SOME OF THE INDUSTRIES OF THE MIDDLE BRONZE PERIOD

WEAPONS

Introduction.

The introduction of metals for implements and weapons is so important that it may be said to mark the dawn of a new era. It was not so much that mere sharpness was greatly increased, for an implement of flint may be given a cutting edge as keen as, if not keener than that which could then be imparted to one of metal. The great advance lay first in the durability of the material and, secondly, in the variety of form attainable.

With metal, it became more possible to suit the tool to its work, and the old difficulty of brittleness did no arise. Moreover, a metal implement, even when broken, could be reshaped.

Nevertheless, the introduction of metal did not bring the use of stone implements to an early end. In considering metal weapons we are faced with a great range and variety, but we could say that the dagger was one of the earliest copper weapons.

Daggers :

Mrs. R. Maxwell-Hyslop had a very successful treatment for daggers and swords in Western Asia published in **Iraq,** vol. 8 1946, pp. 1-65. I am going to use her description for the dagger types used in my treatment. Her arrangement is based mainly on the typological developments. Here I am trying a chronological order.

Type 25, Fig. 1, Pl. XV. This is a technically advanced type, and would be an efficient weapon. Unfortunately not many of the daggers can be closely dated inside the MB. II period, though some of them were found with phase IIA context.

It is a pointed leaf-shaped blade, with multiple longitudinal ribs, short tang with several rivets. Some of them have only two ribs on the blade.

The earliest recognizable dagger blade in the Middle Bronze period was of type 25. It appeared in Megiddo tomb 911 [1] with pottery context represented on top of my Chart Fig. I. (A.D.A.J.IV). In Megiddo they appeared also in stratum XIII [2] with a limestone pommell handle.

In Tell El Ajjul [3] examples were found in tomb 1417 of the Courtyard Cemetery dated Middle Bronze I according to pottery context, and in tombs 303 [4] and 1015 [5] which

[1] *Megiddo Tombs,* Pls. 122:9,118:5
[2] *Megiddo II,* Provenance, W = 5087, Pl. 178:3.
[3] *AG.* II, Pl. XIV:74.
[4] *AG.* III, Pl. XIX:10.
[5] *AG.* II, Pl. XIV:71.

may be dated a bit later than the Courtyard Tomb. Others were found in Gezer [1] tomb I and tomb deposit no. 226, Jericho [2] tomb 9, and in Oud et-Tin of Bethlehem [3]. They therefore range in date from Middle Bronze I to my phase IIa. i.e. c. 1900-1750 B. C.

The absence of type 25 from Tell Beit Mirsim E and D, Beth - Pelet, and Duweir (where it was replaced by other types, see below) suggests fairly well that the type was not in use after 1750 B.C. The type was not at all in use in the Late Bronze period, and to its appearance in Megiddo tomb 1100 D. represented on plate 149:5-7 I could say nothing more than they were left in the tomb when it was re-used in the Late Bronze period. The tomb is a shaft tomb, (i.e. EB-MB in date) and was re-used later.

The type was not restricted to Palestine, it appeared in Egypt as well as in Syria. Petrie in his **Tools and Weapons** presents one on plate XXXIV:47D and on page 29 he states that "the clumsy shape of D 47 might raise doubts of its antiquity ; but the rusting of the rivets to red oxide of copper is certainly ancient. The lines impressed on the blade are unlike any Egyptian design, and it is probably a foreign blade, handled in Egypt in the Hyksos Age". Mrs. Maxwell - Hyslop mentioned it and stated to have been as early as the Eleventh Dynasty [4].

In Syria and Lebanon, Schaeffer supplied us with two from Middle Bronze I sites [5], and non from later periods.

Type 26, Fig. 2, Pl. XV. It was of a narrow pointed blade, with a wide curved rib down the centre ; narrow tang with one or two vertical rivets. 26 is of two variations, the first has a blunt point, the second has an extra curved rib on top of the central rib, and the point is blunt. This type appeared almost always in MB. II phase IIA together with pommel handles of calcit of alabaster.

The type was not widly spread ; one was found in Gezer tomb I, another was found in Jericho tomb 9E, i.e., an earlier level than type 25 which was found in the same tomb layer C. Miss Kenyon has however shown that there is no true stratification in these Jericho tombs, since the objects associated with earlier burials were being piled against the walls of the tombs to make place for later burials. Relative heights of objects found therefore have no significance.

1 *Gezer* III, Pl. LX:6 and Pl. CXX:1. It was found alone in the deposit no. 226.

2 *AAA.* XIX, Pl. XXXVII:6 The type is a degenerate one.

3 R.B. Pére Vincent, 1947, Pl. VII and Et-Tin lies 5 Km. southeast of Bethlehem to the direction of Khareitoun where Arab El Ta'amereh lives.

4 Iraq, vol. 8, page 26, 1946, pl. III, no. 25 ; cf. Petrie, Diaspolis Parva "The Cemetries of Abadiyeh".

5 *Stratigraphie,* Kafer Djarra, Ruweise (Lebanon) Fig. 75 no. 14, tomb 57 ; Byblos Fig. 61.

One was found in Tell El Ajjul tomb 1750 dated by Schaeffer [1] to the XII - XIII Dynasty with no rivets ; another two [2] were found in the cityy levels E 700 with one rivet, the other in level 755 with two rivets.

In Tell el Farah near Nablus the same type was found in tomb A [3] belonged to a warrior. A bronze belt was found near the waist of the warrior which may be considered as a close parallel to that found in Jericho warrior tomb discovered by Dr. Kenyon with the only difference that the Farah belt is not embossed.

This type could be used either as a dagger or as a lancehead. It was of a narrow pointed blade, with a wide curved rib down the centre ; narrow tang with one or occasionally two vertical rivets. It is of two variations, the first has a blunt point, the second has an extra curved rib on top, of the central rib, and the point is blunt.

The type may have been in use in Palestine with type 25, though it became in use most probably a bit later. It was found in Ajjul tombs that are somewhat later than the Courtyard tomb 1417, tomb no. 5. The type was found in Jericho tomb 9, layer E [4], i.e., earlier levels than type 25 which was found in the same tomb layer B.

In Ajjul city levels two were found, one with one rivet, the other had two rivets and both are in level 700 - 755 ; the first represented in **AG.** IV Pl. XXV : 262, the second in **AG.** III, Pl. XVIII:7.

The type was not found in Megiddo, Tell Beit Mirsim, Duweir, nor Beth - Pelet. Thus shows a very short period.

Type 17, Fig. 3, Pl. XV. This type could be used as an ordinary daily tool, for simple purposes or as a weapon ; its use depends to a greater extent according to its size. "Early examples are known outside western Asia in the Aegean in Crete in EM. II - III and MM. I, where the sides of the blade are markedly concave and the centre often strengthened by a midrib [5] ". The earliest was found in Jericho By Dr. Kenyon in 1952 - 56, and the only one to belong to phase IIA in an outstanding tomb. It was a single burial of Middle Bronze age date, the only single burial of that period so far found. The burial was intact, except that the skull had been crushed by a piece of roof-fall. The dead person was obviously a yong warrior. Beside the dagger type 17C lay the alabaster pummel, and an axe, both typical of an early stage in the Middle Bronze Age. And on the other side of the tomb lay two other daggers of the same type, and two other

[1] *Stratigraphie*, Schaeffer, Fig. 123.

[2] *AG.* IV, Pl. XXV:262 with one rivet, *A.G.* III Pl. XVIII:7 with two rivets.

[3] *R.B.* LIV, Pl. XX (1947).

[4] *AAA.* XIX, Pl. XXXVII:5.

[5] *Iraq.* vol. 8, page 20, 1946.

axes. A bronze belt, much decayed, but the embossed design was clearly visible, was found beside him (see **P. E. Q.** 1954, Pl. XVII). It was common in Middle Bronze phases IIB - IV in Palestine and its blade was of different types. Mrs. Maxwell - Hyslop divides them accordingly as follows : Type 17 [1] : triangular - shaped blunt blade, with flat base curving inwards at the centre ; four rivets, and thicknenig down the centre of blade.

17 a [2] : The blade is pointed and has a well - marked midrib.

17 b [3] : The blade is long and narrow, with slight midrib.

17 c [4] : The blade is flat and this was the most common type.

The absence of the type from Duweir [5] suggests that it was in use in Palestine earlier than type 27.

Type 27, Fig. 4, Pl. XV. The small tanged blades without a rivet, which have sometimes been identified as spear - heads, are certainly knives, while the riveted form could be used as a dagger or for domestic purposes. Both forms are characteristic of the Middle Bronze II period. The general description for the type is flat, blunt blade, with well - marked shoulders, long narrow tang, and one or two rivets, others may be without a rivet hole. The type is found practically in every Middle Bronze II site in Palestine [6] especially phases III and IV. They appeared in Jericho tomb 9 and Gezer Cave 28 M with mixed context.

The most interesting one among the type was found at Tell-el-Duweir. It was inscribed. One side of the blade is seen to bear four pictographic signs, deeply cut ; the two central pictographs form part of the Siniatic signary ; of the other two, the upper one seems to be quite a new form., the lower one is found on early inscribed objects from Crete and the Aegean. "This inscribed dagger can be assigned quite definitely to a date perhaps before, but not later than 1600 B. C." [7].

Type 31, Fig. 5-7, Pl. XV. The dagger is characterized by a flanged hilt, usually cast in one piece with the blade, represented an advance in the technique of casting and working of bronze weapons. The fashion was wide spread in the Late Bronze I period, though it started in use in Palestine at the end of Phase IV of the Middle Bronze II period, where the type was seen in Ajjul level 700 - 750 which has been dated according to pottery context to the Middle Bronze II period, but it has not been noticed in other places in the MB. II than Ajjul, and Beth Pelet.

1 *B.P.I.* Pl. IX : 38, ibid, Plate IX, 46 and Pl. XI, 76 ; see also *BP.* II, Macdonald, Starkey and Harding, Pl. XLIII ; 18 tomb 1021.

2 *BP.* I, Pl. VI, II tomb 551 ; Magiddo II, Pl. 178 : 14.

3 *BP.* II op. cit. Pl. XLIII : 33 tomb 1018, with an ivory handle.

4 *AASOR,* XVII Pl. 41 : 6,17 stratum D, also R. B. Pére Vincent, Pl. VIII (1947) ; Kaplan Atiqot I, Tell Aviv Harbour, tomb 6, Fig. 5 no. 1.

5 Olga Tufnell Duweir IV page 77) Staes that "having now surveyd the weapons available from Duweir, it will be seen that types 25, 26, and 17 are altogether missing at our site.

6 *PEFQ.* 1937, Pl. VIII, Fig. 1.

7 *ibid,* pages 239 - 40.

In some examples, the hilt and the blade are cast in one piece. The edges of the hilt and ricasso are raised to hold in place the inlay of bone, wood, or other perishable material. The general description of the type is a blunt blade, with straight sides, the section flat or slightly curved. The base of the hilt is crescentic - shaped ; the sides are concave and small cut to two protuberances or rudimentary "horns" at the juncture of hilt and blade. It has other variations of types [1].

The type was found in Ancient Gaza (Ajjul) on the tell [2] and in some of the tombs, that could not be dated to a period earlier than 1600 B. C. None was found in the Courtyard Cemetery nor in the horse burial tombs.

The tombs [3] found in Ajjul that have the dagger type 31 are three in number and they range in date c. 1600 - 1500 B.C. But the type was very common in the Late Bronze period of Palestine. In Beth - Pelet a similar type was found in the bilobate tomb 554 which may be dated to our Phase IV.

In Syria this type was found by Shaeffer, Ugaritica I Fig. 63 with three rivets, one in ricasso, the others at base of hilt. Another was found in Tomb LVI and LXV having four rivets. Schaeffer dated the former to the 16th. century and the Later to the 17th - 16th centuries B. C.

From Egypt we have a decisive chronology of the type. From the reign of the Hyksos king Apophis Nebkhepeshre there is a dagger [5] of the same type as ours, found in a tomb at Sakkarah "This king", Soderbergh states, in JEA, vol. 37-38, 1951-1952, p. 70, may well have been Kamose's opponent.

The dagger was found in the tomb of the Semite 'bd, and originally belonged to another Semitic warrior "His Lord's follower 'Nhmn' ".

The type of dagger itself, Fig. 7 with its inlaid handle, is a new type to Egypt, and is easily compared with ours ; these facts demonstrate that the Hyksos had close contact with Palestine and Syria, whence they drew their technical strenght in warfare during the last decisive struggles against the Egyptians, who, in turn, relied on their African hinterland.

[1] *Iraq* 8, ibid. page 35.

[2] AG. III, Pl. XVIII:4,1022 = AT. 722 ; AG. IV, Pl. XXV: 263 city level 700 ; AG. IV, Pl. XXVI: 268, city level 760.

[3] AG. IV, PL. XXV:261, tomb 457, a circular pit grave ; ibid. PL. XXVIII: 295 tomb 1309, and no. 294, tomb 1231.

[4] B.P.I. PL. XI:82.

[5] J.E.A. vol. 11,1925. "A bronze dagger of the Hyksos period", by Warren R. Dawson. Plate XXV. For a detailed description, see pp. 216-217. There is also in the British Museum a bronze dagger, no. 5425, which except for the fact that it is uninscribed is an exact duplicate, and the two have the same measurments. See for it Petrie, Tools and Weapons, Pl. XXXIII, Fig. 29.

Thus we have probably succeeded in establishing some kind of a chronological order for some of the daggers used in the Middle Bronze Ages.

Phase	*Dagger type*	*Date*
Middle Bronze I	25	1900 — 1800 B.C.
Middle Bronze II	25,26,17.	1800 — 1750
Phase IIA		
Phase IIB	17	1750 — 1700
Phase III	17,27	1700 — 1650
Phase IV	17,27,31.	1600 — 1550
Phase V	Nil	1600 — 1550
Horse burials		
Late Bronze	31	1550 —

Other Weapons.

Since I have no place to treat all types of weapons fully here I shall content myself with a brief sumary. The nature of the evidence for dating the axe-heads, adzes, arrowheads, spear-heads and knives in Palestine is unsatifactory, because they are very rare especially in the Middle Bronze II period.

In palestine as well as in any other Near Eastern countries, presumably the same conditions were enjoyed by metalsmiths in the past as today are found among the gypsy, the travelling blacksmiths of villages and desert who are granted certain immunities by villagres, and bedouins can travel from place to place, and can trespass tribal lands and boundaries on account of their useful activities. If in periods of invasion and war metalsmiths were the only people able to travel easily, this may explain the destribution of some of the types of metal weapons in Palestine, Syria, Mesopotamia, Anatolia, Iran and Egypt.

To mention the differences between an axe and an adze is very necessary to state here : "An axe has the edge parallel to the handle, an adze across it. Other differences between the tools arise out of their different uses. The axe is mounted into a handle, or vice versa, while the adze is in general bound to a handle. The axe is equal-faced and symetrically edged ; the adze has one face longer or flatter, and is usually ground on one side. The axe is used to drive into wood and split it ; the adze to take a thin slip

off a larger mass. The axe usually had a short blade and a means of pulling it back and twisting it loose from the grip of the cloven wood ; The axe was thick to carry weight and bear shocks ; the adze was thinner as its momentum was less important" [1].

Axe - heads (Fig. 1 Pl. XV).

They appear in tomb 911 of Megiddo. Common in Palestine in the MB. I period, such a type appears together almost always with the dagger type 25, and sometimes with type 26. Therefore it has the same history as the dagger, so that I find no necessity to mention the provenances again. Such type of axe - head does not appear later than phase MB. IIa.

Figure 2 is very common in Syria, but very rare in Palestine and the only examples there are to be dated to the EB. - MB. Period [2]. In Syria, however, it seems to have continued in use till c. 1800 B.C.

Fig. 3. The type was found almost together with dagger types 26 and 17. It is later in date than Figures 1 and 2 ; and should be dated to phase IIA of the Middle Bronze II period. The type is represented in Jericho, Ajjul, Megiddo and Tell el Farah of Nablus district ; No. 5 is from Jericho tomb 9 ; No. 6 from a tomb in Tell Aviv Harbour.

Fig. 4. These are the most crude, and show no artistic value. They also have a long history, dating from the Early Bronze Age. They were found in MB. II phases IIB-IV. In Ajjul, Tell Beit - Mirsim, Jericho and Megiddo.

Adze - heads (Fig. 8 & 9, Pl. XV).

None has been noticed in Middle Bronze I or early phases of Middle Bronze II. They were common in the middle of the period. Some of the adze - heads are done in Palestine e.g. Tell Beit - Mirsim jrovided us from stratum D with a limestone (nari) mould [3]. Three sides of this mould were used for matrices while one side is blank, a fact which suggests that the mould was unfinished. The upper side on the Plate has matrices for an adze and for three knives (two of them sharing the same matrix, end to end, and evidently separated by the copper-smith after they had been cast) ; the upper side has only two matrices, one for an adze, the other evidently for a brooch. The third side, i.e., the lower one has only one matrix, for a knife about 43 cms. Beside it two basins were found for melting copper.

[1] Technology, page 505.

[2] Miss Kenyon, Eleventh Annual Report of the Institute of Archaeology.

[3] A.A.S.O.R. XVII page 53.

Another mould for casting bronze implements and weapons such as axes were found with the mould and have most probably been cast from it. It was discovered in Balatah (Shechem) [1].

Adze-heads were common in Ajjul [2] city levels and are of different sizes and weights, yet they have practically the same type. Jericho [3], Gezer and Megiddo had some. Every other Middle Bronze II town would most probably have used it.

Lance or Button spear-heads.

Megiddo [4] produced a unique piece of bronze object, Pl. Fig. 7 From a structural tomb said to belong to strata XI-X, which from its contents should belong to phase III, in Byblos [5] tomb 1 and II one of the same type (but not exact) was found.

Spear-heads.

They are of different sizes and types, mostly socketed; a few are tanged. Spear-heads of earlier burials are apparently of copper, but in all cases where we have evidence, they are of bronze in the Middle Bronze Age. They are almost always found together with dagger type 25 (Pl. XV Figs. 8-13) in Palestinian tombs.

They were found in Ajjul [6], Gezer [7] Ras El Ain [8] and abundant in Megiddo [9]. The same type of socketed spear-heads has been found at Byblos [10] associated with pottery, some of which are comparable to Megiddo forms [11]. It is known also from the second stratum at Ras Shamra which contained XIIth Dynasty pottery and painted pottery similar to examples represented on my pottery Chart (end of phase MB. I) In inland Syria at el-Mishrife (Qatna) [12] the same forms as those of Megiddo were present in tomb I. All of those found in Syria and Palestine should be dated according to pottery context found with them to the 19th-18th centuries. And thus, we see that the same cultural element in spear-heads and daggers type 25 seems to have developed contemporaneous in Syria and Palestine. None of the spear-heads were found in Middle Bronze II Palestinian sites.

1 Technology, page 678.

2 AG. IV Pl. XXV, no. 254, level E = 700; AG. III, Pl. XXII, nos. 90 & 91 level AT = 695-995 and LF 946. See also AG. III, P. XXII, no. 93; AG. IV, Pl. XXV, no. 253.

3 A.A.A. XIX, tomb 9, and XXI, Pl. XXVI.

4 Megiddo II, tomb 3095, Pl. 185, no. 3.

5 Schaeffer, Fig. 63: i.

6 *AG.* II, Pl. XIV: 75 tomb 1417 of the Courtyard Cemetery; *AG.* II, Pl. XIV:72, tomb 1015; *A.G.* III, Pl. XIX:9, t. 303 which is a bit later in date than the Courtyard Cemetery.

7 *Gezer* III, Pls. CCXVI-CCXVII, First Semitic period. Tomb I and Cave 2811 had none in them.

8 Ras El Ain *QDAP.* 6/1936, Pl. XXXII:5 and 7, graves 2 & 4.

9 *Megiddo tombs;* Tombs 911,912; *Megiddo* II, Prov. 3509, 3512,3492,3493.

10 Montet, *Byblos,* Pl. CXLIX:942 and CXLVII:931-32.

11 Du Buisson, *Syria* VIII, Pl. XIII:47.

12 Schaeffer, *Syria* XIII, Pl. XIII, 1.

The composite Bow.

Bows are made of perishable materials, therefore actual remains of them ordinarily do not survive, evidence as a rule comes from representations. The earliest example of such representation in Palestine is depicted on the scarab found by Garstang in Jericho tomb 5 [1]. The type and the style of work of the scarab show it to be of the XVIII Dynasty period, another scarab was found in Megiddo stratum VIII [2]. In Egypt they do not appear until the New Empire. The composite bows were made most probably of several strips of horn and wood glued together.

The bows has, however, a long history in the Near East. It is know in Mesopotamia in the Dynasty of Accad (c. twenty-fourth cent. B.C.) [3].

Arrowheads.

Arrows are made of flint, copper, or bronze. Those of flint are usually polish flaked on both sides, those of bronze have mostly a square tang, some have a central rib, others are socketed.

The mode of attaching the head to the shaft varies with the material. Reed is the earliest kind of shaft ,naturally straight, stiff and light. The heads are necessarily fastened by a tang, the reed being bound with thread to prevent splitting. On the other hand when wood is used for shafts, a tang is impossible, as a slender shaft cannot be bored ; a socket head is therefore necessary. The use of wooden shafts is therefore not possible until archaeological advance makes it possible to cast sockets.

In Middle Bronze I & II periods in Palestine arrowheads are few in number if the evidence of their provenance is to be accepted as sound, while in the Late Bronze they are very common. Those attributed by axcavators to the MB. II period must be considered critically in the other context of objects found with or beside them. A glance at the list grouped below show the correctness of my above statement.

[1] AAA. XXI, Pl. XXVI: 5F. Stratification of Garstang's tomb are Unsound.

[2] Megiddo II, Pl. 152:154, Provenance W = 5083 cf. Newberry Scarabs Plate XLIII:35-39 ; Petrie, B.D.S. pl. XV, no. 94.

[3] *I.N.E.S.* I (1942) Albright and G.E. Mendenhall "The Creation of the composite-bow in Canaanite Mythology".

No.	*City*	*Provenance*	*Illustration*	*Description*	*Date*
1	Megiddo Tombs	T. 911 C	MT. 120:12.1:2	Intact, T. 006, "Bronze" central rib	MB-LB
2		T. 912 Al	MT. 123:20 2:5	Intact, t. 007 "Bronze" central rib	L.B.
3		T. 42	MT. 107:15 act	T. 005 "Bronze" Square tang	MB-LB IV
4		T. 3	MT. 135:10 act	T. 015 "Bronze" Square tang	L.B.
5		T. 876	MT. 142:8 act.	T. 007 Flint double feather flaking on both sides, polished and tanged	L.B.
6		T. 1100 A	MT. 145:9 act.	Intact, T. 005 "Bronze" square tang	L.B.
7		T. 1100 D	MT. 148:19 act.	T. 008, Flint, double flaking	L.B.
8		T. 1100 D	MT. 149	On both sides ; tang missing	
9		T. 217 A [1]	MT. 89:2 act.	T. 004 Bronze, square tang	L.B
10		T. 1	MT. 153:2 act.	Intact, T. 007, Bronze, square tang	? No pottery
11		T. 26 B [2]	MT. 155:7 act.	Intact, T. 007, Bronze, square tang	L.B.
12		T. 36 B	MT. 156:4 act. MT. 15:5 1:5		Bronze L.B. Bronze L.B.
13	Megiddo II	Rooms W= 5226	MII. 167:10 act.	T. 008 Flint	? alone
14		XII=5077	MII. 174:1 act.	T. 008 Bronze	? No pottery
15		XII. T. 2138	MII. 174:2 act.	T. 008 Bronze square tang	M.B.-L.B.
16		X. T. 3167	MII 174:4 act.	Intact T. 006 Bronze	MB II ?
17	Megiddo	X. T. 3167	MII. 174:4 act.	Intact T. 006 Bronze	MB II ?
18	T.B.M. XVII				
		Stratum D-C Pl. 41:9			Bronze MB-LB.

[1] This Late Bronze tomb no. (217) has a very particularly interesting new type of female goddess figurine.

[2] *ibid.*

Albright, in T.B.M. XVII 59, p. 52, states that, "A number of copper arrowheads were found, in the course of three seasons of excavations, in Middle Bronze II layers, but most of them were broken, or bent, when found". No. 9 is a good illustration (from D). It is a pity that others are not either represented or their provenance mentioned.

Megiddo is the only other site that has arrowheads said to belong to the Middle Bronze II period. Let us examine their provenance :

(a) No. 1, found in tomb 911 C. This tomb was used for a very long period (EB-MB-Late Bronze II) but not continuously. The objects, said to have been found in layer C, are three in number. The bowls, Nos. 5 & 6 represented on Pl. 31, are of the Middle Bronze I period. The chalice (Pl. 31 No. 7) is of the Late Bronze period. Therefore, this tomb layer is not homogenious and so we consider the provenance unsound.

(b) The bone arrow - or lance - head found in provenance 2005, represented in Megiddo II, Plate 174. No. 5 had, beside it, a chalice described as buff, lightly fired, poorly made, and wet smoothed. It falls in nearly phase IV on my Chart, A.D.A.J. IV.

(c) Tomb 3167 of Megiddo II has a bronze arrowhead No. 16 ; with it was bowl type 220, Plate 44,39 described as buff, gritty and wet smoothed and falls into phases III-IV of my pottery Chart.

The bronze aroowhead with the square tang, found in Megiddo II tomb 2138, is very interesting to discuss because of the contents found in this tomb ; most of them belong to phase IIB on my Chart. They are :

1. Piriform jug type 142, Pl. 24:3 (sigle handle, orange wash and well burnished).
2. Piriform jug type 145, Pl. 24:8 (single handle, lightly fired and wet smoothed).
3. Dipper juglet, type 192, pl. 26:9 (orange buff wash, spaced vertical burnish).
4. Bowl, type 101, Pl. 28:13 (well fired and wet smoothed).
5. Bowl, type 146, Pl. 29:15 (well fired and wet smoothed).
6. Two bowls, types 150-151, Pl. 29:22-23. Well fired and wet smothed.
7. Bronze toggle pins, fragmentary and not represented.
8. This is a very interesting jar, unique in Megiddo. Type 73, Pls. 27:2 described as having a spaced vertical burnish with a red decoration. Three other plain miniature jars of the same type were found only in Palestine : one was found by Dothan [1] in Nahariya (description and exact provenance not given) ; the second, in Ajjul tomb 1630 [2] ; the third, in tomb 457 [3]. The contents of Ajjul tombs show a transitional MB-LB period.
9. Of particular interest is the faience human female figurine (goddess) represented in Megiddo II, Pl. 241-2. This type of human figurine has not been noticed elsewhere in Palestine. The exact parallel figurine was found in Megiddo II, tomb 217A (Pl. 89) with purely Late Bronze context. Another typical figurine was found in Megiddo II tomb 26 B (Pl. 155) with an also purely Late Bronze context.

[1] I.E.J. 6, no. 1, 1956, Pl. 3:c.

[2] AG. III, Pl. LIV:55 W 11.

[3] C.P.P. 55 W 7.

Though no description for tomb 2138 is given, one could say either the tomb was in use in the Middle Bronze II period, and then reused in the Late Bronze period, or some of the objects of the Middle Bronze II were in possession of those who introduced the arrowhead, the painted decorated jar, No. 8, and the human female figurine No. 9 which undoubtedly belong to the Late Bronze period, as the other two tombs, in which the same type of figurine was found, have already shown. But I am wholly inclined to consider this tomb was re-used in the period of Phase V, i.e., the sixteenth-century.

To sum up, in short, we say that the evidence collected from all Palestinian - Jordanian Middle Bronze II sites, show that the arrowheads were not in use before the sixteenth century, i.e., in the same time the composite-bow and chariots were introduced ; Thus shows a new method of war technique had been introduced.

The evidence of the occurrence of arrowheads, where it can be accurately checked by the context, shows that they are virtually absent from Middle Bronze Age deposits. The exception is apparently Tell Beit Mirsim in stratum D, where the statement is vague, and it may be that the presence of Base - ring indicates that the stratification was not sound. The reservation should however be made, that bronze arrowheads very easily corrode and become shapeless, and that earlier excavators might not think such corroded fragments were worth publishing.

CONCLUSION

We have seen that the Middle Bronze II citizens of Palestine and Jordan had used the spear (if any at all) at the very early period of phase IIA, i.e., 1750, though it was in common use in the Middle Bronze I period. Meanwhile, they have used the arrowhead (if at all) at the very end of phase V, i.e., sixteenth century, and so with the composite - bow.

Their weapons were probably nothing more than a dagger and an axe ; a dagger type, which was not so strong and fatal as those of earlier and later periods, and so also their axe.

Thus we may establish a new fact, that the Middle Bronze II people were not at all warriors ; the majority may have been shepherds depending mostly on the sling, irrespective of some tribal leaders whose tombs were found to contain a dagger or two, a battle axe and a bronze belt.

ALABASTER

Alabaster [1] is a name applied to two distinct substances, the one is hydrous sulphate of lime and the other a carbonate of lime. Ancient Egypt was the home of stone vessels in general and of alabaster vases in particular. "The manufacture of vases in hard stone began in the Predynastic Age" [2], and reached a level of perfection in other countries, and the Fourth Dynasty alabaster was far more widely used than any other stone.

In Palestine as well as in Syria, the Egyptian alabaster vases were found in all discovered MB. II sites. But we should not ignore the fact that there was an alabaster local industry in Palestine, and Egyptian vases were imitated by the local Palestinian craftsmen.

The presence of stone deposits of alabaster and gypsum in Palestine, and the discovery of unfinished [3] i.e., uncompleted, alabaster juglets in Bethshan, added to the existence of a number of these vessels, the shapes of which are peculiar and cannot be paralleled in Egypt; this led Dr. Ben Dor to study the subject carefully, encouraged probably by Petrie's hint [4] of a Syrian origin for some of the vases found by him in southern Palestine.

Ben Dor became interested in the subject and examined all the alabaster vases available in the Palestine Archaeological Museum and elsewhere found in Palestine and Egypt. After handling the objects at his disposal and having chemical analysis carried out on them for the purpose of his study, he came to the conclusion that there are real differences between the Egyptian and Palestinian alabaster vases, summed up below from his article, "Palestinian Alabaster Vases", **Q.D.A.P.**, pp. 93-112.

The material: (1) The Egyptian alabaster is a translucent stone, whitish to pale yellow in colour, and often with bands of darker or lighter shades. The local alabaster, on the other hand, is usually of a chalky consistency and is pure white. There is a marked difference in its external appearance, and after handling a few examples it is possible to tell at a glance whether a vase is made of local or of Egyptian material.

(2) Another difference easily established lies in the relative hardness of the stones. The local alabaster is quite soft, its index of hardness being 2, i.e., it can be scratched with the fingernail, whereas the index for the Egyptian is 3 to 3,5.

1 *Encyclopaedia Britannica* 13th Ed.

2 Petrie, *Diaspolis Parva*, Pls. II and III.

3 The unfinished juglets, eight in number, found in Bethshan level XB and XA, were in an early stage of working. Dr. Ben Dor states that, "with regard to XB there is no doubt that it belongs to the Hyksos period, but the Late Bronze Age date tentatively assigned to level XA by G.E. Wright has, in my opinion, to be modified", to which I agree.

4 Petrie, *AG.* I, p. 8 says, in Article 40, pls. XXIV, XXV, that these alabaster vases are usually of Egyptian alabaster, but many are of Syrian work.

(3) Palestinian alabaster when pure is absolutely white, but it often contains an admixture of bituminous substances which either gives the stone an even light-grey colour, or else takes the form of grey veins which increases the resemblance to Egyptian alabaster.

(4) The chemical composition of Egyptian alabaster is calcite (calcium carbonate), whereas the Palestinian variety is really gypsum (calcium solphate) ; therefore chemical analysis is a very important distinguishing factor to both types.

The Technique : Since the material is different, therefore the methods of craftsmanship should differ also, because it is obvious however clever the Palestinian craftsmen were, they could not imitate the Egyptian vases accurately. The differences may be recognized as follows :

(1) The Egyptians used the stone-borers or tubular drills of reed or copper [1] to carve out the inside of the vessel while the Palestinians used the chisel. Although the stone-borer seems to have been known in the Middle Bronze Age, yet it was not used in the working of alabaster. The chisel-marks are vertical, i.e., parallel to the axis of the vase, in contrast with those of the Egyptian drill which, if at all visible, are horizontal. The vertical chisel marks form a distinctive feature of the Palestinian vases and may serve as an additional criterion for distinguishing them from the imported pieces.

(2) The Egyptian craftsmen polished smoothly the surface, while the Palestinian craftsmen showed less skill in the finish of his stone vessels. The surface was left in a much coarser state and the marks of the polishing tools are sometimes visible.

The forms : It is obvious that we are not expecting to see the exact parallel forms of Egyptian vases done by the Palestinian local craftsmen. The forms in the MB II period are mostly imitation of the Egyptians while in late periods they mastered probably the work and started doing originals of their own, such as the pyxides, characterized by a squat body widening toward the bottom, a very low and slightly profiled neck, two lug handles pierced vertically with small holes, on a flat or slightly convex base.

Therefore one could say that the local industry of alabaster could not compete in the MB. II with that of Egypt in richness and variety of form. The extant vases of the MB. II period may be divided into four main types [2], i.e. (1) juglets (2) boggy-shaped vases (3) small jars (4) ovoid flasks.

[1] For discussion of the process of drilling Egyptian stone vases see: G. Reisner, The early dynastic cemeteries of Naga - ed - Der, Part I, P. 105 ; A. Bonnet Ein Fruhgeschtliches Graber - Feld dei Abusir, 1928, PP. 10 ff.

[2] For detailed study of types and provenances see Ben Dor Q.D.A.P. pp. 99-111. See also Jericho, Garstang, *AAA.* vol. XIX, Tomb 9, Pl. XXX : 13 and 15 ; Tomb 31, excavator's No. 268 ; Tomb 43, excavator's nos. 268 and 491. *AG.* I, Pl. XXXIX, nos. 51 - 53 and 38 ; *AG.* II, Pl. XXXIX, 29, 31 ; *AG.* III, Pl. XXVI : 37 ; *AG.* IV, Pl. XXV, Nos. 27-28 and Pl. XXXIX : 65 and 68. *BP.* I. Pl. XI : 66 from tomb 569 and pl. XI, no. 81, Tomb 564 ; *BP.* II, Pl. XLIII, 31 ; also Grant, Beth Shamesh, p. 125 from MB. II Tomb No. 3.

Albright, *TBM.* vol. 1, pp. 28-9, Buy & Enberg, *Megiddo Tombs*, Fig. 184 ; *Gezer* III, Pl. XLII, no. 9 : Jericho Tombs 1952 - 56.

Conclusion. The availability of alabaster gypsum in the neighbourhood of the Dead Sea and Beth-Shan, and the discovery of unfinished alabaster vases in the latter, encouraged archaeologists, as Ben Dor, to think of the great certainty that some of the alabaster vases found in Palestine should have been home-made, and were imitations of Egyptian vases imported into Palestine in MB. II. Though they were not perfect imitations, yet they were of good craftsmanshinp.

Though I do agree with Ben Dor in connecting the alabaster vases found in Palestine to the deposits of Beth-Shan and Jericho, yet I do not see that the evidence is as yet conclusive that the chief centre of manufacture during the MB. II period to be undoubtedly Beth-Shan. I do not think that the finding of unfinished vases in Beth-Shan, and its lying in the neighbourhood of the gypsum deposits of Melhamiya [1], are enough evidence to give the honour to Beth-Shan or Jericho which was also very near gypsum deposits such as Al Lisan at Jebel Usdum, and in the Valley of Wadi Hesa [2].

FAIENCE OINTMENT [3] VASES

The use of eye-paints goes far back into prehistoric times. Stone pallets used for grinding of the ingredients for eye-paints were found in some of the prehistoric Egyptian times. The Egyptian name of this "pallete" is probably connected with the word "to protect" This protection was twofold, for not only were these eye-paints believed to avoid the terrible eye-diseases which is still a scourge of the east, but we can trace the gradual change of the eye-paints from a real remedy and defence against eye diseases and the flies transmitting them, to means of beautifying the eye. They certainly had magico-religious meaning, too, in ancient times as well as in some parts of Jordan, today.

As to the manufacture of ancient eye-paint, it was very simple, says Forbes [4]. The paste or the ointment was kept in vases either made of alabaster, called kohl-pots, or of faience and called faience ointment vases.

The paste, or ointment, was applied to the eyelid with the finger or with the pear-shaped end of the kohl-stick, which was made of a bone, wooden or ivory rod. These kohl-pots and ointment vases were found after 1700 B.C., in nearly every Palestinian site and on Amman Citadel Tombs.

[1] The main deposits are about 18 Km. to the north of Beth-Shan near the modern bridge of Jisr Delhamiya (Damiyah Bridge) and just behind Milhamiya settlement. See also G. S. Blake, *Geology and Water Resources of Palestine*. p. 22j and Abel, *Geographie de la Palestine*. I, p. 199-200.

[2] Ben Dor states that according to an oral communication from M. Harding, there is a quarry near the upper course of Wadi Hesa which is purported to contain traces of ancient quarrying. For the same deposits see Blake and Abel.

[3] These may have been used for perfumes. Pl. XVI.

[4] R. J. Forbes, pp. 17-21.

Albright says that "the faience ointment pots are as characteristic of M.B.II as the Alabaster[1]". The material of which these faience vases were made up, is composed of a white or greyish paste with a glaze, which, presumably owing to the action of salt damp, has generally faded to a light blue or green. This paste is granular in appearance and sometimes contains black specks which may be the carbonized remains of an adhesive that was some-times found necessary to introduce to hold the paste together before the vessel was dipped in, or painted with the glaze and fired. There has always been some doubt as to the material of the body used in the faience of ancient Egypt. Lucas[2] says that "it has been stated to be sand, powdered sand, carved sandstone, powdered quartz rock, and ground quartz pebbles, but whatever the material used, it always contains over 90% of silica". It seems to me that the Palestinian faience ointment vases were made up of the same material as those of ancient Egypt, in the light of the evidence discussed below, but they were worked and produced by Palestinian craftsmen in Palestine, and not imported from Egypt as has been generally accepted by archaeologists (and I am inclined to weight the scales in the opposite direction and say most probably Egyptian ointment faience vases were either brought into Egypt by Palestinian Canaanites or made in Egypt after Palestinian Canaanite craftsmanship, because ours are earlier in date).

The chart of the faience ointment vases in Palestine show that they were in use in all excavated MB.II, sites. They count nearly 40 in number, mostly parallel to each other either in all features or in parts. They are either in dipper form, vase type or Pilgrim bottle. All are decorated. Some have flat bases, others rounded, but none with disc-base as that of **Sedment** I, Pl. XLI:15.

As to the general historical origin of faience craftsmanship, I could not tell, because archaeologists do not yet know, with certainty, in what country faience was invented. The probabilities are in favour of Egypt[3], the Arabian coast[4] and the Indus Valley[5]. There may be truth in Petrie's views and suggestions that "faience may originally have emigrated from Susa itself and have made a long halt at some point before reaching Egypt".

1 *T.B.M.* XII, p. 29.

2 *Ancient Egyptian Materials and Industries.* pp. 32-33, and for detailed study read Chapter V, cf pp. 101-103.

3 *Mohenjodaro.* Early History of faience, p. 57.

4 *The People of Ancient Egypt.* 1917, pp. 26-36, also Petrie, *Prehistoric Civilization.* p. 49.

5 Earnest Mackay, pp. 579-80.

The faience ointment vases under discussion were found in Egypt in two places only. (a) Two in the Moyana cemetery at Sedment ; the first, on Plate XLI:15, has a disc base which had no parallel to our Palestinian vases which are of either flat or rounded bases, but in decoration it has some resemblance to ours. The second, on Plate XLI:32, has a handle which resembles that of Duweir Plate 26:12, and Tell Fara **BP. II,** Pl. XLIV:53 tomb 1013 ; both tombs of Duweir and Fara are dated to the very end of the Middle Bronze II period.

Brunton, in **Sedment I** [1], article 32, gives a summary of the general characteristics of the Mayana Cemetery, where Tomb 1300 in which these faience vases were found, as follows : "Coffins are rare, bricked graves were used as substitutes in the better class burials, sometimes with flat, generally with pointed, roofs (as seen in Palestine and Syria in the Late Bronze Ages). The constant use of matting is a feature of the burials, evidently owing to the scarcity of wood, or to the poverty of the people. (This feature has been noticed in Jericho tombs dug by Miss Kenyon). Women had baskets buried with them, containing their toilet articles, and little wooden caskets with beads and trinkets" (as Jericho tombs of Miss Kenyon). Then in article 34 he says, "although many forms of pottery are identical with those in the XVIIIth. Dynasty Corpus, the general character was so different. The foreign pottery was so abundant but fragmentary". In article 31 he states that, "the fine little jugs of glazed and brown pottery (Pl. XLI, 15-18 and 21) are also foreign in feeling. The fine duck-bowl of wood (Pl. XLI, 22) is another link with the XVIIIth Dynasty fashions". The kohl pot (XLI, 4) is suggestive of the XVIIIth. Dynasty, and if we are to consider the tombs of the Mayana cemetery as one entity as it should be, it is enough then to state that the date should be the beginning of the XVIIIth Dynasty if not even the end of it. The presence of the ring-base bilbils and the bichrome painted wares in this cemetery are enough evidence to show that our Palestinian faience vases are earlier than those of Sedment in Egypt.

As to the three vases found in Qau [2] and Badari, plate XX:II found in Tomb 4506, which has no pottery to help in dating, and that on plate XXXV:42 found in Tomb 1114, they have close parallels to our vases of Beth Pelet tombs dated circa 1650-1550 B.C.

[1] *Sedment* I, Sir F. Petrie and Guy Brunton, Pl. XLI:15, Pl. XLI:32 (London 1924).

[2] *Qua and Badari* III, Guy Brunton. PLXX:II and Pl. XXXV:42, Tomb 1114. (London 1930).

Provenance	*Illustration*	*Description*
T.B.M.XIII E [1]	Pl. II : 1	Lentoid flask, greenish blue, decoration in black.
XIII E	Pl. II : 2	Lentoid flask, greenish blue, decoration in black.
XII D	Pl. 14 : 1	Vase, decoration obliterated, resembles that of Stratum D, T. B. M. I. Pl. 44 : 15 ; Jericho tomb 22, Pl. XLI : 4 ; B. P. 11, Pl. XLIII : 17, Pl. XLIV : 45.
T.B.M.XII D	Pl. 44 : 15	Vase, greenish blue, decorated black lines HT. 7.5, resembles two of Badore III Pl. XX : 11 tomb 4506 and Pl. XXXV : 42 tomb 1114, another seen by Albright in Jerusalem antiquity dealer ; also Gezer I 303, Fig. 160 : 9 the parallels are of the same height 7.5 cms. and Jericho tomb 31 and 4.
Gezer III [2]	CCXI : 13	Vase, bluish green with brown lines, a frieze of lotus plant in the middle register, but shape and colour, height decoration above and below are the same as T.B.M. 44 : 15 ; resembles T.F. with same decoration in middle register.
Gezer III	CCXI : 28	Vase, blue green, black painted lines, same as that of T.B.M. 44:15 in upper and lower register and differs in middle register only.
	CCXI : 16	Vase, rounded base ordinary type of association. Very close parallel to Qau and Badari III Brunton, Pl. XXII tomb 4506.

[1] The two of stratum E are a pilgrim flask type not found in D, and those of D are of the common types found in other sites.

[2] One should notice that faience vases were not found in cave 28.11 and tomb 1.

Provenance	*Illustration*	*Description*
A.G.IV, 873,843	Pl. XXXVI	Vase. The level is considered as Late Bronze level.
	Pl. XXXVI : 17,18,19	Vases, as those of B.P.I. and 19
A.G.III L.M. 947=1010	Pl. XXVIII : 1	Vases as those of B.P.
Megiddo II T. 3048	Pl. 191 : 1	Vase, brown decoration on white, mostly faded in colour. One may note here the absence of faience and alabaster from the structural tombs. But all has bone inlay.
B.P.I. T. 550	VI : 15	Vase, blue glace, decorated, eye drops at bottom, at middle triangular disc, rounded base. The earliest in period in the group of B.P.
B.P.I. T. 568	VI : 18	Vase, blue glace, decorated with black triangular designs, flat base, parallel to Jericho tomb 4 : 8E Pl. XVII.
B.P.I. T. 556	IX : 39	Vase, blue glaze, decorated with eye drops, narrow neck, rounded bottom. Early type in the group of B.P.
B.P.II T. 1021	XLIII : 17	Vase, blue glaze, decorated with black eye drops. Flate base.
B.P.II T. 1002	XLIV : 45	Vase, blue glaze, very plain, probably faded all together, semi-flatish base. The latest among the group of B.P.
B.P.II T. 1013	XLIV : 53	Juglet (dipper type) black paint close parallel to Duweir T. Pl. 26 : 12 and sedment I of Egypt, Pl. XLI : 32 with a slight difference in base and decoration.

Provenance	*Illustration*	*Description*
Duweir [1]	Pl. 26 : 12	Juglet, reproduced the shape of the normal MB. dipper at about half the size. Decorated with black paint. Parallel BP. Pl. XLI : 32 tomb 1013 and sedment I Pl. XLI : 32. The true decoration on handle of Duweir is seen on the body of sedment juglet, Ht. 1/2 size.
Duweir T. 1546	Pl. 26 : 13	Vase, pale, blue glaze decorated black paint, parallel to Jericho tomb 3, Fig. 5:4. flatish base. Ht. 8.4 cms.
Duweir T. 1546	Pl. 26 : 14	Vase, buff glaze, decorated black paint, flatish base, Ht. 18.4 cms.
Duweir T. 153	Pl. 26 : 15	Vase, blue glaze, decorated with black paint lines parallel to Jericho XX. Pl. XVII : 8 tomb 4 ; also to B.P.I. Pl. VI : 18 tomb 568, flat base, Ht. 7.6. cms.
Duweir T. 153	Pl. 26 : 16	Vase, blue glaze, decorated with eye drop black paint, well matched with Jericho AAA.XX, Fig. 5:2, p. 14; B.P. II, Pl.XLIII:17 tomb 1021, flat base, Ht. 8.6 cms.
Duweir T. 153	Pl. 26 : 17	Vase, Blue glaze, decorated with black, flat base, Ht. 7.6 cms.
Jericho, AAA, XIX T. 22	XLI : 4	Vase, blue faience, decorated all over with black paint.
Jericho, AAA. III. XX. T. 4	XVII : 8E	Vase, blue faience, decorated all over with black lines.
Jericho, AAA. III. XX. T. 31	Fig 4. page 14 : 1	Vase, unique at Jericho.

[1] Tell Duweir, Lachish IV, forthcoming publication by Miss Olga Tufnell (London 1957).

Provenance	*Illustration*	*Description*
Jericho AAA	Fig. 4. No. 2	Vase, ordinary type, rounded bottom. Comparable with a specimen found at B.P.I, Pl. IV : 18 tomb 568 ; and T.B.M. XII stratum D, Pl. 44 : 5.
Jericho AAA	Fig. 4. No. 3	Vase, represented by damaged specimens.
Jericho AAA	Fig. 4. No. 4	Vase, ordinary type, flatish bottom, It is represented in layer of tomb 5, below Pl. XXV. Parallel to Duweir tomb 1546, Pl. 26 : 13.
Jericho AAA	Pl.XXV chart level E	Vase, ordinary type, flat base eqaulls that of tomb 31, Fig. 5, No. 4.

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