, followed by other types of classifications that are not currently traceable with certainty.

To indicate slaves there is a typically Cretan term, *mi-nu-te*=*μνοίτης*, slave. *TA*= *θής* indicates a worker of not necessarily servile status (see Hsch: *θής*. *δούλος*, *μισθοτός*). Other workers are indicated by the corresponding symbol, a loom indicates for example spinners, a boat indicates sailors. The man pictogram is quite frequent and it is represented by a stylized figure. It sometimes has notches on the legs. We do not know what this means but one thing is certain, there is a difference between the symbol with and without the notches, both appear on the same tablet (HT103) and, if there was no difference, the scribe would have had no reason to record them in a visually different way.

### Acronyms

There are acronyms indicating types of men. Some have unknown meanings but the meaning of others is intuitable. *SE* and *SA* refer to two officials of important rank. *SE* seems the abbreviation of *σημάντωρ*, guide, indicator, and it is an attribute of the male deity *DI* (*ZAZb3*). *SA* can mean *σαίς*, young, used as a special attribute. A particularly interesting abbreviation is *KI*. It is used several times in a tablet (HT118) that records two types of pigs, common pigs and *KI* pigs. Since in Esichius *κίρων* means castrated, it is possible that they were castrated beasts according to the still valid use of making the animals unproductive to make them fattened more. The symbol occurs, however, also associated with men in a record contained on lines 3-4 of a tablet (n.7a) from Chania where there is recorded a lack of *ki* men for the sacred voice of the oracle. It is evidently a type of eunuchs working on sacred purposes.

Four tablets, HT27a, 89, 94a and 100, are particularly important to understand the social organization of the Minoans. They all have the same structure. They belong to the mixed type and are formed by a list of the fifth type followed by a list of the first type (in one case the lists of the first type are more than one). Since there is no doubt that the first list refers to men and the second to commodities, we are almost certainly dealing with a distribution. HT27a records just under ten units of barley and just over ten units of figs, with the addition of seven units of wine which are distributed to a total of 355 men. Unfortunately the body of the tablet is ruined and it is not possible to identify all the types of the men. HT89 refers to a total of 87 men receiving about three units of barley, a little more than two units of figs plus an undetermined quantity, but it seems quite high (more than six units i.e. almost six hundred liters) of wine. In the first line appear *A σαλία* which means real reserve and the transaction sign \*56 which is always associated with men and when it is doubled \*56+\*56 means procession, parade. The tablet is well preserved and the men are indicated both with pictograms (men with spears, therefore a type of soldiers) and with ligatures and groups of signs. HT94a refers to a total of 110 (the figure is not certain) men to whom are distributed different quantities of barley, figs and another substance, perhaps wine, which constitute a reserve (*σαλία*), plus other quantities of the same substances. Of the men recorded 62 are represented by the relative pictogram, 20 are probably sailors (\*35 indicates the prow of a ship), 7 are *ATI*, perhaps real tax collectors, 18 soldiers (*HOMO+HASTA*= spear bearers), 4 workers (*TA=θής*), for a total of 110 units. HT 100 is unfortunately mutilated in the initial part. The first list includes a total of 97 men among whom there are offering bearers (*κωνηφόροι*), lance bearers and *KI* men (eunuchs) who receive, in addition to barley, figs and wine, also three types of perfumed oil.

### Products

The variety of the products gives the idea of the Minoan prosperity. To treat them, they should be divided into agricultural products, animals, textiles and, above all, pottery.

## Agricultural products

The most common products are wheat and barley. The symbols that represent them are respectively  $\Upsilon$  and  $\text{K}$ . Recently, even in Linear A as well as in Linear B, the respective equivalences have been questioned. Among the other clues, there is in Linear A a record (HT27b) which quotes twice the notion of "wheat wine" which, as I have already noticed, would make much more sense if it were "barley wine", that is beer of which it is certain that the Minoans, like the Egyptians too, were consumers. The question is debated but the theory remains valid since the symbol attributed to wheat is very widespread in the area of Messarà which, even in recent times, has been a great producer of this commodity. Beer, moreover, can be obtained from the fermentation of any cereal and it is therefore possible that the Minoans, having a grain surplus, produced beer also from this cereal, even if the idea is not very tempting. Moreover Haghia Triada, from which most of the tablets in our possession come, is located in the southern part of the island where the great and productive plain of Messarà stretches. A tablet (HT102), coming from this place, records in the first line a stock of 976 units of wheat (about ninety-four thousand liters), which in other tablets is often associated with other products such as figs, perfumed oils, wine and so on. The symbol that represents it also appears variously modified both with the addition of signs indicating units of measurement, and with the addition of other terms, whose meaning is not always clear. When it appears modified by metrograms, i.e. signs indicating measurement, this means that the unit used to measure it is not the highest one (about 96 liters) and consequently the respective quantities are proportionally smaller. Several times a symbol quite similar to the grain (\*40) appears in the records. It is generally ligated with both the logogram PU and the term pu-re. In the first case, since PU is the abbreviation of  $\pi\upsilon\rho\acute{o}\varsigma$  meaning wheat, it is likely to be a particular type of wheat. In the second case, since pu-re is the Greek word  $\pi\upsilon\rho\eta\nu$  meaning seed, it is possible that it is wheat seed. A rather surprising notion, but attested more than four times, is that of IGRA, i.e. sacred wheat. A type of wheat, certainly very valuable, reserved for purely religious purposes, perhaps for festivals or priestly celebrations. We have already talked about  $\text{M}\acute{\alpha}\nu\epsilon\varsigma$ , who, for sacred purposes, must produce more than five units of wheat reserved to the gods.

Barley appears poorly documented in Haghia Triada. It is in fact more common in Chania, where it is the most popular commodity. Like wheat, barley also appears modified by various types of signs indicating measurements and like wheat it occurs in records that also contain other types of agricultural products. Wheat and barley have the characteristic of excluding each other since, until now, they appear recorded together only in a single tablet (HT99a). Barley is the substance which, together with wine and figs, is recorded in the four tablets (HT27a, 89, 94a and 100) which contain two complementary records, the first one concerning various types of men and the second one concerning barley, figs and wine and, in one case (HT100) also perfumed oils. Barley was offered to the gods and Demeter herself was called Mother Barley.

Together with wheat and barley another symbol (\*67) often appears, whose value is still uncertain. However, two characteristics are quite indicative. Like wheat and barley, the symbol appears modified with signs indicating measure, which suggests that it is not a liquid. Furthermore, the phonetic value of the sign that represents it should start with z since the sign that in Linear B resembles it represents this consonant. It could then be equivalent to the Greek word  $\zeta\acute{\epsilon}\rho\nu\alpha$ , cyper, a substance which is very common in Linear B but does not appear to be attested in Linear A or, more probably, to  $\zeta\acute{\epsilon}\alpha$ , a cereal often used in grains, which is currently cultivated only in Northern Europe but which in ancient times was widespread throughout the Mediterranean area. If it was cyperus, as it appears several times associated with wheat, it should be the cyperus esculentus and not the more famous cyperus papyrus, which would be badly listed in records concerning food. The identification with  $\zeta\acute{\epsilon}\alpha$  leads to the observation that it must be the type of spelt (*triticum spelta*) also attested in the common form of *triticum dicocum*.

Figs, like in most ancient Mediterranean civilizations, are another important voice of the Minoan economy. They represent in fact a highly caloric food, very suitable, once dried, to be preserved. A tablet coming from Zakro (the n.8) records a whole list of figs, while another record coming from Haghia Triada records 7 ki-ki-na, i.e. jars for offerings, (Greek  $\kappa\acute{\epsilon}\rho\chi\nu\omicron\nu$ ). The phonetic value of the symbol representing figs is NI, which is the abbreviation of the Greek word  $\nu\kappa\acute{\iota}\lambda\epsilon\alpha$ , a type of wild fig. The characteristic of this symbol consists in the fact that it is one of those signs which, besides ideographically, appears to be very used phonetically. As a result, it is often confused and many words have not been correctly read because the publishers have been unable to recognize the value of the sign from time to time.

Wine is another popular product. It appears recorded on fragments of vases and also appears in economic documents where entire tablets are dedicated exclusively to the recording of this commodity. It is offered to the gods and is a valuable product that appears in different varieties. One tablet of Zakro (the n.15) records different quantities of two different types, wine SA and wine ME which are equivalent to aged wine (σαπρίας) and honeyed wine (μελιτόν). However, there is also a RA wine which indicates a type of grape since the Greek word ράξ means grape. KA wine means both wine to be offered and κάροινον wine, i.e. wine flavored with nuts, which is still used in Greece. Wine WA is equivalent to wine άπαλός, light, fresh and NE wine means wine νεός, that is new wine.

A commodity that was certainly traded was the oil that was used both for culinary purposes and to make perfumes and ointments. The use of perfuming the oil with substances of various types is amply demonstrated in the cuneiform tablets even if it were the Egyptians who made it a true status-symbol already from the third millennium before Christ. The variety of perfumed oils in the Minoan texts is surprising, far superior to that of the Mycenaean texts. Among the various signs with which the oil appears ινοσιν ligature there are some that refer to measuring system, someone of which indicating the pots in which the oil was placed both for measurement and marketing. Other acronyms are trade marks, signs indicating the place and probably the type of production; oil +U means έλαιον όμφάινον, a type of oil obtained from unripe olives; oil +E means έλαιον έλάτινος oil perfumed with date palm, very widespread both in the ancient and classic world. Oil + MI can indicate a type of oil perfumed with mint (mì-ta = μίνθη, mint) while oil +A certainly indicates a royal oil, i. e. of superior quality, reserved to nobles and gods. A tablet from Phaistos (the n. 2) records two types of oil, the first of which is of superior quality and the second of common quality. In Chania there is a type of perfumed oil, oil + TA, which can be the acrophonic abbreviation of the Greek word τήλις, a product “usus ad candorem oleo reddendum”, i.e. used to clarify the oil. Strangely the notion of sacred oil, as one would have expected, does not appear but on one tablet (TY3b,1) we have more than six units of mint perfumed oil to be used for anointing (χρίσις) and another tablet, HT116, contains on the side a six records that include various types of perfumed oils. On side b the total is recorded. What is interesting is that the various perfumed oils are summed together under the generic mention of oil.

Other products are spelt and a mysterious substance indicated by the symbol \*44 which phonetically sounds E. This substance is quite frequent in the lists and has the characteristic to be followed by figures always higher than those of the other products with which it is recorded. It is not a particularly valuable product and, since the substances were all measured by placing them in jars, it should also be particularly bulky. I was undecided whether the vowel E was the acrophonic indication of the word έρέβινθος, a type of chickpea, but, now I think that it stands for the Greek έλάτη, dates. I support this hypothesis with the fact that among the perfumed oils there is one of the type E, which is well equivalent to the έλαιον έλάτινος, an oil perfumed with date palm, still widespread in classical times.

Spices also have an important place in the Minoan records. Among them are mint (μίνθη), sesame (σησάμη), this latter also in the form of ointment (σάαμον), there are also a spice called βάρος (pa-ro) and an ointment with cleansing properties called συμῆμα (ma-ma). The poppy is indicated both as όπιον, opium, and κρόκος (ku-ru-ku). ZA10 contains a very interesting record that contains on the side a two lists concerning cumin (κύμινον) and on the b side a list of buns including the one called μάζα, a barley bun which appears more than once on the tablets.

### Animals

The tablets record sheep, goats, cattle and pigs. Their symbols are similar to those of Linear B. Cattle, goats and sheep may have the inscribed PA logogram that in Linear B we know is used to indicate male animals. In Zakro sheep have an inscribed NE which means νεός and therefore indicates that they are young animals. An ideogram that appears associated with both sheep and cattle is KU, whose meaning is, at the moment, unknown. Pigs appear registered in the already mentioned HT118 but there is another registration, PH31, which is interesting because it contains a list of domestic animals, including sheep and pigs.

The notion referring to tissues is rather limited since it appears to be closely related to the animals one. Some tablets from Mallia record many animal skins for a total of more than two thousand units. Such a high number gives an idea of the importance that they must had in the economy of the Cretans who, in

addition to covering themselves, also used them for commercial purposes. There are in fact many uses of leather that could be used for furniture, for parchment, to make shoes, armor and also for the large shields that the Cretans used to defend themselves in war. It is also known that the leathers were a status symbol. Warriors wore them in war. Hercules was recognizable by his lion skin besides than the cudgel. In the ancient world, tanned skins were considered a precious commodity and were used for trade. The copper ingots were forged in the form of animal skins and it is probably that the legend of the golden fleece, which presumably represented a commercial expedition in search of precious hides to be used both as fungible instead of coins and for other conventional uses, was born from here. The Cretans, however, also knew wool, which is not much mentioned in Egyptian papyruses, perhaps because it was little used for climatic reasons. Some tablets of Haghia Triada, record various units of ma-ru, that is μαλλός= woolen core, wool. Naturally, like skins, wool was also used for clothing. Ligatures indicating fabrics are the same that appear in Linear B, while DA-na-si, is equivalent to DA νῆσις i.e. spinning and represents a confraternity of weavers.

### Pottery

The vessels represent the most important part of the Minoan economy since they appear to be registered in large numbers and are widely used for commercial purposes. A bar from Mallia ( n.10) bears the symbols of single-handled, two-handled vessels and goblets. Also a tablet from Haghia Triada ( n.31) records vessels of various types, all used to contain substances except the last two that seem, instead, to contain other vessels. The use for which a great vase was used to contain other smaller ones is certainly not a novelty in the ancient world. In the absence of boxes, it was obvious that the goods were transported either by hampers, which were often made of rush or by other vases. The latter was also a way to save space and is widely attested both in Santorini and in Egypt. The symbol of a rather widespread vase bears the syllable KE. Since χέρνιψ means lustral water in Greek, it is likely that we are dealing with vessels used for ritual purposes. Other vases are called σάρποι; then there is the vessel κύπη or κύμβη, which is also preceded by KA and therefore indicates an offering. The already named kánna pots are more like baskets used to contain various kinds of products. Very common is the type of vase indicated by the logogram SU. It is, however, the tablet HT31 which gives us the most important indications in this regard.

It is unfortunately damaged on the left side and contains at least two records, the second of which has the total indicated and refers to pots containing others. The heading is damaged at the beginning. On the first lines it is possible to recognize 10 QA pots containing wheat seed (PA<sub>3</sub> =σπέρμασπέρμα, seed), 10 SU pots containing wheat (PU =πυρός, wheat). Line 3 shows 10 KA pots containing ointment ( ro-pa<sub>3</sub> = ἄλοφή ), 30 pots[ containing sáamon i.e.σάαμον, an ointment. In row 5 there are 400 pots, whose contents are illegible, and 300 SU pots containing pa<sub>3</sub>-ra= πέλλα, ampoules, glasses. The sixth line contains the indication of 3000 vases on the top of which is written the word all (πάντα) the vases. A total that refers to the units, indicated with the abbreviation QE, contained in the jars of the second list.

*Although John Chadwick is no longer with us, he will never die. He lives where all the great men live: in the memory of the nations, in the school books and in the hearts of those who had the privilege of knowing him.*

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01		30		53		68b		87		101b		140		186					
01b		31		54		69		88		102		140b		187					
04		32		55		69b		88b		103		140c		188					
04b		33		56		70		89		105		140d		189					
05		34		56b		71		90		105b		146		201					
06		35		57		72		91		105c		146b		206		Lm1		7	
07		36		57b		74		91b		109		148		208		Lm2		4	
08		37		57c		75		91c		109b		161		209		Lm5		#	
09		39		58		75b		92		110		171		210		Lm7		λ	
11		40		59		76		93		110b		174		211		Lm8		λ	
14		41		60		77		94		110c		175		212		Lm9		λ	
16		42		61		78		95		110d		176				Lm18		T	
17		43		61b		79		96		110e		178				Lm19		+	
17b		43b		62		79b		96b		110f		179				Lm20		±	
17c		44		63		79c		97		110g		180				Lm23		Z	
21		45		64		81		98		110h		181				Lm26		Δ	
22		48		65		81b		99		113		181b				Lm34		H	
23		48b		66		82		99b		114		181c							
24		48c		66b		82b		99c		116		182							
25		49		67		82c		99d		117		182b							
26		51		67b		83		100		120		184							
28		52		67c		85		100b		129		185							
29		52b		68		86		101		133		185b							