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**NOTES ON THE CHALCOLITHIC  
AND EARLY BRONZE AGE POTTERY  
OF MEGIDDO**

**THE UNIVERSITY OF CHICAGO PRESS**  
**CHICAGO, ILLINOIS**

—

**THE BAKER & TAYLOR COMPANY**  
**NEW YORK**

**THE CAMBRIDGE UNIVERSITY PRESS**  
**LONDON**

**THE MARUZEN-KABUSHIKI-KAISHA**  
**TOKYO, OSAKA, KYOTO, FUKUOKA, SENDAI**

**THE COMMERCIAL PRESS, LIMITED**  
**SHANGHAI**

THE ORIENTAL INSTITUTE *of* THE UNIVERSITY OF CHICAGO  
STUDIES IN ANCIENT ORIENTAL CIVILIZATION, NO. 10

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NOTES ON THE CHALCOLITHIC  
AND EARLY BRONZE AGE POTTERY  
OF MEGIDDO

*By*

ROBERT M. ENGBERG

AND

GEOFFREY M. SHIPTON



THE UNIVERSITY OF CHICAGO PRESS  
CHICAGO, ILLINOIS

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## PREFACE

In the process of working up the material embodied in this report the authors have incurred many obligations which they wish here to acknowledge. Yet this pleasant task should not appear too easily accomplished. Only the writers will know how greatly they are indebted to their advisers. Indeed, they have wondered at times whether this memoir were not more appropriately attributed to others than themselves.

Père Hugues Vincent has put at their disposal the accumulated knowledge and discernment of forty-five years in Palestinian archeology. Furthermore, he has gone through the entire manuscript, making countless suggestions and criticisms—so many that it has been impossible to acknowledge all of his contributions where they occur. Those who know him will recognize where the paper has benefited.

Dr. Henri Frankfort is implicated in quite a number of ways, but particularly in connection with the chapter on the cylinder seal impressions. Here his unique knowledge has been invaluable, and in addition he has been kind enough to offer for publication the impressions from Tell Asmar and Khafaje given in Figure 12.

Miss Dorothy A. E. Garrod's contribution is apparent and should be welcome indeed for the basis it provides for future work on flints from the Chalcolithic and Early Bronze deposits of Palestine.

M. Maurice Dunand at Byblos and Sir Flinders Petrie at University College in London, who very graciously made their collections of pottery available for close study, have thereby aided materially in the intricate problems of correlation. And much that is dealt with in the paper concerning Palestine in general and Ghassūl in particular was acquired at the Department of Antiquities in Jerusalem, with the permission and aid of Mr. E. T. Richmond, director, and Mr. J. H. Iliffe, and at the Pontifical Biblical Institute in Jerusalem with Père Mallon.

The members of the Megiddo Expedition also have shown a constructive interest in the formation of this record. We value too the assistance of Dr. A. C. Piepkorn, then a Fellow of the American Schools

of Oriental Research, who was at Megiddo for two months during the spring of 1933. Aside from those mentioned, an effort has been made to credit all other persons in the body of the paper.

Finally, the authors have gratefully accepted the knowledge and experience of Dr. T. George Allen, whose editing has materially benefited the work.



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CHALCOLITHIC AND EARLY BRONZE AGE POTTERY TYPES FOUND AT MEGIDDO . . . . .	<i>at end</i>

## ABBREVIATIONS

- AASOR* American Schools of Oriental Research. Annual (New Haven, Conn., 1920—)
- BASOR* American Schools of Oriental Research. Bulletin (South Hadley, Mass., 1919—)
- Frankfort, *Studies* Frankfort, Henri. Studies in early pottery of the Near East. I-II (Royal Anthropological Institute of Great Britain and Ireland. Occasional papers, Nos. 6 and 8 [London, 1924-27])
- PEFQS* Palestine Exploration Fund. Quarterly statement (London, 1869—)
- SAOC* Chicago. University. The Oriental Institute. Studies in ancient oriental civilization (Chicago, 1931—)
- S.D. Sequence Date(s), as devised for predynastic Egypt by Sir Flinders Petrie



## I

## THE STRATIGRAPHIC SEQUENCE

The eastern slope of the hill of Megiddo (modern Tell el-Mutesellim), while essentially a necropolis for the town above, was from time to time used as a dwelling site. This was particularly true during the earliest occupation of the tell in what we may with some justification call the Chalcolithic Age.<sup>1</sup> The greater number of the caves were so used before they became burial chambers for the newcomers to the city, and the profusion of pre-Bronze-Age sherds on the bed rock over the entire area indicates that Megiddo and its slopes were the center of a concentrated population in very early times. Whether or not Megiddo was one of the first agrarian sites in the Plain of Esdraelon remains to be proved, but in any event it is now necessary to consider its earliest strata of a greater antiquity than has ordinarily been attributed to the remoter margins of the late prehistoric epoch.

We have been fortunate in uncovering a stratified section of this period at Megiddo.<sup>2</sup> It was composed chiefly of the well preserved remains of walls and floors (cf. Figs. 1-2), and nowhere below the top level was there indication of the introduction of foreign matter. While this stratified area has been the basis for all conclusions dealt with in these notes, full trust was not placed in it at first. Later, however, when other deposits from the eastern slope, consisting always of at least two well defined levels, were tested against the main section, it was seen that the homogeneity and progression in pottery forms were confirmed, and that the possibility of accidental intrusion was considerably lessened.

Though it has been impossible to clear up certain points which might ultimately be useful in distinguishing the various stages of the Chalcolithic and Early Bronze ages (loop handles, for instance, have been of little value), in so far as characteristic features have been ob-

<sup>1</sup> The lower deposit might equally well have been called Aeneolithic. See p. 75.

<sup>2</sup> A representative collection of pottery, arranged by stages, has been placed with the Palestine Museum in Jerusalem.

served they may be relied upon with a considerable degree of faith. The repeated testing of the principal section with the other deposits from the east slope area, and the verified agreement in significant features throughout the various levels, may leave us well satisfied that we are dealing with a practically perfect piece of stratification. In further justice to the deposit which is the subject of these notes, it may be observed that comparatively few complete forms, as seen at the various Palestinian museums and in the archeological publications of the country, are missing from the stratified area.

In general, as one would expect, it has been observed that the ceramic repertoire of the earliest settled periods consisted mainly in a progression of the stabler types of vessels, with one form melting into the next. The change, however, is more definite in some cases, and it is on these that we must depend for our distinctions. It will be realized that isolated features should not be used to define any particular stage; an association of features will always be necessary for this definition, depending on predominant forms.

Heretofore the terms Chalcolithic (or Aëneolithic) and Early Bronze have been in more or less general use in Palestine to meet the observed necessity for distinguishing two periods. Yet the degree of uncertainty concerning the point of division has been little less than complete, entirely because an inclusive stratification was missing. At last such a deposit has been found, and in it those workers who visualized a distinct earlier period have been vindicated. It is proposed here to use the two terms as before, providing them, however, with a set of definitive criteria by which they may be distinguished. The line of demarcation is made possible by numerous innovations in Stage IV, which include, among others, the almost certain use of copper (see p. 43). No bronze has yet been found prior to the Middle Bronze period. There is thus not only a well marked transition, but with it the knowledge of metal, to give a somewhat dubious sanction to the term Early Bronze.<sup>3</sup>

The pottery dealt with in these notes, to the very bottom of the Chalcolithic strata, is exclusively the product of an advanced technique, and if there are any sites in Palestine that can produce the beginnings of pottery—leading up to the earliest stages represented at

<sup>3</sup> See p. 75 for a discussion of terms.



Megiddo—then we shall have a use for further distinguishing terms. Until then, however, we must be satisfied with the present sequence, which, linking up with the Middle Bronze period in Stage I, carries us back through two earlier epochs.

A word will be necessary to explain the unusual form of the schematic section in Figure 1. The two legs *B* and *C*, representing Stages IV–VII, did not underlie the main part of the upper section *A*, which ended on a shelf of bed rock. However, when Stage IV was completely excavated, it was found to extend as an unbroken series of floors and walls over an area of about 500 square meters. The fringes of this level lay beyond the rock shelf, covering the two deep deposits used in this classification (Fig. 2). The inequality of their depths made a divisional adjustment necessary, which was done in the manner shown in Figure 1. As part of the evening-up process, it is assumed that both pottery-bearing deposits commenced at the same time, since there seems no way of telling which was prior to the other. At any rate, it is certain that both had their inception at a time when pottery was not so common as later. This observation permitted us to differentiate Stages VI and VII; for their only distinguishing feature, except for certain minor variations in the characteristics of their flints (cf. pp. 85–90), was the relative frequency of pottery. No significant forms were added in Stage VI; there was simply an increased use of the old models. We have, therefore, seven distinguishable levels or stages in the Chalcolithic and Early Bronze deposits; but the time element for each stage must be largely neglected for the present. When we realize that there is considerable uncertainty as to the length of time implied by the successive destructions and rebuildings of the walls in Stages V and IV, we see how futile would be any present attempt to set definite time limits to the individual stages. The discussion on dating below (pp. 52–65) indicates that we have to deal with a period ranging from the end of the 3d millennium (Stage I) back to at least the period of Naḳādah II of Upper Egypt, within which limits the various stages may be conceived of as rough and malleable fractions.<sup>4</sup>

<sup>4</sup> There will be a certain amount of material in this paper which does not deal strictly with the facts of archeological discovery. Concerning these theoretic and deductive elements the writers anticipate, and hope for, criticism.

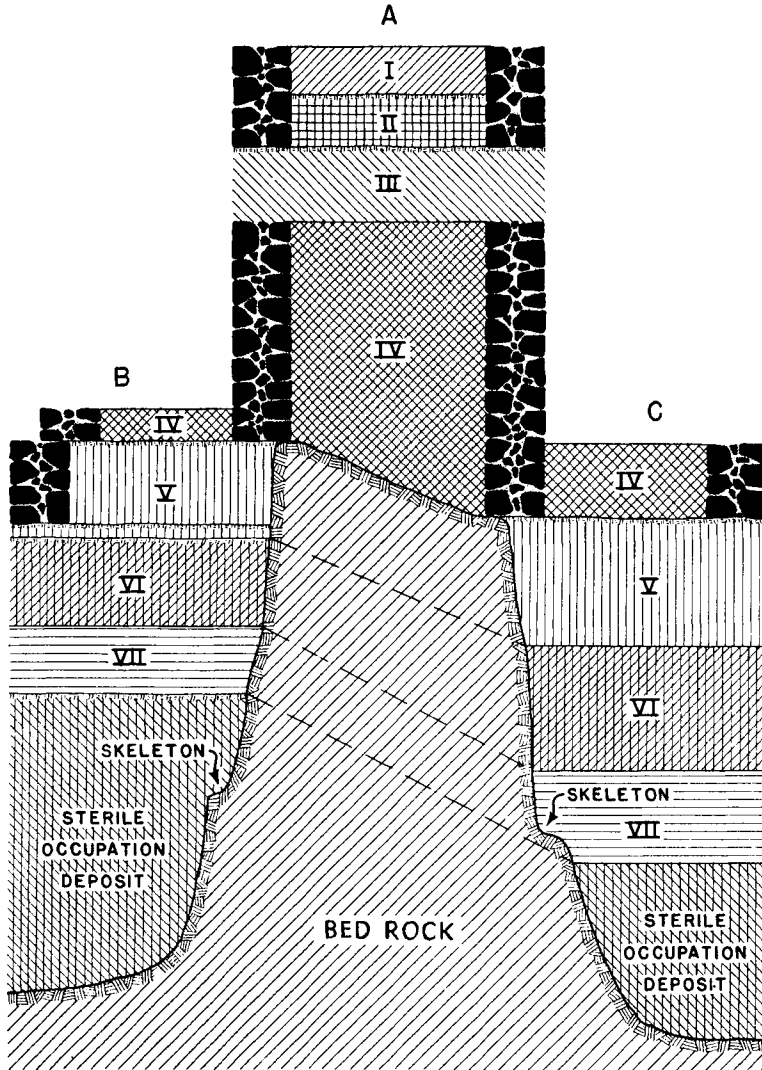


FIG. 1.—SCHEMATIC SECTION OF THE STRATIFIED AREA ON THE EASTERN SLOPE AT MEGIDDO. FLOOR LEVELS ARE INDICATED. SCALE, 1:50

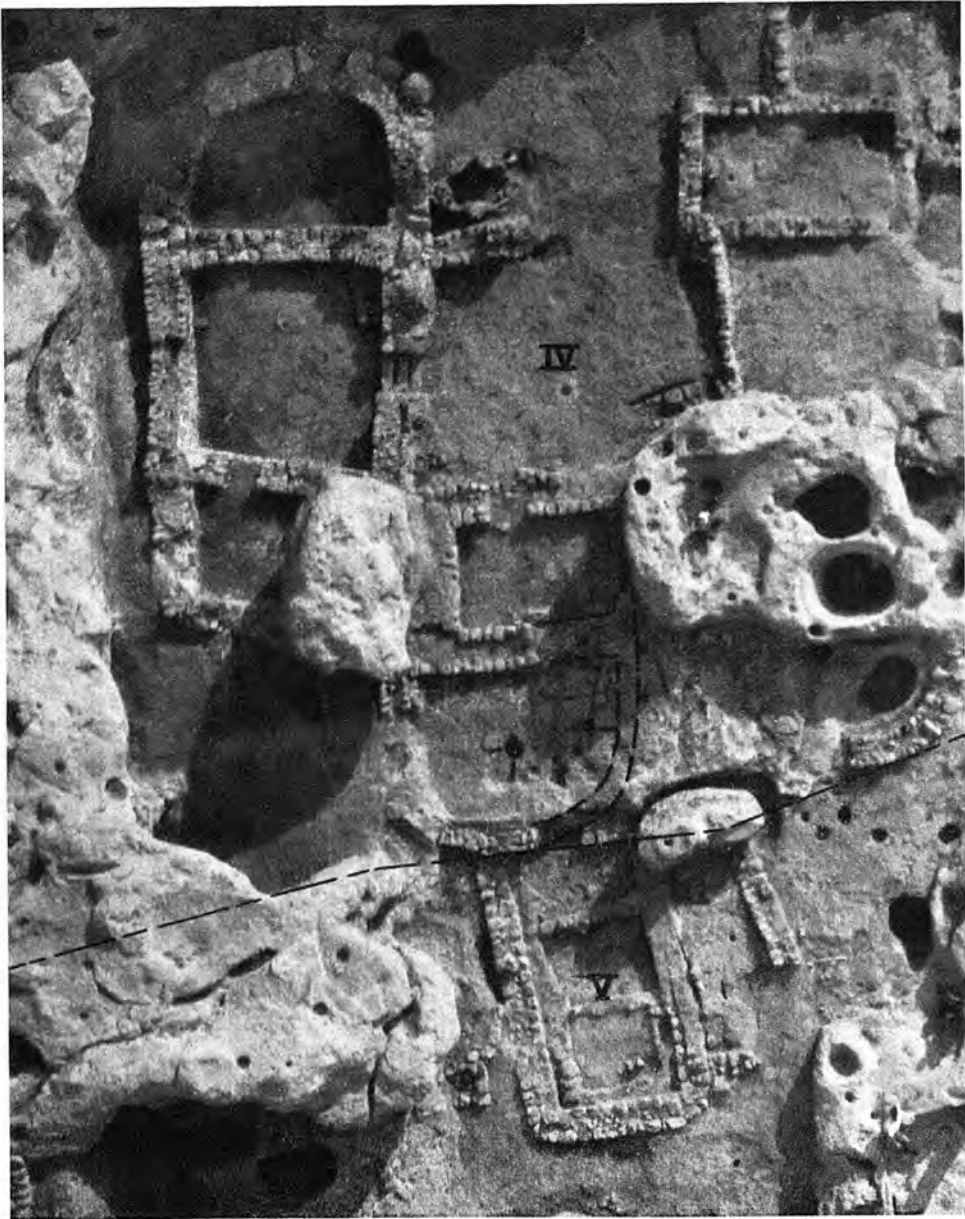


FIG. 2.—STAGE IV BUILDINGS OVERLAPPING THOSE OF STAGE V. AIR VIEW

In excavating parts *B* and *C* of the stratified area a point was reached where pottery and flints ceased altogether, yet signs of occupation persisted. From here down to the bed rock were deep hearth deposits containing burnt animal bones, but no artifacts. In *B*, at the point indicated in Figure 1, lay a skeleton of this very early period. There was no possibility of its being intrusive, as a large rock weighing about two tons rested on it, while above the rock was the accumulation of Stage VII.<sup>5</sup> We may conceive of this lower, sterile level as still another stage in the development of man in Palestine; but, since it has gained little character from the present excavations and since it almost certainly knew the uses of flint and other stones, we may for the moment leave it undefined. With regard to the end of this period it is important to realize that the floor which was laid down at the beginning of Stage VII was covered with a type of pottery already advanced. The introduction of pottery to Megiddo was abrupt, as at every site yet known in Palestine; and we must look elsewhere for the stages of earlier development, if they exist at all.

The stratigraphic distinctions here observed find a certain amount of confirmation from an inspection of Schumacher's trial shaft of 1903-5, which was sunk in the center of the tell and is still open. In the first two meters above bed rock are found sherds of types 12 *N*, 17, 19, and 23 *A*,<sup>6</sup> all of which are peculiar to the Chalcolithic strata on the side of the hill; but with them appears nothing akin to the Early Bronze vessels. Above the first two meters the transition to hard wares is repeated as it was on the eastern slope. Toward a further justification of the stratification one could cite numerous references to isolated pottery groups in the Palestine Museum and in archeological publications, principally those of Beisan and Gezer, which, even though unplaced stratigraphically, show plainly those features that differentiate the Chalcolithic from the Early Bronze at Megiddo.

<sup>5</sup> This skeleton was too badly crushed to be measured.

<sup>6</sup> The types are regularly to be found in the corresponding columns of our chart

## II

## THE POTTERY TYPES

A chart (inserted at the end of this paper) has been considered the most satisfactory form in which to present the pottery types of the seven stages found in the stratified area. With these are incorporated valid forms from other loci, differentiated as indicated in the legend in Column 1 of the chart. Each type is designated by a number (that of the column in which it is found) or by such a number plus a letter. The types may be described as follows:

1. PLATTERS. Wheelmade, buff ware, well fired, occasionally with reddish brown wash inside and over rim.

Flat

*A.* Shallow.

*B* (Fig. 3). Deeper, with pushed-up ledge handle of type 14 *B*.  
Mending-holes sometimes occur.

Rounded

*C.* Shallow.

*D* (Fig. 3). Mending-holes sometimes occur.

Lattice-burnished

*E.* Interior lattice-burnished; encircling burnish on rim.

2. STRING-CUT BOWLS (Fig. 3). Wheelmade, gray-buff ware, well fired, with string-cut base. Characterized by undulating wheel marks on exterior. Stage II contained one fragment in hard black metallic ware.
3. JUGS (Fig. 3). Wheel- or handmade, same ware as type 1, unpierced lug handles on body. Handle and rim of type 9 *A* are probable.
4. HIGH BOWLS
  - A* (Fig. 3). Wheelmade, same ware as type 1, reddish brown vertical band decoration outside and on rim, pushed-up ledge handle of type 14 *B*.
  - B.* Similar to *A*, but occasionally without band decoration.

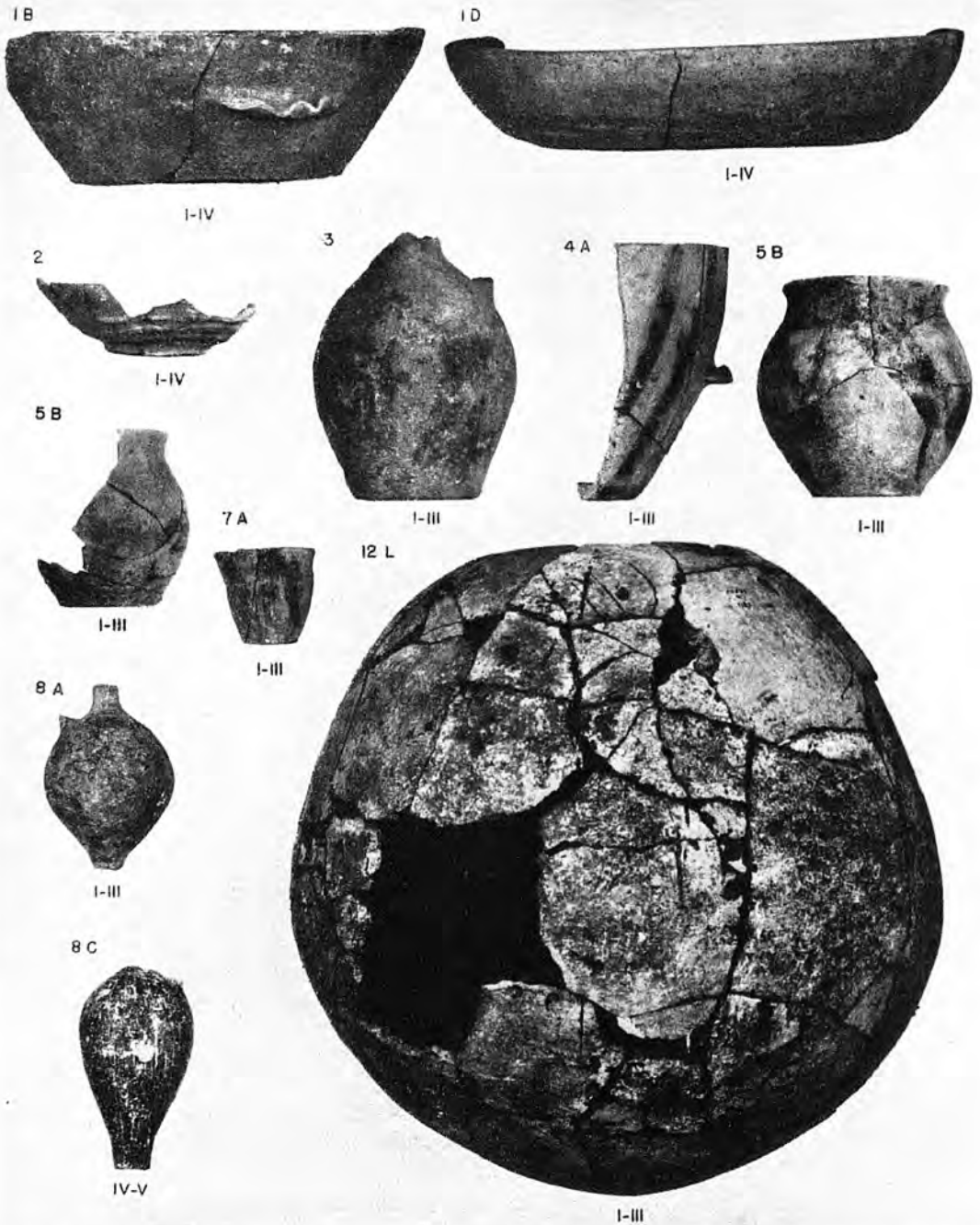


FIG. 3.—EXAMPLES OF MEGIDDO POTTERY TYPES ILLUSTRATING THE CHART. SCALE, 1:5  
Roman numerals indicate stages

## THE POTTERY TYPES

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## 5. STRING-CUT JARS

- A.* Wheelmade, buff or light brown ware, well fired, well applied reddish brown bands, string-cut base, crude ledge handle.
- B* (Fig. 3, also sherds *N* and *P* in Fig. 8). Wheelmade, buff or light brown ware, well fired, carelessly applied reddish brown band decoration outside and on rim.

## 6. CARINATED BOWLS

- A.* Wheelmade, same ware as type 1, usually with carelessly applied reddish brown band decoration outside and over rim.
- B.* Wheelmade, same ware as type 1, string-cut base. Not common.
- C.* Handmade, light brown ware, reddish brown wash outside and over rim. One specimen found.
- D.* Handmade, light brown ware, reddish brown wash. Traces of burning on rim indicate possible use as lamp; cf. small red-wash bowls (type 20 *A*) for same peculiarity. One specimen found.

## 7. CUPS

- A* (Fig. 3). Wheelmade (infrequently handmade), buff ware, well fired, carelessly applied reddish brown band wash outside, similar wash solidly applied inside, string-cut base.
- B* (Fig. 8 *Q*). Wheelmade, same ware as type 1, carefully applied light red band decoration. Not common.
- C.* Handmade, brown ocher ware, reddish brown band wash.

## 8. STUMP-BASE VESSELS

- A* (Fig. 3). Handmade, buff ware, dark gray core extending to inner surface, well fired, carelessly applied reddish brown band decoration or wash. The complete form was found in Stages II and III.
- B.* Handmade, similar ware, dark red wash vertically burnished. Fairly common.
- C* (Fig. 3). Handmade, light brown ware, heavy dark red wash vertically burnished. Fairly common.
- D.* Handmade, light brown ware, dark red wash inside and out, polished. Possibly a bowl. One specimen found.
- E.* Handmade, similar in description to *D*. One specimen found.

## 10 NOTES ON THE EARLY POTTERY OF MEGIDDO

## 9. HANDLES

- A.* From wheelmade jugs, diameter of rim about 13 cm., same ware as type 1, well wet-smoothed.
- B.* From wheelmade jars, diameter about 24 cm., similar in description to *A.* Perhaps part of rim of jar type 10 *A.*
- C.* Handmade, light brown ware, light red wash, probably handle of bowl. Not common.
- D.* Stage II from a wheelmade pithos, diameter about 60 cm., same ware as type 1, roughly finished. Not common.  
Stage VII from a handmade jar, light brown ware, yellow ocher wash roughly applied. Not common.
- E.* From a handmade vessel, light brown ware, dark gray core extending to inner surface, dark red wash vertically burnished, crudely divided by incised line. One specimen found.
- F.* From handmade vessels, diameter about 40 cm., light brown ware, burnt umber grain wash as in Figures 8 *J* and 9, incised decoration.

## 10. JARS

- A.* Wheelmade, same ware as type 1, well wet-smoothed. Handle 9 *B* possibly belongs to this type of jar.
- B.* Handmade, thin light brown ware, dark red wash outside. Not common.
- C.* Handmade, diameter of rim about 9 cm., similar in description to *B.* Not common.

## 11. METALLIC-WARE VESSELS

- A.* Wheel- or handmade jug, reddish brown metallic ware, dark core, heavily fired, round-section loop handles on opposite sides of body.
- B.* Wheel- or handmade jug, similar ware.
- C.* Wheel- or handmade jar, similar ware. Compare similar form 12 *Q.*
- D.* Handmade, complete form uncertain, similar ware, occasionally decorated with combing as in Figure 8 *D.*, or with raised incised pattern as drawn. The inside of neck and shoulder is invariably puffed from the modeling.



*E.* Handle from wheelmade jug, similar ware, frequently combed as in Figure 8 *D*. Types 22 *A* and *B* and 28 *C* are further examples of metallic wares.

## 12. HOLE-MOUTH JARS

- A, B, C.* (Fig. 4). Handmade, dark gray outside, inner surface lighter to brown. For complete form of *A* and *B* see 12 *L*; some *C* sherds possibly belong to 12 *Q*. *A-C* frequently occur smaller than illustrated and in same ware as type 1, usually with incised pattern 15 *A* around rim.
- D.* Handmade, always with an inner bulb (as opposed to 12 *E*), light or dark brown ware, streaky wash varying from dark brown to red. For complete form see 12 *N*.
- E.* Handmade, without inner bulb, with sharp edge, light or dark brown ware, reddish brown streaky wash predominating over dark brown. For complete form see 12 *N*.
- F, G.* Handmade, light brown ware, with either the ordinary reddish brown streaky wash or burnt sienna grain wash as in Figure 8 *F* and *G*. For complete form cf. 12 *N* and 12 *Q*.
- H, J, K.* Handmade, chocolate brown ware, with or without streaky reddish brown wash. For complete form see 12 *N*.
- L* (Fig. 3). Handmade, ware described under 12 *A, B, C*, with those rim types.
- M.* Handmade jug (included with the hole-mouth jars because of its close resemblance), grayish brown ware, dark brown wash outside, incised pottery mark. One specimen found.
- N* (Fig. 4). Handmade, wares described under 12 *D-K*, with those rim types. No ledge handles have been found on this form. In some cases low knobs encircle the jar near the rim. Mending-holes appeared as early as Stage VII.
- P* (Fig. 4). Handmade, light brown ware, with dark red, light red, or brown wash outside and over rim, at times polished, never burnished. Thumb-indented ledge handle 14 *G* is usual; but 14 *E, F*, and *H* are possible.

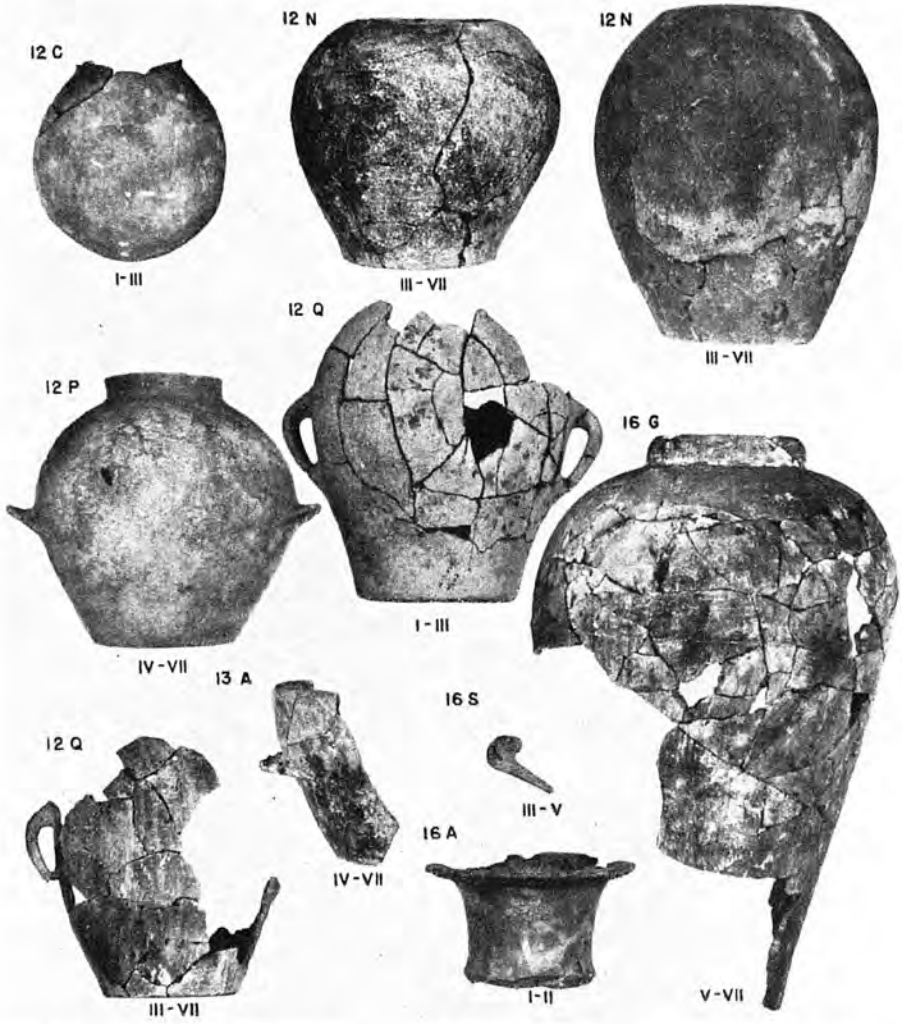


FIG. 4.—EXAMPLES OF MEGIDDO POTTERY TYPES ILLUSTRATING THE CHART. SCALE, 1:10  
Roman numerals indicate stages

*Q* (Fig. 4). Stages I-III handmade, same ware as type 1, possible rim forms 11 *C* and 12 *C*. Stages III-VII handmade, light brown ware, burnt sienna and burnt umber grain wash as in Figures 8 *F-J* and 9, possible rim forms 12 *F, G*, and *P*.

13. HOLE-MOUTH BOWLS

- A* (Fig. 4), *B*. Handmade, ware usually light brown, reddish brown streaky wash, ledge handles 14 *D-H*. Spout forms 27 *B-D* have been found in the stages indicated. Mending-holes appeared as early as Stage VII.
- C*. Handmade, diameter about 45 cm., similar in description to *A* and *B*, ledge handle 14 *G*. Not common.
- D*. Handmade, diameter about 35 cm., similar in description to *A* and *B*, except that the wash is polished. Not common.

14. LEDGE HANDLES (Fig. 5)

- A*. Folded over, derived from the pushed-up handle *B*, with *AA* as an intermediate stage: on handmade jars, in either light brown or hard light green ware. Compare Figure 19 *A* and *B*.
- AA*. Partially folded over: on handmade jars, on light brown ware. Compare Figure 14.
- B*. Pushed-up (by upward thumb movement): generally in same ware as type 1, found on forms 1 *B* and 4 *A* and *B*.
- C*. Small thumb-indented (horizontally): on handmade bowls, light brown ware, dark red or reddish brown wash, occasionally highly burnished, rim similar to that of 19 *A*. Fairly common.
- D*. Plain narrow: on hole-mouth bowls 13 *A* and *B*; possible on platter 1 *B*.
- E*. Plain broad: on hole-mouth bowls 13 *A* and *B* and hole-mouth jar 12 *P*; possible on platter 1 *B*.
- F*. Oblique wavy (made by an obliquely downward slide of the thumb): on hole-mouth bowls 13 *A* and *B* and hole-mouth jar 12 *P*. Not common.
- G*. Thumb-indented (horizontally); on hole-mouth bowls 13 *A* and *B*, hole-mouth jar 12 *P*, inner-ledge bowl 19 *B*, and probably on pithos 16 *G*.

- H.* Wavy (impressed alternately from above and from below by thumb and forefinger action): on hole-mouth bowls 13 *A* and *B*, hole-mouth jar 12 *P*, inner-ledge bowl 19 *B*, and probably on pithos 16 *G*.

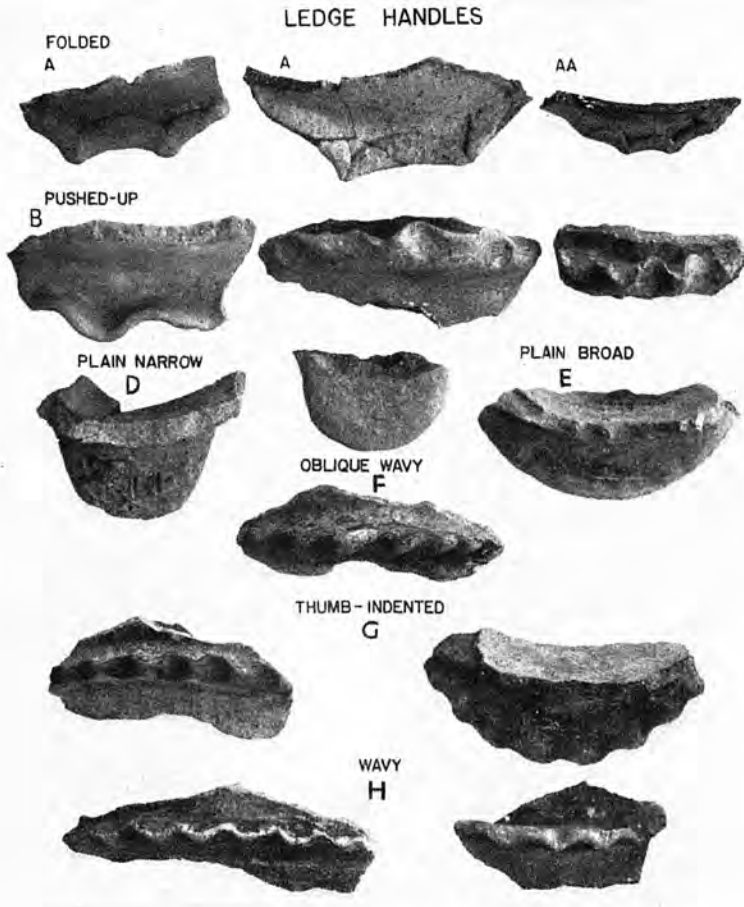


FIG. 5.—LEDGE HANDLES ILLUSTRATING THE CHART. SCALE, 1:4

As a result of our excavations the evolution of the ledge handle in Palestine seems to be reasonably settled, and no longer need we resort to broad theory in seeking positions for various types. In this connec-

tion it is interesting to note that the plain handles (both narrow and broad) hold a strictly intermediary position which would hardly have been assigned them in an idealistic treatment of unstratified types. The plain handles have been found in sufficient numbers in Stages III, IV, and V to make them useful as a distinguishing criterion in the excavation of other sites in Palestine. On the other hand, the oblique wavy type *F* can hardly be called typical of Stages V and VI, in which it appeared, but must be treated with reserve. Because of its great resemblance to the thumb-indented and wavy types—if we consider proportions, ware, and color application—it is very possible that its complete history has not been revealed, and that it had a parallel existence with these other two types. The remaining forms, however, appear to supply reliable evidence. The reasons for the chronological placing of the unstratified folded ledge handles will be seen below (pp. 56 ff.).

The clear-cut position of the various types throughout the section should make ledge handles extremely useful in themselves in the chronological definition of unplaced deposits. Plain handles, both narrow and broad, did not occur below Stage V; the pushed-up variety was not found below Stage IV. Those which were typically characteristic of the Chalcolithic strata—the thumb-indented and wavy ledge handles—persisted only into Stage IV. The folded forms in Stages I and 0, being exotic evolutionary products of the pushed-up type, could not be expected in the early stages of the latter. The position of ledge handles appeared to be a poor criterion for distinguishing strata, for in many cases they were placed both high and low on vessels found in the same stratum (cf. types 13 *A* and 13 *C*.)

To explain the abnormal chronological position of the plain ledge handle between the wavy and thumb-indented types of the Chalcolithic strata and the pushed-up variety typical of the Early Bronze period, Père Vincent has suggested that the earliest ledge handles, introduced to Megiddo in Stage VII, were first reproduced by close imitation in Stage VI, afterward freely replaced by a simple type easier to realize (Stages V–III), with practical improvements (Stages IV–I) and then degeneration (Stages I–0). The fact that the earliest Chalcolithic types lasted into Stage IV does not seriously affect this hypothesis, since with the introduction of newer forms the older ones

naturally lost ground, as was proved many times during the excavation.

With the folded ledge handle the history of this interesting group came to an end over all of Palestine.<sup>1</sup> This is borne out by the results of numerous excavations, but particularly by those of Tell Beit Mirsim<sup>2</sup> (Levels I and I-H) and Jericho,<sup>3</sup> where the Early Bronze tradition, carried finally by the folded ledge handle and the late lug type, gave way to the incoming Middle Bronze influences.

The specimens on jars shown in Figure 19 are almost certainly later than those of Tombs 1101-2 Lower (Fig. 14), as they seem to fall better into the Stratum I classification of Tell Beit Mirsim than they do into that of Stratum J. It will be seen on pages 56 ff. why Tombs 1101-2 Lower are considered more closely allied to the older level (J) at Tell Beit Mirsim.

#### 15. MARKINGS ON HOLE-MOUTH JARS<sup>31</sup>

Pottery marks

A-Z.

<sup>1</sup> Inasmuch as the ledge handles of Egypt and of Palestine traveled separate morphological paths, once the borrowing had been accomplished, it may be well to define the area in which the Palestinian types occur. Dr. Albright, as the result of an industrious program of surface explorations in Palestine and Syria which have appreciably augmented the published archeological material, can say that this form of handle in one or all of its mutations is represented throughout central and southern Palestine as far as Bab ed-Drac, southeast of the Dead Sea, at many sites south of Galilee in western Palestine, and south of Hauran in eastern Palestine (*AASOR* XII [1932] 3). The true ledge-handle province seems to end on the north in the Plain of Esdraelon (at Megiddo and Taanach), although degenerate forms appear "southeast of Damascus and northeast of Amman" in Transjordan (*ibid.* p. 4). We may add to this the evidence of the Byblos specimens in the museum of the American University of Beirut, also those in the Ashmolean Museum picked up by Woolley. But, strangely enough, Dunand has found no ledge handles of any description in the excavation proper. Dr. Nelson Glueck, director of the American Schools of Oriental Research in Jerusalem in 1932/33, has made the most recent surface survey of the Palestine district, particularly in Moab and Transjordan, and we anxiously await the publication of his observations in the Schools' *Bulletin*, where there will be interesting information bearing on this point.

<sup>2</sup> Albright in *AASOR* XII, Pls. 3-4.

<sup>3</sup> Garstang in *Annals of Archaeology and Anthropology* XIX (1932) Pls. VI-VIII and XXVIII (Tomb A).

<sup>3a</sup> Not common in the stratified area.

## Rope designs

- A, B.* Raised line with tool incisions.  
*C, D, F-J.* Raised line with thumb indentations.  
*E.* Raised line with alternating thumb and forefinger indentations from above and below, as in wavy ledge handle 14 *H*.<sup>4</sup>

## Incised decoration

*A-G.*

## 16. PITHOI

- A* (Fig. 4). Neck and rim probably wheel-turned, base handmade, pinkish ware, dark gray core, heavily wet-smoothed. Not prominent until Stage I.
- B-F.* "Rail" rims, described under 16 *S*.
- G* (Fig. 4). Handmade, light brown ware, orange to yellow wash, well finished, usually with undulating and straight raised rope designs of types 15 *E, F*, and *H*. Height varies; ledge handles 14 *G* and *H* were possibly used with this type.
- H-M.* From handmade pithoi of uncertain form, diameter of rims about 23 cm., light brown ware, reddish brown or dark gray wash, generally with large calcite grits. The trickle-painted sherds shown in Figure 8 *K-M* are probably to be associated.
- N.* Handmade pithos rim, possibly of type 16 *G* although larger, diameter of rim about 22 cm., light brown ware, dark core, dark red wash outside and over rim. Not common.
- P-R.* Rim variations of 16 *G*.
- S* (Fig. 4). "Rail"-rim pithos, handmade, light brown ware, gray core, light red streaky wash outside and over rim. Rim varies as shown in 16 *B-F*.

## 17. GRAY BURNISHED BOWLS

- A* (Fig. 6). Handmade, gray ware, at times yellow-gray or black, lightly fired, highly burnished outside and over rim, less highly inside, occasionally ripple-burnished. In Stage V a number of fragments of this form were found with an unburnished reddish brown wash.

<sup>4</sup> For further rope designs see types 11 *D* and 16 *A*.

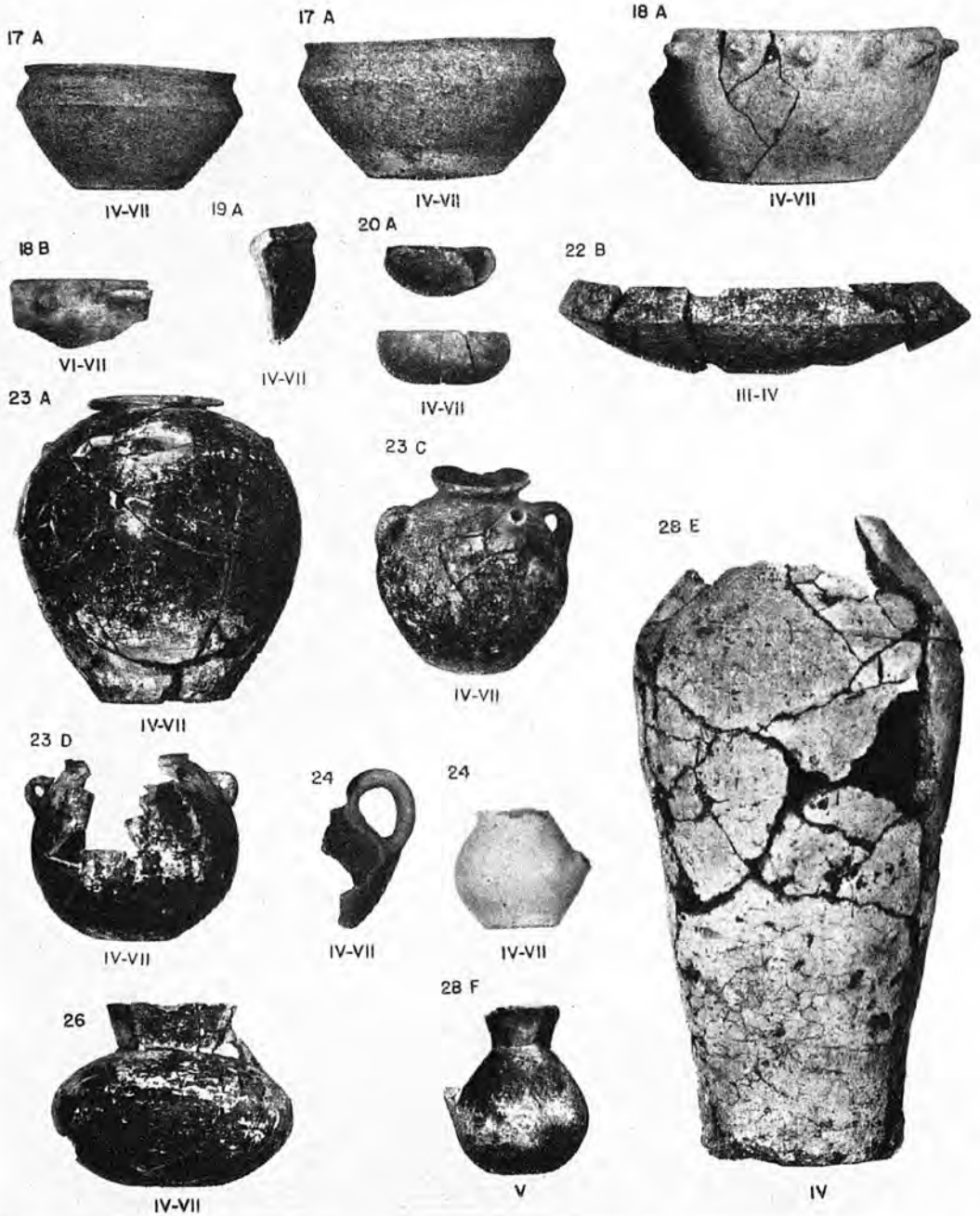


FIG. 6.—EXAMPLES OF MEGIDDO POTTERY TYPES ILLUSTRATING THE CHART. SCALE, 1:5  
Roman numerals indicate stages



- B, C.* Rim variations of *A*. The rope decoration of *C* was found only in Stage VII, but probably extends through Stages IV-VII.<sup>5</sup>
18. BOWLS WITH CONOID PROJECTIONS (Fig. 6)
- A.* Handmade, ware similar to that of the gray burnished bowls of type 17, but less highly burnished. In addition to the gray ware, vessels of this form were found in Stage IV with a red high polish outside and over rim; in Stages IV-VI they occurred with a reddish brown wash.
- B.* Handmade, similar in description to the gray ware of *A*. It is uncertain whether the conoid knob and the ledge-like projection alternated. Not common.
19. INNER-LEDGE BOWLS
- A* (Fig. 6). Handmade, light brown ware, heavy brown wash outside and over rim, invariably with incised undulating line. There are many variations to this rim, but the inner ledge and outer ridge are always retained. Compare smaller vessels with same rim, type 14 *C*.
- B.* Handmade, similar in description to *A*, diameter about 30 cm., with ledge handles 14 *G* and *H*.
20. SMALL RED-WASH BOWLS
- A* (Fig. 6). Handmade, light brown ware, roughly applied yellowish brown wash outside and over rim. In many cases the rim is charred, probably indicating use as lamp; cf. type 6 *D* for same use.
- B.* Handmade, similar in description to *A*, except that the wash extends inside as well; not charred. Very few examples found.
21. RED HIGH-POLISH BOWLS
- A.* Handmade, cream ware,<sup>6</sup> red high polish inside and out; occasionally found with a dull red wash.
- B.* Handmade, cream or fine light brown ware, red high polish or burnish outside and on rim.

<sup>5</sup> Other fragments of uncertain forms were found in the same ware.

<sup>6</sup> In Stage IV were found cream ware fragments of long spouts and jug necks with spaced vertical burnishing as in Fig. 7 *E-G*.

- C.* Handmade, cream or fine light brown ware, red high polish outside and on rim, frequently inside. The same form is also found twice as large as illustrated. Not common.
- D.* Handmade, fine light brown ware, reddish brown high polish outside. Not common.
- E.* Handmade, similar in description to *B*, with lug handle 25 *B*. Not common.

## 22. MISCELLANEOUS BOWLS

- A.* Wheelmade, light brown metallic ware, very well fired, gray core, reddish brown wash inside and over rim, burnished pattern of transverse and circular lines, rim burnished by encircling lines; suggestive of some of the upper Ghassulian wares. Not common.
- B* (Fig. 6). Wheelmade, variation of *A*, light brown metallic ware, very well fired, brown wash inside and out, close irregular burnishing on both sides. Fairly common.
- C.* Handmade, yellowish brown ware, gray core, with or without a dark red wash. In Stage IV a bowl of this type occurred with a diameter of 10 cm. Fairly common.
- D.* Handmade, diameter about 40 cm., grayish brown ware, gray core, dark red wash, ledge handle 14 *G*. One specimen found.
- E.* Handmade, yellowish brown ware, gray core, straw tempering in addition to the usual grits, crude ledge handle 14 *D*. One specimen found.

## 23. SPOUTED VESSELS

- A* (Fig. 6). Handmade, light brown ware, dark red wash (at times almost black), usually burnished, the rubbing being done so thoroughly that there is given the effect of a high polish as in types 23 *D* and 24; hemicylindrical handles, pierced and unpierced.
- B.* Handmade, light brown ware, dark red wash, not burnished, but at times highly polished.
- C* (Fig. 6). Handmade, light brown ware, dark red wash, not burnished, but at times highly polished; the handles are not of the lug variety.
- D* (Fig. 6). Handmade, light brown ware, dark red or brown wash, usually burnished, the thorough rubbing giving the effect of a

high polish as in types 23 *A* and 24; body lug handles of type 25 *B*.

24. HIGH-LOOP-HANDLE JUGS (Fig. 6)  
Handmade, yellowish brown or light brown ware, dark red or brown wash, at times highly polished; infrequently closely burnished, giving the effect of a high polish as in types 23 *A* and 23 *D*.
25. LUG HANDLES<sup>7</sup>
- A*. On handmade jars, distinguished from earlier forms by the usual triangular cross-section, which results from pinching. Variations of ware appear in Figures 14 and 18; but form and not ware is distinctive with this handle.
- B*. On handmade vessels (usually a body lug handle as distinguished from *A*, which is close to the rim), invariably with dark red wash or high burnish.
- C*. Handmade, a type of body-lug-handle vessel which happens to have been found only in Stage IV (probable range, Stages IV–VII), light brown ware, dark red wash or burnish. Only a few specimens found.
26. GOURD-JARS (Fig. 6)  
Handmade, light brown ware, dark red wash outside and over rim, highly polished but never burnished. Characterized by the angular neck (at times taller than illustrated) and by two handles<sup>8</sup> whose upper edges are almost straight (not lug handles).
27. HEAVY BOWL-SPOUTS<sup>9</sup>
- A*. Handmade, light brown ware, dark core, dark red wash inside and out; probably from a bowl form. Not common.
- B–D*. Hole-mouth bowl-spouts for types 13 *A* and 13 *B*. Only one specimen of *D* was found.
28. MISCELLANEOUS VESSELS
- A*. Handmade jug, cream ware, pinkish red wash outside and over rim, close vertical burnishing. One specimen found.

<sup>7</sup> These are pierced after the knob has been attached to the vessel; they are not molded.

<sup>8</sup> In Fig. 6 one handle is missing.

<sup>9</sup> Evidence from Tell Beit Mirsim indicates that this type of spout continued into the Middle Bronze period.

- B.* Handmade jug, cream ware, light brown wash outside and over rim, spaced vertical burnishing. One specimen found.
- C.* Handmade, probably a jar, bluish gray metallic ware, heavily fired, surface wet-smoothed to brownish gray. One example found.
- D.* Wheelmade, probably a double jug, buff ware, well fired, well wet-smoothed, reddish brown painted bands as in type 4 *A.* One example found.<sup>10</sup>
- E* (Fig. 6). Handmade, light brown or gray rough ware, light or dark core, poorly fired, straw tempering in addition to the usual grits, not wet-smoothed; hole in base. Not common.
- F* (Fig. 6). Handmade, cream ware, dark red wash, lattice-burnished on body as indicated. One specimen found.
- G.* Handmade, light brown ware, reddish brown wash outside and over rim. Fragments of one vessel found. The placing of the windows, of which there were certainly two, is not certain; but their form probably makes the entire vessel comparable to the triangular so-called "incense-burners" (offering-stands)

<sup>10</sup> Compare Vincent, *Jérusalem sous terre*, Plate IX 2, for possible type.

## III

## A TOMB GROUP OF STAGE IV

This small group of pottery (Fig. 7) from Tomb 1128, found outside the stratified area, is included here because of the number of complete forms that it contained. Enough fragments of similar ware were

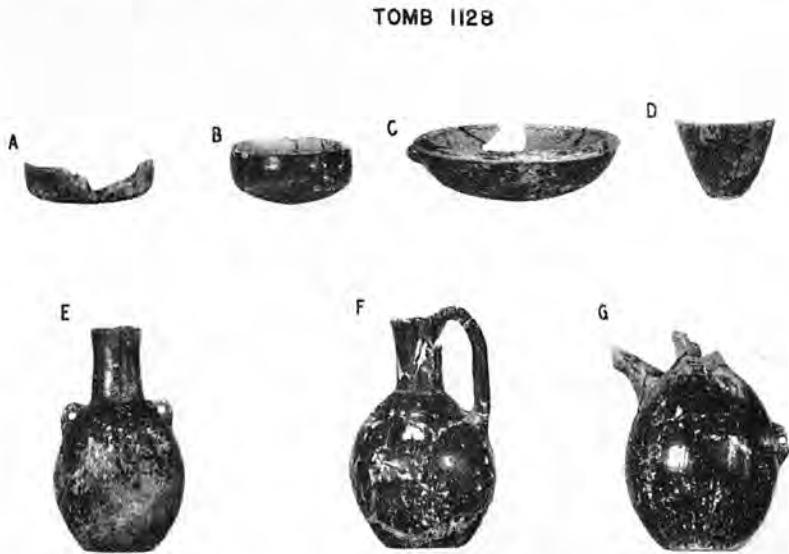


FIG. 7.—MEGIDDO POTTERY FROM A TOMB GROUP OF STAGE IV. SCALE, 1:5

found in Stage IV of the stratified area to allow a fairly definite placing of this isolated group. It includes the following pieces:

- A. Small bowl, handmade, cream ware, pinkish brown irregular burnishing outside and on rim.
- B. Small bowl, handmade, cream ware, red high burnish outside and on rim. Type 21 *D*.
- C. Bowl, handmade, cream ware, red high burnish outside and on rim. Compare types 21 *B* and *E*.

## 24           NOTES ON THE EARLY POTTERY OF MEGIDDO

- D.* Cup, handmade, cream ware, pinkish brown irregular burnishing outside and on rim.
- E.* Jug, handmade, cream ware; red high burnish outside and on rim, close vertical burnishing on body, spaced burnishing on neck; two lug handles of type 25 *B*.
- F.* Jug, handmade, cream ware; red high burnish outside and on rim, close vertical burnishing on body and handle, spaced burnishing on neck.
- G.* Jug, handmade, cream ware, red high burnish outside and on rim, close vertical burnishing on body (except close to spout, where there are a few diagonal strokes forming a lattice pattern), spaced vertical burnishing on neck; one lug handle of type 25 *B*. This vessel is practically complete, the neck extending little higher than illustrated.<sup>1</sup>

<sup>1</sup> Fragments of jugs similar to *E-G* were found in Stage IV (cf. p. 19, n. 6).

## IV

DECORATED POTTERY<sup>1</sup>

The typical decorated sherds illustrated in Figure 8 may be described as follows:

## COMBED (fairly common in Stage IV and later)

- A.* Part of a handmade vessel, chocolate brown ware.
- B.* Part of a handmade vessel, light brown ware.
- C.* Part of a handmade vessel, pinkish brown ware, dark core.
- D.* Part of a handmade jug, reddish brown metallic ware, dark core, heavily fired; associated with type 11 *D*.
- E.* Part of a handmade vessel, dark brown metallic ware, heavily fired.

## GRAIN-WASHED (Stages III–VII)

- F.* Handmade rim fragment of type 12 *F–G* (Stages IV–VII), burnt sienna grain wash on a naples yellow ground.
- G.* Part of a handmade vessel, types 12 *N, F, G, or Q*, burnt sienna grain wash on a naples yellow ground (associated with Stages III–VII).
- H.* Part of a handmade vessel, probably of type 12 *Q*, light brown grain wash on a naples yellow ground.
- J.* Part of a handmade vessel, type 12 *Q*, burnt umber grain wash on a brown ocher ground.

The piece illustrated in Figure 9 is an interesting combination of grain wash (as in Fig. 8 *J*) and free-stroke lattice application. This is the only such fragment found.

## TRICKLE-PAINTED (fairly common in Stages VI and VII; uncommon in V)

- K–M.* Parts of handmade vessels, probably of types 12 *N* or 16 *H–M*, light gray dripping on a dark ground.

<sup>1</sup> Cf. other varieties of decoration in chart, col. 15.

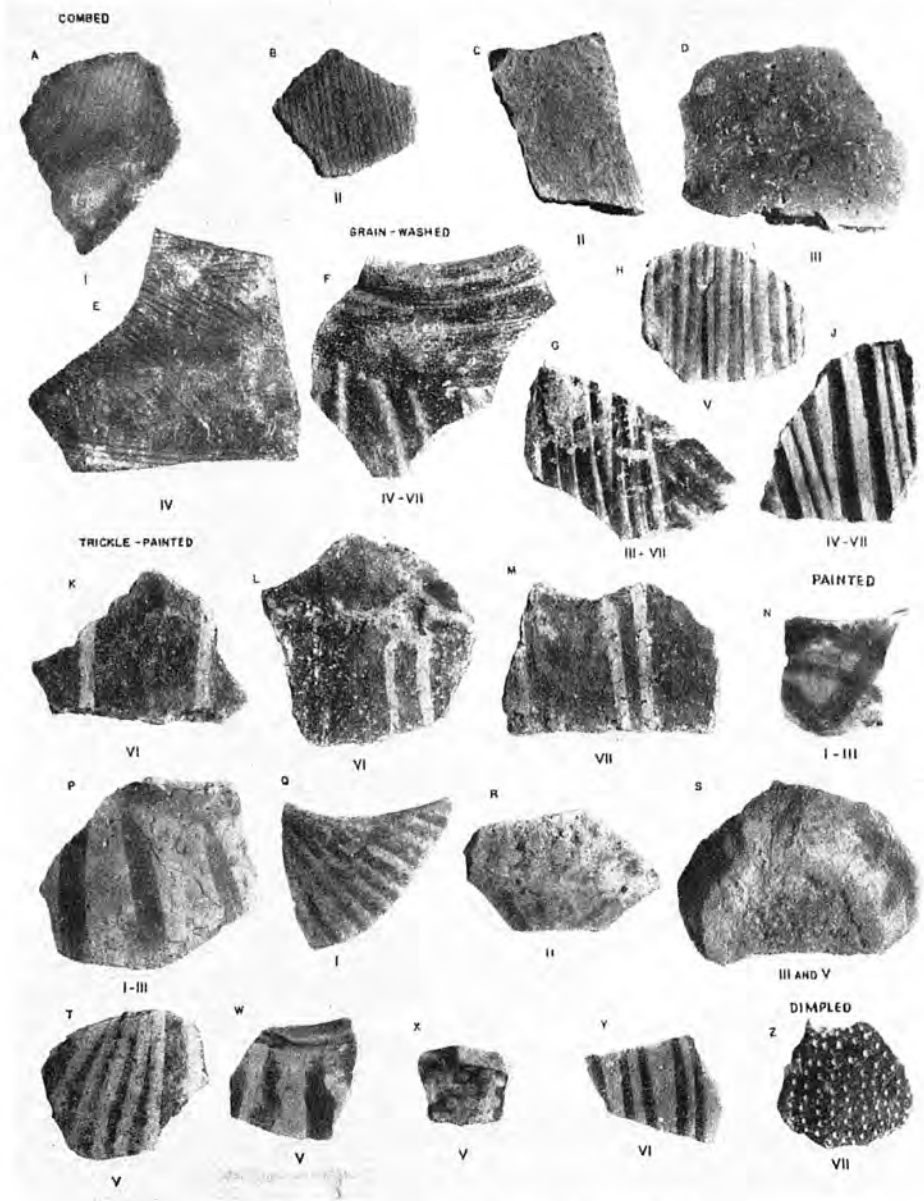


FIG. 8.—DECORATED SHERDS. SCALE, 1:3  
Roman numerals indicate stages



PAINTED<sup>2</sup>

- N.* Part of a wheelmade jar, probably of type 5 *B*, light red bands on naples yellow ground (common in Stages I-III).
- P.* Part of a wheelmade jar, probably of type 5 *B*, light red bands on naples yellow ground (common in Stages I-III).



STAGE V

FIG. 9.—GRAIN-WASHED SHERD P 5062. SCALE, 1:3

- Q.* Part of a wheelmade cup, same ware as type 1, light red stripes. The single specimen found is illustrated as type 7 *B*; but complete form is uncertain, though the ware would be natural to Stages II and III also.
- R.* Part of a wheelmade vessel, same ware as type 1, light red lattice pattern. Only one specimen found; complete form uncertain, but the ware would be natural to Stages I and III also.

<sup>2</sup> See also chart, cols. 4-8. The specimens shown in Fig. 8 *S-Y* and in the chart, col. 7 *C*, are the only painted pieces found below Stage IV.

## 28 NOTES ON THE EARLY POTTERY OF MEGIDDO

- S.* Handmade base of a jar or jug, dark red bands on dark gray ware. Since Stages III and V each contributed one specimen, the type probably occurred in Stage IV also.
- T.* Part of a handmade jar or jug, cream bands on light red ground, light brown core. Only one specimen found.
- W.* Part of a handmade jar or jug, light red bands on naples yellow ware. Only one specimen found.
- X.* Part of a handmade jar, cream bands and dots suggestive of branches and leaves, light red wash. The sherd is from the angle of shoulder and neck and is probably from a jar of type 12 *P*, though smaller. Only one specimen found.
- Y.* Part of a handmade jar or jug, burnt sienna bands on naples yellow ware. Only one specimen found.

## DIMPLED

- Z.* Part of a handmade vessel with dark red wash which after application had been marked with borings about 1 mm. in depth over its entire surface (to judge from the regular concentricity of the decoration); it is possible that the holes were originally filled with an inlay. Only one specimen found.

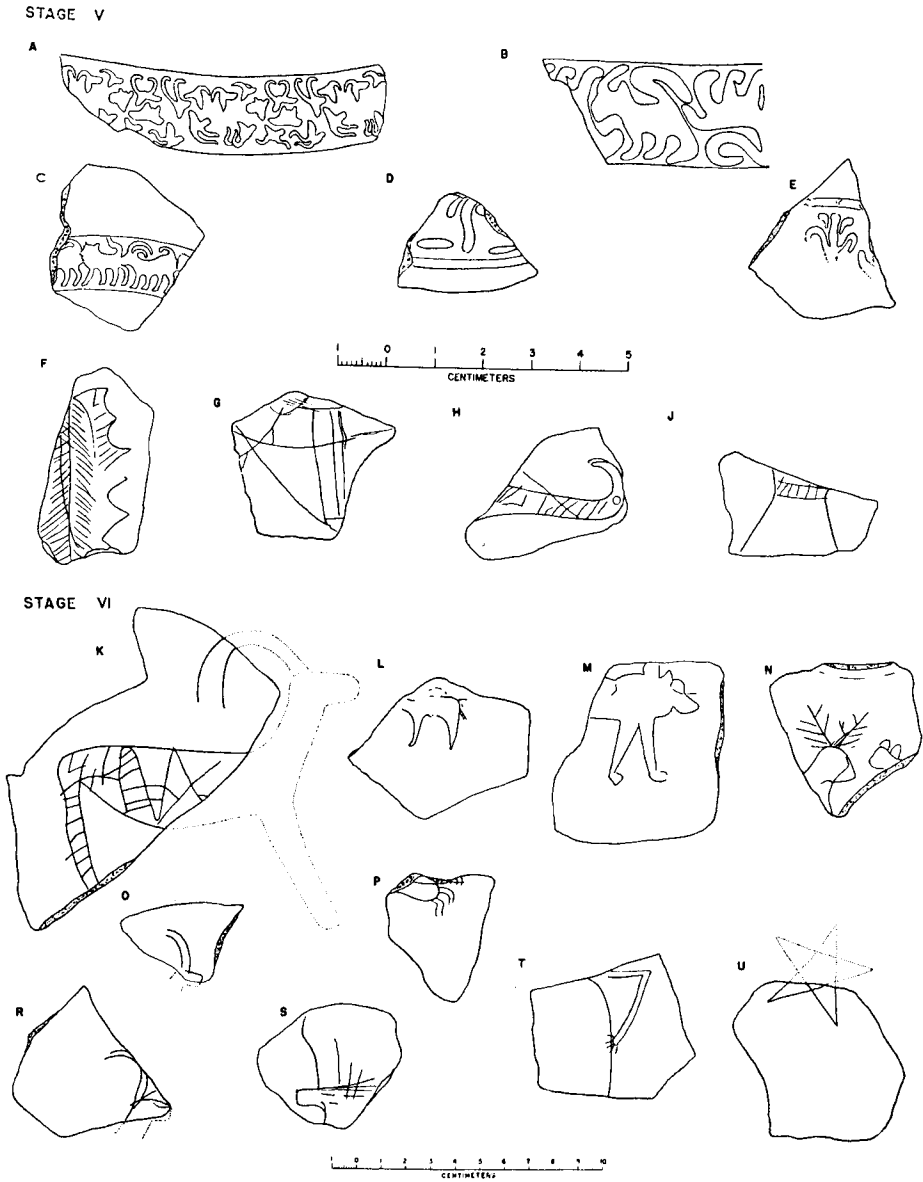
The foregoing types of decoration have been fairly instructive. They allow us, within the limits imposed by the area of 500 square meters, to add a number of general criteria for distinguishing levels:

Combed ware is found only in the Early Bronze strata, Stages I–IV; nor should one expect to find it lower, as it seems always to be associated with hard or metallic fabrics which are not found in the Chalcolithic layers.

Grain wash, which we have so designated because it looks like wood graining, persists into Stage III, but is more highly typical of Stages IV–VII and is thus usually associated with the Chalcolithic spouted, gray burnished, and hole-mouth forms.

Trickle-painting appeared to be a poor criterion, being found only in small quantities in Stages V (not illustrated)–VII.

Painted sherds seemed to provide good evidence for the great popularity of this type of decoration in the Early Bronze levels, particularly from Stage III upward (cf. chart). If we may judge from the few sherds found in Stages V–VI, the Chalcolithic attitude toward



painting was decidedly negative, except in the matter of solid and grain washes.

Still another type of decoration is shown in Figure 10 *F-U*:

SCRATCHED (after the vessel had been fired)

- F.* Leaf pattern or fish. On jar type 12 *N* or bowl type 13 *A*.
- G.* On jar type 12 *N* or bowl type 13 *A*.
- H.* Scorpion or crab tail, or elephant trunk. On jar type 12 *N* or bowl type 13 *A*.
- J.* Belted human figure. On jar type 12 *N*.
- K.* Horned animal. On jar type 12 *N*.
- L.* Donkey? But in the blur above the back there is a suggestion of a hump (camel?). On jar type 12 *N* or bowl type 13 *A*.
- M.* Baboon. On jar type 12 *N* or bowl type 13 *A*.
- N.* Horned animal with young. Perhaps on jar type 23 *C*.
- O.* Horned animal. On jar type 12 *N* or 16 *G*.
- P.* Tail and hind legs of an animal. On jar type 12 *N* or 16 *G*.
- R.* Horned animal. On jar type 26.
- S.* Animal head. On jar type 12 *N* or 16 *G*.
- T.* Bent arm of a human figure. On jar type 26.
- U.* Five-pointed star. On jar type 12 *N* or bowl type 13 *A*.<sup>3</sup>

Little can be done with these scratched drawings other than to call attention to the variety of the designs attempted, which include, aside from those illustrated, a great many indeterminate and fragmentary pieces of type *G*. One is impressed by a great difference in conception of the pottery scratchings as compared with the seal carvings described below, for the former display a painstaking aptitude for naturalistic detail. On this basis we may make a classification, tentatively assigning the drawings to the native stock and the seals to an outside influence. It is premature to compare these scratchings to others of similar types, because inevitably, due to their simple nature, we should be led in many directions with little to provide a substantial tie. The drawings are best left for the moment without an attempt to show a derivation, for it is quite possible that they are truly indigenous.

<sup>3</sup> Some of the foregoing may have belonged instead to spouted jar type 23 *A*.

## V

## CYLINDER SEAL IMPRESSIONS

The cylinder seal impressions found on pottery are illustrated in Figures 10 and 11.<sup>1</sup> They all belong to Stage V.

- A. Stylized animal heads, with and without horns. Diameter of cylinder, 8 mm.; height, 14 mm. Bottom row of heads inverted. On shoulder of jar type 12 *N* or 16 *G*.
- B. Stylized animals repeated and alternately inverted (i.e., in the so-called “*tête bêche*”<sup>2</sup> arrangement). Diameter of cylinder, 10 mm.; height, 18 mm. On shoulder of hole-mouth jar type 12 *D*.
- C. Row of animals, goat- and doglike figures. Probably complete with the two animals; if so, diameter of cylinder, 6 mm.; height, 10 mm. On jar type 12 *N* or 16 *G*. With this impression one may class three examples from Jericho, closely parallel in technique and conception,<sup>3</sup> which were found on storage jars of the “*vorisraelitische*” period.
- D. Floral pattern. Probably on shoulder of jar type 12 *N*.
- E. Floral pattern. On jar type 12 *N* or 16 *G*.

Now seal manufacture of any sort is distinctive and accordingly makes possible a classification. When, further, a classification can be placed in a chronology, then we may use such evidence with a degree of justification. The most significant of our seal impressions are those with animal figures (*A-C*), for the floral designs appear to be unique. To the east of Palestine, in Mesopotamia and Persia, have been found great numbers of seals and impressions with which we may make comparison, guided by those which are most reliably placed stratigraphically. Many authentic seals and impressions from the Tigris-Euphrates country and eastward to the highlands could be adduced for our purposes, but, while undoubtedly belonging to the same

<sup>1</sup> The lettering is the same in both figures.

<sup>2</sup> This term is used, e.g., by Contenau, *Manuel d'archéologie orientale* I (Paris, 1927) Fig. 285 legend, and by Frankfort.

<sup>3</sup> Sellin and Watzinger, *Jericho* (Leipzig, 1913) p. 97, Fig. 66.

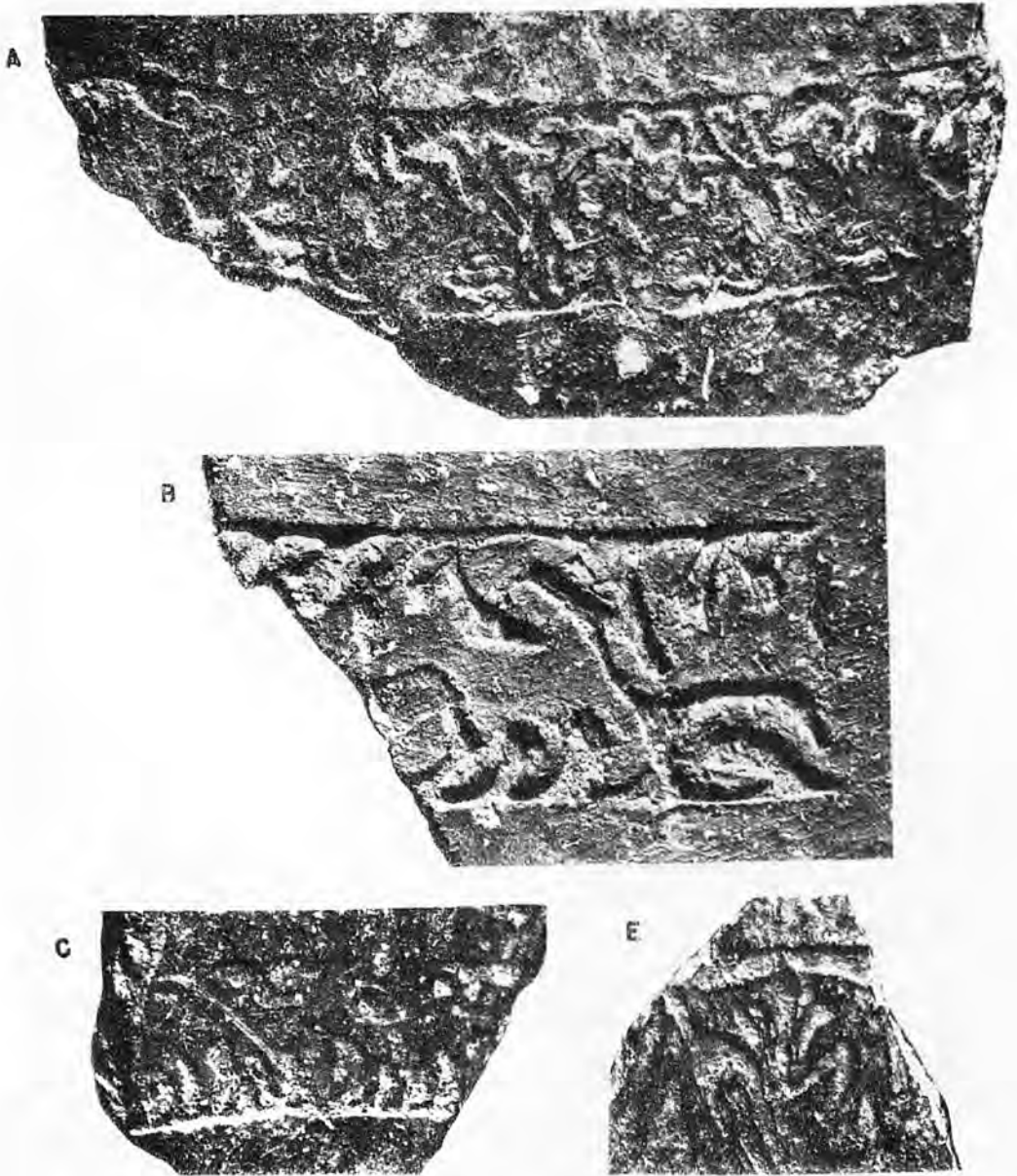


FIG. 11.—CYLINDER SEAL IMPRESSIONS FROM MEGIDDO (CF. DRAWINGS ON FIG. 10). STAGE V. SCALE, 2:1

class, would have no value chronologically, because their exact loci are unfortunately unknown. These present the same difficulties as the impressions from Megiddo and Jericho and must find their positions from a close study of the stratified record of Mesopotamia. Let us take the Megiddo impressions, one by one, to see to what extent their style can be identified and thus aid in a determination of the historic position of Stage V. Finally, when we have investigated the pertinent parallels, we may be able to reduce the sum of evidence to indicate some one Mesopotamian period for the Palestinian material.

Impression *A* with its stylized animal heads has parallels on the basis of heads alone not only in Mesopotamia and Persia but in late predynastic Egypt, Crete, and Anatolia as well. However, it is not yet time to see in the Egyptian seals, the heads of the Phaestos Disk, and the Hittite hieroglyphs a possible connection with a fundamental Mesopotamian ideology. These links must be built up independently and, because of the differing techniques used, must depend on supplementary evidence. But with the Megiddo heads we are able to make a beginning on the basis of technique, for we see in them that mentality, presumably Eastern, which underlay the abstract art of Lower Mesopotamia.

From stratified Mesopotamian deposits we have three examples to which we may call attention with regard to *A*. One of these, a seal from Fara,<sup>4</sup> while not in the style of Megiddo, is nevertheless significant for the fact that it can be placed in the "early dynastic" period.<sup>5</sup> Head themes do not appear to have been used prior to this time. It is most important, however, to try to discover the latest date at which the Megiddo type of seal was employed in Mesopotamia. Two seals from Tell Asmar (ancient Eshnunna), both found in an early dynastic stratum, tend to crystallize the problem, for while closely contemporary they represent differing traditions. The one reproduced in Figure 12 *A* contains not only heads but the crossed animal figures that seem in any case to be a later development of the

<sup>4</sup> Ernst Heinrich and Walter Andrae, *Fara* (Berlin, 1931) Pl. 56 *k*.

<sup>5</sup> Frankfort in *Antiquity* VI (1932) 502-4 calls most of the Heinrich-Andrae material early dynastic on the strength of the more recent work done at Fara by E. F. Schmidt (*University of Pennsylvania Museum Journal* XXII [1931] 193-217). A thick alluvial layer there separates the Jemdet Nasr from the early dynastic, which accounts for the homogeneity of the German finds.



As. 31-2

A



As. 31-218

B



Kh. III 542

C

FIG. 12.—IMPRESSIONS OF EARLY DYNASTIC CYLINDER SEALS FROM TELL ASMAR (A AND B) AND KHAFAJE (C). ACTUAL SIZE



simpler archaic forms with which we may class Figure 12 *B*. Since the Megiddo seal impression undoubtedly resembles the latter more closely in style of engraving and spacing of the heads, we may momentarily assume that it lies closer in time to that archaic prototype. It would seem, then, to be best placed in the earlier part of the last pre-Sargonid period, if not earlier.

Of possible future value in the allocation of this Megiddo seal impression is a stamp seal from Susa in the Louvre.<sup>6</sup> It has been attributed typologically to the "époque archaïque," but that term has already been found inadequate in many cases. This seal is stylized to the point where the figures are barely recognizable, but there is a strong trace of similarity in the spacing of the heads and the dominant theme of horns.

With Megiddo impression *B* too there is some very interesting comparative material. As with our *A*, the evidence is restricted to the early dynastic period. We may pass hurriedly over a specimen from Fara<sup>7</sup> on which we see a bull-man holding a lion with each hand, with a somewhat similar theme next to it, upside down. A seal from Khafaje (Fig. 12 *C*), which is definitely early dynastic, shows the same *tête bêche* arrangement of a pair of goats. But the best comparison, and a truly remarkable one, is still another seal from the early dynastic stratum at Fara.<sup>8</sup> In it there is a very marked and grotesque modification of the animal forms, which subordinates the realism of the flesh to an abstract artistic rendering. The grouping is designed to bring about the utmost co-ordination between the animals, which are treated purely as harmonized components of a decorative whole. And this is precisely the analysis we must make for Megiddo seal impression *B* as well. The head and foreleg of the animal upside down fit into the contours of the same features of the other. The continuity of the frieze is further strengthened by the arrangement of the tails, which almost flow into each other. The third and hind leg of the upright animal carries on the idea of unity by its misshapen projection (representing the fourth leg?) into the space behind the exaggerated

<sup>6</sup> L. Delaporte, *Catalogue des cylindres orientaux* I (Paris, 1920) Pl. 22, No. 2b. Another seal of the same general type is Pl. 23, No. 14.

<sup>7</sup> Heinrich and Andrae, *op. cit.* Pl. 48 *a*.

<sup>8</sup> *Ibid.* Pl. 61 *b*.

horn of the second beast. In both the Fara and the Megiddo specimens the animals depend closely on each other and are thus wholly parts of a design and not individuals in the least. The truth of nature is not considered.

In the case of Megiddo impression *C* much more material could be adduced, but at the same time it would lack the definiteness we are seeking. The theme of rows of animals which are purely decorative and have no dramatic function cannot be called typical of any one period. One point, however, seems clear, that again we are concerned with a style of treatment which can certainly be called pre-Sargonid. Three examples from Jericho<sup>9</sup> with alternating animals in flat relief can be placed in the same category. At the same time they allow a broader view of the Mesopotamian relationship with Palestine in this early period. Further investigation in the Middle East may reveal how we may distinguish between seals of the Jemdet Nasr and early dynastic periods when the "row of animals" alone is concerned. The Megiddo and Jericho pieces seem to offer no characteristics which would permit a closer dating within these broad limits. The flat-relief method of cutting appears to limit the earliest possible date to the Jemdet Nasr period, in which this type of seal was prevalent, although, as we know, it was by no means unknown in the period that followed.

The seal impressions of the type most like the Palestinian animal-row specimens are those on the proto-Elamite tablets,<sup>10</sup> which seem to belong to the Jemdet Nasr phase.<sup>11</sup> Unfortunately, the equation cannot yet be proved satisfactorily, for much of the Susa material must wait for the results of stratigraphic archeology in Iraq and Persia. This of course does not destroy the strong resemblance between the seal impressions in question. Whenever the Persian tablets find their correct and undisputed place, then will the Megiddo problem be nearer a correct solution.

Among the seals found by Schmidt at Fara<sup>12</sup> are a number which conform closely to the Palestinian "row of animals." These are from

<sup>9</sup> Sellin and Watzinger, *loc. cit.*

<sup>10</sup> Delaporte, *op. cit.* Pl. 39, No. 11; Pl. 40, Nos. 5-6; Pl. 43, Nos. 1, 3, 10, and 11, among others.

<sup>11</sup> H. Frankfort, *Archeology and the Sumerian Problem* (SAOC No. 4) Table I.

<sup>12</sup> Schmidt, *op. cit.* p. 212 and Pl. XXIII 2-7.

the Jemdet Nasr horizon and therefore focus the problem more surely than do the proto-Elamite tablets, which are, however, more suitable for purposes of comparison. Nevertheless, one of the Fara seals<sup>13</sup> is very close in conception to the Megiddo and Jericho type of animal parade. The progress made in the style of seals in the early dynastic period, as found by Schmidt, seems to delimit our difficulties considerably, for these later seals show the effects of a rapidly advancing naturalism.<sup>14</sup> On the other hand, there is a Heinrich-Andrae seal<sup>15</sup> which seems also to be early dynastic. A simple frieze of bulls in the lowest register, on an even footing and existing only as space-filling decoration, reminds one strongly of the Palestinian specimens.

It seems, then, that the Megiddo seal impression *C* and the three from Jericho present ambiguous evidence within limits, although one feels certain that if they are early dynastic they are closer to the Jemdet Nasr tradition than to the Sargonid. The animal head and *tête bêche* impressions point strongly in the same direction and lead us to place the group in the early part of the early dynastic period. The most convincing analogies for the seal impressions, to judge by the stratigraphic records which can be our only working basis, appear at this time.

As to the region of origin of the Palestinian seals, we have strong presumptive evidence that we must look to the eastern borders of Sumer and the western side of the Persian highland. And if one considers that the best analogies for the seals come from this territory—an area including Tell Asmar, Fara, Assur, and Susa—then one can solidify the position still further by a consideration of the painted pottery styles of Musyan. Although one cannot always with impunity correlate relief and flat painting, this procedure is somewhat justifiable under the circumstances; for, aside from the fact that the Musyan phase of Susa seems to be close to the period indicated for the seals, there is in the decorative conception of this pottery almost the counterpart of the motives we have observed in the impressions. One of the best examples is the row of goats on a vessel illustrated by Frankfort.<sup>16</sup>

In concluding the discussion of the time and place of origin of the

<sup>13</sup> *Ibid.* Pl. XXIII 7.

<sup>14</sup> *Ibid.* Pls. XII and XIII.

<sup>15</sup> *Op. cit.* Pl. 57 f.

<sup>16</sup> *Op. cit.* Fig. 8, No. 9.

seal impressions it is manifest that each of our comparisons may not be decisive in itself, but the sum of evidence has been anything but contradictory. It is therefore plain that we need not separate any of our groups of evidence, since they tend strongly to supplement one another, suggesting as they do a common position for all of the seal impressions in the first part of the early dynastic period.

Few in number as the Palestinian seal impressions have been, they nevertheless inevitably intimate that here is a tangible link to explain at least some of the strong Mesopotamian influence in late pre-dynastic and early dynastic Egypt. It is hardly necessary to stress the evidence,<sup>17</sup> for the fact of contact between Sumer and Egypt seems well established, with little contest from any source. Correlation of the Palestinian and Egyptian seals and impressions, however, is not possible in a study based on them alone. The time to be considered is surely between Sequence Date 63 and the 2d dynasty, but no definite place within this limit can yet be attempted. A study of the pottery forms of the royal tombs of the 1st dynasty at Abydos, Egypt, however, may here prove pertinent. Frankfort illustrates one of the jars<sup>18</sup> which is now in the Ashmolean Museum. It has always been regarded as one of a number of foreign intrusions found in the tombs. Perhaps now we are able to state that its parent source was Palestine, for this Abydos specimen may be compared to types 11 *A* and 11 *B* in our chart. The likeness to *B* seems particularly striking, even to the details of the base, neck, and form of handle. The Megiddo vessels were not found below Stage III, nor is it necessary that they should be; but, in view of the broad changes going on in Stage IV, it is possible that many of the forms represented in III had their slow beginnings in the preceding period and were simply not discovered in the excavation. We may also recall that Albright has pointed out that the combed ware found in the royal tombs at Abydos is related to, though "somewhat different" from, the Syro-Palestinian types found under the temple at Byblos and at Khirbet Kerak (talmudic Bêth-Yerah at the southern end of the Sea of Galilee).<sup>19</sup> This is the ware that at Megiddo

<sup>17</sup> Among others see Newberry, *Scarabs* (London, 1908) pp. 49-50; S. Langdon in *Journal of Egyptian Archaeology* VII (1921) 133-53; Frankfort, *Studies* I (1924) 106-42; Woolley, *The Sumerians* (Oxford, 1928) chap. vii.

<sup>18</sup> *Studies* I, Pl. X 1b, opposite p. 106.

<sup>19</sup> *AASOR* VI (1926) 29-30, citing Petrie, *The Royal Tombs of the First Dynasty* I (London, 1900) Pl. XXXVIII 9.

had its origin in Stage IV (see Fig. 8 *E*). It is seen that the similarities between the Abydos and Palestinian vessels persist, intimating that the lower end of the Early Bronze deposits at Megiddo may be contemporary with the 1st dynasty of Egypt. The Megiddo seal impressions, then, appearing as they do only in Stage V, might be correlated on the Egyptian side with the late predynastic period. It seems best, however, in considering the seal impressions themselves, to lean most strongly on the evidence coming from the Mesopotamian side of Palestine.

## VI

## OBJECTS ASSOCIATED WITH THE POTTERY

Aside from the objects illustrated in Figure 13<sup>1</sup> and the flints discussed by Miss Garrod in Appendix II, it should be mentioned that from Stages I to VII the following were common: basalt and limestone rubbers and hammerstones; grinders and fragments of basalt vessels; and whorls of basalt and pottery, especially the former. No distinction could be made as to the prevalence of biconical or cylindrical boring, seen in Figure 13 *F* and *L* respectively.

In Stage IV three pieces of possible interest were found, but are not illustrated: (1) a scrap of copper-green composition; (2) a fragment of an obsidian vessel; (3) a pierced basalt disk, 19×5 cm., which, because of the glassy wear on one face as well as at the junction of the biconical central piercing, was considered as a possible *tournette*. It is an object designed to turn on a pivot; but when a much smaller object with the same distinctive features was found in another part of the tell, the identification became somewhat less certain. One cannot say, however, that the larger disk is not a *tournette*. The smaller one may have had an entirely different use. This piece is of peculiar interest since wheel-turned pottery was introduced in Stage IV.

<sup>1</sup> Mr. W. Itayim, the assistant analyst of the Government Central Laboratories in Jerusalem, very kindly made a quantitative examination of the two pieces of copper shown in Fig. 13. He reports that "they are all composed of metallic copper. Tin is absent. . . ."

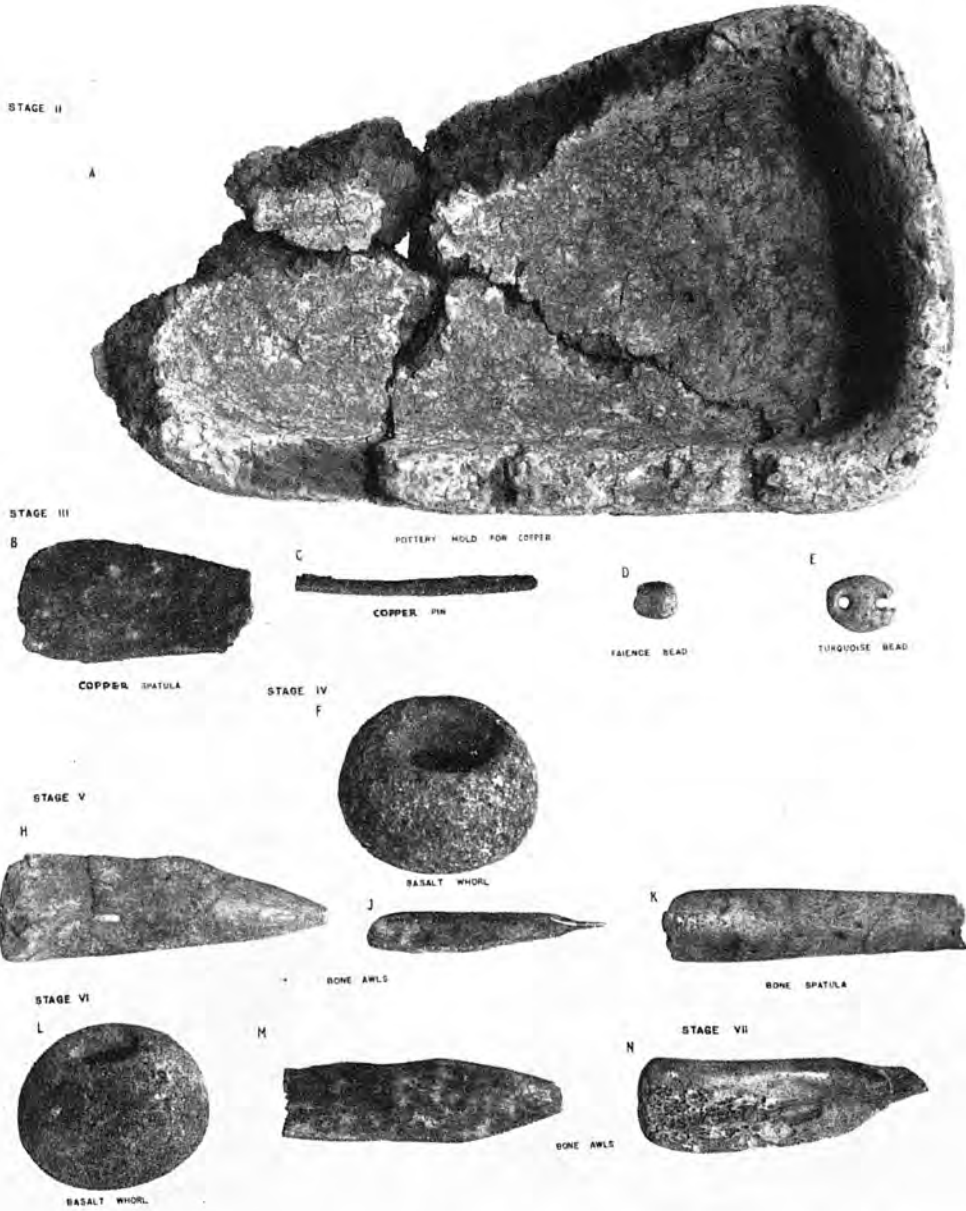


FIG. 13.—MISCELLANEOUS OBJECTS FROM THE STRATIFIED AREA. SCALE, 2:3

## VII

## THE SEQUENCE OF CULTURES

Consideration of the chart makes it evident that our pottery is characterized in its earlier phases by the maintenance of certain patterns already established when pottery was first introduced to Megiddo. In Stage VII there are types which, although less numerous, are precise duplicates of those found in Stage IV. Of this class we note particularly the spouted vessels (col. 23), ledge handles (col. 14), high-loop-handle jugs (col. 24), gray burnished bowls (col. 17), and gourdlike jars (col. 26). There are other types of vessels which have much the same history, and in each case the specimens from Stage IV are in no way distinguishable from those of Stage VII. Even close attention to the technical character of these vessels has failed to demonstrate where, when pressed, we may place any one vessel.

In Stage V, however, there is well founded evidence that this static condition was being opposed, for it is there that a number of distinctive forms make their first appearance. Of these we may enumerate the curiously plain ledge handles (types 14 *D* and *E*), ridged hole-mouth jar rims (types 12 *H*, *J*, and *K*), and what we may conveniently call pithos "rail" rims (types 16 *E* and *F*), all of which are well represented. In a sense these are developments of earlier forms, yet they are new and unique members of the ceramic repertoire and are easily recognized as such. In Stage IV they have passed the period of infancy, appear in quantity, and are more highly characteristic of the group in which they appear. It may be well to emphasize once more the inadequacy of using the forms that appear infrequently; for, while they do not happen to find a place through a number of stages, neither are they particularly characteristic of the stages in which they appear. In this negative position they await substantiation.

Referring to the principal forms on the chart, it is quite clear that Stages VI and VII make a very close unit; yet VI is distinguished by the scratched graffiti of Figure 10. Stages IV and V also appear as a unit in many respects, but in IV there are signs of a revolution which,



once started, continued unchecked to the upper limits of the Early Bronze period.

In Stage IV, aside from a marked advance in the knowledge of building,<sup>1</sup> there occurred the revelation of the wheel or *tournette*, together with a refinement of the firing technique due to new kiln devices and the acquisition of new forms. It is also very probable that copper was used, although it has not been actually found in that stratum; for in the floor of an apsidal house of Stage IV there was a troughlike cutting, the markings of which seemed more in keeping with the action of a metal tool than with one of flint or other stone. Yet without this last possibility there are enough dynamic changes in Stage IV to illustrate the cleavage between the lower and upper parts of the stratified area and to make Stage IV a very satisfactory point for the division of Chalcolithic from Early Bronze.

Aside from the changes enumerated, much is implied for the advanced state of living in Stage IV. To say that uniformly baked metallic-ware forms (cols. 11 and 22) appeared is only another way of saying that much of the uncertainty of the sullen, smoky fire had been overcome. At the same time the gray burnished ware of column 17, which probably gained its distinctive surface character from fighting the primitive irregularities of the open fire, came to an end. The discovery of the means of regulating a pottery oven made it possible to give such uniformity to the wheelmade platters, high bowls, and string-cut vessels (cols. 1, 2, 4, and 5) that it seems impossible to distinguish between the specimens in the four upper stages. However, the wheel did not entirely displace handmade pottery; nor has it to this day. Stage IV was a period of gradual replacement, with most of the Chalcolithic forms still represented, although decidedly less numerous. At the same time the new hard-baked types were feeling about for their positions.

By the beginning of the next period (Stage III), which was not represented by buildings within the stratified area, the transition was completely accomplished: the Chalcolithic and gray burnished fabrics were left behind, and the old forms which lingered attained a new character through the application of advanced methods in technique.

<sup>1</sup> Fig. 2, an air photograph, illustrates the development of building in Stages IV and V.

From this point to the top of the stratified area there was a reiterated sameness; in particular, one tends to group Stages II and III, in spite of certain observed differences. However, the upper of these was a walled level, and because of this distinction we may reserve Stage III for the accession of new forms not represented in the stratified area at Megiddo. It may be well to mention here that red high polish and red matt wash were found in all stages, but were predominant in Stages IV-VII.

Stage I, as already stated, had much in common with II and III; yet in or close to the period of this level it is essential to place the partially folded ledge handle (type 14 AA; cf. pp. 56 ff.) and the large tomb group with which it is associated (see Fig. 14). In the stratified area proper the most important new type is a huge pithos (type 16 A), which was poorly represented in Stage II. The occurrence of this form, the neck and rim of which display marked Middle Bronze tendencies, was frequent enough to make it a reliable datum for Stage I.<sup>1a</sup>

The entire mass of evidence, taken piece by piece or as a whole, accentuates repeatedly the basic cultural difference between the upper and lower parts of the stratified area—a distinction which is truly as great as between the Early and Middle Bronze periods in Palestine and Syria. Clearly in Stage IV an overpowering influence was bearing down on the country, for we need hardly suppose that pressure of this nature was being exerted at only one site.<sup>2</sup> Here, however, there arises a question of theory and logic. One is impressed by the number of revolutionary ideas inherent in the material from Stage IV: the wheel, even temperatures in firing, the consequent uniformity in ware of the new pottery types, and the probable use of copper. To explain this grouping around one point in time, we are forced to consider a number of possibilities: (1) that the influence was due to a foreign source, either by additions to the population or by peaceful transmission of ideas; (2) that an inspiration from within brought about the advance in knowledge; (3) that a combination of the two was responsible.

<sup>1a</sup> See p. 64, n. 19, on late Early Bronze parallels at Byblos.

<sup>2</sup> Ample corroboration for this point of view is found in the Palestine Museum, which contains many specimens, from all parts of the country and from both early periods, emphasizing these differences.

The first possibility appears to gain considerable support from an anthropological view which would maintain that the wheel, not being a universal element, was conceived of at one point and was later introduced to Asia, Europe, and North Africa by diffusion. If borrowing had not proceeded from one source, why, then, were not Australia and North and South America blessed with the wheel? But, on the other hand, with an outside influence one could easily conceive of a mass introduction of ideas due to some historic incident. Furthermore, should the point require substantiation, no sizable copper-bearing deposits have ever been discovered in Palestine or Syria. In any case, then, the metal must have been imported; and the preponderance of new ideas coming at one time points to an external source.

In considering the second possibility it is quite apparent that metal and the techniques concerning pottery are not necessarily interdependent. The pottery developments could have been due to a marvelous multiple inspiration, with the import of copper coinciding. With good handmade pottery in general use in Chalcolithic times, it is far from impossible that a peculiar type of mentality, embracing the East, was able to evolve these improvements in widespread localities independent of outside aid. This supposition does away with the necessity of employing the diffusion principle for an explanation. In this case only the metal would have to be brought in.

The third possibility, of course, combines the various ideas concerning the pottery, having the wheel and firing techniques discovered in the country, with the new forms brought in from outside, or vice versa, according to the datable indications from the surrounding territory.

Having gone so far as to recognize a Chalcolithic and an Early Bronze period with sufficient points to distinguish them, we may now investigate the skeletal remains themselves, to see what they can contribute to a solution of the problem. For this purpose, unfortunately, we must use the evidence of burial deposits outside the stratified area; but it has been possible to attribute these, within the limits imposed by the chart, to positions within the confines of two stages. There is, however, no uncertainty with regard to placing such evidence in either the Chalcolithic or the Early Bronze division. For the purposes of this investigation there are now available twenty-seven skulls

found in a Chalcolithic context, to be compared with five crania from the tomb whence came the pottery illustrated in Figure 14. In neither group, however, is there any great dissimilarity in head form, for both appear to conform to the Mediterranean "river-bed" type of head.<sup>3</sup> The skulls that have come from Hyksos and Late Bronze burials differ markedly from the Early Bronze and Chalcolithic specimens, and together appear to form another major physical group.

It seems, then, that aside from the unfortunately small number of skulls physiological grounds will be insufficient at the present time to prove decisively whether the Early Bronze people were a new Mediterranean group, which brought in a fresh culture in Stage IV, or were indigenous folk, suddenly become conscious of their inventive ability. On the basis of probability the great strides in knowledge exhibited in Stage IV seem better explained by the adoption of the first possibility, that the influence was due to a foreign source, either by additions to the population or by peaceful transmission of ideas. At this point the third possibility would of course have had an appreciable influence, for we cannot entirely discredit local skill; but it would have been a distinct and most marvelous mental achievement to have accomplished all of these fundamental improvements at one time from the available internal resources. It is far more probable that an old and firmly established conservatism would require strong outside influence to force it into a change of habits. If we conceive of the wheel, along with the other progressive traits, as imported by people actually entering the country, there is a greater possibility of understanding the rise of new pottery forms. At the same time, of course, there is to be explained the continued use of the ledge handle in the Early Bronze period. We have seen above<sup>4</sup> that this type was restricted geographi-

<sup>3</sup> See Sir Arthur Keith, *The Antiquity of Man* I (2d ed.; London, 1925) 14-16. At Megiddo the average cephalic index of Early Bronze males (3) is 74.97; of Early Bronze females (2), 74.25; of Chalcolithic males (16), 72.88; of Chalcolithic females (11), 75.96. The following data pertain to both groups: (1) A feminine aspect predominates which makes sexing very doubtful. (2) There is a tendency toward bulging above nasion. It is this, rather than a recession of nasion, that gives the depression above the nose. Nasion, however, is rarely deep-set, at times sitting as far forward as glabella, as a result of which the frontal springs directly from the nose. (3) Occipital development is pronounced. (4) Prognathism occurs in many cases, but with maxillary recession in others. (5) The lower nasal margins vary greatly, ranging from knife-edge sharpness to rounded and troughed borders.

<sup>4</sup> P. 16, n. 1.

cally during the whole of its existence. By their close contact with the indigenous population in Stage IV such newcomers would be influenced and led to assimilate usages quite as foreign to them as were the ones they were passing on to the people or culture of Palestine. With regard to this particular point, one cannot help seeing an indigenous trait surviving in the readjustment, whether people or simply ideas were involved.

The excavation of the stratified area has contributed practically nothing to a solution of the cultural status of Megiddo, and therefore of Palestine in a broad sense, before the inception of Stage VII. It is most essential, therefore, for archeology to discover deposits that will bridge the gap between this, our lowest pottery-bearing stratum, and the next nearest recognizable level of civilization in Palestine, Upper Natufian, which contained no pottery except intrusives.<sup>5</sup>

In order to justify our placing of the Upper Natufian in relation to the Megiddo deposits it will be necessary to come to some agreement as to the chronological position of the Ghassulian sites;<sup>6</sup> for it is by no means certain that at any site the strata that have yielded pottery and flints of Ghassulian types need be considered older than, or necessarily as old as, our Stage VII. It has been asserted that Tulaitât el-Ghassûl itself is a purely Chalcolithic site,<sup>7</sup> in contrast to an "Early Bronze" designation for those sites which are characterized by the ledge handle. This contention is due partly to an effort to account for a cultural contact with Egypt at the latest possible date, assumed to be S.D. 66-80 (with Menes placed in the twenty-ninth century),<sup>8</sup> and partly to the observation that there is nothing characteristically Early

<sup>5</sup> See D. Garrod in *PEFQS*, 1928, pp. 182-85 (Shukbah); *ibid.* 1929, pp. 220-22; 1931, pp. 99-103; and 1932, pp. 46-51 (Wadi el-Mugharah).

<sup>6</sup> The material description of these is well summarized by R. Neuville and A. Mallon in *Syria* XII 24-47. The most important of the sites discussed are Tulailât el-Ghassûl in the Jordan Valley, Umm Kâtafa, Umm Kâlâh, Wadi Salhah in Galilee, Wadi el-Mugharah in the Carmel range, and Tell Fara (Beth-pelet). Père Mallon's preliminary reports on Tulailât el-Ghassûl appear in *Biblica* X (1929) 217 f.; XI (1930) 3-22, 129-48; XII (1931) 257-70, with a résumé in *Syria* XIII (1932) 334-44. For Fara see Eann Macdonald, "Prehistoric Fara," in Macdonald, Starkey, and Harding, *Beth-pelet* II (London, 1932) 1-21.

<sup>7</sup> Albright in *AASOR* XII 3 and *BASOR* No. 42 (1931) p. 14.

<sup>8</sup> So Albright in *AASOR* XII 2. Scharff's dating (*Grundzüge der ägyptischen Vorgeschichte* [Morgenland, Heft 12 (Leipzig, 1927)] pp. 46-58) is reduced by more than a century.

Bronze in the material found at Ghassûl. Aside from these points the pottery-bearing levels at the prehistoric caves of Galilee and on the south side of Carmel contained some Ghassulian potsherds<sup>9</sup> mixed with quantities of others, mostly Byzantine; and one often hears the statement that the typical flint industry of Ghassûl is of an archaic nature. In view of our own implications as to dating, each of these points must be set in proper perspective. This can be done to a large extent independently of the evidence from Megiddo.

The first assertion, that Ghassûl is a Chalcolithic site and therefore largely antedated the localities that constitute the ledge-handle province, can now be modified to some extent. For while perhaps remaining Chalcolithic in nature, the uppermost level, Ghassûl IV, seems beyond all reasonable doubt to have existed until the beginning of the Middle Bronze period.<sup>10</sup> Therefore, at whatever time its related predecessor, Ghassûl I, had its inception, it is evident that the sites closely aligned to Megiddo and those with Ghassulian affiliations were in part contemporaneous; for the ledge-handle sites too had a long history before their final demise in the early part of the 2d millennium. The force of this argument is that each of these two types of culture, being unrelated yet in part contemporaneous, is in need of a lineage, since neither can have been derived from the other. Therefore, whatever Egyptian chronology is adopted, it is plain that the two Palestinian spheres must be correlated before the matter of precedence can be considered.

With regard to the Ghassulian potsherds found intrusive in the Upper Natufian, we are confronted with factors that cannot yet be controlled; for, inasmuch as Natufian itself is characterized by a "microlithic industry without pottery,"<sup>11</sup> there exists no recognizable connection outside of the "archaic" flints which have been found at Ghassûl, but which are of types that persist even into Ghassûl IV at

<sup>9</sup> *AASOR* XII 3.

<sup>10</sup> Aside from the opinions of a number of archeologists (cited by Mallon in *Syria* XIII 337-38), we may here add the evidence of the cup appearing as our Fig. 18 U, which has been identified by Père Mallon as a Ghassûl IV product. At Megiddo this fits into Stage 0, or the early part of the Middle Bronze period.

<sup>11</sup> Garrod in *PEFQS*, 1931, p. 100. Miss Garrod has now correlated Layer B at Shukbah with Layer B<sup>1</sup> at Mugharet el-Wad in the Wadi el-Mugharah (*ibid.* 1932, p. 47). These represent her "Upper Natufian" level.

the beginning of the Middle Bronze period.<sup>12</sup> There is no more legitimate connection for these than there is for the Cananean type of flint found at Megiddo, since neither is directly related to the Natufian. Moreover, Ghassulian types of sherds are not the only early species which have been discovered at the prehistoric caves. Rim sherds of hole-mouth jars of type 12 N<sup>13</sup> which appear to be less highly developed than those in the Chalcolithic at Megiddo have come from the mixed upper level at Wadi el-Mugharah. Thus another argument for the priority of the Ghassulian types of culture is set aside.

Furthermore, in the recent excavations at Megiddo it was observed that a civilization which knew both the potter's wheel and copper followed on one which knew neither. At Ghassul also bronze and the wheel were introduced during the later history of the site, in Strata III and IV.<sup>14</sup> If, then, the four Ghassulian periods were to be placed prior to those at Megiddo, we should have the highly suspicious, although not impossible, sequence of (1) no metal or wheel (Ghassul I and II); (2) bronze and wheel (Ghassul III and IV); (3) no metal or wheel (Megiddo VII-IV); copper with wheel (Megiddo IV-I).

On the other hand, if one were to consider the Jordan (Ghassulian) and ledge-handle cultures contemporaneous, at least in their later phases, the possibility of a correlation would be immediately suggested by the fact that both spheres were affected, roughly at the halfway point of the existence of each, by the introduction of the practical use of metal together with the potter's wheel. Following this point of view, further parallel development would be seen in the relative abundance of bronze in Ghassul IV<sup>15</sup> and the increased use of copper at Megiddo soon after Stage I at a time contemporary with the early part of the 12th dynasty of Egypt.<sup>16</sup>

<sup>12</sup> Mallon, *loc. cit.* At Ghassul there is one homogeneous civilization from beginning to end, with a consequent uniformity of flint types, which receive an addition only in the fourth (uppermost) level.

<sup>13</sup> Not published, but seen by the writers.

<sup>14</sup> Cf. Mallon, *loc. cit.* Ghassul I and II have been only trenched so far, and therefore one cannot say definitely that these lower strata have been truly characterized. However, one would not expect that wheel- and handmade pottery would be confused even in a trench. We wait anxiously, of course, for the more satisfactory excavation of the site by strata.

<sup>15</sup> *Ibid.* p. 338.

<sup>16</sup> See our p. 75 and Fig. 15.

The fact that true bronze seems to have come to Megiddo later than at Ghassūl need not seriously affect the problem of correlation. It is certain that all of the ledge-handle sites were more or less contemporary in the Early Bronze period; yet these, other than Megiddo, appear to have utilized true bronze, not copper. Therefore, conceding that we are dealing with a local variable, the important consideration is to discover, if possible, that point in time when either copper or bronze became a material for practical use. The evidence of the wheel at Megiddo and Ghassūl, while always subject to further discoveries, appears to supply a horizon from which we may work. Whether, after that, one site permanently adopted the advantages of the alloy would not matter in the least as far as further correlations are concerned, since it would be recognized that local factors were involved. If the problem is correctly understood, then the character of the later period, in which one finds an accelerated manufacture of both metals at both sites, would suggest a still further parallel in cultural development.

This is not a plea for the precedence of either type of civilization or for any strict contemporaneity; it is simply a recognition of the uncorrelated position of the Ghassulian and ledge-handle provinces. It is to be expected that the frontiers of these adjacent provinces—roughly the Jordan Valley and the country to the west—drew to some extent from both sources, since it is inconceivable that either existed independently of the other in time. There is evidence that this was not the case in the later history of Ghassūl; and, unless one can believe that great tracts of Palestine were at some time voids, it was not true in the earlier history of the country. We must depend on the investigation of such sites as show the convergent influences to clarify the relation of these two distinct spheres.<sup>17</sup> An ideal site will contain material that can be placed chronologically from both the Ghassulian and the ledge-handle point of view. Already there is indication that an informative deposit of this type will be found, for Site E at Fara near Gaza,<sup>18</sup> while falling into the general Ghassulian mold, has points

<sup>17</sup> One must always keep in mind the part played by local conditions of all sorts. Today Ramallah, Jebaṣ, and Hebron have their own unique and seemingly immutable conceptions of the shape and decoration to be applied to pottery.

<sup>18</sup> Macdonald, *op. cit.* p. 6 and plates.



in common with Site H,<sup>19</sup> which in turn bears a close resemblance to the Megiddo Chalcolithic strata.<sup>20</sup> But since the Fara stations have no interstratification, it is impossible to arrange them chronologically except on the basis of flint forms—a basis not yet practicable.

One may judge now whether a claim to greater antiquity is valid for either of these cultural domains. The Ghassulian sequence of pottery forms, particularly from what we may call the provincial frontier, must first become well established. At the same time clearer distinctions must be made in the material from those sites which constitute the Palestinian ledge-handle province.

<sup>19</sup> *Ibid.* p. 11 and plates.

<sup>20</sup> Cf. *ibid.* Pls. XXXVI 1 and XXV 63 for ledge handles (see our types 14 *G* and *H*); Pl. XL 58 for a spouted barrel-jar (see our type 23 *D*); Pl. XXXVII for lug and "eye" handles (see our types 23 *B* and 25 *B*).

## VIII

## THE DATING OF THE MATERIAL

## THE LATER STAGES

The pottery of the stratified area cannot be dated as easily as the chronological sequence of forms was determined. Fortunately, however, certain types in Stage I find representation in two adjoining tombs corresponding in date to the early part of the 12th dynasty of Egypt on the basis of the well stratified evidence from Tell Beit Mirsim. Therefore the associated burial deposits, although lying outside the stratified area, necessarily come within the scope of our discussion and are included here in practically full form because of the link which they provide. The contents of these associated tombs included the pottery and other objects shown in Figures 14-15, namely:

## POTTERY (FIG. 14)

## TOMB 1101 A LOWER

- P 4144 Carinated bowl, wheelmade, type 6 *A*.
- P 4143 Flat platter, wheelmade, type 1 *B*.

TOMB 1101 B LOWER<sup>1</sup>

- P 4126 String-cut bowl, wheelmade, type 2.
- P 4123 Cup, handmade, burnt umber ware.
- P 4135 Bowl, handmade, burnt umber ware.
- P 5282 Rounded platter, wheelmade, type 1 *C*.
- P 5246 Flat platter, wheelmade, type 1 *A*.
- P 4138 Metallic-ware jug, handmade, type 11 *D*.
- P 4136 Jar, handmade, brown ocher ware, incised decoration.
- P 4142 Jar, handmade, brown ocher ware, incised decoration, trace of spout close to rim.
- P 4120 Jar, handmade, brown ocher ware, dark core.
- P 4124 Jar, handmade, naples yellow ware, incised decoration.
- P 4122 Jar, handmade, brown ocher ware, dark core, incised decoration.

<sup>1</sup> A and B together constitute a single tomb.

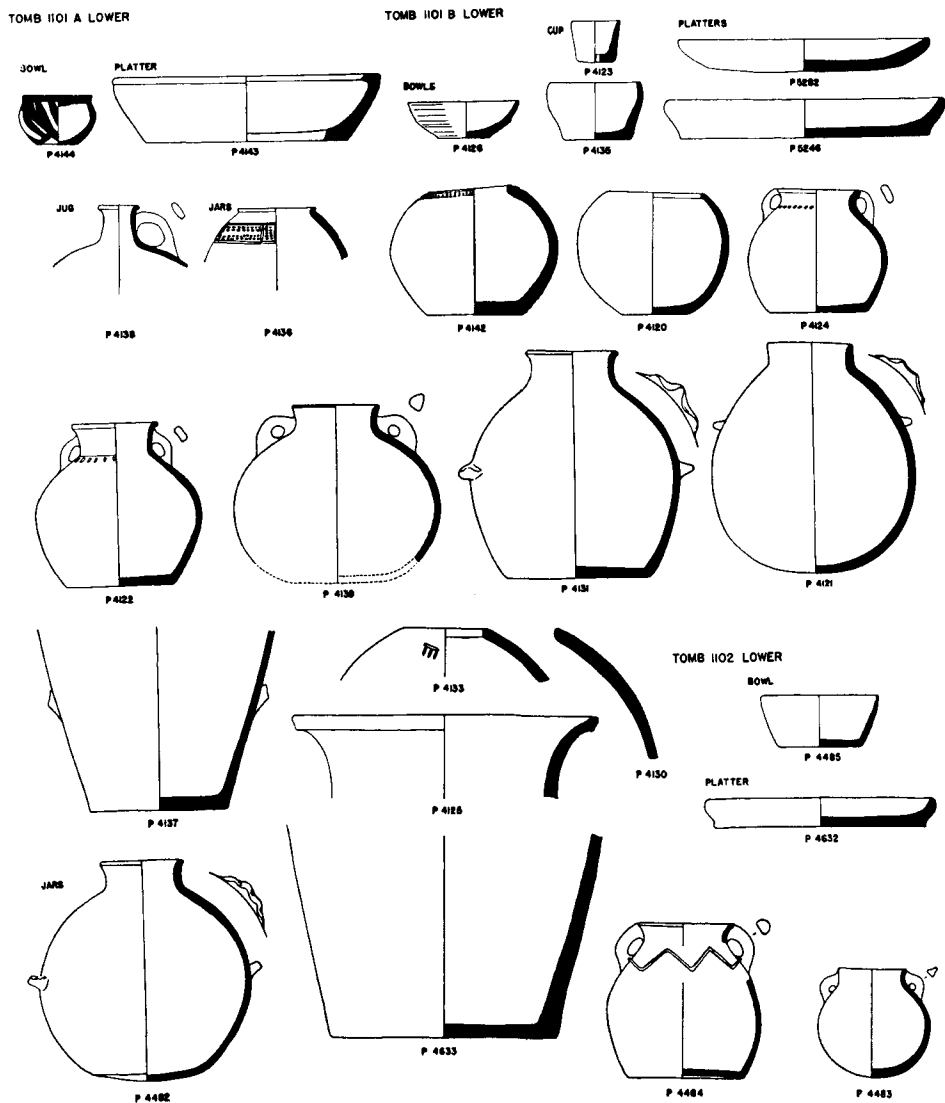


FIG. 14.—POTTERY FROM ASSOCIATED TOMBS 1101-2 LOWER AT MEGIDDO CORRESPONDING IN DATE TO THE EARLY PART OF THE 12TH DYNASTY IN EGYPT. SCALE, 1:10

## 54 NOTES ON THE EARLY POTTERY OF MEGIDDO

- P 4139 Jar, handmade, brown ocher ware, darker core, pinched lug handle of type 25 *A*.
- P 4131 Jar, handmade, naples yellow ware, darker core, folded ledge handle of type 14 *AA*.
- P 4121 Jar, handmade, brown ocher ware, folded ledge handle of type 14 *AA*.
- P 4137 Hole-mouth jar, handmade, type 12 *Q* of Stages I-III.
- P 4133 Hole-mouth jar, handmade, type 12 *L* but smaller.
- P 4130 Hole-mouth jar, handmade, type 12 *L*.
- P 4125 Pithos, handmade, type 16 *A*.

## TOMB 1102 LOWER

- P 4485 Bowl, handmade, brown ocher ware.
- P 4632 Flat platter, wheelmade, type 1 *A*.
- P 4482 Jar, handmade, brown ocher ware, darker core, folded ledge handle of type 14 *AA*.
- P 4633 Pithos, handmade, type 16 *A*.
- P 4484 Jar, handmade, brown ocher ware, darker core, incised decoration.
- P 4483 Jar, handmade, naples yellow ware, pinched lug handle of type 25 *A*.

## OTHER OBJECTS (FIG. 15)

## TOMB 1101 B LOWER

- M 3636 Copper<sup>2</sup> spearhead, hammered out from tang end, tapering off to a fine edge toward the point.
- M 3538 Copper spearhead, hammered out into a long even strip, haft end folded to form hollow for shaft, which was fixed by a rivet at its extreme end.<sup>3</sup>
- M 3539 Copper dagger or knife blade, beaten out, fastened to the handle by four rivets.

<sup>2</sup> The metal objects shown here have been analyzed by the Palestine government analyst, Mr. G. W. Baker, as metallic copper, except for a small proportion of tin in M 3538.

<sup>3</sup> This method of copper treatment is in strong contrast to that used in the Late Hyksos period at Megiddo. Although there are similarities in shape, the Hyksos types are cast in a closed mold, and a central raised rib is always evident on both sides.

COPPER  
SPEARHEADS



M 3636

TOGGLE PIN



M 3634

DAGGER BLADE



M 3538



M 3539

KOHL STICK?



M 3635

RING



M 3639

POTTERY FIGURINE



M 3534

FIG. 15.—MISCELLANEOUS OBJECTS FROM TOMB 1101 B LOWER AT MEGIDDO CORRESPONDING IN DATE TO THE EARLY PART OF THE 12TH DYNASTY IN EGYPT. SCALE, 4:5

- M 3635 Copper kohl stick(?), or possibly a toggle pin with the end beaten flat.
- M 3634 Copper toggle pin with hole hammered through from one side.
- M 3639 Copper ring.
- M 3534 Pottery animal figurine, possibly a sheep, handmade, pierced vertically for suspension.

The key type upon which we must base our 12th dynasty date is the partially folded ledge handle of type 14 AA (cf. Fig. 5),<sup>4</sup> which was not found in the stratified area, but which by implication finds a place in or very close to Stage I. Other pieces of rather definitive nature are the pithos neck P 4125 and pithos base P 4633, of type 16 A, which in the stratified area was found predominantly in Stage I only. Several vessels or fragments are of types common to Stages I–III,<sup>5</sup> and some of these types appear as early as Stage IV. The trend of this evidence relates Tombs 1101–2 Lower to some phase of the upper part of the stratified area; one comes to the same conclusion when studying the other jar forms in Figure 14. Typologically these are far removed from the residue of the Chalcolithic tradition which persisted through Stage IV, while, on the other hand, the entire group lies back of the late 12th dynasty forms found in tombs of Gezer and Byblos (the latter of the time of Amenemhet III, 1849–1801 B.C.), which contained typical Middle Bronze pottery.<sup>6</sup>

This well marked latter horizon, dated on considered evidence outside of scarabs as far as Byblos is concerned, has a direct bearing on Tell Beit Mirsim as well, for it gives a point behind which the I–H levels should lie. Albright finds other material to aid in the placing

<sup>4</sup> Seen in jars P 4131, P 4121, and P 4482 in Fig. 14.

<sup>5</sup> Note platters P 5246 and P 4632 (type 1 A), P 4143 (1 B), P 5282 (1 C), and unillustrated (1 E); string-cut bowl P 4126 (2); carinated bowl P 4144 (6 A); handles unillustrated (9 A and B); metallic-ware jug P 4138 (11 D); hole-mouth jars P 4133 and P 4130 (12 L) and P 4137 (12 Q); pushed-up ledge handle unillustrated (14 B). Types 1 A–E, 2, 9 A and B, 11 D, and 14 B occur not only in Stages I–III but in Stage IV also.

<sup>6</sup> For the reports on Byblos, all of which appear in *Syria* III (1922), see C. Virolleaud, pp. 273–90; E. Naville, pp. 291–95; E. Pottier, pp. 298–306. On Gezer see Macalister, *The Excavation of Gezer* III (London, 1912) Pls. XXXV–XXXVII, and Vincent, *Revue biblique* XXXII (1923) 552–74 and XXXIII (1924) 161–85.

of his strata, one of the landmarks being derived from Junker's Nubian excavations.<sup>7</sup> There it was revealed that the black Tell el-Yahudiyeh juglet was imported into Egypt in the first half of the 12th dynasty. The form was known at Byblos in the same period and must have been as early in Palestine, for it is not of Nubian but of Asiatic origin.<sup>8</sup> The earliest occurrence of the divided handle at Tell Beit Mirsim was in the I-H level,<sup>9</sup> and therefore it is suggested that the period is not later than the first century of the 12th dynasty. Moreover, scarab evidence was negative, as it was in Megiddo burials 1101-2 Lower and the slightly later shaft tombs discussed in Appendix I. Since the Middle Kingdom scarabs that have been found in Palestine have usually occurred in a late Middle Bronze context (D at Tell Beit Mirsim), and since time must be allowed for the accumulation of the strata between H and D, the early 12th dynasty date for I-H seems consistent enough. These are only a few points in the mass of evidence that has influenced the dating of Strata I-H at Tell Beit Mirsim; but since Megiddo Tombs 1101-2 Lower, and ultimately the entire Early Bronze and Chalcolithic deposit, depend largely on the sequence at Tell Beit Mirsim for a direct tie with the Middle Bronze period, it is well to have recalled these more important points.

However, our principal task is not so much to bestow absolute dates as to find the strongest correlations possible based on a comparative study of material. It has not yet been undeniably proved that the Tell Beit Mirsim datings are correct. On the other hand, one cannot

<sup>7</sup> Albright in *AASOR* XII 7 cites Junker, *Der nubische Ursprung der sogenannten Tell el-Jahūdiyye-Vasen*, pp. 58 ff., 81 ff.

<sup>8</sup> On the (late) 12th dynasty (Middle Bronze) Byblos examples, the origin, and the centralization of the Tell el-Yahudiyeh jug type in "les régions cananéennes ou qui possèdent des colonies cananéennes: Basse-Egypte, Palestine, Phénicie, région orientale de Chypre," see R. Dussaud in *Syria* IX (1928) 147-50; for the late 3d millennium occurrence of the divided handle and button base (component parts of this piriform jug) in Cappadocia, see Frankfort, *Studies* II (1927) 168 and Fig. 16 a. The button base has also been found in the second stratum at Alishar in Anatolia ("Oriental Institute Publications" XIX [Chicago, 1932] Fig. 133 and Pl. XI, b 2010).

<sup>9</sup> Albright in *AASOR* XII 17. Although the true Tell el-Yahudiyeh ware was not present before G, the presence of the divided handle in I-H intimates that the piriform jug type was known in the latter also. Strata H and I could not always be differentiated.

disregard the exceptional chronological contribution made by Albright's discoveries. Hence we are primarily interested in material equations, leaving the dates that we use for practical purposes as flexible and yielding as possible.

Turning to the evidence from Tell Beit Mirsim itself, we find the folded ledge handle introduced in Stratum I,<sup>10</sup> which is regarded as contemporary with the early 12th dynasty. The pinched lug handle of the Megiddo tombs was also common in Stratum I at Tell Beit Mirsim, but was not found in J.

On the basis of these two very significant points Megiddo Tombs 1101-2 Lower seem to match Stratum I at Tell Beit Mirsim, but a close comparison of the deposits from both sites makes it clear that the Megiddo burials are typologically earlier. We have already seen the common ceramic ground that exists between Tombs 1101-2 Lower and the Early Bronze tradition of Stages I-III, particularly Stage I, which in many respects is reflected in Tell Beit Mirsim J. It is therefore necessary to place the tombs well back of Tell Beit Mirsim I, but perhaps not as early as J, in which the pinched lug and the folded ledge handle are not found. A position between I and J, but closer to the latter level, seems quite satisfactory for the present; as a relatively close date we may suggest the early part of the 12th dynasty or, more broadly, the beginning of the 2d millennium B.C.

Therefore, with regard to the dating of our Stage I we can say that it precedes Tombs 1101-2 Lower by a short length of time, since ceramically these tombs embody the next typological step as shown by the stratified evidence from Tell Beit Mirsim. The very reasons which prevented a complete synchronization of these tombs with Tell Beit Mirsim J prevent also their being strictly contemporary with our Stage I. However, in view of the strong Early Bronze character of the burials, we may consider that Stage I came to an end just before the tomb was used, that is, toward the end of the 3d millennium B.C.

#### THE EARLIER STAGES

With regard to the dating of the lower part of the stratified area (Stage VII) we are forced to be much less certain, but there are indica-

<sup>10</sup> *Ibid.* pp. 8 ff. and Pl. 3 (examples definitely assigned to I). The one folded specimen from J, now in the Department of Antiquities at Jerusalem, is indecisive as evidence of an earlier introduction.



tions from several sites in Egypt and the Mediterranean islands that a reciprocal cultural relationship with Palestine can be established. Since our evidence outside of the country has been classified chronologically, we can at least utilize what cultural ties there are, even if we cannot do more than approximate the dates.

In Figure 16<sup>11</sup> are illustrated some pottery and stone vessels from Egypt which have analogies in the material found in Stages VII to IV at Megiddo, but in adducing these there is no intention of calling them all native to predynastic Egypt. Therein lies a problem outside the scope of this paper. But as an indication that Palestine itself, or perhaps Palestine and Lower Egypt considered as a whole, had a strong civilizing influence in this early period, rather than that all innovations came from the valley of the Nile, we may call attention to jars *B* and *C* in Figure 16. These two vessels seem certainly to be foreign intruders into the gallery of ceramic types uncovered at Nakādah in Upper Egypt. At Megiddo they were common enough to be considered as natural and basic products of the country. The ledge handle also seems to come into that class which may possibly have had a Palestinian origin.

But such questions, for lack of essential evidence at the present time, can be put aside in favor of a more promising effort to correlate our Megiddo finds with objects found elsewhere. For this purpose it does not matter greatly from which source an object was derived, as long as one can be reasonably sure that the parent source was still

<sup>11</sup> Sources of the forms here given are:

- A. W. M. F. Petrie, *Corpus of Prehistoric Pottery and Palettes* (binder's title: *Prehistoric Egypt Corpus*; London, 1921) Pl. XXVIII 1.
- B. *Ibid.* Pl. XXVIII 2c.
- C. *Ibid.* Pl. XXVIII 2a (S.D. 52, 62), similar to Petrie, *Tombs of the Courtiers and Oxyrhynchos* (London, 1925) Pl. IV 9 (1st dyn.).
- D. Petrie, *Corpus . . . .*, Pl. XIX 85 a.
- E. *Ibid.* Pl. XIII 80.
- F. *Ibid.* Pl. XVIII 58a.
- G. *Ibid.* Pl. XVIII 58k.
- K. *Ibid.* Pl. XV 5a.
- H. Guy Brunton and Gertrude Caton-Thompson, *The Badarian Civilisation* (London, 1928) Pl. LI 14.
- L. *Ibid.* Pl. LI 12.
- J. Petrie, *Prehistoric Egypt* (London, 1920) Pl. XXXV 25.
- M. *Ibid.* Pl. XXXV 23.
- N. *Ibid.* Pl. XXXV 21.

living and exerting influence at the time of transmission. In view of the number of parallel forms found in Palestine and Egypt, we may be moderately assured that such was the case.

The "sequence dates" attributed to the Egyptian wares now assume significance. For Figure 16 those vessels which represented the latest occurrences of types discovered by Petrie and Brunton have been used. Necessarily, according to the point of view adopted, the inter-

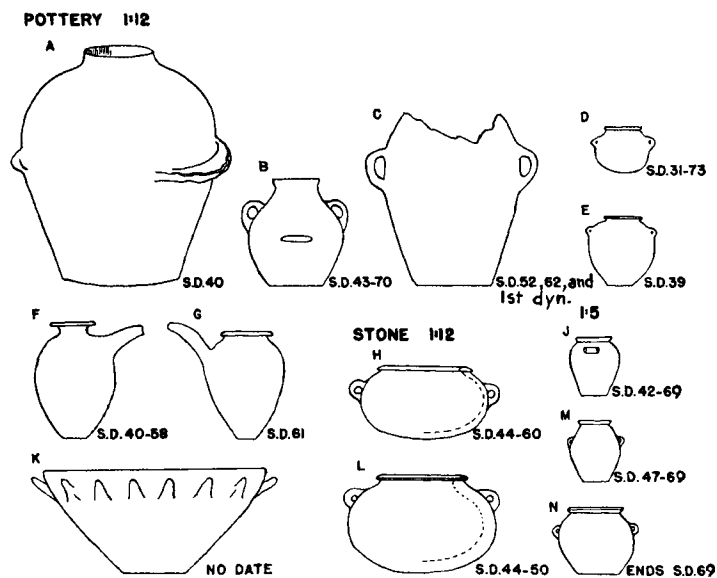


FIG. 16.—PREDYNASTIC POTTERY AND STONE VESSEL FORMS FROM EGYPT

relationship must have been manifested most strongly before the last sequence dates recorded. The corpus of Egyptian pottery has not yet been completely worked out, but S.D. 63 appears to mark a transition to the altogether different tradition of the late predynastic period. Some of the types shown in Figure 16 lasted beyond this point; several ended at about S.D. 69. The ledge-handled jar type (Fig. 16 A) is recorded at S.D. 40 only, but it had a wider existence.<sup>12</sup> All of these forms fall into, and are most typical of, the second Naḳādah civilization, which lasted roughly from S.D. 38 to 63. Within these limits the

<sup>12</sup> Frankfort (*Studies I* 105) states that large hole-mouth jars of this type (if we may assume that his "Corpus W 4" applies to "Corpus W 1," our Fig. 16 A), "known already at S.D. 40, are still found at S.D. 53, and more slender types with well articulated wavy-handles still occur commonly in the early sixties."

Megiddo material should find its place, with the upper limits of the Chalcolithic governed by the Sumerian early dynastic cylinder seal impressions.

It has been argued that these pottery types were retained in the Delta<sup>13</sup> after they had lost favor in Upper Egypt, from which district the sequence dates have been derived. On this point nothing definite can be said; we must wait for the proof. On purely theoretical grounds, however, it is not likely that there was a great lapse of time between the end limits of this culture in the Delta and in Upper Egypt. Nor will it matter particularly until we have some information from the Delta. What is important is that we are thrown well back into the 4th millennium, on whatever chronology we pin our current faith.

Significant as is the array of predynastic pottery and stone forms in the derivation of a date for the earliest pottery-bearing stratum at Megiddo, we are not dependent on it alone. Our bowl type 17 can be traced to Neolithic times in Malta, as far as fabric and style of burnished finish are concerned, and in both form and finish is represented in Middle Neolithic Crete and Neolithic Rhodes.<sup>14</sup> As Minoan chronology is based largely on equations with Egypt, we are again thrown back on predynastic times when we consider the matter of dating, for by the previous argument we assume that the distinctive gray burnished wares were transmitted before the parent source passed out of existence.

This fabric has not been found before in Palestine,<sup>15</sup> although Père

<sup>13</sup> See Albright in *AASOR* XII 2, which includes a résumé of the entire ledge-handle controversy.

<sup>14</sup> Maltese specimens are illustrated in *Syria* XI (1930) 343-59, where Miss E. de Manneville reports on "Le sanctuaire de Hal Tarxien à Malte." The museum in Valetta, Malta, and the Louvre have specimens that are astonishingly like some from Megiddo. The Rhodian vessels are from Calimno, now in the Rhodes Museum (not published). J. D. S. Pendlebury, excavating at Knossos, is authority for the identification of some of the wares and shapes of Crete and Megiddo. See also Sir Arthur Evans, *The Palace of Minos* I (London, 1921) 37, Fig. 5, for an example of Middle Neolithic gray burnished rippled ware, some specimens of which have been found at Megiddo. Cf. sherds from Knossos in the Ashmolean Museum.

<sup>15</sup> Except at Tell Abu Zereik, a few miles north of Megiddo in the Plain of Esdraelon, where P. L. O. Guy picked up a few sherds. Small tells of this type, of which there are many scattered throughout the country, should be investigated, for it is not impossible that they contain deposits which will carry our Chalcolithic sequence still farther back.

Mallon has found pieces at Tell Munteh and Tell Handakuk in the Wadi ez-Zerkā, Transjordania. In the "Neolithic" case at the museum of the American University of Beirut there is also a specimen sherd of exactly the same character as the wares from Megiddo; the collection of fragments in this case was made up to illustrate the variety of types in the lowest levels of Byblos. There are still other sherds of this fabric in the Ashmolean Museum, picked out of the sea cliff at Byblos by Woolley.

Our interest in these gray burnished pieces follows from the fact that we cannot well avoid a 4th millennium date for them, for the burnishing technique had been replaced by the time the deposit under the Byblos temple was laid down. Dunand's recent excavations under the temple area have yielded none of this ware; and as his finds there include an object bearing a royal name of the second Thinite dynasty,<sup>16</sup> we may consider that any earlier strata must be dated around 3000 B.C. or before. As to the Byblos gray burnished ware, which was not found in this lower level, 3500 B.C. or thereabouts seems a fairly good tentative date. When, on the other hand, we consider the predynastic correlatives as found in Palestine and Syria, as well as the Middle Neolithic wares of Crete, we may feel that such a date is not too distant from reality. A great deal depends, of course, on the ultimate adjustment of Old Kingdom dates.

Whatever source<sup>17</sup> comes to be regarded as having had the greater

<sup>16</sup> Montet in *Syria* X (1929) 15.

<sup>17</sup> It is possible that the high loop handle of type 24 was derived from Asia Minor, inasmuch as it is known there from early deposits and was characteristic until well into the historic period. A basic feeling for the form in Asia Minor is implied. Henri de Genouillac, *Céramique cappadoçienne* I (Paris, 1926) 13, illustrates many specimens, his Figs. 34 and 35 being from the Troad, with an analogous form, his Fig. 36, coming from Thessaly. Gjerstad's "red polished II" type also seems to show a great dependence on these mainland forms (*Studies on Prehistoric Cyprus* [Uppsala, 1926] p. 96, No. 3). Dunand has found in his Aeneolithic at Byblos quite a number of jugs (soon to be published) which remind one strongly of the Megiddo form. The only great difference is in the ware, but such a difference is never a serious consideration when looked at negatively. Form, after all, is of primary importance, and in this the vessels from the two sites are almost identical. The Egyptian vessels with high loop handle of similar type (Petrie, *Prehistoric Egypt Corpus*, Pl. LI 70; Brunton, *Badarian Civilisation*, Pl. XLVI 12 and Pl. XLVII 2) seem much too large in conception to have a direct relationship with the Palestinian form.

influence on Palestine and Syria in connection with the introduction of the gray burnished ware—it came from the north at any rate—there is found at Megiddo just the kind of assimilation one could expect from the confluence of two modes of thought, the overlapping of the northern Neolithic on the predynastic Palestinian. This manifests itself in the adoption of the form, fabric, and vigorous burnishing of the carinated bowls, with a number of local features retained. This seems to be a legitimate explanation of the semblances of ledge handles and rope designs that sometimes occur (type 17 *C*). Other bowls of

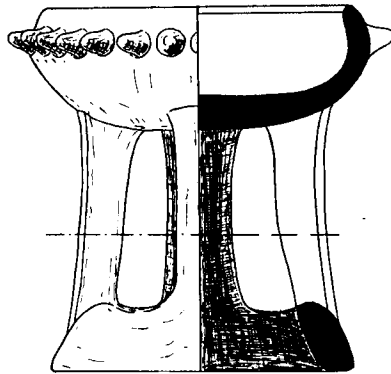


FIG. 17.—BASALT BOWL M 3647. SCALE, 1:5

this class of ware are completely encircled at the rim by a single row of conoid projections (Fig. 6, type 18 *A*, and chart, col. 18), thus differing from all of our possible ceramic parallels except for a few bowls from Egypt (see Fig. 16 *K*) where the knobs are placed similarly and greatly resemble those from Megiddo.<sup>18</sup> That these knobbed bowls were derived from stone prototypes is possible since the excavation of Megiddo has produced a similar form in basalt (Fig. 17) from an early deposit.

The matter of color will always be a hazardous and difficult point, owing to the danger of subjective treatment. However, with whole groups of pottery before one, it is possible to observe characteristic differences. After seeing the products of the seven stages at Megiddo,

<sup>18</sup> After Petrie, *op. cit.* Pl. XV 5a. Miss G. Caton-Thompson illustrates a rim sherd of the same type from Badari in *Ancient Egypt*, 1928, p. 86.

Père Vincent seemed to have strengthened his belief that the use of dark red hematite paint revolved about Asia Minor. This would be interesting, for the spouted vessels of type 23 are frequently coated with this dense, dark coloring, which gives them an extremely cold feeling. As far as it can be proved, this would be another form taken by the mingling of the northern and Palestinian (or Egypto-Palestinian) spheres.

When considering the group as a whole, however, it is apparent that a strong native influence was predominant in the Chalcolithic strata. It is really only the gray burnished fabrics of types 17 and 18 that are out of harmony, and, as noted in the description of pottery types (pp. 17 ff.), some of these took on reddish brown washes and high red polish in the period between Stages VI and IV. Viewed in this manner the minority was partially absorbed and naturalized, with the result that in Stage IV the Chalcolithic ensemble presented more of a unity than it had in Stage VII. There came at this time, of course, the influx of ideas that has influenced us in making a division into Chalcolithic and Early Bronze, which brings us to the final point regarding dates.

Assigning actual years to the beginning of Stage IV must remain largely a matter for future excavation, but within certain limits a place in time may be attached to it. Were it not for the cylinder seal impressions found in Stage V, one would be reduced to the ineffectual observation that Stage IV holds a more or less midway position between Middle Bronze and Stage VII. Little more could be done without striving for revelations in the meterage of débris, for few foreign correlations are yet recognizable in the new conceptions evident in Stage IV, except for the Byblos material to be published by Dunand.<sup>19</sup>

<sup>19</sup> Aside from the Byblos parallels already cited it will be well to gather together in this note a few more similarities that will be of ultimate significance in the correlation of the two sites. We have seen that it was the sea cliff at Byblos that yielded to Woolley the ledge handles and gray burnished wares. The excavation of the temple area showed neither of these products, but from the Early Bronze deposits Dunand has gathered three types of pottery directly comparable to those from Early Bronze Megiddo. They are: 1. Pithoi of type 16 A, same color of ware, incised decoration on shoulder, flanged rim. Great numbers of these were found at Byblos. They belong toward the end of the Early Bronze period. 2. Combed ware, similar to Fig. 8 A-C. Same context as the pithoi. 3. Metallic ware bowls of type 22 A, with crisscross burnishing. Found in the Middle and also toward the end of Early Bronze.

But there are imbedded in the Stage V animal impressions a number of implications which necessarily affect the following stratum, in view of the many characteristics which are shared by both IV and V and which consequently tend to link them together.

It may be said with a reasonable degree of assurance that the type of seal which was cut with rows of animals in flat relief was characteristic of the Jemdet Nasr period and present in the early dynastic period which followed in Sumer.<sup>20</sup> The evidence of the other Megiddo seal impressions seems to define the time still more closely to the early part of the early dynastic phase. Therefore, if our analysis is correct and can withstand the accumulation of further material—for we may expect other Palestinian seal impressions and perhaps altogether different Sumerian objects to be found—then Stage IV could be placed in the earlier part of the 3d millennium. Recent opinion in general tends to place the beginning of the early dynastic period around 3000–2900 B.C.

For deriving a date from the Egyptian side we have seen that close comparisons are not yet possible. However, on the basis of broad correlations between Sumer and Egypt, it would seem that Stage IV was more or less equivalent to the 1st Thinite dynasty. It seems imperative on the strength of internal Egyptian evidence, aside from the necessity of recognizing the relationship between Egypt and Sumer, to lower the absolute dates of the Old Kingdom.

<sup>20</sup> Frankfort in *SAOC* No. 4, p. 15.

## APPENDIX I

## POTTERY TYPES LATER THAN STAGE I

We have seen that Stage I preserved to the end the unity of the culture pattern begun in Stage IV. We may even doubt whether it was subjected to any major "new" influences. With Tombs 1101-2 Lower, however, it becomes clear that a transition was under way, although strongly based on the Early Bronze tradition. The apparently great increase in the use of copper (cf. Fig. 15) and the presence of the toggle pin (cf. pp. 75-77) are both important symptoms. It will now be worth while to consider a group of pottery which illustrates dynamic changes that were soon to submerge completely all that remained of the 3d millennium order of things. At the same time we shall have surveyed each progressive step leading up to the establishment of the Hyksos type of culture at Megiddo.

The vessels in Figures 18-19 are all from rock-cut shaft tombs of the well known Palestinian type which appears to have come into use some time after the deposition of Tombs 1101-2 Lower (Fig. 14). Their descriptions are as follows:

FIGURE 18

Object	Field No.	Tomb	Description
<i>A</i>	P 2994	877 A 2	Jug, handmade, brown ocher ware, light red wash outside and over rim, no handle
<i>B</i>	P 2993	877 A 2	Like <i>A</i>
<i>C</i>	P 2941	877 A 2	Jug, handmade, brown ocher ware, light red wash outside and over rim, ribbon handle
<i>D</i>	P 2939	877 A 2	Like <i>C</i>
<i>E</i>	P 2929	877 A 2	Like <i>C</i>
<i>F</i>	P 3598	891 A	Jug, naples yellow ware, darker core, handle with round cross-section
<i>G</i>	P 3599	891 A	Like <i>F</i>
<i>H</i>	P 3350	878 A	Like <i>F</i>



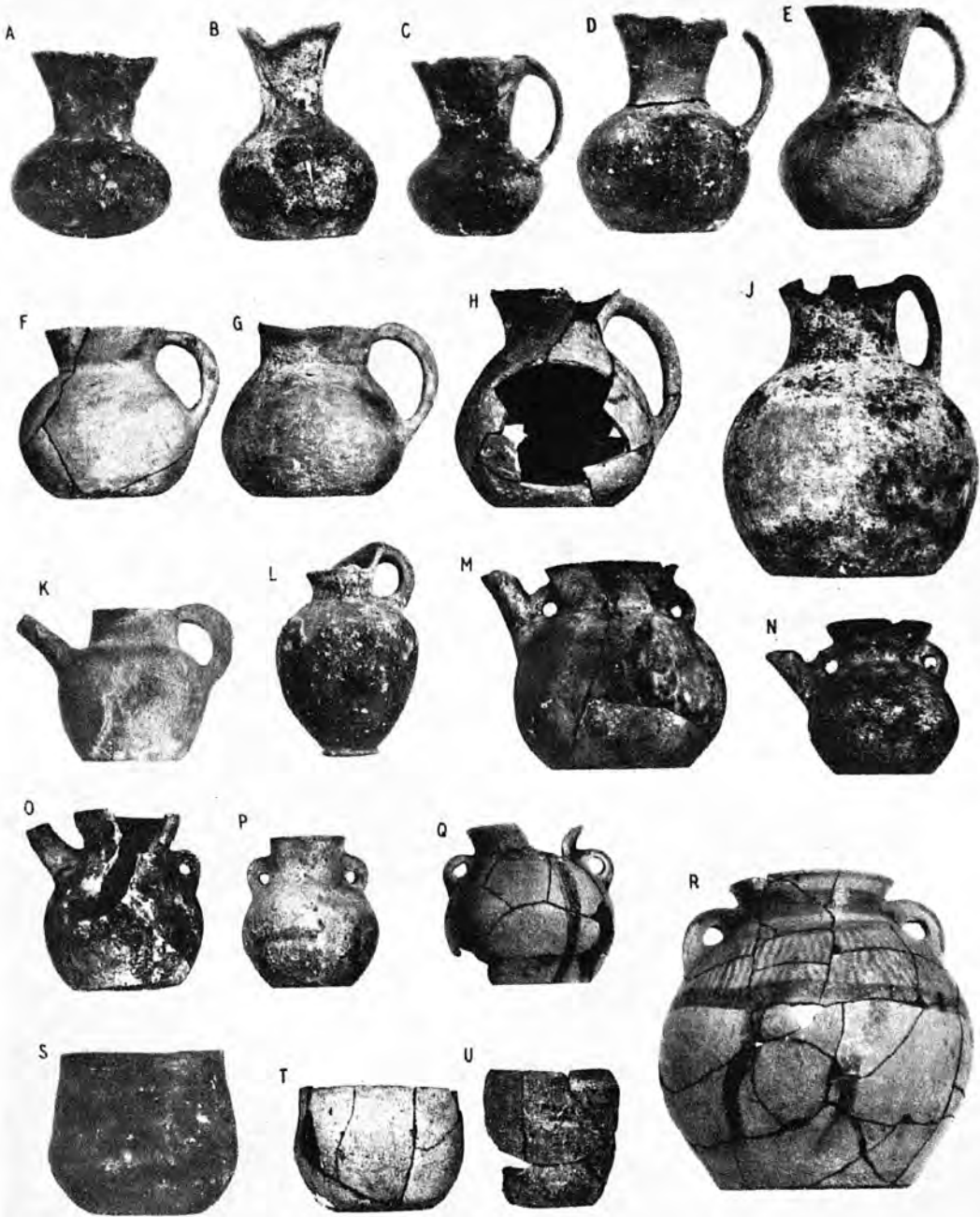


FIG. 18.—MEGIDDO POTTERY FROM SHAFT TOMBS CORRESPONDING IN DATE TO THE LATTER PART OF THE 12TH DYNASTY IN EGYPT. SCALE, 1:5

Object	Field No.	Tomb	Description
<i>J</i>	P 3459	912 A 2	Jug, handmade, naples yellow ware, darker core, strap handle, trefoil spot
<i>K</i>	P 3972	1120 E	"Teapot," handmade, naples yellow ware, handle with triangular cross-section
<i>L</i>	P 3612	1014 B	Jug, wheelmade, brown ocher ware, traces of light red wash and vertical burnishing, squeezed lip
<i>M</i>	P 3328	878 A	"Teapot," handmade, burnt umber ware, lug handles of type 25 A
<i>N</i>	P 2967	877 C 2	Like <i>M</i>
<i>O</i>	P 3602	891 A	"Teapot," handmade, brown ocher ware, light red wash outside and over rim, one lug handle of type 25 A
<i>P</i>	P 3967	1120 A	Jar, handmade, brown ocher ware, lug handles of type 25 A
<i>Q</i>	P 4042	1098	Jar, handmade, brown ocher ware, dark red decoration, lug handles of type 25 A
<i>R</i>	P 4037	1098	Jar, handmade, brown ocher ware, darker core, Indian red decoration, incised rope pattern on neck, lug handles of type 25 A
<i>S</i>	P 3611	1014 B	Bowl, wheelmade, brown ocher ware
<i>T</i>	P 3333	878 A	Bowl, handmade, naples yellow ware
<i>U</i>	P 3348	878 shaft	Cup, handmade, brown ocher ware, heavy cream bands, blackened by fire at lip, Ghassül IV type of ware and paint

## FIGURE 19

<i>A</i>	P 2928	877 A 2	Jar, handmade, greenish yellow hard ware, well fired, folded ledge handle of type 14 A
<i>B</i>	P 4043	1098 A	Jar, handmade, naples yellow ware, light red decoration, incised rope pattern on neck, folded ledge handle of type 14 A
<i>C</i>	P 4041	1098 A	Jar, handmade, greenish yellow hard ware, well fired, no handle

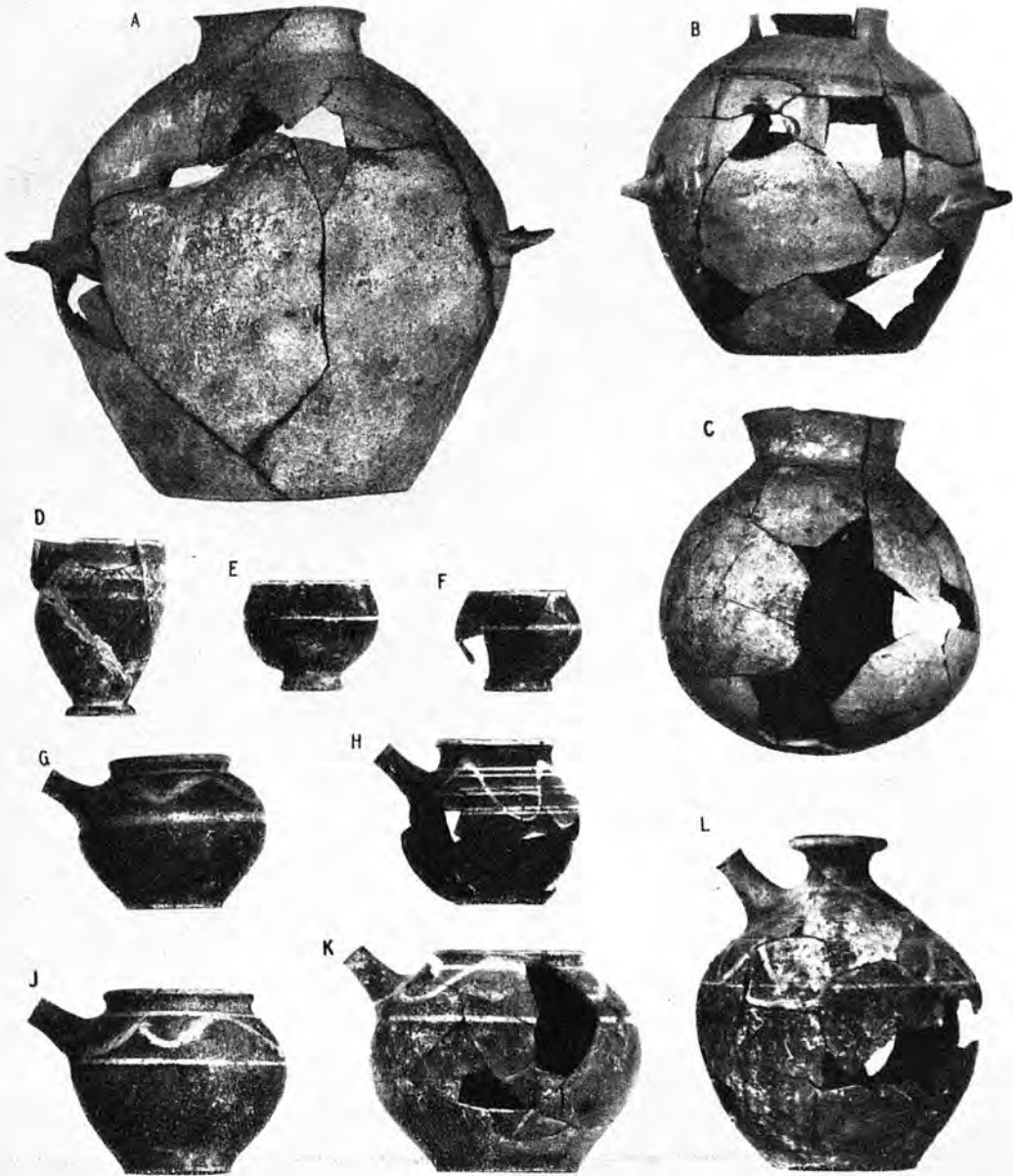


FIG. 19.—MEGIDDO POTTERY FROM SHAFT TOMBS CORRESPONDING IN DATE TO THE LATTER PART OF THE 12TH DYNASTY IN EGYPT. SCALE, 1:5

Object	Field No.	Tomb	Description
<i>D</i>	P 3968	1120 B	Cup, wheelmade, blue-black ware, reddish core, well fired, decorated with zigzag pattern made by scraping off naples yellow <i>appliqué</i> band before firing
<i>E</i>	P 2988	877 A 2	Cup, wheelmade, blue-black ware, reddish core, well fired, naples yellow band decoration
<i>F</i>	P 2989	877 A 2	Like <i>E</i>
<i>G</i>	P 2990	877 A 2	"Teapot," wheelmade, blue-black ware, reddish core, well fired, naples yellow band decoration, spouts cut square with knife before firing
<i>H</i>	P 3608	1014 A	Like <i>G</i>
<i>J</i>	P 2940	877 A 2	Like <i>G</i>
<i>K</i>	P 3548	912 A 2	Like <i>G</i>
<i>L</i>	801 <sup>1</sup>	41	Like <i>G</i>

There is no stratigraphic proof that the shaft tombs are later than Tombs 1101-2 Lower, but an analysis of the specimens found in them leaves no doubt that such is the case. Furthermore, they have much in common with Strata I and the composite I-H at Tell Beit Mirsim, but no link at all with Tell Beit Mirsim J; for, aside from the lug- and folded-ledge-handle specimens of Figures 18-19, straight band-combing frequently occurs.<sup>2</sup> There may also be some doubt as to whether all of the shaft tombs are contemporary with one another; but if each small tomb group of pottery is compared with the others, a strong common link among all of them becomes evident. There is, furthermore, not one piece that would be at home in Stage I, nor any one group that would fit in with the pottery of Tombs 1101-2 Lower. Were one to arrange the shaft tombs analytically in order of age, Tomb 1098 would be regarded as closest to Tombs 1101-2 Lower and Tomb 1014 as farthest away. Yet there is little to choose among them, since they all illustrate the modifying influences which affected Palestine in the first part of the Middle Bronze Age.

Although we have now passed definitely from the Early Bronze to

<sup>1</sup> Now in Palestine Museum, Jerusalem.

<sup>2</sup> Albright in *AASOR* XII, Pls. 3-5. Band-combing was not evident in J.

the Middle Bronze period, it is quite evident that certain ceramic traits inherent in the earlier period were not easily submerged. Not only at Megiddo but at Tell Beit Mirsim<sup>3</sup> and Jericho<sup>4</sup> is this important cultural point well established. Particularly noticeable is the flat base found in the majority of the vessels; the ring base was yet to be conceived. Other characteristics are the streaky paint application of Figure 18 *Q* and *R* and Figure 19 *B* and of course the folded ledge handles themselves, which can only be considered as the final ramification of Chalcolithic and Early Bronze prototypes.

Together with these early features, however, new principles are abundant and even predominant: the ribbon handles of Figure 18 *C-E*, which occur with high-necked vessels; the trefoil spout of Figure 18 *J*; the squeezed lip, high shoulder, and broad buttonlike base of Figure 18 *L*; band-combing (not illustrated) on the same type of vessels as Figure 18 *M* and *N*; the Ghassūl IV type of ware and decoration in Figure 18 *U*; and, most interesting from an artistic viewpoint, the white-on-black vessels of Figure 19 *D-L*. Not all of these examples, however, embody elements that carried on directly into the time of the Hyksos;<sup>5</sup> all except the trefoil-spouted and button-based vessels must rather be considered peculiar to the period of transition.

The light-on-dark vessels present an interesting problem in themselves, since the possible foreign parallels all lie to the north of Palestine. From the deposits of Mishrifé (ancient Qatna), Tell Ada, and Dnébi, in North Syria, excavated by Du Buisson, there came a group of vessels<sup>6</sup> which recall the Megiddo "teapot" and cup types in so many respects that we cannot avoid connecting them. To begin with, the shapes of some of the "teapots" and goblets are identical; but aside from this very important consideration there is a set of details held in common by both groups which seem to settle the point beyond dispute: the solid bases of the cups; the splayed bases of the tall

<sup>3</sup> *AASOR* XII, Pl. 4 (I-H level).

<sup>4</sup> Garstang in *Annals of Archaeology and Anthropology* XIX (1932) Pls. II-VIII and XXVII-XXVIII (Tomb A).

<sup>5</sup> By which is meant here the time when the Tell el-Yahudiyeh jug appeared in numbers.

<sup>6</sup> *Syria* XI (1930) Pls. XXXI-XXXV and p. 161, Fig. 6, No. 1. Mlle E. de Manneville very graciously dug out the specimens kept at the Louvre, which of course illustrate the similarities better than drawings or photographs could do.

goblets; the absence of handles, together with the type and position of the spout; the same type of gutter running around the inside of the "teapot" rims; the concave profile of the bases of the "teapots"; identical wheel markings on a ware which is thin and metallic; the red core. There is no exact counterpart for the Megiddo decoration, but there is a white-on-black application of close parallel lines in some cases. Some of the Mishrifé vessels occur in a white ware also, which of course cannot be compared with the fabric found at Megiddo. And, unlike the Megiddo specimens, none of the Syrian spouts was cut with a knife, but all were finger-molded at the extremity.

Nevertheless there is abundant incentive from Du Buisson's excavations for us to look to the north for the center of origin of this very interesting pottery group. The matter of dating the Syrian deposits is a disturbing factor, however, although definitely minor in view of the strong parallelism of the vessels of the two regions. Should one follow Du Buisson, one would certainly say that the influence came from north of Palestine, since some of his "teapots" and goblets were found beneath the Sumerian temple of Ninegal, which is considered to have been built about 2200 B.C.<sup>7</sup> Tomb 4 at Mishrifé, which contained the "teapot" as well as varying forms of the goblet, was considered contemporary with the tomb at Tell Ada and dated about 2400-2600 B.C.

There is, on the other hand, the opinion of M. Dussaud, which dates Tomb IV rather toward 1700 B.C. and the buildings visible on the Butte de l'Église to not much earlier than 1550 B.C.<sup>8</sup> According to this point of view Megiddo would have to be regarded as being near the source of dispersal, were it a clear case of diffusion. Obviously this difficulty must be overcome, not only for the sake of proportion but because of the highly suggestive character of the vessels from Syria.

Tell Khan Sheikhun and Tell As, likewise in the Aleppo district, have yielded great numbers of tall goblets comparable in form to and approaching the decoration of Figure 19 D.<sup>9</sup> While noting the similarities to the vases from Dnébi and Mishrifé, Du Buisson, interestingly

<sup>7</sup> *Ibid.* p. 157, from evidence of cuneiform tablets showing influence of the 3d dynasty of Ur.

<sup>8</sup> *Syria* XII (1931) 89.

<sup>9</sup> Du Buisson in *ibid.* XIII (1932) Pls. XXXVI and XXXIX and pp. 177-78.

enough, applies a late 3d or early 2d millennium date to the group in general. Since this type of ceramic is with little doubt a North Syrian product, the time element is much more favorable for a transmission from north to south to agree with our present dating for the shaft tombs.

Byblos too has contributed from its late Early Bronze deposits quite a few decorated sherds of "teapot" fabric which are much closer to the Megiddo light-on-dark wares. This suggests at least that we may have to deal with an area very much larger than the Aleppo district, and perhaps even look to the coast for the direct precursor of the Megiddo vessels which are characterized particularly by light decoration on a dark ground. Should this be the case, as the Byblos pieces intimate, it would not be improbable that the highly developed patterns on the Early Minoan III and Middle Minoan *Ia* light-on-dark wares of Crete<sup>10</sup> had exerted an artistic influence in a superficial way. The Minoan vessels are at best not more than remotely related, since form, type of beaked spout, presence of handles, and manner of painting prohibit comparison. Yet the light-on-dark conception itself, utilizing a framework of horizontal bands to restrict the curvilinear field, may be significant in spite of the greater play of motives in Crete. It seems also worth noting that the Minoan light-on-dark wares are peculiar to the eastern rather than the central part of the island, being found abundantly at Mochlos, Gournia, and the Kamares cave.<sup>11</sup>

On the present evidence, which of course does not draw from stratified deposits, it is conceded that the "teapot" wares of Megiddo were imported rather than that they were indigenous products, because neither before nor after the time of the tombs in question is there any indication that the light-on-dark vessels were steps in a normal ceramic development. They seem to thrust themselves into an otherwise orderly sphere of Early Bronze decline and Middle Bronze development as entirely unrelated pieces, and then only for a short time. It seems possible that to a yet undefined Syrian element, embodying certainly the basic principles of the Mishrifé and Sheikhun shapes and perhaps the Early Minoan III and Middle Minoan *Ia* decoration,

<sup>10</sup> Evans, *Palace of Minos* I 108 ff. and 164.

<sup>11</sup> *Ibid.* p. 108 and Figs. 76 and 77b.

can be attributed the introduction of the new ceramic conception to Megiddo and, one would suppose, to Palestine in large part. The fact that this ware has not been found west of Aleppo—at Ras Shamra, for instance—has no present bearing on the matter, since Schaeffer's lower (second) stratum is not necessarily older than the middle of the Egyptian 12th dynasty and the pottery is more particularly akin to the late Middle Bronze forms of Syria and Palestine.<sup>12</sup>

It is not inconceivable historically, in view of the Hyksos incursion that was soon to follow, that Syria, at the beginning of the Middle Bronze period, was politically a region anticipating vast expansion to the south. One cannot yet speak of the observed innovations as being due to Hyksos influence, but one is aware that the new influences revealed in the shaft tomb products effect an interlude or perhaps a prelude to the full Hyksos conquest of Palestine.

Closer to certain of the ceramic conceptions that first came into general use with the Hyksos is the principle of the pinched and squeezed spout (Fig. 18 *J* and *L*), as well as that of the developed buttonlike base (Fig. 18 *L*). The Early Bronze tradition never developed the mouth of the vessel to make pouring a safer procedure, nor, in the early period, did the bases of the vessels progress beyond a utilitarian flatness. The jug in Figure 18 *J* is an excellent example of the combination of old and new, for its trefoil spout has nothing in common with the Early Bronze type of body. But most expressive of the trend of the times is the jug in Figure 18 *L*. Its broad, buttonlike base, high shoulder, and squeezed rim compare favorably with numerous Late Hyksos vessels<sup>13</sup> as well as with earlier vases that came from the 12th dynasty sarcophagus chamber at Byblos<sup>14</sup> and were associated with good Middle Bronze pottery forms.

It is clear that we cannot presume a definite break between the Early and Middle Bronze ages, but must recognize a period of overlap in pottery forms, and therefore influences, before the complete establish-

<sup>12</sup> See Schaeffer in *Syria* XIII 20 for a discussion of the statuette of Khnumet-Nofer(et)-Hedjet, wife of Sesostris II; *ibid.* Pls. XI–XII and Fig. 12 for Hyksos type scarabs and pottery.

<sup>13</sup> Found in Tomb 1100.

<sup>14</sup> See C. Viroilleaud in *Syria* III (1922) 273–90, esp. Fig. 2 and Pl. LXIII 1 and 3 (period of Amenemhet III).



ment of the Hyksos type of culture. This is not a phenomenon peculiar to Megiddo alone, but is evident at Jericho, Tell Beit Mirsim, and other sites as well. The cumulative effect of the evidence from the shaft tombs is that in the early years of the 2d millennium Palestine was being affected by vigorous influences which appear to be related to the new type of culture that was to be imposed upon the country.

In using the terms Chalcolithic and Early Bronze one is admittedly following convention, for, strictly speaking, Chalcolithic is a rank misnomer as far as this paper is concerned, since no metal of any sort was found or indicated before Stage IV. There can consequently be no objection to calling the earlier period Aëneolithic if future excavation over larger areas shows that culturally both terms are inapplicable.<sup>15</sup> As a further instance of ambiguous terminology, we have noted that no bronze has come from the Early Bronze deposits of Megiddo, and very little from Palestine in general. Yet since the term is so universally regarded as belonging to the stage of civilization preceding the Middle Bronze period, which, moreover, is fairly well delineated in Palestine, we shall do well to concede the point and maintain the old terminological usage.

It seems important, however, to stress the fact that only with the tombs of early 12th dynasty date (see Fig. 15), that is, in the early Middle Bronze period, do metal implements and weapons appear in quantity at Megiddo as well as over the whole of Palestine, and then in shapes that have definitely departed from earlier bone or wood prototypes. During this period the possibilities of smelting the ore seem to have been appreciated for the first time. In this we find agreement with neighboring Egypt and Syria, for with them too this progressive step, using bronze, occurred in the 12th dynasty.<sup>16</sup>

<sup>15</sup> "Chalcolithic" being at all events only a conventional term, "Aëneolithic" may be used in the same way; as a name of convenience it does not matter in the least whether the term is philologically perfect or not. It seems certain, however, that we shall never be able to call such a period "Neolithic" without the grossest contortion of meaning. "Neolithic" should be reserved exclusively for the culture of the Late Stone Age, and whether a characteristic "Neolithic period" ever existed in the cultural development of Palestine can still be questioned. The fact that Miss Garrod seems ready to connect the Megiddo Chalcolithic (or Aëneolithic) with her Upper Natufian suggests that she does not admit of an intermediate "Neolithic period."

<sup>16</sup> Cf. Frankfort, *Studies* II 149 f.

But it is not only the mass appearance of copper that is significant of the earlier Megiddo group. The toggle pin is another important indicator of the direction taken by the new influence; for, quite regardless of whether we call the toggle pin something typically Hyksos or not, we are obliged to look to the north for its source. In the strict sense the Hyksos cannot possibly here be concerned, but it is important to recognize that there exists in this type of pin another cultural element that reached its height only with the full Hyksos occu-



FIG. 20.—COPPER PINS FROM MEGIDDO CORRESPONDING IN DATE TO THE LATTER PART OF THE 12TH DYNASTY IN EGYPT. SCALE, 2:3

pation of the country. The copper pieces in Figure 20 also occurred in deposits that were definitely pre-Hyksos, being found in shaft tombs together with the types of vessels illustrated in Figures 18 and 19.<sup>17</sup>

Hubert has indicated strongly that certain of the bronze types that came into Syria in the 12th dynasty had a Caucasian origin.<sup>18</sup> Among these was the toggle pin (Figs. 15 and 20 A and B). More recently Frankfort has developed the subject,<sup>19</sup> showing by the geographic distribution of a number of bronze types which cannot be explained

<sup>17</sup> Fig. 20 A and B were in Tomb 1014 B, together with Fig. 18 L and S. Fig. 20 C occurred in Tomb 884 A with vessels of types C, D, E, M, and N in Fig. 18 and A in Fig. 19. The government analyst, Mr. G. W. Baker, found these pins to be of metallic copper.

<sup>18</sup> *Syria* VI (1925) 16-29.

<sup>19</sup> *SAOC* No. 4, pp. 52-57 and Table I.

by independent invention that the Caucasus was in all probability the great metal-trading center of the Near East before the early dynastic period of Sumer. It is extremely interesting to note that another of these forms found at Megiddo, the eyelet pin with a turned-over end (Fig. 20 C), seems to have originated in the same general Caucasian region. The transmission of cultural elements has undoubtedly always been more complex than archeology can reveal, but certainly there is indication here that the direction of movement could only have been from the north. With the Caspian-Black Sea area considered as the territory of origin, it is comprehensible that Sumer in the early dynastic period<sup>20</sup> and Anatolia in the middle of the 3d millennium<sup>21</sup> possessed, among others, the toggle pin and the turned-over eyelet pin, which reached Syria, Palestine, and Egypt only during the period of the Middle Kingdom. These forms and the other implements of the early 12th dynasty period (Fig. 15), together with the new ceramic types we have already noticed, form a body of evidence indicating that a northern influence, perhaps by a trading medium but allied to the Hyksos type of culture, was permeating the country in advance of the true Hyksos period.

<sup>20</sup> Frankfort, *ibid.* Fig. 7.

<sup>21</sup> Schmidt, *OIP* XIX, Figs. 67 and 69 (Alishar stratum I).

APPENDIX II

NOTES ON THE FLINT IMPLEMENTS

DOROTHY A. E. GARROD

STAGE III (FIG. 21)

The number of flints from this level is very small, and only three are of interest. Figure 21 *A* is a sickle blade of light gray chert, with both ends broken off. Both edges are finely denticulated and highly

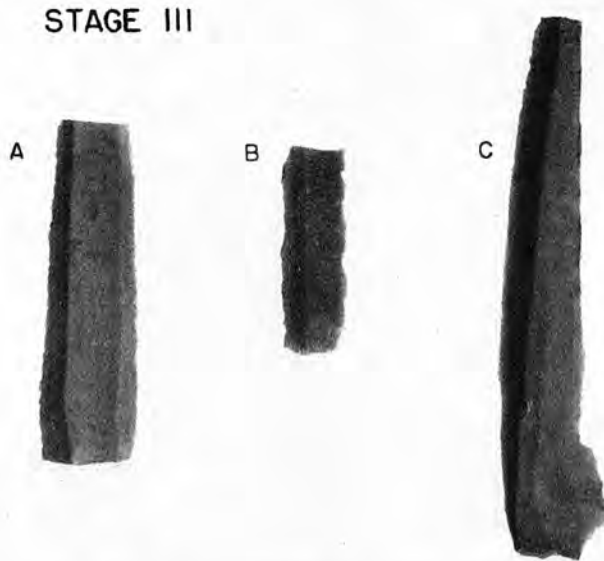


FIG. 21.—MEGIDDO FLINTS. STAGE III. SCALE, 2:3

lustrous, but one shows more signs of use than the other. Figure 21 *B* is a sickle blade of dark gray chert. The back is blunted by retouch from the upper face, and one end is squared in the same way; the other end is broken off. Figure 21 *C* is a slender blade of light buff chert, with prepared striking-platform. Both edges show slight signs of use.

Inventory: Sickle blades, 3; utilized blades, 3.

## STAGE IV (FIG. 22)

Flints are relatively abundant in this stage, but the industry as a whole is singularly uninteresting. The materials used are buff chert (of which there are at least two varieties, one fine-grained and the other much coarser) and a flint of poor quality, either gray or dark brown in color. It is clear that chert was obtainable in much larger nodules than flint, as all the bigger implements are made from it, the most noteworthy being a series of long narrow blades which must have been struck from a core at least 150 mm. in length.

The implements can be classified as follows:

1. *Sickle blades*.—The great majority of these are made of chert and are simply lengths of blade, broken off square at both ends. Only three have the back worked, two being blunted by the ordinary *dos rabattu* method and one worked to a blunt edge by pressure-flaking from both surfaces—a method particularly characteristic of the Lower Natufian, but not uncommon in the Bronze Age. Only three have the cutting edge deeply denticulated; the remainder are either slightly chipped by use, or have a very fine saw edge. All cutting edges show the luster peculiar to sickle blades, though in many cases it is only incipient. It is rather interesting to note that a number of the specimens which are not retouched on the back show signs of use on both edges, although use is invariably much more marked on one than on the other. This suggests that the blade was reversed in the sickle haft when the cutting edge became too blunt to be serviceable.

The proportions of the blades vary considerably, but the greater number are roughly twice as long as they are wide, the average width being about 15 mm. Figure 22 *H* is made of coarse-grained, honey-colored chert. Both ends are broken off square, and both edges are lustrous and nibbled by use. Figure 22 *J* is of brown flint; one end is trimmed, the other broken off square; the back is blunted by the *dos rabattu* method. The denticulated edge is highly lustrous. Figure 22 *K* is of dark brown chert. Both ends are broken off square. One edge is slightly denticulated and the other nibbled and blunted by use; both are slightly lustrous. Figure 22 *L* is of deep brown flint. Both ends are broken off, and one is slightly retouched. The back has a minute nibbling retouch on the bulbar face down half its length. The denticulated edge is slightly lustrous.

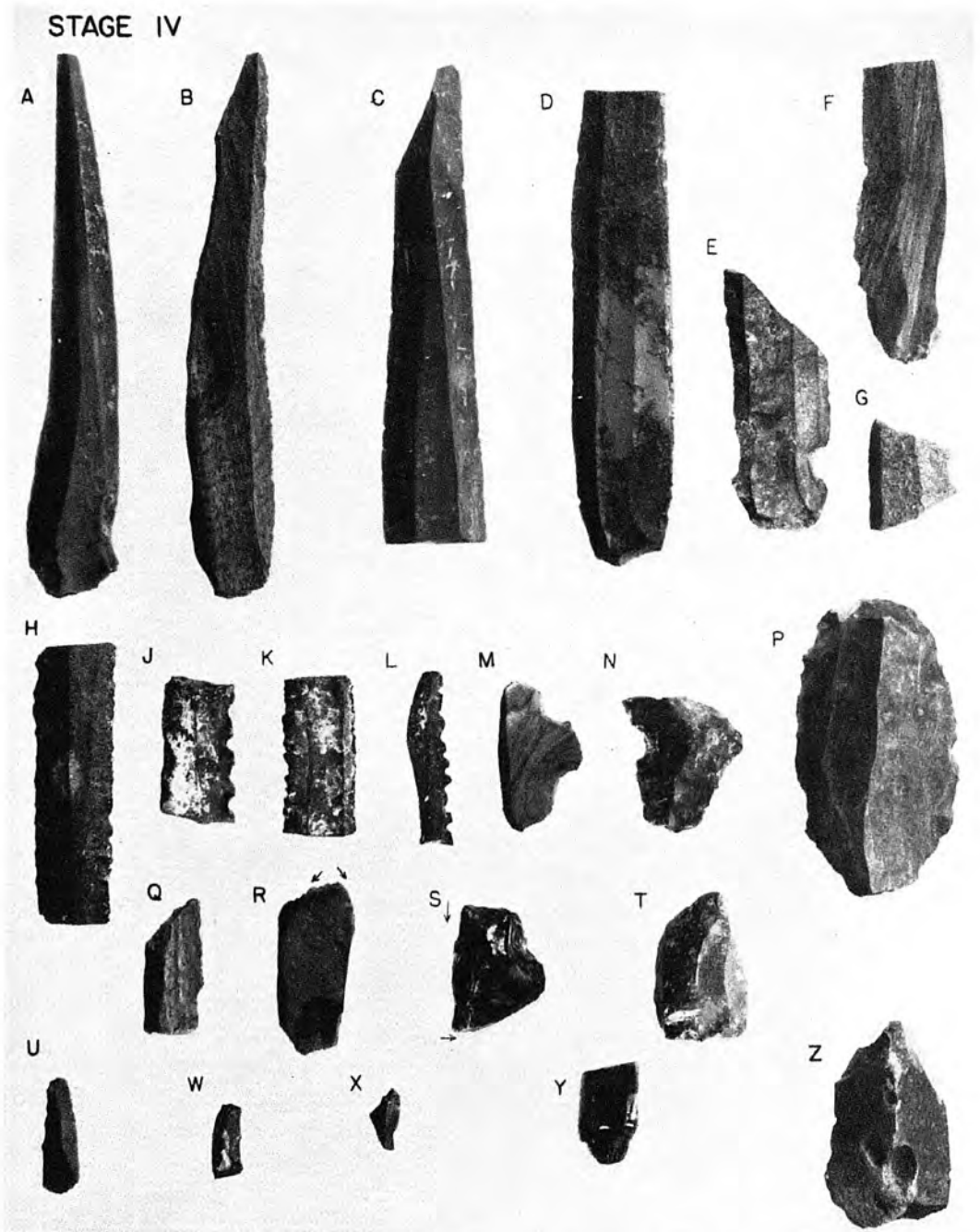


FIG. 22.—MEGIDDO FLINTS. STAGE IV. SCALE, 2:3

2. *Borers*.—This is neither a typical nor a well made group; the majority are mere *ouils de fortune*—flakes or chips of convenient shape slightly trimmed to make a borer, or utilized as such without special preparation.

3. *Notched flakes*.—A small number of flakes and fragments have one or more notches chipped in their edges. These appear to be placed more or less at haphazard and in general are not carefully worked. Figure 22 *E* is a blade of dark brown chert with the upper end accidentally broken away. It has opposed notches at the base, probably for purposes of hafting. Figure 22 *M* is a flat piece of light buff chert with a projection on one side, determined by two neatly chipped notches.

4. *Burins*.—As might be expected in a deposit of this age, the burins do not, on the whole, fall into well defined categories. The majority are more or less shapeless pieces of flint on which one or more *coups de burin* have been given at convenient angles. The following are somewhat more typical than the rest. Figure 22 *Z* is a thick flake of light brown flint, with a simple *bec-de-flûte* burin at one end. This specimen originally had two facets on the right side, but when the burin edge was renewed a single blow was given on either side. Figure 22 *R* is a thick flake of light buff chert with a patch of cortex on the upper face. The burin is of the *bec-de-flûte* type, with a single facet on the right and multiple facets on the left side. Figure 22 *S* is a small block of dark brown flint with one edge steeply trimmed. At one end there is quite a neat prismatic burin, backed on to the trimmed edge; at the other, a right-angled angle-burin, with facet running down the trimmed edge.

5. *End-scrapers*.—This is a very poor group. Figure 22 *P* is the only typical specimen, and this is almost certainly a paleolith (probably Aurignacian) slightly re-worked in later times. It is of yellow, patinated flint, slightly abraded. The striking-platform is prepared, and both edges are trimmed. Some of the flake scars on the left side are more recent than the rest and presumably date from the Bronze Age. They are whitish in color and unabraded. Figure 22 *N* is of purplish flint. It is neatly flaked all around, and the bulb of percussion is trimmed away. The projecting spur and notch on the left side show signs of use.

6. *Microoliths*.—This is a very small group. Figure 22 *X* is a *dos rabattu* triangle of dark gray flint. Figure 22 *W* is a fragment of blade with back blunted by the Natufian method of pressure-flaking from both faces. It was probably twice as long originally as it is at present, but one end is broken away. Figure 22 *U* is a *dos rabattu* blade of buff flint, with signs of use on the cutting edge and the upper end.

7. *Blades*.—Although there are only five specimens, these blades constitute the most striking and distinctive feature of Stage IV. Unfortunately all but two are broken, but when complete they can hardly have been less than 150 mm. in length. Their straightness and regularity is in marked contrast to the rough and irregular flint flakes which make up the bulk of the industry from this stage. Figure 22 *A* and *B* are of buff chert, each with prepared striking-platform. Figure 22 *D* and *F*, of buff and gray chert respectively, have their upper ends broken away. Each has the striking-platform prepared. Figure 22 *C* has the bulbar end broken away. None of them is retouched, but all show slight signs of use. In addition to these three specimens, there are twenty-five fragments of similar blades, namely 6 bulbar ends (5 with prepared striking-platform), 17 sections with ends broken off square, and 2 tips. These were probably destined for use as sickle blades.

8. *Cores and core scrapers*.—A poor group of small cores, some of which have been re-utilized as scrapers. Figure 22 *T* is a fairly good microlithic blade core, but the remainder can have given only very rough flakes or chips.

9. *Various*.—Figure 22 *G* is a rough trapeze of light buff chert. One end is neatly trimmed, the other merely broken off; there is a wide notch in the back, chipped from the upper face. Figure 22 *Q* is the upper end of a thick angular blade of gray chert. The back is trimmed from both faces of the blade; the lower end is not retouched. Figure 22 *Y* is the bulbar end of a smoke-gray obsidian blade. It is not retouched, but shows signs of use. Except for the fragmentary base of a ground bowl, this is the only piece of obsidian found in Stage IV.

The remaining specimens from this stage are flakes and fragments of chert and flint, some of which are retouched more or less at hazard. The majority, however, are small shapeless fragments or chips, bearing marks of utilization, but in no way significant.



A large number of unutilized chips and fragments was thrown away.

Inventory: Sickle blades and fragments, 20; borers, 10; notched flakes, 11; burins, 10; end-scrapers, 3; microliths, 4; blades, 5; blade fragments, 25; cores and core scrapers, 11; various, 12; utilized flakes and fragments, 217. Total: 328.

#### STAGE V (FIG. 23)

The industry of this stage is rather sparse. Chert is relatively much more abundant than in Stage IV, the great majority of the implements being made from this material. The implements can be classified as follows:

1. *Sickle blades*.—These do not differ materially from those of Stage IV. Figure 23 *E* is made of light buff chert. The bulbar end is intact, but as the bulb is small this would not interfere with hafting. The upper end is neatly trimmed, and the back has *dos rabattu* retouch down half its length. The denticulated edge is highly lustrous. Figure 23 *F* is of brown, semitranslucent flint. The bulbar end is intact, the upper end fractured obliquely. The back has *dos rabattu* retouch down its whole length. The denticulated edge is slightly lustrous.

2. *Arrowhead*.—Figure 23 *J* is the only specimen. It is made of reddish brown chert. The tang is retouched on both faces, and the blade has ripple-flaking on both faces, but not over the whole surface. The upper face is convex, the bulbar face flat toward the base and convex at the upper end. The tip is accidentally broken.

3. *Blades*.—These are of the same type as those described in Stage IV; but only one, Figure 23 *C*, a particularly fine specimen, is intact. It is of light buff chert with prepared striking-platform. There is no secondary working, but the edges show slight signs of use. Figure 23 *D* is of gray chert and has the bulbar end broken away. The edges are much abraded and broken by use. In addition to these and two other specimens which are nearly intact, there are fifteen fragments of similar blades, namely 8 bulbar ends (6 with prepared striking-platform) and 7 sections with both ends broken off square, the latter certainly destined for use as sickle blades.

4. *Large flakes*.—There are three specimens, one of which, Figure 23 *B*, is very striking. It is of light buff chert and measures 174.5 mm.

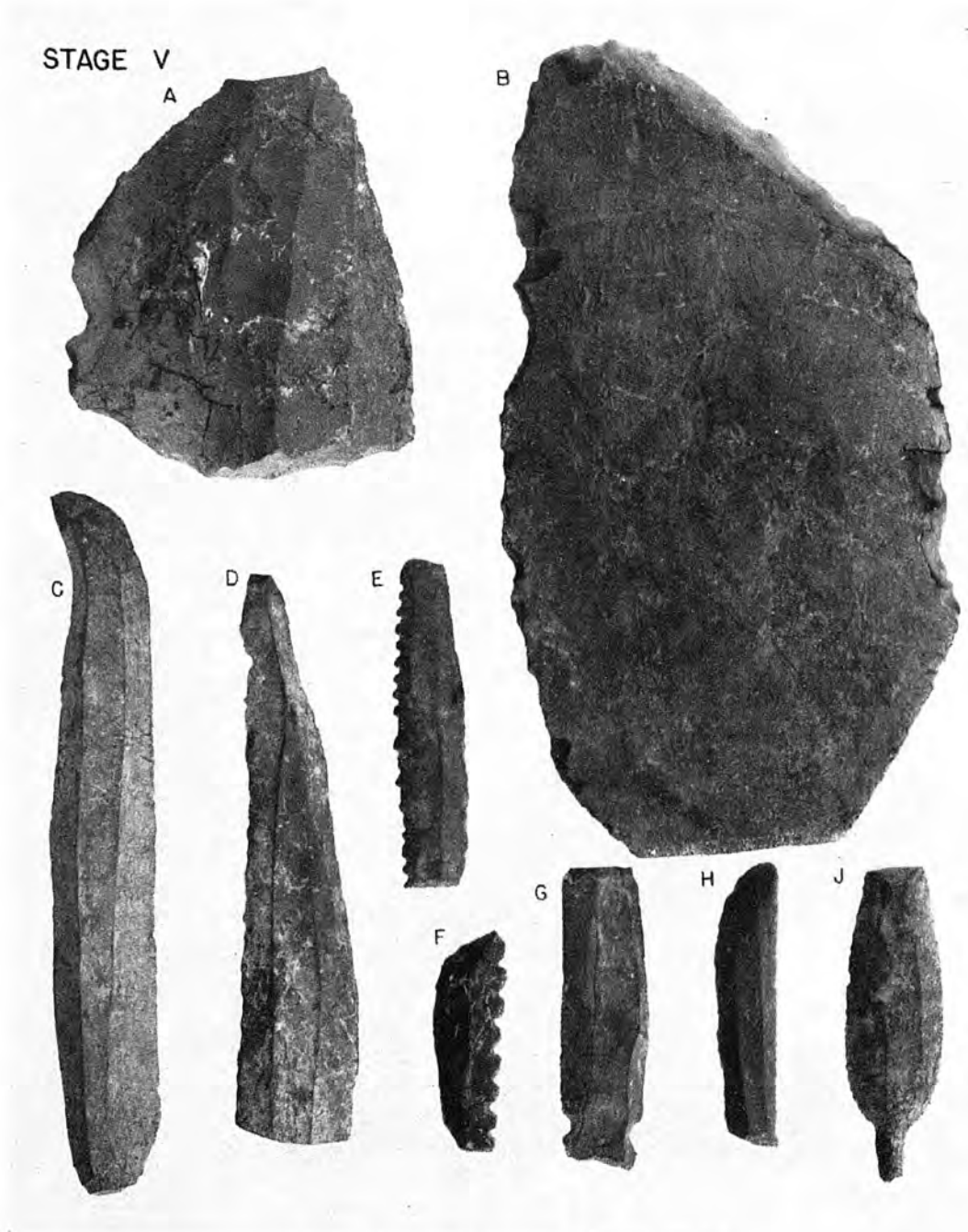


FIG. 23.—MEGIDDO FLINTS. STAGE V. SCALE, 2:3

in length and 95 mm. at the widest part. The striking-platform is plain, and there is a large bulb with *éraillure*. The upper face is covered with cortex. The upper end is carefully and elaborately reworked, but the flake scars on the edges are caused by use. Figure 23 *A* is a thick flake of gray chert with large prepared striking-platform. There is a thick bulb with *éraillure*. It bears no secondary working, but the edges are slightly broken by use.

5. *Various*.—Figure 23 *G* is a blade of gray chert with opposed notches at the bulbar end, probably for hafting. The tip is broken away. This specimen closely resembles one from Stage IV (Fig. 22 *M*). Figure 23 *H* is a blade of buff flint with the bulbar end broken away. The right edge is neatly retouched down its entire length on the upper face, and the left edge for two-thirds of its length on the bulbar face.

The remaining specimens from this stage are flakes (8 of flint and 3 of chert) without significance, for the most part rough, but bearing slight traces of utilization. A fair number of unutilized chips and fragments was thrown away.

Inventory: Sickle blades, 8; arrowhead, 1; blades, 5; blade fragments, 15; large flakes, 3; various, 2; utilized flakes, 11. Total: 45.

#### STAGE VI (FIG. 24)

The implements of Stage VI are nearly twice as abundant as those of V, and the types are slightly more varied. These can be classified as follows:

1. *Sickle blades*.—These are less elaborately made than in V or IV. Only one has a deeply denticulated edge, and none shows any trimming of the squared ends. In one specimen there is a slight attempt to trim the back. The majority are simply sections of blades utilized as sickles without further preparation. Figure 24 *B* is a narrow, irregular blade of dark brown flint with the ends roughly broken off. There is no retouch on the back. The denticulated edge is slightly lustrous. Figure 24 *D* is of dark brown chert. The ends are broken off square; both edges are nibbled by use and slightly lustrous. Figure 24 *C* is of buff chert. Both ends are broken off square. One edge has a very fine, rather irregular saw edge, the other a wider, but very shallow, denticulation; both are slightly lustrous.

2. *Borers*.—Two specimens, both quite well made. Figure 24 *H* is of dark brown chert. It is a fragment of a thick blade with one end

STAGE VI

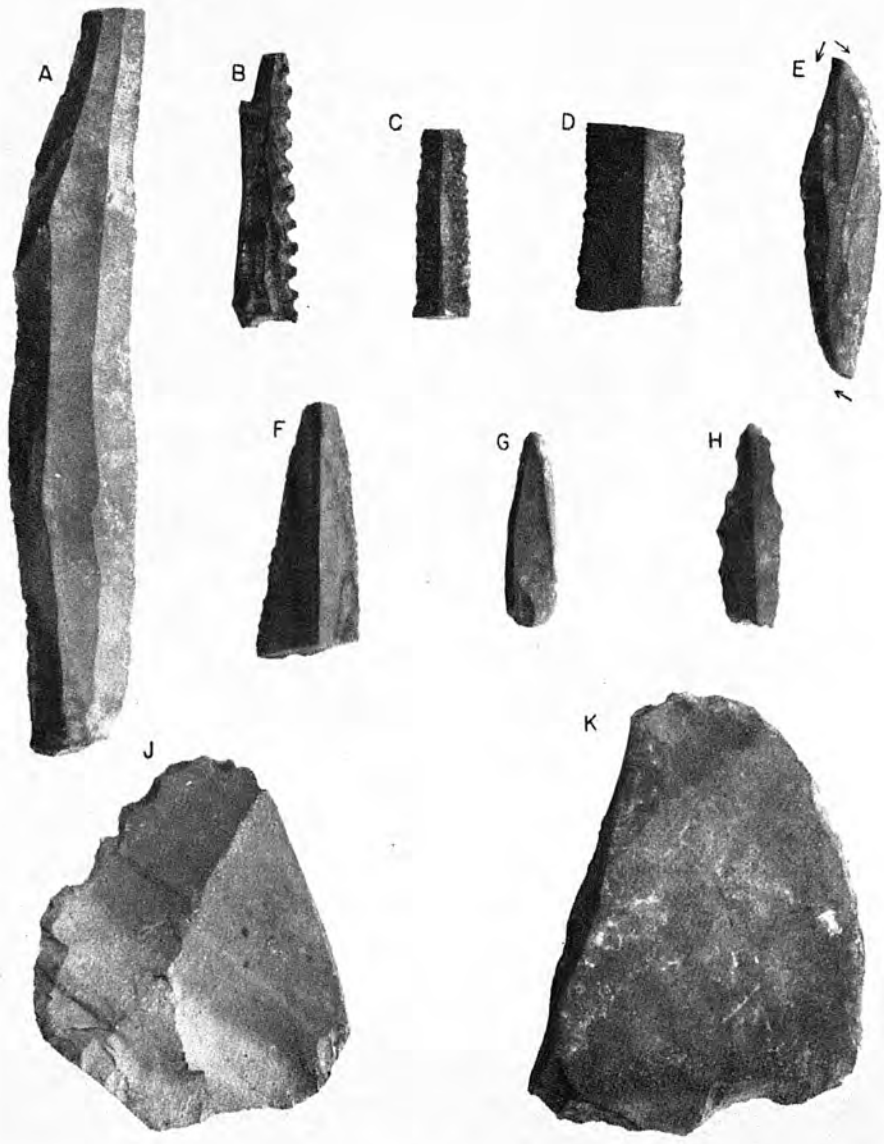


FIG. 24.—MEGIDDO FLINTS. STAGE VI. SCALE, 2:3

broken away. It has steep trimming along both sides and round the borer point, and the edges are slightly notched. There is a slight luster on the left edge, truncated by the retouch, which shows that this specimen was made on an old sickle blade. Figure 24 *G* is a neat blade of light gray flint. The borer tip is determined by edge retouch on both faces.

3. *Burins*.—Two specimens, one good, the other fair, are preserved. Figure 24 *E* is an arrowhead of light buff chert, converted into a double-ended graver. There is a fairly extensive ripple-flaking on the bulbar face and traces of it on the upper face. A single-blow graver has been made at one end and a neat *bec-de-flûte* at the other. The other specimen is a small angle-graver on a broken flint blade.

4. *Blades*.—These are all of the same type as the long narrow blades in IV and V. All are made of buff or gray chert. None is quite intact, but Figure 24 *A* has only the extreme tip missing. This specimen has a prepared striking-platform, and the edges are slightly broken by use. The right edge has an incipient luster at the upper end, which shows that these long blades were sometimes used as sickles without being broken into sections.

In addition to this specimen there are three long bulbar sections, each with prepared striking-platform; a long middle section; and thirty shorter sections, namely 7 bulbar ends, each with prepared striking-platform; 21 sections with both ends broken off square; and 2 tips. These blade sections differ in no way from those found in IV and V.

5. *Large flakes*.—There are a number of chert flakes in Stage VI, but none so striking as the largest one found in V. The majority have a plain striking-platform. Figure 24 *K* is a plaque of gray chert roughly flaked to a chopper end. The left edge is slightly trimmed, the right formed by a natural fracture. Figure 24 *J* is a thick flake of light gray chert. It has a plain striking-platform and a large bulb with *écaillage*. The left edge is notched and broken by use.

6. *Various*.—There is a small group of implements definitely retouched, but not typical or especially significant. Only two are worthy of mention. These are upper ends of pointed blades (Fig. 24 *F*) with bulbar face retouch down both edges.

The remaining specimens from this stage are flakes and fragments (chert, 15; flint, 9) very slightly retouched or showing signs of utiliza-

tion, but not significant. A small number of flakes and fragments (chert, 9; flint, 10) was thrown away; these showed no signs of utilization.

Inventory: Sickle blades, 6; borers, 2; burins, 2; blades, 6; blade fragments, 30; large flakes, 7; various, 4; utilized flakes and fragments, 24. Total: 81.

#### STAGE VII (FIG. 25)

The material from this stage is very scanty and shows little variety. It is, however, worth noting that the number of burins is very high in proportion to the total number of flints.

1. *Sickle blades*.—There are four specimens, three with deep denticulation of the cutting edge, the fourth with fine denticulations much blunted by use. Two have the back partially retouched. Figure 25 *A* is of brown chert and has both ends roughly broken off. The back has *dos rabattu* trimming down half its length. The denticulated edge is highly lustrous. Figure 25 *B* is of brown chert. Both ends are trimmed, but there is no retouch on the back. The denticulated edge is highly lustrous. Figure 25 *C* is of buff chert with both ends broken off. One edge is slightly nibbled by use, the other is deeply denticulated and lustrous. Figure 25 *D* is of gray chert with both ends broken off; one edge is slightly used, the other nibbled by use and lustrous.

2. *Burins*.—Figure 25 *E* is of smoke-gray translucent flint. It is a double-ended prismatic graver, quite neatly made, with a slight retouch on the right edge. Figure 25 *H* is a blade of buff chert with both ends broken; one end has been made into a *bec-de-flûte*, the other into a single-blow graver. The two remaining specimens also are double-ended. One (Fig. 25 *F*) is an angle-graver on a hinge fracture, combined with a prismatic graver; the other (Fig. 25 *G*), which is very small, is a double angle on a broken blade.

3. *Various*.—Figure 25 *J* is a blade of smoke-gray flint with the tip broken away. The upper end of the bulbar face shows extensive squamous flaking, truncated by the fracture which carried away the tip.

The long chert blades characteristic of the upper stages are represented by a single bulbar-end section with prepared striking-platform (Fig. 25 *L*). A small, much abraded flint flake with light yellow patina

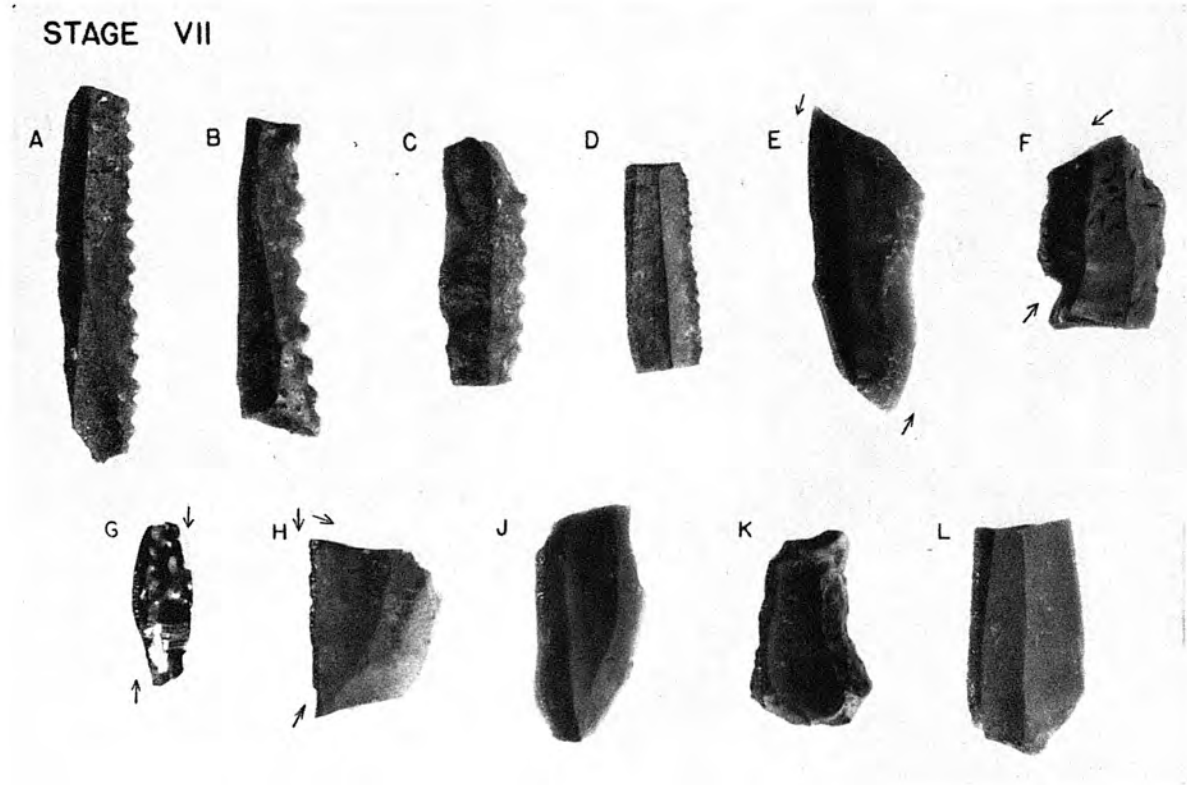


FIG. 25.—MEGIDDO FLINTS. STAGE VII. SCALE, 2:3

is certainly derived from a much older source, probably Paleolithic (Fig. 25 K).

In addition there are six flakes and fragments (chert, 3; flint, 3) with slight retouch or traces of utilization; these are without significance. A small number of unutilized flakes and fragments was discarded.

Inventory: Sickle blades, 4; burins, 4; blade fragment, 1; various, 2; utilized flakes and fragments, 6. Total: 17.

In spite of minor differences between the stages, all five groups of stone implements studied above fall into the division described by Neuville<sup>1</sup> under the name of Cananean. The characteristic feature of the Cananean industry is the presence of long narrow blades, of the type found in all the stages at Megiddo, and of sickle blades produced by breaking such blades into quadrangular sections. Although arrowheads are very rare at Megiddo, the specimen from Stage V and the burin made from an arrowhead in Stage VI are definitely Cananean in type. Neuville notes that this industry occurs in the earliest known levels of a number of tells (e.g., Jericho, Gezer, Megiddo, Lachish [modern Tell el-Hesi]), but he places it at the end of Bronze I after his Ghassulian and Tahunian stages and even suggests an overlap into Bronze II. Its context in the recent excavations at Megiddo shows clearly, however, that it goes back much farther than he supposed.

Any comparison between the stages is vitiated by the scantiness of the material at present available. It would appear that the long chert blades, which are the most striking feature of the industry as a whole, are relatively more abundant in the earlier stages, and the proportion of respectably made implements is higher in V and VI than in IV. There is, however, no clear trace of a definite evolution or degeneration from stage to stage.

Although the earliest stages cannot be very widely separated in time from the final stages of the Natufian,<sup>2</sup> there is no sign of a contact between the two industries nor anything to suggest that the Cananean

<sup>1</sup> R. Neuville, "Notes de préhistoire palestinienne," in *Journal of the Palestine Oriental Society* X (1930) 64-75 and 193-221, esp. pp. 205-10.

<sup>2</sup> D. A. E. Garrod, "A New Mesolithic Industry: The Natufian of Palestine," in the *Journal of the Royal Anthropological Institute of Great Britain and Ireland* LXII (1932) 257-69.



## NOTES ON THE FLINT IMPLEMENTS

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can legitimately be considered to have developed from the Natufian. In Stage IV there is a group of microliths, all of which would be perfectly in place in a Natufian context; but their number is so very small, and they are associated with so many elements which are quite foreign to the Natufian, that they cannot be taken into account. The sickle blades, which at first sight appear to be a link between the two industries, in fact show very marked differences. The Natufian sickle is generally neatly trimmed, and the cutting edge either bears no denticulation or, more rarely, is worked to a very fine saw edge. Cananean sickles in general fall into two classes: in one the edge has a deep, coarse denticulation, and the back is untouched or only slightly trimmed; in the other the sickle is merely a quadrangular section of a long blade, used without further preparation. If it should prove—as may possibly be the case—that the early Cananean of Megiddo is the immediate successor of the Natufian, it would seem that we must regard the Cananean as representing a fresh start, not a development on the spot of the older culture.

COMPARATIVE TABLE

	Stage III	Stage IV	Stage V	Stage VI	Stage VII
Sickle blades . . . . .	3	20	8	6	4
Arrowheads . . . . .			1	*	
Burins . . . . .		10		2	4
Borers . . . . .		10		2	
Notched flakes . . . . .		11			
End-scrapers . . . . .		3			
Microliths . . . . .		4			
Blades . . . . .	3	5	5	6	
Blade sections . . . . .		25	15	30	1
Large flakes . . . . .			3	7	
Cores and core scrapers . . . . .		11			
Various . . . . .		12	2	4	2
Utilized flakes and fragments . . . . .		217	11	24	6
Total . . . . .	6	328	45	81	17

\* One of the burins in this stage is made from an arrowhead.



EXPLANATION OF THE CHART

The chart will be self-explanatory for the most part, but it seems advisable to make a clear statement regarding certain parts of the procedure followed, in order to prevent any possible misunderstanding. It is hoped that the following notes will explain the conventions used.

1. An effort has been made to reconstruct forms as far as possible, but where information has been derived from sources outside of the stratified area this difference is indicated in the legend (in col. 1). A few forms have been completed hypothetically, but only when they were thought sufficiently within reason to be probable.

2. The dominant forms which are seen to extend through several stages represent no particular vessel, but rather an average type.

3. Specimens appearing so infrequently as to be poor criteria for distinguishing stages are indicated in the chart descriptions as follows: "One specimen found," "Not common," etc. Those bearing no such comment are common forms.

4. With the types that are not predominant there often occur blanks above and below; these are to be taken as negative evidence. Blanks above and below common forms (such as the plain ledge handles 14 *D* and *E*) are, on the other hand, to be considered as significant. That is, above Stage III and below Stage V these handles should not appear.

5. It is to be understood in all of the chart descriptions that the following characteristics are implied: fairly well made, moderately fired, wet-smoothed, normal admixture of rock or mineral grits. Vessels which cannot be described in these terms are treated separately.

6. Some of the types used in the chart were so fragmentary as to have little value as photographic subjects; but, whenever possible, photographs were taken to supplement the drawings. These appear in Figures 3-6 with type numbers corresponding to those on the chart. The stages are indicated below in Roman numerals.

7. In handling the material it was found that names, even if not entirely precise, were preferable to lifeless numbers. Accordingly names have been introduced for any value they may have in familiar use.

	1 PLATTERS																	11 Metallic-Ware Vessels					12 Hole-Mouth Jars	
	Flat		Rounded		Lattice-burnished	2 String-cut Bowls	3 Jugs	4 High Bowls	5 String-cut Jars	6 Carinated Bowls	7 Cups	8 Stump-Base Vessels	9 Handles		10 Jars									
STAGE I																								
STAGE II																								
STAGE III																								
STAGE IV																								
STAGE V																								
STAGE VI																								
STAGE VII																								

LEGEND


14  
LEDGE HANDLES

25  
Lug  
Handles

12 Hole-Mouth Jars				13 Hole-Mouth Bowls				14 Ledge Handles	15 MARKINGS ON HOLE-MOUTH JARS	16 Pitthoi	17 Gray Burnished Bowls	18 Bowls with Conoid Projections	19 Inner-Ledge Bowls	20 Small Red-Wash Bowls	21 Red High-Polish Bowls	22 Miscellaneous Bowls	23 Spouted Vessels				24 High-Loop-Handle Jugs	25 Lug Handles	26 Gourd-Jars	27 Heavy Bowl-Spouts	28 Miscellaneous Vessels		29 Distinctive Features										
								STAGE 0 (=TELL BEIT MISHIM 1)	Pushed-up	Small Thumb-indented	Plain Narrow	Plain Broad	Oblique Wavy	Thumb-indented	Wavy	Pottery Marks	Rope Designs	Incised Decoration																			
																																					FIRST COPPER FOUND
																																				BEGINNINGS OF WHEELMADE POTTERY BEGINNINGS OF COMB-WARE IMPROVED KILN TECHNIQUES INCREASED USE OF PAINT DECORATION APSIDAL HOUSE COPPER PROBABLY KNOWN	
																																				CYLINDER SEAL IMPRESSIONS SCRATCHED DRAWINGS FIRST BUILDINGS	
																																				SCRATCHED DRAWINGS	
																																				FIRST LIME FLOORS	

NEOLITHIC AND EARLY BRONZE AGE POTTERY TYPES FOUND AT MEGIDDO