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## THE LINEAR B ARMS AND ARMOUR TABLETS — AGAIN

The groups of tablets from Knossos and Pylos, which are generally agreed to be records of chariots, corslets, helmets, swords, spears and arrows, have played a part in more than one recent dispute concerned with the Linear B script. They have been among the texts cited as offering impressive evidence for the correctness of the Ventris decipherment, and equally they have been singled out as points of weakness by critics of the decipherment<sup>1</sup>. More recently, they have been called in, both to support the claim for a late date for the Knossos tablets, and to defend Evans' dating of them in the vicinity of 1400 BC<sup>2</sup>. Because events have moved so fast in recent years in the particular field of Mycenaean archaeology which forms the subject-matter of these texts, a further approach to this topic may be justified, particularly if it is from the comparatively unfamiliar angle of the arms and armour themselves. The tablets with which I intend to deal may be summarised thus:

From Knossos:

About 40 tablets of class Sc, from the larger class of the chariot-tablets, which are or were originally inscribed with the 'corslet'-ideogram, \*162:

4 other tablets of the Sc class, inscribed with the 'tunic + QE' ideogram:

4 (perhaps 5) miscellaneous tablets which contain the sign-group transliterated *qe-ro<sub>a</sub>*, in one case (K 740) accompanied by a drawing; two of them also bear the 'helmet'-ideogram \*191, and part or all of the sign-group read as *ko-ru*, and this ideogram reappears on Sk 8149:

22 tablets of the Ra class, inscribed with the 'sword'-ideogram, \*233, or with traces of the associated sign-groups:

1 tablet (R 4481 bis) with the 'spear'-ideogram, \*230:

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<sup>1</sup> E. g. Chadwick, *Decipherment of Linear B* 93—4; contra, Jane E. Henle in *Minoica* 192—6; Grumach, *Gnomon* 32 (1960), 692

<sup>2</sup> Palmer, *Mycenaeans and Minoans* 176—82; contra Boardman, *On the Knossos tablets* 78—80; Catling, *Antiquaries' Journal* 42 (1962), 259; Marinatos, *Praktika tês Akadêmias Athênôn* 37 (1962), 76

1 tablet (R 4482) and 1 sealing (Ws 1704) with the 'arrow'-ideogram, \*231.

From Pylos:.

12 tablets of the Sh class inscribed with the 'corslet-and-helmet' ideogram, \*163:

1 tablet (Ta 716) bearing the sign-group transliterated *qi-si-pe-e* and an indistinct ideogram, \*234.

I have omitted from this list the bulk of the Knossos chariot-tablets, and the Knossos and Pylos chariot-wheel tablets, whose content, though interesting, is not primarily relevant to arms or warfare.

Inevitably, it is the 'corslet'-tablets which provide the best basis for discussion. The ideograms that they bear are clear enough to be compared with the contemporary archaeological finds, and they are the only tablets in this field which give an adequate basis for comparison between Knossos and Pylos. We may begin by briefly surveying the material evidence available for body-armour in the Aegean Bronze Age.

For plate-armour there is now adequate evidence, mostly very recently acquired. The discovery of the suit of armour in Chamber Tomb 12 at Dendra in May 1960 is the main landmark<sup>3</sup>, not only as proof of the reality of bronze plate-corslets at this period, but for the light it has shed on other finds which would have remained obscure or ambiguous. The dismantling of the armour and the publication of photographs of some of the components<sup>4</sup> has brought further enlightenment. The armour is based on a breastplate and back-plate reaching to the waist or lower, like the two-piece plate-corslet of the later Greek hoplite. To this were attached a high bronze collar; two large shoulder-pieces, each with two subsidiary attachments — a narrow band fitted to the outer edge to protect part of the upper arm, and a curious triangular plate, not unlike a helmet's cheek-piece, which lay over the middle of the chest (the shoulder-pieces were almost broad enough to meet across the front, and these triangular extensions make an overlap, and were presumably meant to steady the shoulder-pieces in position); lastly, below the breast- and back-plates were fitted three broad curving bands, front and rear, one below the other,

<sup>3</sup> AE 1957, parartêma, 15—8; Archaeological Reports 1960—1, 9—10

<sup>4</sup> AJA 67 (1963) 280—1, pl. 62

which protected the lower part of the trunk without being as rigid as the main plates above. The three front pieces were drawn up higher than those behind, to allow greater freedom to the legs. The surviving contents of this tomb are homogeneous in date and belong to Myc. II B—III A 1, that is rather before 1400.

This find, as was soon noticed, explains what had been a curiously unsatisfactory piece of evidence: the so-called 'helmet' from the same site, found in Chamber Tomb 8 in 1939<sup>5</sup>. This object is structurally so similar to the shoulder-pieces of the other corslet that it must, after all, be a shoulder-piece too. In shape it looks less developed, which is natural since the interment to which it belonged is dated to Myc. I—II. Such a shoulder-guard would be useless without the breast- and back-plates at least, and we may safely infer that a corslet of the same basic type was in use at this earlier date. Another find of metal body-armour, perhaps roughly contemporary with Chamber Tomb 12, occurred in one of the 'Tombe dei Nobili' near the palace of Phaistos<sup>6</sup>. It was in the form of an oblong bronze plate, 29.5 cms by 12, (originally longer still) with several holes perforated down the short side; there were traces of another such plate. There is nothing to conflict with the idea that these were plates, similar to those at Dendra, for attachment to the bottom of a corslet. Lastly, the very recent excavation of the 'Arsenal' adjoining the palace of Thebes has produced several identifiable fragments of armour of the same type; the shoulder-guards and the triangular pieces are particularly noted<sup>7</sup>. They are dated "somewhat earlier" than the destruction of the building in c. 1300; from the photograph of some associated bronze vessels, one might guess considerably earlier. We thus have evidence that the Dendra type of corslet was in use from at least the beginning of Myc. II to well on in Myc. III A; the century 1450—1350 would give its minimum duration in absolute dates.

Plate-armour is of course not the only form of armour which employs metal. There is a little evidence for the Mycenaean (and Minoan) use of disc-armour, formed by sewing bronze discs on to a textile backing. In Shaft Grave IV at Mycenae over 40 such discs were found; but the few representations, which extend from a LM I ivory to the Myc. III C 'Warrior Vase', suggest that the use

<sup>5</sup> Persson, *New Tombs at Dendra* 43, 119f.

<sup>6</sup> *Mon. Ant.* 14 (1904), 537, f. 22

<sup>7</sup> *Illustrated London News* 5/12/64, 896—7, f. 8

of these discs was in the main confined to the helmet<sup>8</sup>. As for the more familiar scale-armour, already in use in the contemporary Near East, there is scarcely a sign of it in the Aegean Bronze Age. No representation can be confidently said to show it; while the only trace among actual finds was two small bronze plates, again from the Tombe dei Nobili at Phaistos; they were large for scales, being approximately 5 cms. by 4<sup>9</sup>. Both these types of armour are rarities, however, compared with the simple, non-metallic corslet of leather or textile; this is seldom traceable in the actual remains, but it can be seen on numerous Mycenaean representations<sup>10</sup>. These are congregated particularly in the late period, Myc. III B—C, in which there is no evidence for plate-armour — a point which may be significant. But in all probability corslets only lightly reinforced with metal, if at all, were the commonest form throughout Mycenaean times, as often since.

Let us now consider the 'corslet'-ideograms on the tablets in the light of these facts. Both at Knossos and at Pylos the drawing is repeated with sufficient care to preserve a recognisable identity in each case; but the Pylos 'corslet-and-helmet'-ideogram is drawn in a shorthand style which makes further inference difficult. Where, if at all, does the Dendra armour fit into this scheme? Almost every possible answer has been given by scholars since its discovery. The excavator compared it with the Linear B ideograms, "especially those at Pylos", and Vanderpool has written that "the whole thing corresponds very closely to the ideogram for corslet on the Pylos tablets"; on the other hand, Miss Gray's early reaction was that "it looks like the KN ideogram", and Marinatos has said that it is of a type "unknown on the Pylos tablets, but known on those from Knossos"; Palmer, finally, considers it "of entirely different construction" from those shown on the tablets, which he believes to be of identical type at both sites<sup>11</sup>. What is the truth of the matter?

<sup>8</sup> Discs: Karo, *Schachtgräber* pl. 70, 541—9. Representations: ivory head, Zervos, *L'Art en Crète* f. 695; LM II vase, *Antiquity* 28 (1954), 211—3, pls. 8—9; Warrior Vase, Lorimer, *Homer and the Monuments*, pl. 3,1

<sup>9</sup> *Mon. Ant.* 14 (1904), 539—40, f. 23

<sup>10</sup> E. g. Lorimer, *op. cit.* pls. 2,2; 3,1; 12,1 and 3; AE 1887, pl. II. Traces of the bronze rim of such a corslet, which may also be represented on the Warrior Vase, have been identified in a Myc. III B—C grave at Kallithea in Arcadia: *Ath. Mitt.* 75 (1960), 43, 47, Beilage 29

<sup>11</sup> Verdels, *AE* 1957, *paratêma*, p. 17; Vanderpool, *AJA* 67 (1963), 281; Gray, *BICS* 7 (1960), 65; Marinatos, *op. cit.* (see n. 2), 76; Palmer, *On the Knossos tablets* 3—4, n. 2 and *Interpretation of Mycenaean Greek texts* 331f.

It seems to me beyond doubt that, of the ideograms, it is the Knossos one which is more easily intelligible as a portrayal of the Dendra type of armour. That the ideogram represents a corslet at all, rather than a vessel or container as Grumach suggests (see n. 1), is admittedly an assumption; but it is one that can easily be reconciled with the context, which invariably embraces chariots and horses and is thus likely to be military. The comparable sign in the Hittite hieroglyphs, cited by Grumach, is distinguished by its lateral projections which (unlike those at Knossos) can hardly be other than handles; and I find it hard to imagine a context which would bring together a corn-container with the fast two-wheeled chariot drawn by a pair of thoroughbreds. That this assumed corslet is metallic is, again, an inference (made originally by Evans) from the substitution or surcharging of the 'bronze ingot' sign for the corslet-ideogram in a number of cases. Now that we have the full Dendra armour before us, it is quite credible that such a large quantity of metal as a whole ingot — on average some 29 kgs. — was needed for a pair of such corslets. If this be accepted, the ideogram is seen to have one feature which, though at first glance an impressive analogue, is at variance with the Dendra find: the parallel, transverse lines which are drawn at intervals, usually all the way up the ideogram; whereas the lines formed by the overlapping plates of the Dendra corslet would cover, at most, the lower half of the whole armour. This divergence could be important; but one can say that it would be very difficult to represent quickly the oblique and curving lines which are formed by the overlapping pieces in the upper part of the armour. In any case, one may set against this two notable similarities: the upward-tapering shape of the ideogram, which echoes one fact about the Dendra armour: that the plates attached below must overlap upwards, since the human body is wider at the hips than at the waist; and secondly, the rounded protuberances at the top of the ideogram. These have most often been understood as loops or straps over the shoulders, but they can be seen on at least two examples (Sc 255a, 260) to be solid objects which project sideways as well as upwards from corslet, and have a distinctly-drawn lower edge. In the absence of any systematic attempt by the scribe to discriminate between the ideograms, we may believe that these portray the same features in their less detailed appearances as they do here. Further, on another tablet (Sc 259) there seems to be a conscious effort to suggest the complicated construction of the

upper part of the corslet. All this inclines me to accept that the Dendra armour, complete with shoulder-guards, was the original for these somewhat curious drawings. The concordance in date between the Knossos tablets and this type of corslet will still stand if Popham is right in placing the destruction of Knossos at the beginning of LM III A 2, that is perhaps rather later than 1400, but in the first half and probably the first quarter of the 14th century<sup>12</sup>.

The Knossos ideogram seems never to occur with a sign-group which could describe it. The signs read as *qe-ro<sub>2</sub>* occur on a different group of tablets, but there may be a bridge between the two, in the shape of the 'tunic + QE' ideogram, which resembles the corslet in outline but is surcharged with the first sign of the *qe-ro<sub>2</sub>* group. This, unlike the other surcharged versions of the 'tunic' ideogram, is found on the Sc tablets, with their probable military context; it has a yoke-shaped upper outline, and has no room for transverse lines. Palmer has indeed suggested that this sign is but a variant of the corslet-ideogram, used by the particular scribe who wrote the small group of tablets on which it occurs; his evidence for a different scribe here is certainly convincing<sup>13</sup>. But in any case, the identity of context should be enough to establish the link between the corslet and the 'tunic + QE'; and the yoke-shaped outline of the latter is repeated on the solitary drawing associated with the group *qe-ro<sub>2</sub>* on K 740. The fact that the other two surviving ideograms on this tablet show vessels is hardly a guarantee that it is a homogeneous list of bronze vessels. From this tablet we also learn that the object in question is decidedly shorter than the corslet or tunic, that it can be associated with the 'bronze' ideogram, and that it has a double outline all the way round. Applying these data to the different context of the Sk tablets on which it also appears (789, 5670, 8100 and no doubt 8149), scholars have identified the group *qe-ro<sub>2</sub>* as a word for "coat of mail", "arm-guard", or some other piece of armour<sup>14</sup>.

<sup>12</sup> AJA 68 (1964), 352. See further the dating proposed by M. S. F. Hood in Kadmos IV 1, pp. 16ff., which would also not gravely affect the chronology proposed here.

<sup>13</sup> Interpretation of Mycenaean Greek texts, Addendum, p. 488.

<sup>14</sup> Chadwick's close-up photograph of the *qe-ro<sub>2</sub>* (BSA 52, pl. 28) shows the ideogram very well. For identifications, see Documents 381; Chadwick, BSA 52 (1957), 148—9; Gallavotti, RFIC 39 (1961), 176—7; Webster, From Mycenae to Homer 103, for the identification with Greek γύαλον, developed by Marinatos, op.

Marinatos has now put forward the more attractive suggestion that it designates the inner plate of the Dendra type of armour, which is shorter than the whole corslet, has a roughly yoke-shaped top, and occurs naturally in pairs, as the *qe-ro<sub>2</sub>* does on the Sk tablets where it has a probable armour context. But he goes on from this to explain the 'tunic + QE' ideogram as a corslet with such plates, that is an armour of the Dendra type. The much commoner corslet-ideogram he sees as a corslet consisting entirely of horizontal bands; the bands are identified with the *o-pa-wo-ta* regularly listed at Pylos; so that the predominant type at both sites is presumably one and the same. To this there seem to be two main objections: first the radical differences between the Knossos and Pylos corslet-ideograms (see below, pp. 103, 109), and secondly, the fact that the evidence for the use of *o-pa-wo-ta* for corslets at Knossos is very slight indeed. On the tablets we have been considering (5670, 8100 and 8149 explicitly, 789 by inference)<sup>15</sup> this sign-group is associated with helmets; but the only suggestion of a corslet embodying *o-pa-wo-ta* at Knossos is, again, on the badly-scorched Sk 8100. The upper line of this tablet begins with *qe-ro<sub>2</sub>*; the lower with *ko-ru* and a rough version of the 'helmet'-ideogram. At the end of the upper line appear the signs *o-pa-*, and Chadwick restored this group, no doubt rightly, as *o-pa-wo-ta*. But the photograph of this tablet (BSA 52, pl. 27 top) seems to show the group written small, and so low down that the line-divider appears to cut through it. Perhaps the upper part of the tablet had been damaged before this group was inscribed; but in the absence of confirmatory evidence from any source but the rather different Pylos Sh tablets, it seems unwise to take this mutilated text as proof that there were '*opawota* of the corslet' in use at Knossos.

In these circumstances, it is on the whole simpler to associate the main corslet-ideogram, rather than the 'tunic + QE' variant, with the Dendra type of armour. But it seems reasonable to follow Marinatos in identifying the *qe-ro<sub>2</sub>* with the Dendra breast- and back-plate. If the 'tunic + QE' is still to act as a link, and is not a mere scribal idiosyncrasy, then it should in some way be con-

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cit. (etymologically, this seems no more attractive than the other suggestions). An explanation of the double outline of the object might be that it is an attempt to portray a pair of plates, the back one shown larger so as to be visible; the numeral 2 would not be otiose, but would stand for two pairs, just as on the corslet-tablets, for whatever reason, two corslets are regularly listed.

<sup>15</sup> See BSA 52 (1957), 147—9; 57 (1962), 52

nected with these same objects. It could perhaps stand for a corslet with the breast- and back-plates, but with some textile addition in place of the lower plates of bronze; and if there were in fact 'corslet-*opawota*' on the Knossos Sk tablets, a similar explanation might be adopted there, on the analogy of Pylos (see below, p. 104). For the identification of the main corslet-ideogram with the Dendra type of armour, confirmation could be found in the group on Sk 789 and 8100 read as *e-po-mi-jo*, in the second case with the numeral 2. Here there is an unusually convincing, indeed prophetic parallel with the two shoulder-pieces which form a detachable part of the corslet later found at Dendra. But the sign-group does not occur on the Sc tablets; nor at Pylos.

The Pylos 'corslet-and-helmet'-ideogram has already been noted for some of its features, including the hasty appearance of the drawing as compared with Knossos. Other minor differences from the Knossos ideogram could perhaps be ascribed to this same cursoriness; but there is one feature which the scribe has taken pains to show unequivocally in every case — the short sleeves. These are utterly different from the projections on the Knossos ideogram, and they do not remotely resemble loops, shoulderguards or indeed anything but sleeves. The significance of this is that no plate-corslet, of the Dendra type or any other, can have sleeves attached; they would make it impossible to put on and take off, unless it were divided down the middle of the back and front, as no known plate-armour is. This feature, therefore, radically distinguishes the Pylos corslet from the Knossos one, while still leaving a number of possible types of garment which it could represent. We thus return to the subject of the *o-pa-wo-ta* which apparently compose, or partly compose, this corslet. I have argued above that at Knossos, so far as is known, the *o-pa-wo-ta* are mentioned only in conjunction with helmets; certainly there are none on the corslet-tablets proper (Sc). But at Pylos they appear in two distinct categories: the group *o-pa-wo-ta* or its abbreviation *O* is used in close association with the 'corslet and helmet'-ideogram, and with either *me-zo-a<sub>2</sub>* 20 *me-u-jo-a<sub>2</sub>* 10 (seven occurrences) or *me-zo-a<sub>2</sub>* 22 *me-u-jo-a<sub>2</sub>* 12 (four occurrences); with the sign-groups *ko-ru-to*, *KO*, or *e-pi-ko-ru-si-ja*, on the other hand, the number of *o-pa-wo-ta* is regularly 4 (eleven occurrences at Pylos, once at Knossos). On one Knossos tablet (Sk 789) we read only *e-pi-ko-ru-si-jo* 2; but this, I suggest, is an incomplete set — hence the absence of the 'helmet'-ideogram on this tablet. Assuming that the decipherers'

interpretation of the two categories as 'corslet' and 'helmet' is correct, we have to ask ourselves what metallic adjunct could be used interchangeably in this way and, above all, in these quantities. Most scholars have naturally thought of scale-armour in this context and, since the numbers of *o-pa-wo-ta* are far too small for individual scales, have interpreted the word as meaning "rows of scales" or "number of scales in each row"<sup>16</sup>. These suggestions remain unconvincing, not least because there is still no evidence, from representations or actual finds, for the use of scale-armour in Greece in the Pylos period. There is some evidence for disc-armour at this time (p. 98), but for the helmet and tunic-skirt rather than for the corslet; and for this, too the numbers are absurdly small. I therefore suggest that the Pylos corslets were of the only type for which we have convincing external evidence at this date: the non-metallic corslet made of leather or textile<sup>17</sup>, possibly with a metallic border (above, n. 10). Many of the representations show at least one feature, the sleeves, which is definitely present in the ideogram. The *o-pa-wo-ta* are either pieces of a thick material like leather, or else thicknesses or layers of linen or some other textile. I do not think that the decipherers' derivation of this word, from the general sense of attachment or union originally present in ἄψεσσω, would exclude such a meaning; nor of course would the Greek word θώρακες which they recognise on Sh 736, and now Wa 732<sup>18</sup>, and associate with this context. If the second of the meanings given above is correct for the *o-pa-wo-ta* of the corslet, then there is a Mycenaean parallel, albeit from the Shaft Grave period, in the shape of a fragment of cloth fourteen layers thick; while later ages provide many analogies<sup>19</sup>. One can only guess how the 30 or 34 *o-pa-wo-ta* would then be disposed; perhaps the first group (*me-zo-a<sub>2</sub>*) were for the body, distributed so

<sup>16</sup> Rows: Documents 378. Scales in each row: Gray, BICS 6 (1959), 48

<sup>17</sup> Compare F. Matz, Kreta, Mykenai, Troja 67 for this view

<sup>18</sup> Documents 375; BICS 5 (1958), 3

<sup>19</sup> Ath. Mitt. 12 (1887), 21f., f. 4. Among mediaeval parallels, one can find quite a close approximation to the total number of *o-pa-wo-ta*. Thus, in 1460, Louis XI of France orders corslets to be made of 30 to 36 layers of linen (see Archaeological Journal 60 (1903), 101—3); while the prescribed equipment for a man in a "peaceful joust" in England at this same period includes armour of "a paire of plates and thritty gyder" (these last apparently garments of textile) (Archaeologia 17 (1814), 292). Analogies with mediaeval times may seem far-fetched, until one notices that the Dendra armour and its parts foreshadow, in a remarkable way, the plates, gorgets, pauldrons and taces of mediaeval armour.

as to give 10 or 11 layers front and rear, and the other group (*me-u-jo-a<sub>2</sub>*) for the sleeves, 5 or 6 layers on each arm. But by mediaeval times corslets of up to 36 layers of linen occur (see n. 19), so that it is perhaps likelier that the thicknesses were overall, and that the group stand for two different weights of cloth. The roughly-drawn lines on the Pylos ideogram would then be merely lines of stitching or quilting, such as are necessary in any garment of multiple thicknesses. This explanation frees us from having to imagine a metal unit of which four would suffice for a helmet; and, again assuming the meaning "layers" to be correct, it means that the objects so meticulously listed were of material importance for the effectiveness of the corslet<sup>20</sup>. For further support, one could again appeal to the decipherment: on Sh 740, between the 'corslet-and-helmet'-ideogram and the *o-pa-wo-ta*, occurs a group read as *wi-so-wo-pa-na* (Documents 378, no. 292). This is tentatively interpreted as an adjective, "with equal number of thicknesses of cloth" (ἴσος, πῆνος), agreeing with *o-pa-wo-ta*. But the word-order is against this construction; and *wi-so-wo-pa-na* might equally well agree with the understood neuter plural in 'CORSLLET ZE 5', so that the text could then mean "Five pairs of old corslets of equal number of thicknesses, (that is) twenty larger opawota, ten smaller, etc."

According to this interpretation, there will have been helmets worn at Knossos and Pylos which were of four layers, or alternatively four pieces, of material. In this case the more probable meaning for "o-pa-wo-ta" would seem to be "pieces", no doubt vertically joined sectors of leather or some equally thick material. The same term could well be used for pieces of different material and form, provided that it was given a qualification. Leather helmets are, in their nature, unlikely to be found in excavation, but they seem to be represented in contemporary art, and they may be commemorated in the Homeric ἀπαξ λεγόμενον, καταίτυξ. But there is seldom detailed written evidence for them until much later, in mediaeval times, when they are still in common use<sup>21</sup>.

<sup>20</sup> I cannot agree with Page (History and the Homeric Iliad, 263) that the details of the *o-pa-wo-ta* are given to help distinguish one corslet from another; such an object would be defeated by the fact that the same number of *o-pa-wo-ta* is possessed by many corslets (e. g. sixteen have a total of 30).

<sup>21</sup> The helmets of the Warrior Vase are probably made from pieces of leather stitched together vertically (Lorimer, op. cit. 229). On καταίτυξ, see *ibid.* 245. For mediaeval uses, compare C. ffoulkes, *Armour and Weapons* 27, 34.

This account presupposes that an 'Age of Plate' at Knossos in the early 14th century could have given way to a period of lighter armour at Pylos some 150 to 200 years later. If such a sequence seems surprising and indeed retrogressive, we have only to consider later parallels in history. For instance, the plate-corslet of the hoplite, introduced to Greece before 700 BC, largely gave way within two centuries to a corslet that was merely reinforced with metal or, less commonly, to a linen corslet; while the great 'Age of Plate' which fell in the 14th and 15th centuries AD, was also ended by a voluntary abandonment of plate-armour<sup>22</sup>. The development of fire-arms was far from being the only cause for this last development; indeed, it probably played less part than the general desire for increased mobility and larger armies, a factor which may well have been operative also in the later years of the Mycenaean empire.

There is little to add of the 'helmet'-ideograms *per se*, and their associated sign-groups. At Knossos, the helmet and its appurtenances only appear in conjunction with the *qe-ro*<sub>2</sub>; the 'helmet' is the only ideogram on these tablets (Sk 5670, 8100, 8149), and is extremely simple in form, especially on 8100. If the *o-pa-wo-ta* are non-metallic, the regular two *pa-ra-wa-jo* may well be also. (It is worth noting that these two sign-groups are virtually the only ones on the armour-tablets common to Knossos and Pylos). The Knossos ideogram, at least on 5670, does resemble the bronze helmet found at the same site, and from the same period, in 1951<sup>23</sup>, but this is so far unique; of the similarly-shaped boar's-tusk helmet, which required at least 30 dead beasts per helmet, one can safely say that it could never be mass-produced. I see no reason why the ideogram should not represent a helmet made of padded material with added cheek-pieces, such as is known in contemporary art<sup>24</sup>. As for the Pylos 'helmet', its association with the 'corslet' in a single ideogram strongly suggests that it is of similar material and, ill-drawn as it is, one can find no metallic helmet among the types that it could possibly be imagined to represent.

Of the weapon-tablets there is inevitably less to say; the texts are shorter, the ideograms plainer, the subject-matter less prodigal

<sup>22</sup> On Greece, see e. g. Snodgrass, *Early Greek Armour* 73f., 183; on mediaeval and later times, ffoulkes, *op. cit.* 97.

<sup>23</sup> BSA 47 (1952), pl. 50; Documents 377, f. 26A

<sup>24</sup> As Documents f. 26 C and E (LM I rhyton from Agia Triada, LM II vase from Isopata)

of alternatives. Most interesting are the Knossos 'sword'-tablets, which regularly contain the sign-group *pa-ka-na* irrespective of the wide variations in the ideogram. From this fact one might draw a variety of conclusions: that the ideograms are intended to represent exactly the same type of weapon but vary according to circumstances, such as the pressure of time or the idiosyncrasies of individual scribes; or conversely, if the word (as one would expect) could embrace weapons of quite different appearance, that the ideograms are to be taken as accurate representations of variant types; or else, more sceptically, that the group *pa-ka-na* is not a word for "swords", or for weapons of any kind. I would incline towards the second of these alternatives, both because the ideograms appear carefully drawn, and because I see no other clear evidence for more than one scribe on this group of tablets<sup>25</sup>. The T-shaped hilt and pommel is unfortunately common to almost all the known swords and daggers of this period (though the pommels have most often perished), and gives only the vaguest indication of type. But the other details of the ideogram are more helpful. The clearest version ((a) — two occurrences) shows the unmistakable lateral bulges of the 'cruciform' type of hilt. The more schematic version shows a T-shaped hilt and square shoulders; the blade is either of the same shape as (a), that is, tapering sharply to a point in the last part of its length ((b), three occurrences), or else tapers all the way from the shoulders ((c), also three occurrences, one with an unusual pommel (Ra 1542)).

What can legitimately be inferred from this? Whatever the value of the ideograms, there can hardly be any question that (a) represents the 'cruciform' weapon. If we are correct in attaching importance to the drawing, (b) and (c) should represent a T-hilted, square-shouldered weapon, a form also well-known in the Aegean Late Bronze Age. Furthermore, on the same hypothesis, the shorter version (c) of this type can only represent a stabbing weapon, a dirk or dagger. If this is sound, then it begins to seem likely that all the weapons are daggers of some kind, as was recently suggested by Boardman<sup>26</sup>; for it is unlikely that terminology was so loose that the same word could serve for "dagger" and "sword".

<sup>25</sup> An exception is perhaps Ra 1556, which has a distinctive form of the sign *KA* and an uncanonical ideogram, with rounded shoulders and pommel; but I am no judge of this matter. The defective spelling of the last sign-group on 1548, as shown in the line-drawing of Scripta Minoa II, is merely the result of faulty copying.

<sup>26</sup> On the Knossos tablets, 80

In support of this view is the fact that the tablets were found in an isolated deposit in the domestic wing; the dagger, unlike the sword, has always been as much a household implement as a weapon of war. The "fragments of swords" found near the tablets<sup>27</sup> are not described or illustrated, so far as I know, apart from a piece of a crystal hilt-plate which, if Evans' drawing is life-sized (as, for instance, is PM *ibid.*, f. 851), was too small to belong to a true sword. For further enlightenment we may turn to Miss Sanders' invaluable study of later Aegean swords<sup>28</sup>. The counterparts, which have been suggested for the ideograms, are in her typology Type D for (a) and Type F for (b) and (c). Of Type D (by far the safer identification) two facts may be learned from perusal of her catalogue: first, that at least 60% of known examples are too short to be true swords (that is, less than 50.5 cms long overall, the limit suggested by a recent authority<sup>29</sup>), and must therefore be classed as dirks or daggers; and secondly, that chronologically they are heavily congregated in the 15th and 14th centuries BC (some 75% of dateable examples fall in LM/Myc. II—III A 2). In Type F, the short stabbing-weapons preponderate even more heavily; but the dating is far less precise, ranging from the 14th century to the 11th. These considerations, I suggest, reinforce Boardman's view that these are in fact "dagger-tablets", as indeed the superficial appearance of the ideograms had always suggested. They also contribute to the problem of the dating of the Knossos tablets, whether or not the identification of Type F is justified. If it is not, then Type D is our only guide; if it is, and if we then look for instances of the use of Types D and F together, we shall find them in the graves of the LM II—III A 2 period in the Zafer Papoura cemetery and, on present evidence, only there. If *pa-ka-na* is really identifiable with the Homeric and later *πάσγανα*, the etymology in no way discourages the translation "daggers". There will then have been a different word for "sword", and it could well be a form of *ξίφος*, such as was read on the Pylos tablet Ta 716. But this tablet is not an impressive piece of evidence: not only is the spelling *qi-si-pe-e* surprising, but the ideogram, if it is an ideogram, is like no known sword; the only identification so far proposed is with objects that are swords, nor properly weapons

<sup>27</sup> Evans, PM 4, 854 with f. 837

<sup>28</sup> AJA 67 (1963), 117—53

<sup>29</sup> Col. D. H. Gordon, *Antiquity* 27 (1953), 67

of war at all<sup>30</sup>. In addition, the order of the lines is puzzling, and the top line also contains obscurities. The archaeological picture of later Mycenaean swords does not quite contradict the decipherers' interpretation, which involves 'gold studs': although, in Miss Sandars' words (op. cit. 132), this is "a new world of drab armament", there is at least one weapon of late date (from Mouliana Tomb A, Sandars pl. 25, 33) which had gold-capped rivets. Such appointments would in any case be more expected on a full-length sword than on a dagger at this date. Of the solitary 'spear'-tablet (R 4481 bis) and the arrow-tablet and sealing, found in the Armoury at Knossos, the ideograms can tell us nothing, and the associated sign-groups did not yield entirely satisfactory sense to the decipherers. On R 4481 bis the first syllable of [e]-ke-a was lost, and the group read as *ka-ka-re-a* had an apparent word-divider in the middle in addition to the doubtful last sign; in the 'arrow'-texts, the group *pa-ta-ja* was not easily identifiable with a Greek form<sup>31</sup>.

To return to the broader issues with which this enquiry began: only on the question of the dating of the Knossos tablets can the evidence of the arms and armour texts be said to give a clear answer. Let us consider the only directly comparable class in this field, the corslet-tablets of Knossos and Pylos. The Pylos ideogram is *prima facie* distinguished from Knossos by the association with the helmet, the dissociation from the chariot, the careless drawing, the presence of sleeves and the absence of shoulder-guards or of any possible reference to them. To these features we could add the regular association with sign-groups and numerals which presumably refer to components; but here it could be claimed that the true parallel with Pylos is given by the Knossos *qe-ro*<sub>2</sub> tablets (Sk), not the corslet (Sc) ones. But even these show more differences in terminology than the two main similarities, the mention of *o-pa-wo-ta* and *pa-ra-wa-jo*. In my view, the whole body of evidence from Knossos and Pylos, according to the orthodox dating of the tablets, conforms with the testimony of the actual finds and of the representations, in one general conclusion about armour: that there was an 'Age of Plate' (at least in the restricted chivalrous circle of the palaces) which was centred in the period c. 1450—1350, and was succeeded by a period of humbler and less extravagant

<sup>30</sup> Mylonas, AJA 66 (1962), 406—8, pl. 121

<sup>31</sup> Compare the view of H.-G. Buchholz, JAI 77 (1962), 4

equipment, extending down to and beyond the date of the Pylos tablets. This is one supporting argument for Evans' dating of the Knossos tablets, or something quite close to it; and the chronological pointer given by the only other clear ideogram, the first version of the 'sword' on the Ra tablets, must further reinforce it. Even if there were no other evidence, there would still be strong circumstantial grounds for placing these two groups of Knossos tablets in the 15th or 14th centuries BC.

In these pages I have at times used arguments whose validity depends on the correctness of the Ventris decipherment; but since this will make them unacceptable to some, I have tried to confine them to a secondary place. Undeniably there are cases of identifiable ideograms associated with plausible Greek forms, though seldom as closely as might be hoped. I suppose that *pa-ka-na*, and the combination of *ko-ru* with *pa-ra-wa-jo* provide the most striking instances, though in the second case the ideogram leaves much to be desired. *To-ra-ke*, like *qi-si-pe-e*, is vitiated by appearing only once with an ideogram<sup>32</sup>, which would seem too badly preserved to be recognisable in isolation, and with sign-groups that are uncanonical for the relevant series; *o-pa-wo-ta* cannot be given a precise meaning; [*e*]-*ke-a* involves a conjecture; while *qe-ro<sub>2</sub>* and, to a lesser extent, *pa-ta-ja* are difficult to identify convincingly with Greek words for the associated objects. Personally, I would consider *e-po-mi-jo* to provide the most impressive case; although not a starred word in the vocabulary of Documents, it is close to known Greek forms and can be identified with a feature, both of contemporary archaeology, and of the ideogram on an admittedly different but probably associated class of tablets. In short, while the arms and armour tablets offer no really spectacular correspondences between sign-groups, ideograms and archaeological finds, their evidence is quite compatible with the belief that such parallelisms exist.

<sup>32</sup> Compare Beattie, *Mitt. Inst. Orientf.* 6, 48f.; *Saeculum* 10 (1959), 371. I am grateful to Prof. A. J. Beattie and Prof. E. Grumach for reading a draft of this paper, although this by no means implies their agreement with the views expressed.