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JOHN ALBERT WILSON  
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*Editors*





RESEARCHES IN ANATOLIA—VOLUME IX

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THE ALISHAR HÜYÜK  
SEASONS OF 1930–32  
PART III

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RESEARCHES IN ANATOLIA—VOLUME IX

# THE ALISHAR HÜYÜK

## SEASONS OF 1930-32

PART III

*By*

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WITH CONTRIBUTIONS BY

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*and others*



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## PREFACE

In the first three chapters of this volume an effort has again been made to describe the finds as objectively as possible and to avoid letting the personal bias of the excavator obscure the facts. Of somewhat over 8,000 objects individually catalogued in 1930-32 (potsherds and burials are not included) more than 4,000 have been published in *OIP* Volumes XXVIII-XXX, thus giving what I consider to be an adequate representation of the material. All complete pots, figurines, and glyptic objects are published.

In chapter viii I have presented a rapid survey of the geography and political history of central Anatolia—the framework which I consider essential for understanding the finds described. In the concluding chapter I have offered my interpretation of the place of Alişar in the cultural history of Anatolia. I trust that the separation of interpretation from objective description of the finds will be welcomed; for the latter ought not to be vitiated by personal opinion, and yet interpretation by the excavator is also in place. The excavator, having lived for a considerable time at a site and having felt the same influences of climate and landscape which prevailed in ancient times, can often feel the spirit of past cultures even when many of the details are lost forever. It is, therefore, not only his right but his duty to give his personal impressions of certain aspects for which documentation is lost.

I am perfectly aware that the archeological section (chap. ix) is not comprehensive. In making Maps XIV-XX I have included only the sites of which I am sure, either through adequate publication or because I have seen the material myself. Preparation of the archeological summary was facilitated by the kindness of Dr. Ward and Mr. D. W. Lockard of the Peabody Museum, Cambridge, Massachusetts, who allowed me to study their sherd collection.

Dr. Hâmit Zübeyr Koşay was kind enough to give me a short statement about the results of the excavations of 1935 and 1936 at Alaca Hüyük (see p. 407). In 1936 I had the privilege of assisting him there. I gratefully acknowledge Dr. Carl W. Blegen's permission to study the Troy material on the spot and to make use of some of his new information. Dr. Kurt Bittel read the section on the Chalcolithic period in chapter ix, adding some new material. With his permission I have added his comments on some doubtful points. Professor H. G. Güterbock examined the Hittite and Post-Hittite-Phrygian sections of chapter ix and made several valuable suggestions.

In the Preface to *OIP* XXVIII I have expressed my thanks to various contributors of special studies which appear in the present volume. To that list should be added the name of Miss Ann L. Perkins, who reported on the beads. The drawings of the beads were made by Miss Libuse A. Lukas.

I wish to acknowledge once more the co-operation of Dr. T. George Allen and the editorial staff; to Dr. Adolph A. Brux, Miss Ruth L. Schurman, and Miss Ruth C. Wilkins I am particularly indebted. Dr. Brux carefully edited chapters viii-ix; these and the chronological and cultural tables in chapter iv owe much of their value to his scholarly revision. Miss Schurman and Miss Wilkins assisted not only in the technical preparation of these volumes but also in the difficult arrangement of the illustrations and compilation of the indexes.

To Dr. John A. Wilson, director of the Oriental Institute, I am grateful for the interest which he has shown in this work from the beginning; he has provided every facility for the completion of this report. Professors A. T. Olmstead and Martin Sprengling have as always

## PREFACE

given generous help on historical questions. Professor Olmstead was kind enough to read the historical survey and archeological summary (chaps. viii-ix) and to make many valuable suggestions and additions. I have also appreciated the opportunity to exchange ideas with my friends F. O. Allen, G. G. Cameron, N. C. Debevoise, W. H. Dubberstein, R. M. Engberg, and I. J. Gelb; their co-operation has been very helpful.

While this volume was in preparation Professor James H. Breasted died on December 2, 1935, in New York. I am not qualified even to point out what loss his passing means to our science. Personally I have lost in him a paternal friend and adviser whose thorough scientific knowledge and deep human understanding proved invaluable, especially in the early stages of our research in Anatolia.

HANS HENNING VON DER OSTEN

ANKARA  
May 14, 1937

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## LIST OF ABBREVIATIONS

In chapters iv–v and in the section “Greek, Hellenistic, and Roman Pottery from Alişar” in chapter i special lists of abbreviations are given. For the rest of the volume the abbreviations cited below are used.

AAA	Annals of archaeology and anthropology (Liverpool, 1908—).
AAWM	Bayerische Akademie der Wissenschaften, <i>München. Philos.-philol. und hist. Klasse. Abhandlungen</i> (München, 1835— [Vols. I–XXIV of the two classes published separately]).
ABSA	British School at Athens. Annual (London, 1894/95—).
ADAI	K. Deutsches archäologisches Institut. <i>Archäologischer Anzeiger. Beiblatt zum Jahrbuch</i> (Berlin, 1890—).
AGWL	K. Sächsische Gesellschaft der Wissenschaften, <i>Leipzig. Philol.-hist. Klasse. Abhandlungen</i> (Leipzig, 1850—).
AJA	American journal of archaeology (Baltimore etc., 1885—).
AJSL	American journal of Semitic languages and literatures (Chicago etc., 1884—).
AO	Der alte Orient (Leipzig, 1903—).
AOF	Archiv für Orientforschung (Berlin, 1923—).
APAW	Preussische Akademie der Wissenschaften, <i>Berlin. Philos.-hist. Klasse. Abhandlungen</i> (Berlin, 1908—).
BAR	BREASTED, JAMES HENRY. Ancient records of Egypt (5 vols.; Chicago, 1906–7).
BASPR	American School of Prehistoric Research. Bulletin (1926—).
BBSAJ	British School of Archaeology in Jerusalem. Bulletin (London[?], 1922—).
BCH	Bulletin de correspondance hellénique (Paris, 1877—).
Beloch	BELOCH, KARL JULIUS. Griechische Geschichte (4 vols.; 2. Aufl.; Strassburg, Berlin und Leipzig, 1912–27).
CAH	Cambridge ancient history (Cambridge, Eng., 1923—).
CMH	Cambridge mediaeval history (Cambridge, Eng., 1911–36).
CR	Académie des inscriptions et belles-lettres, <i>Paris. Comptes rendus des séances</i> (Paris, 1858—).
EI	Encyclopaedia of Islam (Leyden, 1913—).
Encyc. Brit.	Encyclopaedia Britannica (14th ed.; New York, 1929).
ERV	EBERT, MAX. Reallexikon der Vorgeschichte (Berlin, 1924—).
JHS	Journal of Hellenic studies (London, 1880—).
JRAI	Royal Anthropological Institute of Great Britain and Ireland [1872–1907: Anthropological Institute of Great Britain and Ireland], <i>London. Journal</i> (London, 1872—).
Klio	Klio, Beiträge zur alten Geschichte (Leipzig, 1902—).
KUB	Berlin. Staatliche Museen. Vorderasiatische Abteilung. Keilschrifturkunden aus Boghazköi (Berlin, 1921—).
MDAIA	K. Deutsches archäologisches Institut. <i>Athenische Abteilung. Mitteilungen</i> (Athen etc., 1876—).
MDOG	Deutsche Orient-Gesellschaft, <i>Berlin. Mitteilungen</i> (Berlin, 1899—).
MVAG	Vorderasiatisch-ägyptische Gesellschaft, <i>Berlin. Mitteilungen</i> (Berlin, 1896–1908; Leipzig, 1909—).
Niese	NIESE, BENEDICTUS. Geschichte der griechischen und makedonischen Staaten seit der Schlacht bei Chaeroneia (Handbücher der alten Geschichte, 2. Ser., 1. Abt. [so Vols. I and III; Vol. II reads “Zweite Abteilung”]; 3 vols.; Gotha, 1893–1903).
OIC	Chicago. University. The Oriental Institute. Oriental Institute communications (Chicago, 1922—).
OIC No. 6	OSTEN, H. H. VON DER. Explorations in Hittite Asia Minor, 1927–28 (1929).
OIC No. 8	OSTEN, H. H. VON DER. Explorations in Hittite Asia Minor, 1929 (1930).
OIC No. 11	SCHMIDT, ERICH F. Anatolia through the ages (1931).
OIC No. 14	OSTEN, H. H. VON DER. Discoveries in Anatolia, 1930–31 (1932).

## LIST OF ABBREVIATIONS

<i>OIC</i> No. 19	FRANKFORT, HENRI. Oriental Institute discoveries in Iraq, 1933/34. Fourth preliminary report of the Iraq expedition (1935).
<i>OIC</i> No. 20	FRANKFORT, HENRI. Progress of the work of the Oriental Institute in Iraq, 1934/35. Fifth preliminary report of the Iraq expedition (1936).
<i>OIP</i>	Chicago. University. The Oriental Institute. Oriental Institute publications (Chicago, 1924—).
<i>OIP</i> V	OSTEN, H. H. VON DER. Explorations in central Anatolia, season of 1926 (1929).
<i>OIP</i> VI-VII	OSTEN, H. H. VON DER, and SCHMIDT, ERICH F. The Alishar Hüyük, season of 1927. Parts I-II (1930-32).
<i>OIP</i> XIX-XX	SCHMIDT, ERICH F. The Alishar Hüyük, seasons of 1928 and 1929. Parts I-II (1932-33).
<i>OIP</i> XXVII	GELB, IGNACE J. Inscriptions from Alishar and vicinity (1935).
<i>OIP</i> XXVIII-XXIX	OSTEN, H. H. VON DER. The Alishar Hüyük, seasons of 1930-32. Parts I-II (1937).
<i>OLZ</i>	Orientalistische Literaturzeitung (Berlin, 1898-1908; Leipzig, 1909—).
<i>PSBA</i>	Society of Biblical Archaeology, <i>London</i> . Proceedings (London, 1878/79-1918).
<i>PUMJ</i>	Pennsylvania. University. University Museum. The museum journal (Philadelphia, 1910—).
<i>PW</i>	PAULY, A. F. VON. Paulys Real-Encyclopädie der classischen Altertumswissenschaft; neue Bearbeitung . . . von G. Wissowa (Stuttgart, 1894—).
<i>PZ</i>	Prähistorische Zeitschrift (Berlin, 1909—).
<i>R. Ar.</i>	Revue archéologique (Paris, 1844—).
<i>RHA</i>	Revue hittite et asianique (Paris, 1930—).
<i>SAOC</i>	Chicago. University. The Oriental Institute. Studies in ancient oriental civilization (Chicago, 1931—).
<i>SAOC</i> No. 10	ENGBERG, R. M., and SHIPTON, G. M. Notes on the Chalcolithic and Early Bronze Age pottery of Megiddo (1934).
<i>Syria</i>	Syria; revue d'art oriental et d'archéologie (Paris, 1920—).
<i>TTAED</i>	Türk tarih, arkeologya ve etnografya dergisi (İstanbul, 1933—).
<i>WVDOG</i>	Deutsche Orient-Gesellschaft, <i>Berlin</i> . Wissenschaftliche Veröffentlichungen (Leipzig, 1900—).
<i>ZDMG</i>	Deutsche morgenländische Gesellschaft. Zeitschrift (Leipzig, 1847—).
<i>ZE</i>	Zeitschrift für Ethnologie (Berlin, 1869—).

## TERMINOLOGY<sup>1</sup>

The various levels and periods are designated as shown in Figure 289. Since the cultural sequence on the citadel mound and its western spurs differs from that on the city terrace, the building levels on the citadel mound are distinguished, where necessary, by the addition of an "M" and those on the terrace by addition of "T."

Objects found in 1927 have only numbers for identification, whereas for succeeding years letters were prefixed to numbers (1928, "a"; 1929, "b"; 1930, "c"; etc.). Skeletons are numbered in separate series including an "X" (e.g., c X1).

For Turkish words and names we endeavor to use the romanized Turkish spelling. The chief differences occur in the cases of *j*, *ch*, *gh* (mute), *zh*, *sh*, and *i* in diphthongs, for which the Turkish uses *c*, *ç*, *ğ*, *j*, *ş*, and *y* respectively. Undotted *i* stands for the indefinite vowel.

The word "meter(s)" is to be understood with all measurements.


## DEFINITIONS


AXHEAD WITH LUGS (*herminette*, *Ärmchenbeil*).

*Kerpiç* (adobe, *pisé*, Arabic *libn*).—Mud tempered with chaff and dried in the sun.

METATE.—The concave lower stone of a hand mill.

"WHORLS."—Circular objects perforated in the center. Some of them were probably used as spindle whorls.

GROOVED.—.

SCALLOPED.—.

## POTTERY

BURNISHED (*lissé*, *poliert*).—Rubbed with a pebble or bone to produce a glossy finish. Tool marks are definitely visible.

DECORATIVE BURNISHING.—A technique in which the strokes of the burnishing tool form a pattern.

FRIT (*fritte*, *Fritte*).—A siliceous paste incompletely vitrified.

GLAZED (*émaille*, *glasiert*).—Covered by a vitrified siliceous paste.

"GLAZED" (*verni*, mit *Firnis* überzogen).—Having the more or less glossy coating characteristic of Greek and Roman pottery (cf. p. 74, n. 35).

MAT PAINT (*peinture mate*, *Matmalerei*).—Flat or non-glossy paint. When not otherwise stated, mat paint was used.

POLISHED (*polis*, *frottiert*).—Rubbed to a gloss in which no tool marks are visible. This term is often used arbitrarily. Undoubtedly most of the pottery, if it shows any polishing, was polished with a hard tool.

SLIP (*engobe*, *Engobe*).—A paste of fine clay added after the shaping of the vessel.

TEMPERING (*dégraissage*, *Entfettung*).—Addition of a non-argillaceous material to pure clay to serve as a binder and to counteract the tendency of the clay to shrink.

GRIT-TEMPERING.—Addition of coarse sand or other non-vegetable matter to clay as a temper.

WASH (*enduit coloré non argileux*, *Farb-Überzug*).—A coloring matter with little or no clay, added after the shaping of the vessel.

WET-SMOOTHED<sup>2</sup> (*mouillé*, *geglättet*).—Rubbed with the wet hand to bring the fine clay to the surface of the vessel. Texture is more or less arbitrarily described as "coarse," "medium," or "fine."

<sup>1</sup> For assistance in the wording of these explanations I am indebted to Dr. Kurt Bittel and Dr. N. C. Debevoise. Cf. the definitions adopted by a Baghdad conference of archeologists working in Iraq (*Syria* XI [1930] 307-8 and *Archiv für Orientforschung* VII [1931-32] 303-4). Terms not explained here are used according to the definitions given in *Webster's New International Dictionary*. The contributors of special articles, of course, have not always used the same definitions.

<sup>2</sup> Called "wheel-finished" in the Baghdad conference report.

## TERMINOLOGY

Terms such as "bowl," "jar," and "flask" are used somewhat arbitrarily to suggest the type of vessel. Description of details will be clarified by examination of the following examples:

Pedestal base (b 784, Pl. IX)	Belled rim (Fig. 48)
Ring base (c 2693, Fig. 184)	Carinated rim (3363, Pl. IX)
Semi-pedestal base (d 1280, Fig. 39)	Contracted rim (c 1504, Fig. 30)
Band handle (Fig. 36)	Rim bent outward (e 1519, Fig. 30)
Knob handle (d 1043, Fig. 54)	Rim rolled outward (d 2356, Fig. 30)
Ledge handle (c 1409, Fig. 49)	Beak-spout (d 471, Fig. 38)
Lug handle (Fig. 72 11-16)	Clover-leaf orifice combined with beak-spout (Fig. 40)

In the drawings of sherds the darker color of the decoration appears in black, whereas the lighter is in shading; if there is a third, still lighter color, it is stippled.

Color designations are illustrated by the following examples:<sup>3</sup>

BLACK (Pls. VI 4, VII 3, and VIII 2 and 4)	
Brownish black (Pls. IV 3 and 5, V 7, VI 6, and VII 1-2)	
BLUE	
Cobalt blue (Pl. VIII 4) <sup>4</sup>	Turquoise blue (Pl. VIII 1)
BROWN (Pl. VIII 10)	
Blackish brown (Pls. IV 6, V 1, 3, and 6, and VI 2 and 5)	Purplish brown (Pls. V 2, VI 8, and VII 2)
Dark brown ( <i>OIP</i> XXVIII, Pl. III 4)	Reddish brown (Pls. IV 2-4 and 7-8, V 5, VI 1, and VII 5)
Light brown ( <i>OIP</i> XXIX, Pl. III 6)	Yellowish brown (Pl. VII 10)
BUFF (Pls. IV 4 and 7-8, V 3, VI 4 and 7-8, and VII 2-3 and 5)	
Dirty buff (Pl. IV 2)	Orange-buff ( <i>OIP</i> XXIX, Pl. II 5)
Grayish buff ( <i>OIP</i> XXVIII, Pls. I 3 and II 5)	Pinkish buff (Pl. IV 5)
Light brownish buff (Pl. IV 6)	Reddish buff (Pls. V 1 and 6-7 and VIII 11)
Light buff ( <i>OIP</i> XXIX, Pls. II 2 and III 4, 6-7, and 9)	Whitish buff ( <i>OIP</i> XXIX, Pls. II 6 and III 2-3)
Light reddish buff (Pls. IV 1 and V 2)	Yellowish buff ( <i>OIP</i> XXVIII, Pls. IV 4 and VI 1 and 6)
CREAM-COLORED (Pl. V 6)	
GRAY (Pls. VI 7 and VII 4 and 11)	
GREEN (Pl. VIII 4 and 9)	
Bottle green (Pl. VIII 7-8)	Light yellowish green (Pl. VIII 6)
Light green (Pl. VIII 5 and 10)	
MANGANESE PURPLE (Pl. VIII 2)	
OCHER (Pl. VIII 3, 5, and 8)	
RED (Pls. IV 1 and 4-5, V 4, VI 6-7, and VII 1 and 4; red "glaze," Pl. VII 6-7)	
Brownish red (Pls. IV 2, V 3, 5, and 7, VI 1, and VII 4-5; brownish red "glaze," Pl. VII 8)	Purplish red (Pls. V 2 and VI 2-3 and 5)
Dark red ( <i>OIP</i> XXVIII, Pls. II 4, IV 3 and 9, and VI 4)	Reddish ( <i>OIP</i> XXIX, Pl. I 1)
	Yellowish red (Pl. VII 9)
WHITE (Pls. VII 1 and VIII 2)	
Creamy white (Pls. IV 3 and 6, V 1, 3-5, and 7, VI 1-3 and 5-6, VII 2 and 4-5, and VIII 11)	
YELLOW (Pl. VIII 5)	

<sup>3</sup> The color plates referred to have all been reproduced directly from, and carefully checked with, the original objects.

<sup>4</sup> Unfortunately the blue of Pl. VIII 4 is more purple than that of the sherd.



## I

## THE SECOND HALF OF THE FIRST MILLENNIUM B.C.

The arbitrary designation "the second half of the first millennium B.C." is inexact. In many respects this period is one of the most unsatisfactory within the cultural sequence of the Alishar mound.<sup>1</sup> The deposit comprises the remains between the destruction deposit of the Post-Hittite-Phrygian period, presumably ending late in the 8th century B.C., and the foundation layer of the Roman-Byzantine settlements, beginning presumably sometime within the 1st century after Christ. Political events falling within this period include the Cimmerian raids; the Median and Persian dominations; the conquest of Alexander the Great and the various Hellenistic governments that resulted, the most important of which in this region was the independent kingdom of Cappadocia; the invasion of the Galatians; and finally the incorporation of the territory as a province within the Roman Empire in A.D. 17 (cf. pp. 367-75). All these events have left their traces at Alishar, but so faint and disturbed are the remains that it is impossible to subdivide the deposit according to political events.

On the citadel mound, separated from the preceding level by a thick destruction deposit, we can define two main building levels with sublevels (2a-b and 3a-b M) which may be attributed to this period, although there is no possibility of connecting them with any particular events. There is no distinct layer separating these from the level above, which is still more fragmentary; but the contents of Level 1 M make it probable that it belonged to the Roman-Byzantine period. After the citadel wall had been destroyed, natural erosion washed away the outer edges of the remains and thus made the conditions on the mound still more difficult for a differentiation of the levels.

On the western extension of the citadel mound, where the lower fortress of the Post-Hittite-Phrygian period had stood, a distinct building level belonging to the second half of the first millennium B.C. was unearthed in E-J 8. Its remains can be attributed to the Hellenistic period with reasonable certainty since numerous fragments of molded bowls of the 1st or 2d century B.C. were found there. Although the foundations of the buildings often appeared directly on top of the earlier walls, the distinction between the two cultural deposits was very clear. This was also true of the division between this cultural period and the Roman-Byzantine which followed.

The situation on the city terrace was most unsatisfactory. At least four building levels (4-7 T) of the second half of the first millennium B.C. could be identified, but all were very fragmentary and scanty. A distinct separation of the lowest of these from the deposits of the Post-Hittite-Phrygian period is in most cases impossible. Slightly better is the separation from the Roman-Byzantine remains, as the foundation level of this latter period is in most cases very definite.

The architectural remains were insignificant. Alishar must have been only an unimportant village during this period. The pottery and the small objects in many cases differ very little from those of the preceding or the following period. In many cases where the forms of the pottery appear to be different, details of form and ornamentation show the influence of previous periods. The culture of the second half of the first millennium B.C. is not that of

<sup>1</sup> The greater part of the remains of this period unearthed in 1928-29 were grouped by Dr. E. F. Schmidt as "Period V." However, he dated "Period V" roughly 1200-300 B.C. (*OIP* XX 1-2), thus including the period of Phrygian domination and excluding Hellenistic times (see Fig. 289).

a homogeneous people but rather that of a conglomeration of the many ethnic elements which lived in or passed through Asia Minor during this and preceding periods: it is not the material culture of a people but the material culture of a territory. If the term "Cappadocian" had not been often applied to the remains, especially the pottery, of a much older culture (that called the "Early Bronze Age" in this publication), I would have preferred to call this period "Cappadocian," since its culture is actually characteristic of Cappadocia the territory rather than of any ethnic element. Various imported pottery pieces and certain types of small objects, even those appearing only as single specimens or in very small groups, justify the statement that all the political events affecting this part of Asia Minor within the second half of the first millennium B.C. touched Alishar. Nevertheless, for the sake of convenience, we sometimes refer to this as the "Hellenistic period."

We found only three actual burials belonging to this period; hence little can be said about the burial customs, which probably varied greatly. Perhaps most of the bodies were cremated or buried outside the mound.

### SETTLEMENT REMAINS

The levels of this period on the citadel mound (2a-b and 3a-b M, Pl. I) were completely cleared in 1928. In these levels there was a tower built over the citadel gateway, which had been closed during the last phase of Level 4a M.<sup>2</sup> This seems to indicate that the old citadel wall was still in use at some time during this period, but there was no other evidence of such use. In Levels 3a-b inside the citadel there were but few remains, and these were of unimportant buildings.<sup>3</sup> The remains of Levels 2a-b M were much better preserved; they show definite plans (Fig. 1), and the walls were broad and well built.<sup>4</sup> To what political phases these sublevels belonged is problematical.<sup>5</sup> The western extension of the mound was still occupied during at least part of this period. The building remains there have been described by Dr. Kurt Bittel.<sup>6</sup> It is quite possible that the Phrygian lower fortress wall was re-used at some time during this next period.<sup>7</sup>

Remains on the terrace were very scanty. In DD 23-24 and V-X 2 were unearthened parts of what seems to have been a defense wall (Figs. 2-5);<sup>8</sup> the excavation in V-X 2 is especially interesting, for there the Hittite city wall had been re-used as a foundation (Fig. 4).<sup>9</sup> It is quite possible that this later wall was built during the second half of the first millennium B.C., although the attribution of these remains is not assured.

In the large complex of 1931 (P-U 26-31) we could distinguish four building levels belonging to this period (Figs. 6-8), but a more definite attribution of any of them is impossible. There was no evidence that Alishar during this time was anything but a sparsely populated village. The remains were exceedingly meager, and the buildings which we were able to recognize were only one- or two-room structures (Figs. 9-10). There seems to have been no conscious orientation of buildings. The methods of construction were much the same as in the previous period.

Remains of Level 7 T, the oldest building level of this period, were found scattered over the entire complex of 1931, at an approximate depth of 1.75 in the west and of 4 meters in the east. In Q 27 a stone door socket was discovered *in situ*, 1.65 deep; it was joined to a *kerpiç* wall .15 wide which seems to have been a partition wall in a rather large building (Fig. 11). A small trapezoidal room was unearthened in R 27 at a depth of 2.20 (Fig. 12, background). Just east of it was part of a *kerpiç* structure with most peculiar and unintelligible partition

<sup>2</sup> OIP XXIX, Fig. 321.

<sup>3</sup> OIP XX 13-19.

<sup>4</sup> OIP XX 5-13.

<sup>5</sup> Dr. Schmidt is inclined to attribute Levels 2a-b to the period of Persian domination (OIP XX 2).

<sup>6</sup> OIP XXIX 335-37.

<sup>7</sup> OIP XXIX 334f.

<sup>8</sup> Cf. OIP XXIX, Fig. 53.

<sup>9</sup> Cf. OIP XXIX, Fig. 115.



L

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B

FIG. 1.—A. PLAN OF LEVEL 2a M, INCLUDING TOWER OF LEVEL 2 OR 3. B. PLAN OF LEVEL 2b M, INCLUDING TOWER OF LEVEL 2 OR 3. SCALE, 1:400

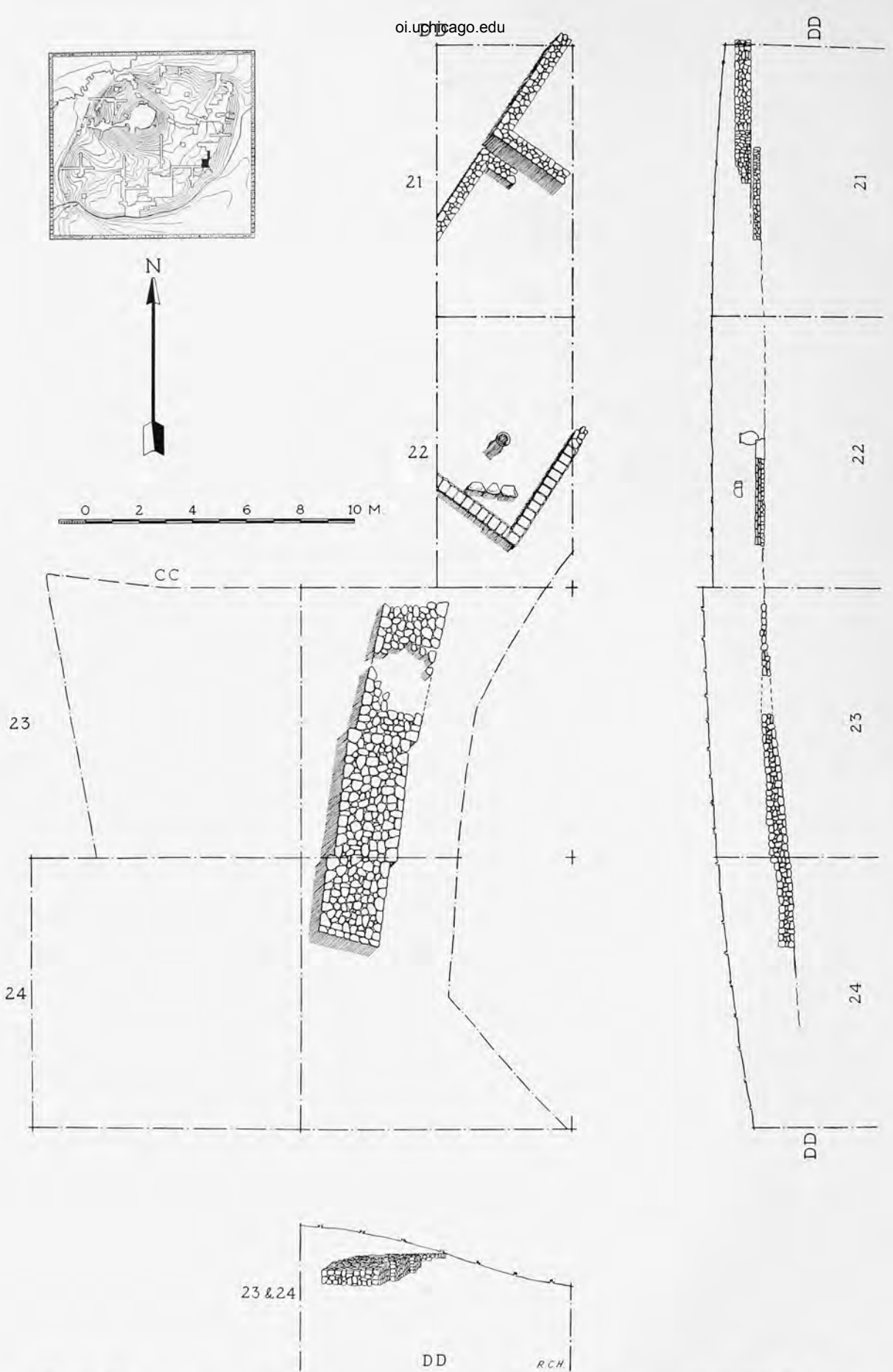


FIG. 2.—PLAN AND CROSS-SECTIONS OF REMAINS IN DD 21-24. THE SECTION THROUGH DD 21-22 IS PROJECTED AGAINST THE WEST WALL OF THE EXCAVATION; THAT THROUGH DD 23-24, AGAINST THE WEST WALL OF THE PLOTS. SCALE, 1:200

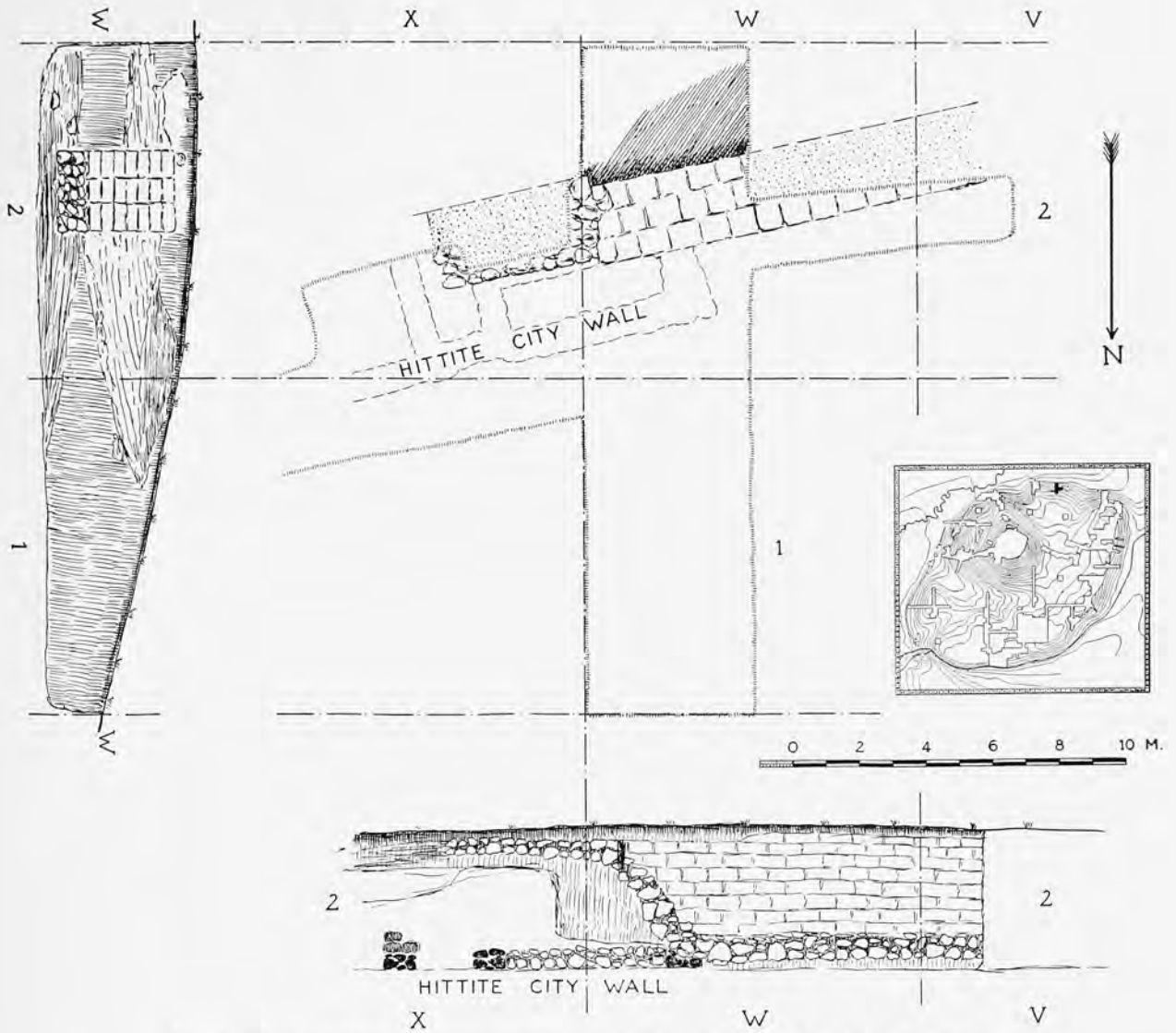


FIG. 3.—PLAN AND CROSS-SECTIONS OF THE LATER DEFENSE WALL IN V-X 2. SCALE, 1:200

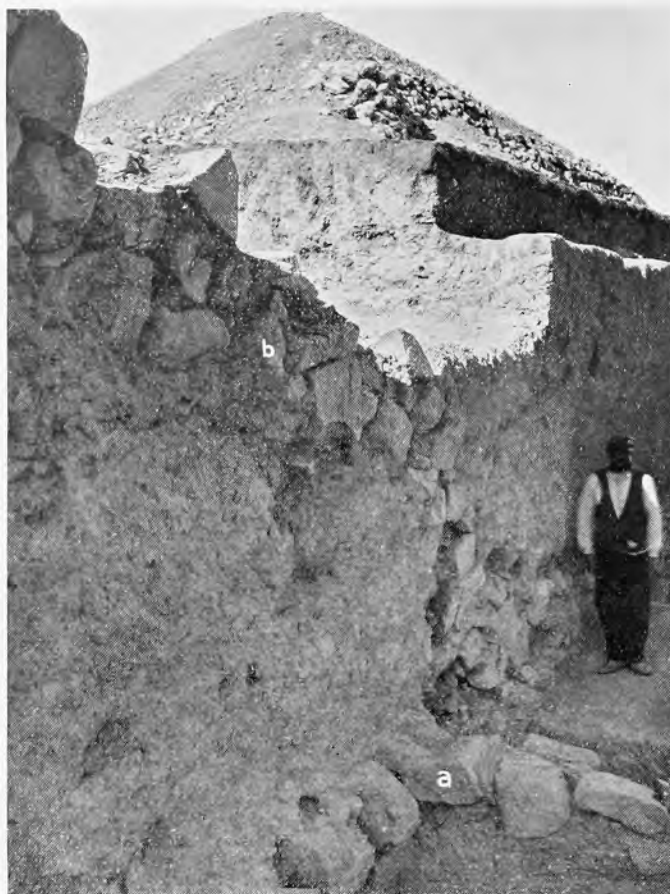


FIG. 4.—OUTER FACE OF THE LATER DEFENSE WALL (*b*) AND THE CITY WALL OF THE PERIOD OF THE HITTITE EMPIRES (*a*) IN W-X 2



FIG. 5.—THE LATER DEFENSE WALL IN W 2, FROM SOUTHEAST





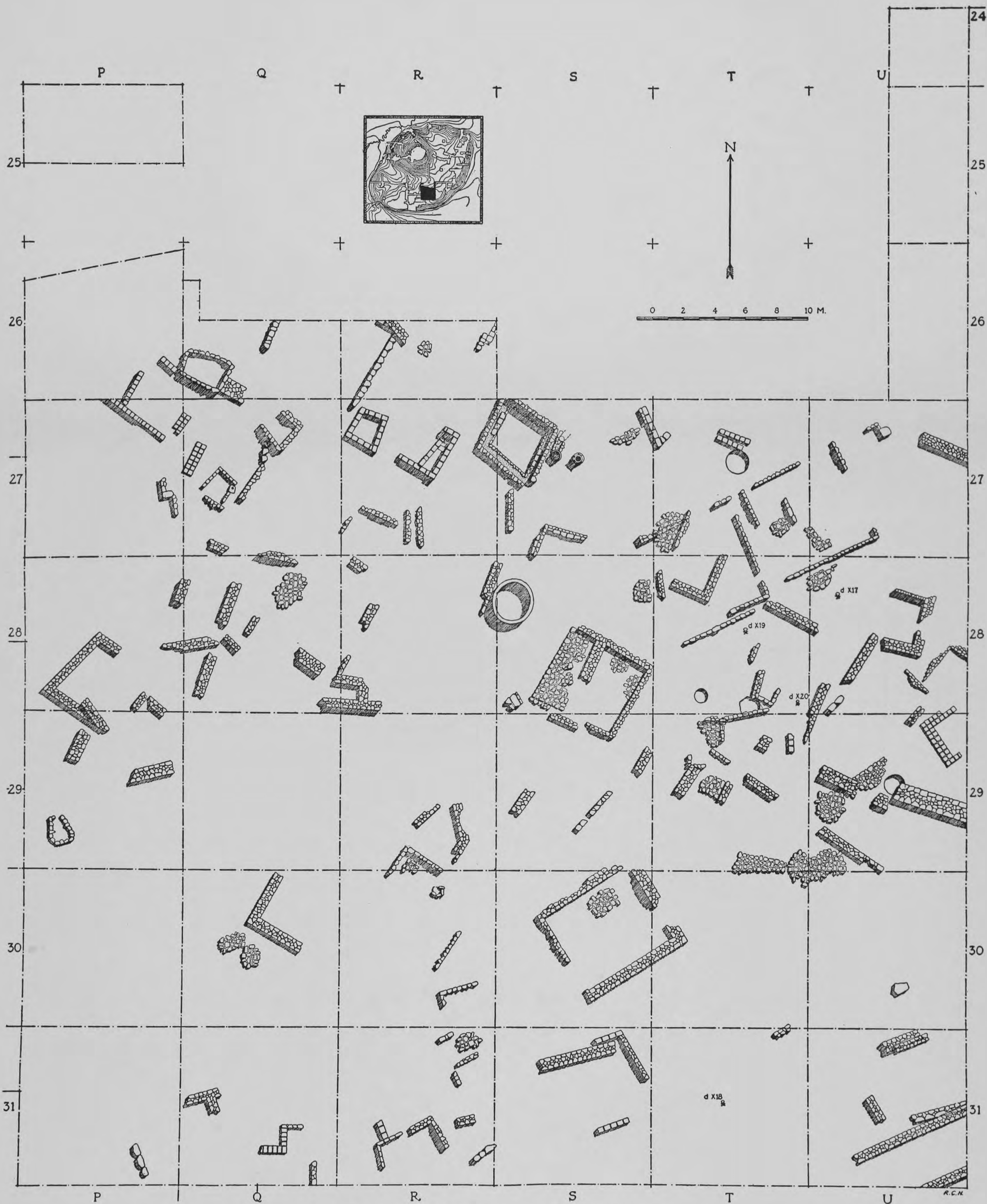


FIG. 6.—PLAN OF LEVELS 4-7 T IN THE COMPLEX OF 1931. SCALE, 1:250

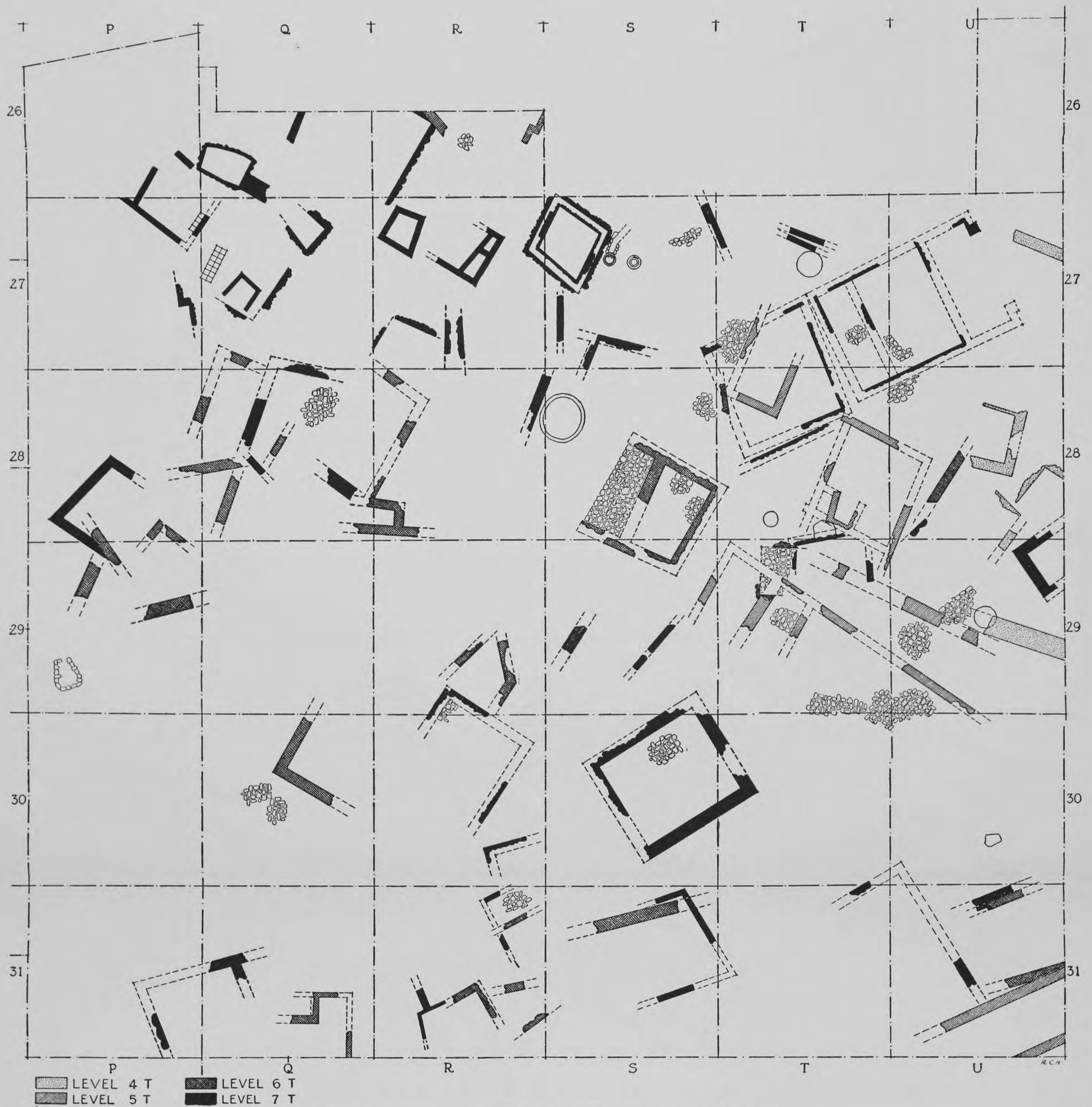


FIG. 7.—KEY DIFFERENTIATING LEVELS 4-7 T IN THE COMPLEX OF 1931. SCALE, 1:250







FIG. 8.—CROSS-SECTIONS OF LEVELS 4-7 T IN THE COMPLEX OF 193. SCALE, 1:250





FIG. 9.—REMAINS OF LEVELS 4-7 T IN P-S 27-29, FROM NORTH OF EAST



FIG. 10.—REMAINS OF LEVELS 4-7 T IN Q-U 27-29, FROM NORTHWEST



FIG. 11.—DOOR SOCKET *in Situ* IN Q 27





FIG. 12.—REMAINS OF TWO STRUCTURES OF LEVEL 7 T IN R 27, FROM SOUTHEAST



FIG. 13.—INSIDE OF LARGER STRUCTURE OF LEVEL 7 T IN R 27, FROM NORTH

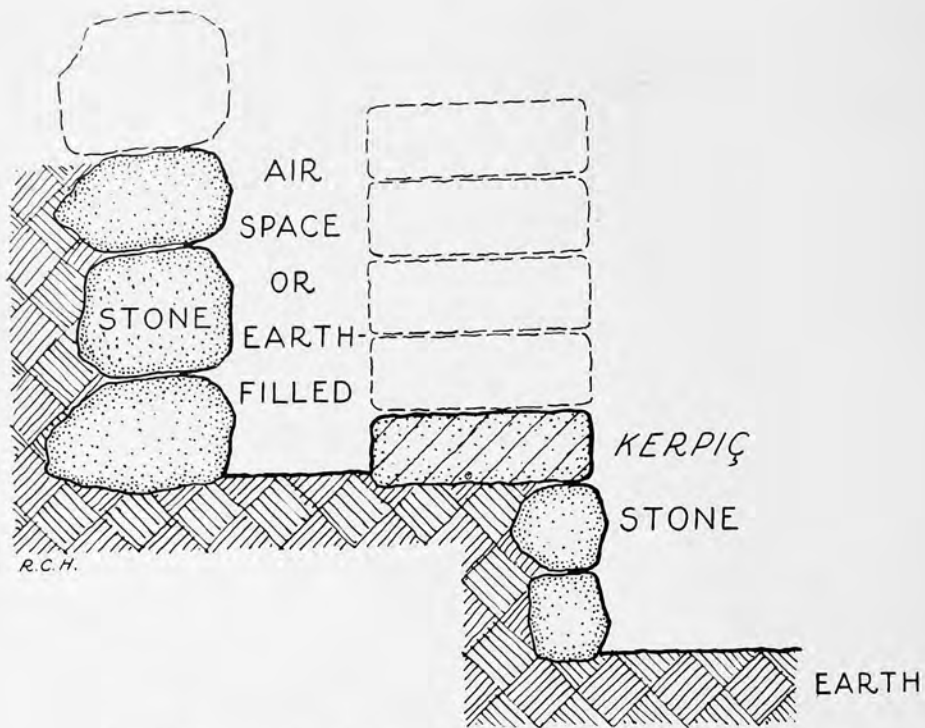


FIG. 14.—CROSS-SECTION OF ROOM WALL OF LEVEL 7 T IN S 27. SCALE, 1:10



FIG. 15.—ROOM OF LEVEL 7 T IN R-S 27, FROM NORTHWEST



FIG. 16.—REMAINS OF LEVEL 7 T IN S 27, SHOWING TWO OVENS, FROM NORTHEAST



FIG. 17.—CLOSE-UP OF ONE OVEN IN S 27



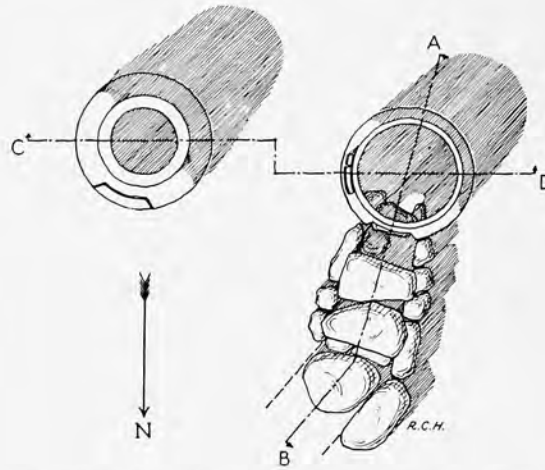
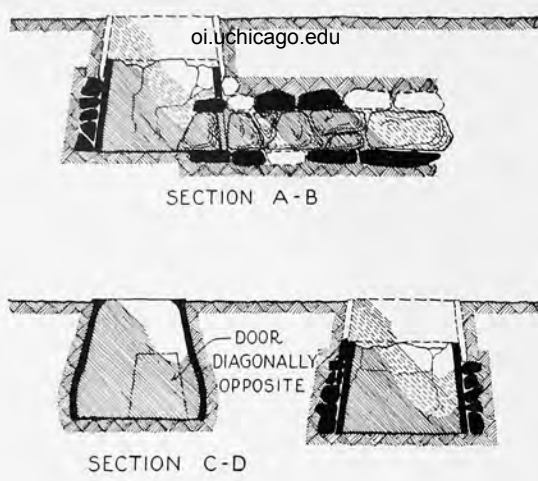


FIG. 18.—PLAN AND CROSS-SECTIONS OF THE OVENS IN S 27. SCALE, 1:40



FIG. 19.—A BUILDING OF LEVEL 6 T IN S 28-29, FROM NORTHEAST

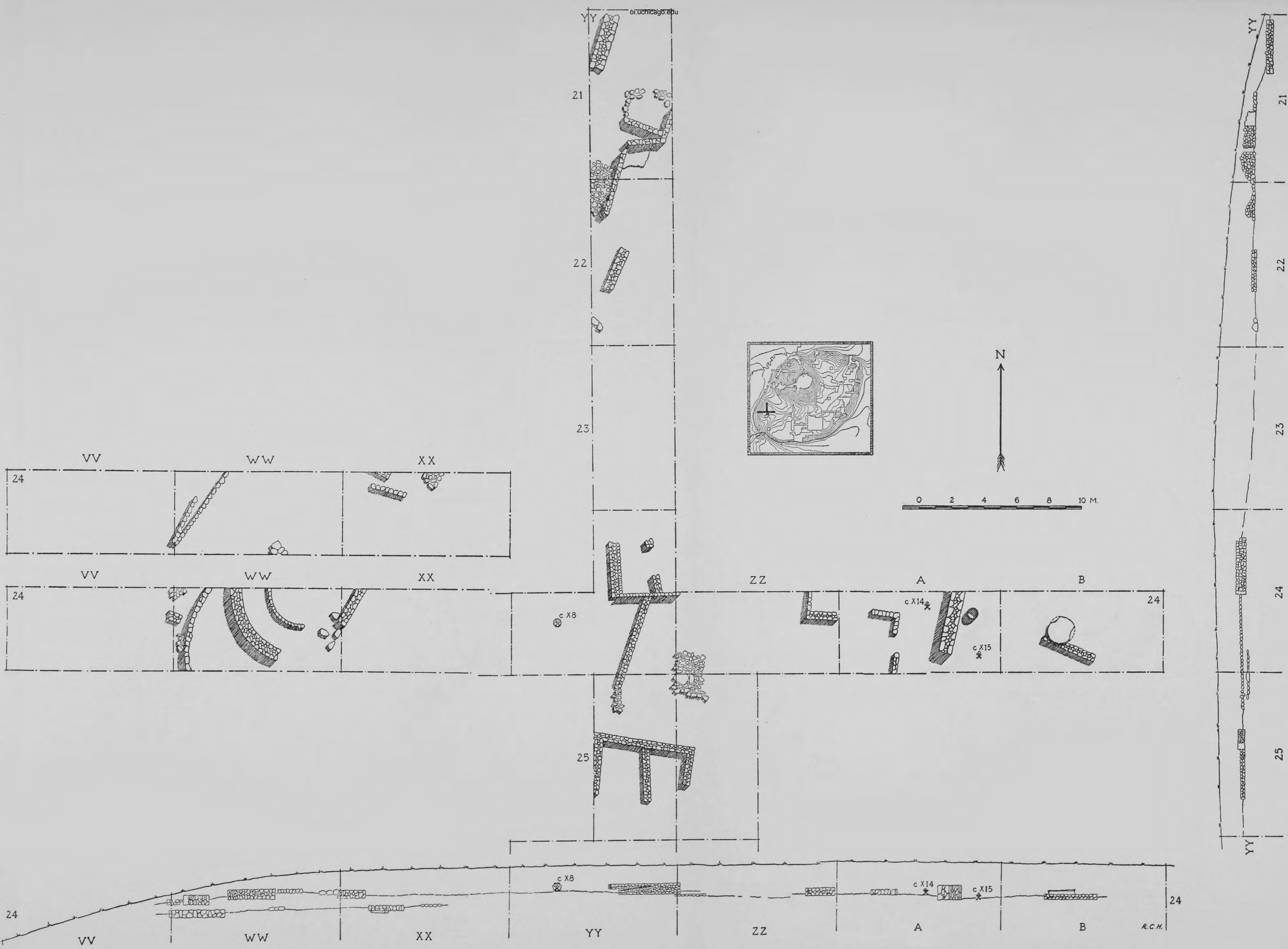


FIG. 20.—PLAN AND CROSS-SECTIONS OF YY 21-25 AND VV-B 24 IN THE SOUTHWESTERN PART OF THE CITY TERRACE. SCALE, 1:200



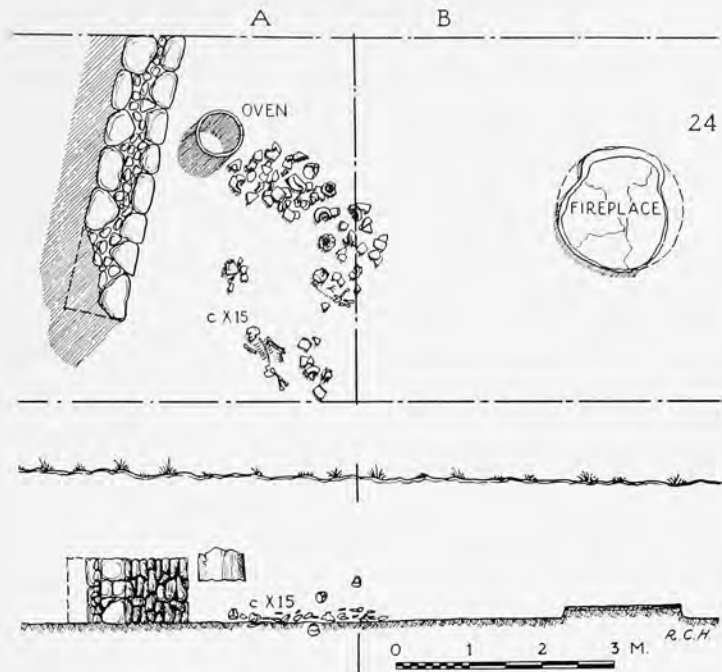


FIG. 21.—PLAN AND CROSS-SECTION OF ROOM IN A-B 24. SCALE, 1:100



FIG. 22.—REMAINS OF ROOM IN A 24, FROM SOUTH; SKELETON c X15 IN FOREGROUND

walls (Figs. 12-13). In R-S 27, 2 meters below the surface, a diamond-shaped room was excavated (Figs. 14-15). Its outer walls were one stone wide and smooth on the inside; probably earth was packed against the outer faces. About .50 inward and .25 deeper appeared similar walls on which *kerpiç* bricks .30 wide were laid. The intervening space was an air space or was filled with earth. East of this room were two round ovens with short flues to insure proper draft (Figs. 16-18). Other building remains of this level were found in T-U 27-28 at a depth of 4.10, but only fragments of pavements and the stone facings of some of the walls were preserved. At a depth of 2.90 in S 30 a one-room building was found. The walls were of stone, and a section of stone paving also was preserved.



FIG. 23.—POTTERY FROM ROOM IN A 24

The wall fragments in Level 6 T were very few. They varied from 1.40 below the surface on the west to 2.90 on the east. In S 28-29, 2.20 below the surface, remains of a room with a paved porch were uncovered (Fig. 19). Still more fragmentary is Level 5 T; the wall fragments of this level appear in the eastern third of the complex only, at a general depth of 2.60 below the surface. Level 4 T is represented only by wall fragments and some paving in U 27-29, 2 meters below the surface.

In the southwestern part of the terrace, in YY 21-25 and VV-B 24, building remains of this period were uncovered in 1930 (Fig. 20); but they cannot be ascribed with any certainty to any one of the levels defined in the complex of 1931. Interesting was part of a room in A 24 in which were found a great number of broken vessels and the skeletons of a man (c X15) and a sheep (Figs. 21-23). In WW 24 three curved walls were found; it is possible that a semi-circular wall in GG-HH 17<sup>10</sup> also belongs to this period.

In DD 21-22 (Fig. 2) walls which seem to have belonged to two rectangular rooms were unearthed. In S 0-2 (Fig. 24) fragmentary building remains were found, part of which seem

<sup>10</sup> OIP XXIX, Fig. 40.



to have formed a paved passageway. The building remains of this period unearthed in other parts of the terrace from 1927 to 1932 were very fragmentary and of no particular interest. Since it is impossible to tell to which levels walls of this period in the 1927 plots belong, level maps of the entire site could not be made.

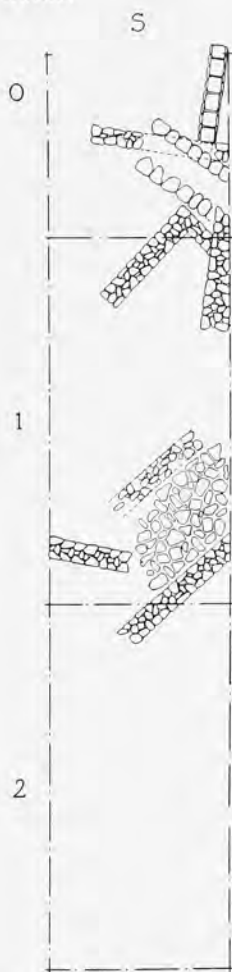


FIG. 24.—PLAN OF S 0-2. SCALE, 1:200

### BURIALS

Eight of the skeletons found from 1927 to 1932 may be attributed to this period (a X1, b X5, c X14-15, and d X17-20).<sup>11</sup> Three others (3222, b X4, and c X8) probably belong to this period, although there is a slight possibility that they are Roman-Byzantine. Skeletons 3221 and c X1 are attributed to the Roman-Byzantine period (cf. p. 148), but there is a possibility that they belong to the end of the Hellenistic period. Skeletons b X1, d X1, d X4, d X6, d X13, and d X21 also are now attributed to the Roman-Byzantine period, although at one time they were thought to be Hellenistic or earlier.<sup>12</sup>

<sup>11</sup> Skeleton b X16, found in S 23, was attributed in *OIP* XIX 212 to the Early Bronze Age. Excavations of 1932 in the trench in S make it highly probable that this skeleton is even later than the Hittite period, but it is impossible to determine to which later period it belongs.

<sup>12</sup> See *OIP* XX, Tables I-II. "Period V" of that publication is the one now ascribed to the second half of the first millennium B.C., but included the Phrygian and excluded the Hellenistic period.

Of the eleven skeletons listed below, six (3222, c X14-15, d X17-18, and d X20) were found in positions evidently due to violent death. There were three unquestioned burials. Two of these were outstretched, No. a X1 on its side, partly covered with stone slabs, No. b X5 on its back. The third burial (c X8), the skeleton of a small child in a cooking-pot, may possibly belong to the Roman-Byzantine period instead of the Hellenistic, for the form of the vessel is very common in both periods. Nos. b X4 and d X19, each flexed and lying on the side, may have been actual burials; but if No. b X4 was a burial, its attribution to this period is not plausible, as the skeleton was found on the floor level of this period.



FIG. 25.—SKELETON c X14 IN A 24

#### LIST OF BURIALS

- 3222 Earth burial(?) in M 11 (*OIP* VII 29-30, Skeleton X<sub>2</sub> in Plot 53). The adult skeleton was found 1.50 below the surface and .30-.50 below the level of a pavement in Level 2a M; it was in the same room with No. 3221 (see p. 149) but at a lower level. The skeleton lay on its right side in a curved position; the legs were flexed. Although most of the skull was missing, the mandible was found. The left arm was folded across the chest; the right arm was flexed under the body. A piece of corroded iron, possibly a blade, lay beside the lower left leg. Near the first thoracic vertebra lay a frog-shaped red stone, probably a natural formation. Below the center of the right tibia was a curved piece of bronze, looking like a segment of a ring. Below and touching the pelvis, the bottom of a plain brownish buff vessel appeared.
- a X1 Earth burial in M 12 (*OIP* XX 87). The skeleton of an adult male was found .25 below a pavement of Level 2a M. When the pavement had been removed, eight slabs appeared which covered the upper part of the skeleton. The skeleton lay on its left side. Its legs were slightly bent, and its toes were extended to lie almost in line with the leg bones. The right arm was bent, the hand supporting the chin. The left arm was extended beside the body; the hand was curved and touched the left *caput femoris*. The skull, badly crushed, lay to the northeast.
- b X4 Earth burial(?) in L 4 (*OIP* XX 88 and Tables I-II). The skeleton of an adult male was found 1.50 below the overhanging top of the preserved fortress wall, approximately on the floor level of the Hellenistic occupation. The skeleton lay on its right side. Both legs were greatly flexed; the left patella was near the





FIG. 26.—SKELETON d X17 IN U 28



FIG. 27.—SKELETON d X18 IN T 31



FIG. 28.—SKELETON d X19 IN T 28



FIG. 29.—SKELETON d X20 IN T 28

shoulder, the right one near the fifth thoracic vertebra. The feet were in front of the pelvis. The left arm was flexed, the hand near the shoulder. The right hand was extended above the cranium and had apparently clasped a bone paddle or fan. The direction from sacrum to atlas was 20° west of north.

- b X5 Earth burial in L 4 (*OIP* XX 88). The skeleton of an adult male(?) was found a little below the floor level of the Hellenistic occupation. The position of the body was dorsal with legs extended. The arms had probably been extended along the body. The direction from sacrum to atlas was 30° west of south.
- c X8 Pot burial in YY 24 (cf. Fig. 20). The infans I skeleton, lying in a flexed position, was found in a pot (c 543, Fig. 49) at a depth of 1 meter, on the floor level of the Hellenistic deposit. The vessel was upright and contained some animal bones also.
- c X14 Earth burial(?) in A 24 (Fig. 25; cf. Fig. 20). The fragmentary skeleton of a child was found 1.80 deep on the floor level of the Hellenistic deposit. It lay on its back. The left humerus was parallel to the spinal column, and the radius and ulna were bent at a sharp angle so that the hand was beside the head. The direction from sacrum to atlas was roughly 40° east of north. The position of the body was probably due to violent death.
- c X15 Earth burial(?) in A 24 (Fig. 22; cf. Figs. 20-21; *OIP* XX, Tables I-II). The skeleton of an adult male was found at a depth of 2.10 on the floor level of the Hellenistic deposit. The position was dorsal, the skull lying on the right side. The humeri were parallel to the sides; the left radius and ulna were bent up parallel to the humerus, with hand at the shoulder; the right radius and ulna were in line with the humerus, with hand under the pelvis. The left femur was in line with the body; the right femur rose vertically from the right hip, which was bent down to the right. The direction from sacrum to atlas was 20° west of north. The skeleton was found in a room with many sherds, pots, and animal bones. Vessel c 1109, found behind the pelvis, lay on the side with orifice toward the pelvis.
- d X17 Earth burial(?) in U 28 (Fig. 26; cf. Figs. 6 and 8). The infans I skeleton was found 2.50 deep in a dorsal position with arms and legs extended. The head was turned to the left. The direction from sacrum to atlas was 40° east of north.
- d X18 Earth burial(?) in T 31 (Fig. 27; cf. Figs. 6 and 8). The adult skeleton was found 2.50 deep. It lay on its face with arms extended and knees bent. The direction from sacrum to atlas was 40° east of south.
- d X19 Earth burial(?) in T 28 (Fig. 28; cf. Figs. 6 and 8). The adult skeleton was found 2.75 deep. It lay on its left side, semiflexed. The arms, bent at the elbows, were extended forward. The direction from sacrum to atlas was 20° west of north.
- d X20 Earth burial(?) in T 28 (Fig. 29; cf. Figs. 6 and 8; *OIP* XX, Tables I-II). The infans II skeleton was found 3 meters deep. It was lying on its face, the skull tilted forward. The arms were extended. The legs were extended to the left at right angles, the left leg being crossed over the right. The direction from sacrum to atlas was 10° south of east.

## POTTERY

The variety of wares appearing in this cultural deposit is necessarily great, and no general characteristic for the whole period can yet be recognized, although certain new features may be distinguished. Owing to the scantiness of the various sublevels, it was impossible to make even a relative chronological classification. Only a few wares could be assigned to known cultures which fall within the second half of the first millennium B.C.<sup>13</sup> These wares, as well as the few datable small objects such as coins and gems, were found in such disturbed positions that it was impossible to date any of the unknown or undated wares by association with them. For this reason it has seemed necessary to publish a large number of sherds with their detailed descriptions, in order to give an adequate representation of the pottery found. It is probable that many of the wares were used contemporaneously. Wares, forms, and decorations may be either new infiltrations, often already of mixed character, or survivals from former periods.

## PLAIN WARE

Here three major divisions can be made: "kitchen ware," better wares, and fine ware.<sup>14</sup> The "kitchen ware" of this period is similar to that of the preceding period, but is usually

<sup>13</sup> A report on such wares by F. O. Waagé appears on pp. 74 ff.; Galatian wares are described on pp. 22 and 36.

<sup>14</sup> The wares treated by Waagé are not included in this description.



coarser. Most of the vessels are wet-smoothed. Not much can be said about the color, as most of these vessels are blackened by fire.

The better wares show great variations in color, paste, and finish, but all pieces are wheel-made with the exception of those vessels the form of which made the use of the wheel impossible. The paste is grit-tempered and medium to fine. Except for the few which are wet-smoothed, the vessels were slipped and more or less carefully burnished and sometimes polished afterward. A few of the bowls of the better wares show a light brownish buff to grayish buff slip. One type of small pitcher, that with high band handle and large clover-leaf orifice, usually has a very carefully polished light brown to buff slip (e.g., a 669:12, Pl. IX, and c 697, Fig. 36). Large pitchers, of a ware generally coarser than that of the bowls and small pitchers, are sometimes wet-smoothed, but more often show a reddish buff or whitish buff slip (e.g., e 1350 and e 882, Fig. 39). Some vessels in the shape of beakers have grayish buff to buff paste and grayish to grayish buff slips (e.g., 231, Pl. XI); No. b 1305 is wet-smoothed. A few storage vessels which can be attributed to this period have a buff or reddish buff slip (e.g., e 1349 and e 90, Fig. 51).

The fine ware which is treated here shows two subdivisions. Both are grit-tempered and usually very well made. The first type, of buff paste, is wet-smoothed or covered with a thin brownish buff to whitish buff slip, carefully polished (e.g., d 2356, Fig. 30; c 2429, Fig. 48; and Fig. 57 10, 14-15, 33, and 41). In the second type (e.g., Fig. 59) the paste, reddish buff or grayish buff, is usually very well levigated; over a buff slip is applied a carefully polished heavy purplish brown wash (cf. Pl. VII 2 and p. 78). The wash is sometimes applied over the entire vessel, but often it is only on the upper part of the vessel or, in the case of bowls, only in a broad band along the rim. The most striking vessel of this type is No. d 1155 (Fig. 47). On No. d 355 (Fig. 47) the purplish brown wash has been applied around the rim and in blotches on the ends of the handles. A fine specimen of this ware is the large jar b 415 (Pl. XI), uncovered in the Hellenistic deposit of the lower fortress. Two jars (d 2115 and e 682, Fig. 46) are of this type of ware but of medium paste, and the lower part of No. e 682 is wet-smoothed only.

#### DECORATED WARE

Of the many different types of painted ware a few distinct groups can be recognized, although it is not possible to arrange them chronologically.

The first group I would like to distinguish is the ware which in decoration and often in form shows survivals of some of the decorated ware of the Post-Hittite-Phrygian period (e.g., d 321, Fig. 38; c 96 and d 1409, Fig. 45; and Figs. 57 49, 62 16, 69 4 and 12, and 79 1 and 3-5). The ware is buff to reddish buff and is covered with a light buff to reddish buff slip, which is more or less carefully burnished and polished. The geometrical design is applied in blackish brown or reddish brown, sometimes combined with brownish red. A great many fragments of large storage vessels of this ware were found (e.g., Fig. 58 1, 3, and 7-8).

The second group is related to the first. The slip varies from red to reddish brown or from buff to reddish buff. On the upper part of the body of the vessel appears a creamy white or cream-colored panel on which triangular or diamond-shaped motives are applied in reddish brown or brownish black (e.g., b 664, Pl. IX, and Fig. 61 1-3, 6, 9, and 11-12).

The third group is characterized by horizontal stripes in one or two colors. One type, represented especially by large, two-handled jars, shows on the upper part of the body two striped panels with creamy white or cream-colored background, usually framed by a broad stripe of varying color (e.g., d 2676, Fig. 45, and Figs. 63, 64 4-6, and 66 2-11, 17, and 21). Jar 3254 (Pl. X) has the same arrangement of stripes painted directly on the buff slip which covers

the entire vessel. Some pitchers show a similar decoration, sometimes with the addition of other motives between the stripes (e.g., Fig. 68 2-3 and 5). Concentric rings frequently appear between some of the stripes on pitchers and jars of this type (e.g., Figs. 64 1-3 and 67 1, 4-5, 7, and 9-11). Another type of striped ornamentation appears on large jars, either slipped or wet-smoothed, on which uninterrupted bands encircle the upper part of the vessel (e.g., e 1018, Fig. 46; b 416b, Pl. X; and Fig. 67 3). Horizontal stripes appear on small pitchers also (d 744, Fig. 36, and d 1631, Fig. 38); on bowls they occur on the inside, the outside, or both (3369 and c 2745, Fig. 30; 276, Pl. IX; and Figs. 65 3 and 67 12). On the bowl fragment shown in Figure 74 15 stripes appear on the exterior, stripes combined with other designs on the interior (cf. p. 78).<sup>15</sup> This ornamentation of horizontal stripes seems to have extended through the whole period, as we found them on many different wares in many variations and combined with many other motives.

The last large group I am inclined to call "Galatian" (cf. pp. 22 and 36). On the slip or on a creamy white or cream-colored panel appear floral, animal, or human designs. Especially in 1927 we found a great number of sherds of this ware with bird representations (Figs. 74 4-5 and 12, 75 1-2, 4, 7, and 9, and 77). Of the same ware seem to be deep bowls or jars of a certain type with lug handles (Fig. 72 11-16); most of them are ornamented with geometrical designs.

Another kind of decoration is represented by No. d 2360 (Fig. 53), of fine buff ware with yellowish buff slip, decorated with wavy bands in reddish brown. A similar ornamentation appears in Figure 71 23. Leaves as ornamental motives appear on various wares (e.g., b 36: 112;<sup>16</sup> 184, Pl. X; Figs. 74 17, 75 6, 76 5, and 77; and Pl. VII 5).

Two fragmentary vessels found in 1928 each show on a white panel two winged sphinxes, each wearing a cidaris; on each fragment they seem to face one another. Between them appears a design, unrecognizable on No. a 518,<sup>17</sup> star-shaped on No. a 824 (Fig. 73).<sup>18</sup> Noteworthy are a small pitcher (d 471, Fig. 38) and a sherd (Pl. VI 4) on which the designs are applied in lustrous black. A few similar vessels and sherds were found on the Kerkenes Dağ.<sup>19</sup> The many other painted decorations, which show great variety in motives and colors, are adequately represented by the sherds illustrated in Figures 57-80 and described on pages 52-67.<sup>20</sup>

Animal heads in relief appear on the corners of some odd rectangular vessels (e.g., e 1356, Fig. 55; cf. Fig. 56); they are usually rams' heads. Other relief sherds are shown in Figure 80. Especially interesting are No. 4, which shows the claw of a bird in relief on a painted sherd; No. 7, which has a knob handle in the shape of a knucklebone; and No. 8, which shows the front paws of an animal. Large rectangular vessels are decorated with zigzag designs in relief (e.g., b 335, Pl. XI). On large jars the base of the neck is often emphasized by a ledge. In a few cases the bodies of small pitchers with clover-leaf orifices are decorated with grooves or incised lines (e.g., a 669: 16, Pl. IX).<sup>21</sup> On No. a 168 (Pl. XI)<sup>22</sup> incised lines border a band of red-washed triangles alternating with triangles filled with small triangular depressions. Relief sherd b 2277 was ascribed in 1929 to this period. According to a renewed checking in

<sup>15</sup> Cf. also No. 3278 (*OIP* XXIX, Fig. 407).

<sup>17</sup> *OIP* XX, frontispiece.

<sup>16</sup> *OIP* XX, Fig. 46.

<sup>18</sup> *OIP* XX, Fig. 46.

<sup>19</sup> E.g., K 83 and K 100; E. F. Schmidt, "Test Excavations in the City on Kerkenes Dag," *AJSL* XLV (1929) 221-74, esp. pp. 260 and 265.

<sup>20</sup> No. b 742: 10 (Fig. 75) was attributed in *OIP* XIX 248 to "Period IV," which in this publication is called the "Post-Hittite-Phrygian period," but I prefer to classify it here.

<sup>21</sup> *OIP* XX 45.

<sup>22</sup> *OIP* XX 63.

1932 of the situation in DD-EE 10, it is more probable that this sherd belongs to the Hittite period.<sup>23</sup> Nos. c 2741 and d 500 (Fig. 89) may have been parts of vessels.

One sherd had an iron inlay near the rim (Fig. 80 g).

For molded bowls see pages 78-80.

#### FORMS

Five distinct types of bowls may be distinguished. The most common has a slightly contracted rim and a flat bottom. It appears mostly in plain wares (e.g., c 1504 and d 356, Fig. 30, and Fig. 57 1-16). A second type has a pedestal base, and the rim is sometimes bent outward (e.g., d 1624 and e 1519, Fig. 30, and b 784, Pl. IX). No. d 1624 has a small lug handle on the rim and a floral design in the center of the bowl. This piece shows also that the bowl and the pedestal base had been made separately and then put together. The third group is usually of a fine ware decorated with painted stripes, sometimes on both the inside and the outside. These bowls have either flat or ring bases and are well finished (e.g., 3369 and c 2745, Fig. 30, and 276, Pl. IX). The fourth and fifth groups consist of molded bowls and other fine-ware bowls (Figs. 31-33; cf. pp. 78 ff.). Besides these five groups there are bowls with carinated rims (e.g., 3363 and b 49, Pl. IX) and bowls with rounded bottoms (e.g., 3364, Pl. IX). No. d 2356 (Fig. 30), of very fine ware, has a flat base and a rim rolled outward slightly. In the "kitchen ware" of this period large bowls with flat bottoms appear: No. b 1302 (Pl. XI) has a spout, and No. c 1409 (Fig. 49) has two ledge handles. No. d 421 (Fig. 34) is a fine-ware plate (cf. p. 80).

Typical for this period is a small, squat pitcher with a clover-leaf orifice and a high band handle; it appears in both plain and ornamented wares (e.g., c 697, Fig. 36; d 2002, Fig. 37; and c 37 and d 1631, Fig. 38). Related to this type, but with more ovoid body and sometimes with rounded bottom, are Nos. d 2204 (Fig. 37) and a 669:12 and a 669:16 (Pl. IX). Another type of small pitcher is represented by No. d 471 (Fig. 38). It has a beak-spout and in its form resembles closely some small pitchers of the Post-Hittite-Phrygian period. On some pitchers of this type (e.g., d 321, Fig. 38) the ornamentation resembles that common on the Post-Hittite-Phrygian pitchers, but the majority have a panel with either horizontal stripes or triangular designs (e.g., d 744, Fig. 36, and b 664, Pl. IX). No. c 1553 (Fig. 38) may belong to either of the two groups of small pitchers; it has a lozenge design within its panel. No. d 471 is especially interesting because its ornamentation is applied in lustrous black paint. "Kitchen-ware" vessel e 881 (Fig. 50) is described as a jar but might be called a pitcher because it has a lateral tubular spout.

The large pitchers of this period (Pls. IX-X) have ovoid bodies; the bottoms are usually slightly concave; the orifices may be clover-leaf (e.g., e 882, Fig. 39) or clover-leaf with beak-spout (e.g., e 1441, Fig. 40). The handles are band-shaped, sometimes with grooves (Fig. 78 3-6), or round. The fragment in Figure 70 shows that the handle and back part of the orifice in some cases were made as a separate unit and then added to the vessel proper. Many of these large pitchers are plain. No. d 1280 (Fig. 39) is probably a Hellenistic import. Some large pitchers with beak-spouts in clover-leaf orifices have painted ornamentation (Figs. 41-43). Especially interesting is No. c 89 (Fig. 42), which shows three stags, trees, and lozenges decorated with crossed lines with dots in the angles. This motive is obviously derived from one used on large jars of the Post-Hittite-Phrygian period, where concentric circles are found instead of lozenges. No. c 36 (Fig. 41) may be called "Galatian" on account of its decoration.

Numerous small jars of various shapes (Fig. 47, top, and Pl. X) have been found in this

<sup>23</sup> OIP XXIX 114.





e 1504



d 2356



3369



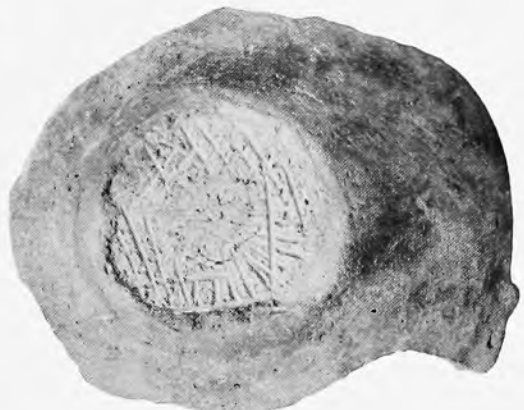
d 356



d 1624



e 2745



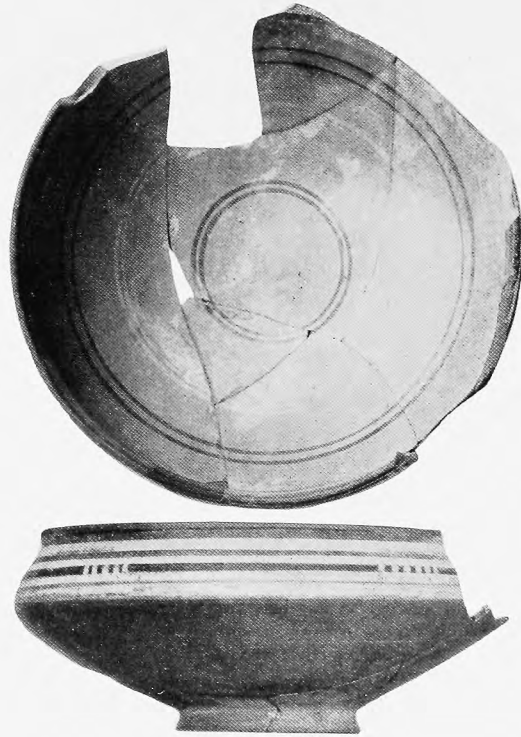
e 1519

FIG. 30.—BOWLS. SCALE, ABOUT 2:5





FIG. 31.—FINE-WARE BOWLS. SCALE, 2:5



c 2200

FIG. 32.—FINE-WARE BOWL. SCALE, 2:5



c 1276a

FIG. 33.—MOLDED BOWL. SCALE, 1:2



d 421

FIG. 34.—FINE-WARE PLATE. SCALE, ABOUT 1:5



d 929

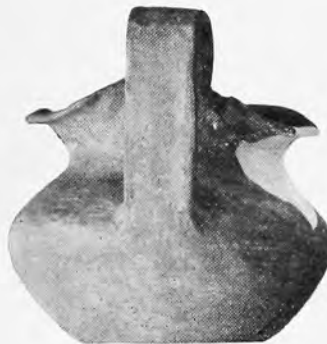
FIG. 35 —PITCHER FOUND IN A DOOR SOCKET. SCALE, ABOUT 1:4



d 744



d 567



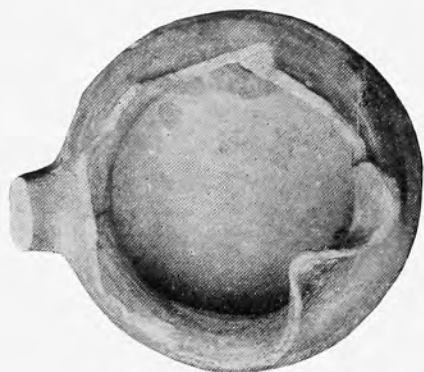
e 697



FIG. 36.—SMALL PITCHERS. SCALE, ABOUT 2:5



e 1113



d 2002



d 2204

FIG. 37.—SMALL PITCHERS. SCALE, 2:5

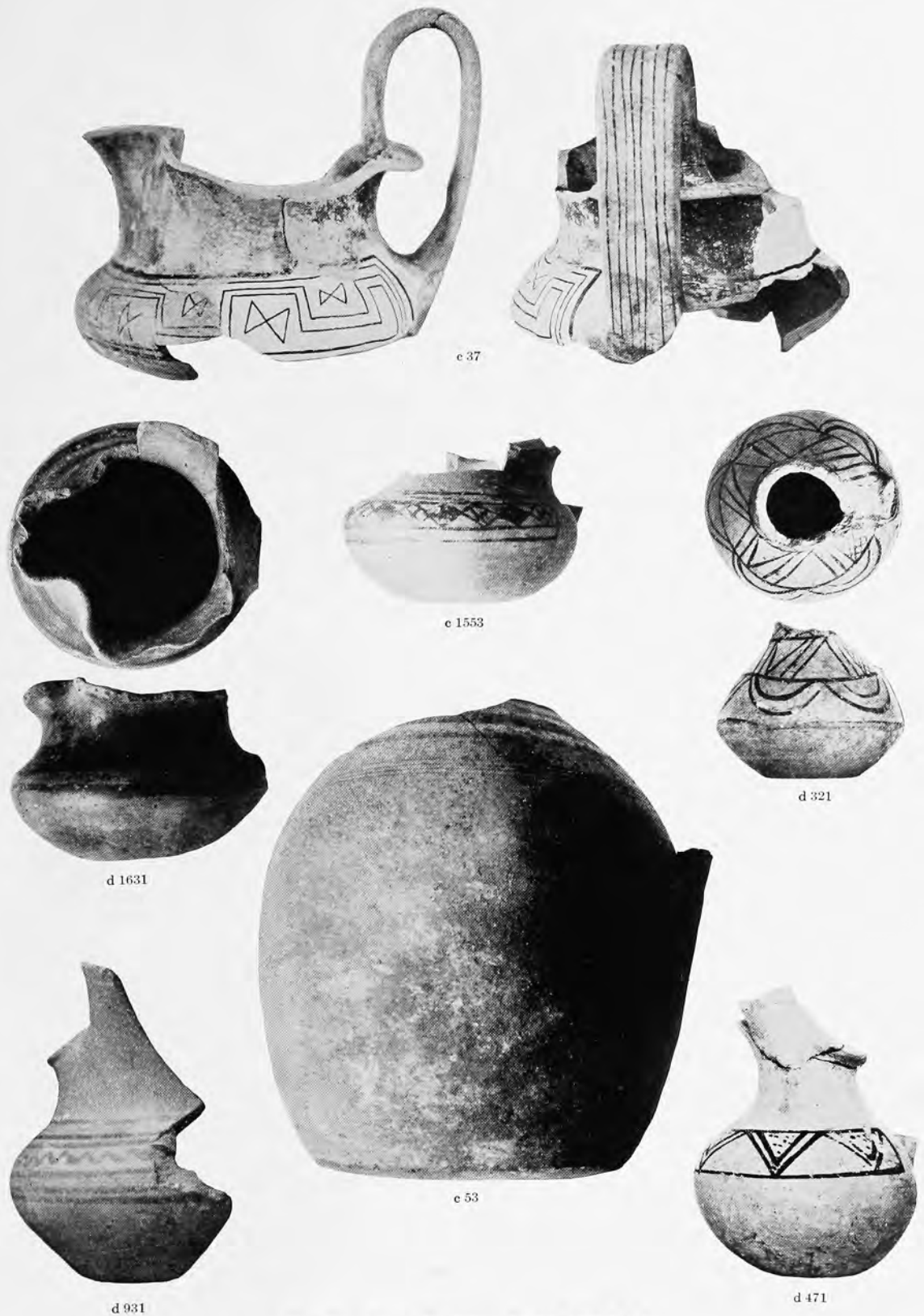
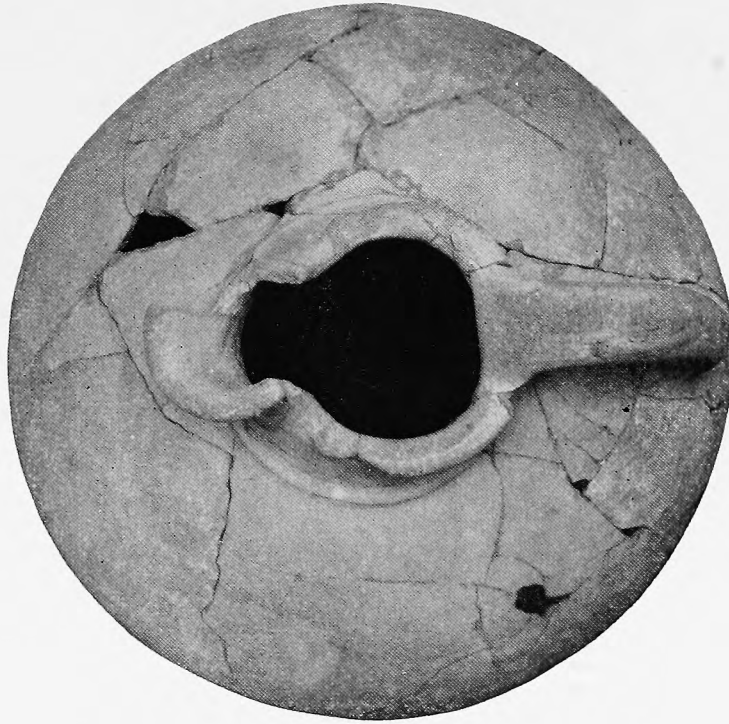


FIG. 38.—SMALL PITCHERS. SCALE, ABOUT 2:5





FIG. 39.—LARGE PITCHERS. SCALE, 1:5



e 1441



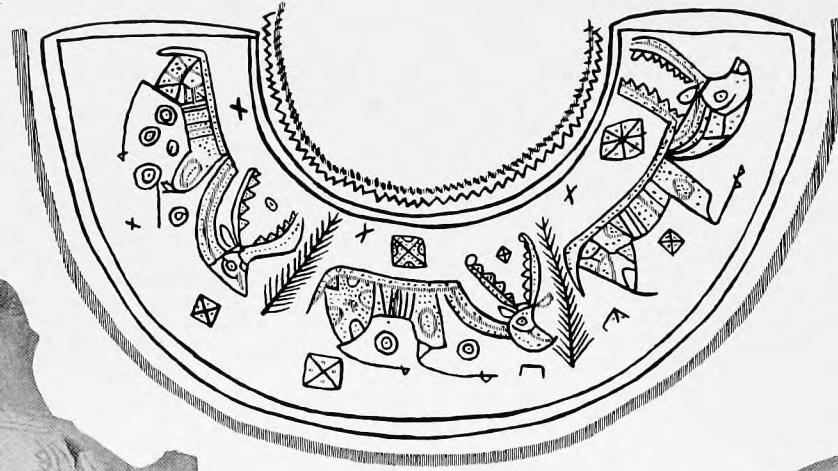
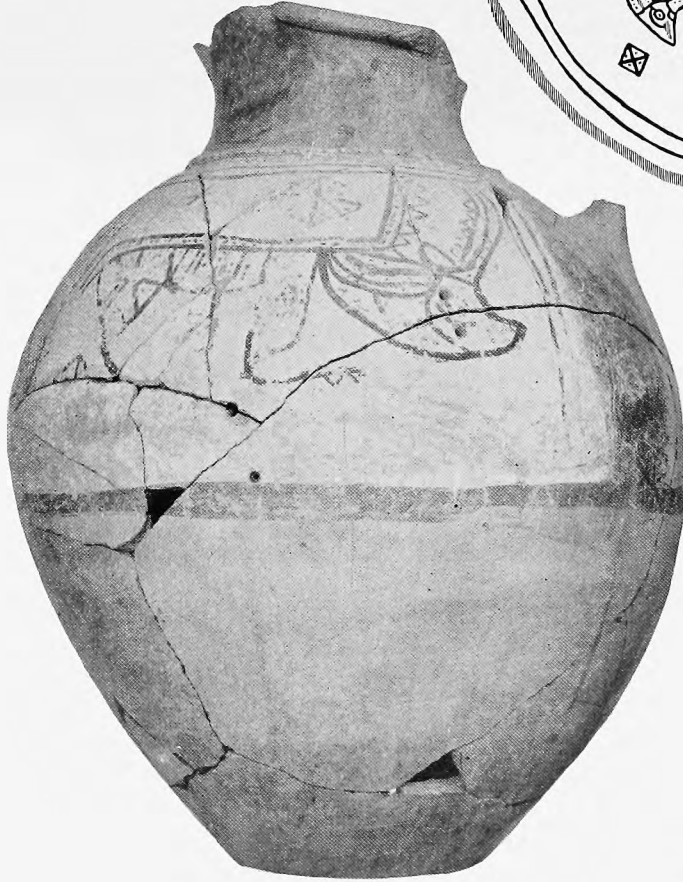
FIG. 40.—LARGE PITCHER. SCALE, ABOUT 1:5



c 36

FIG. 41.—LARGE PITCHER. SCALE, ABOUT 1:2

33

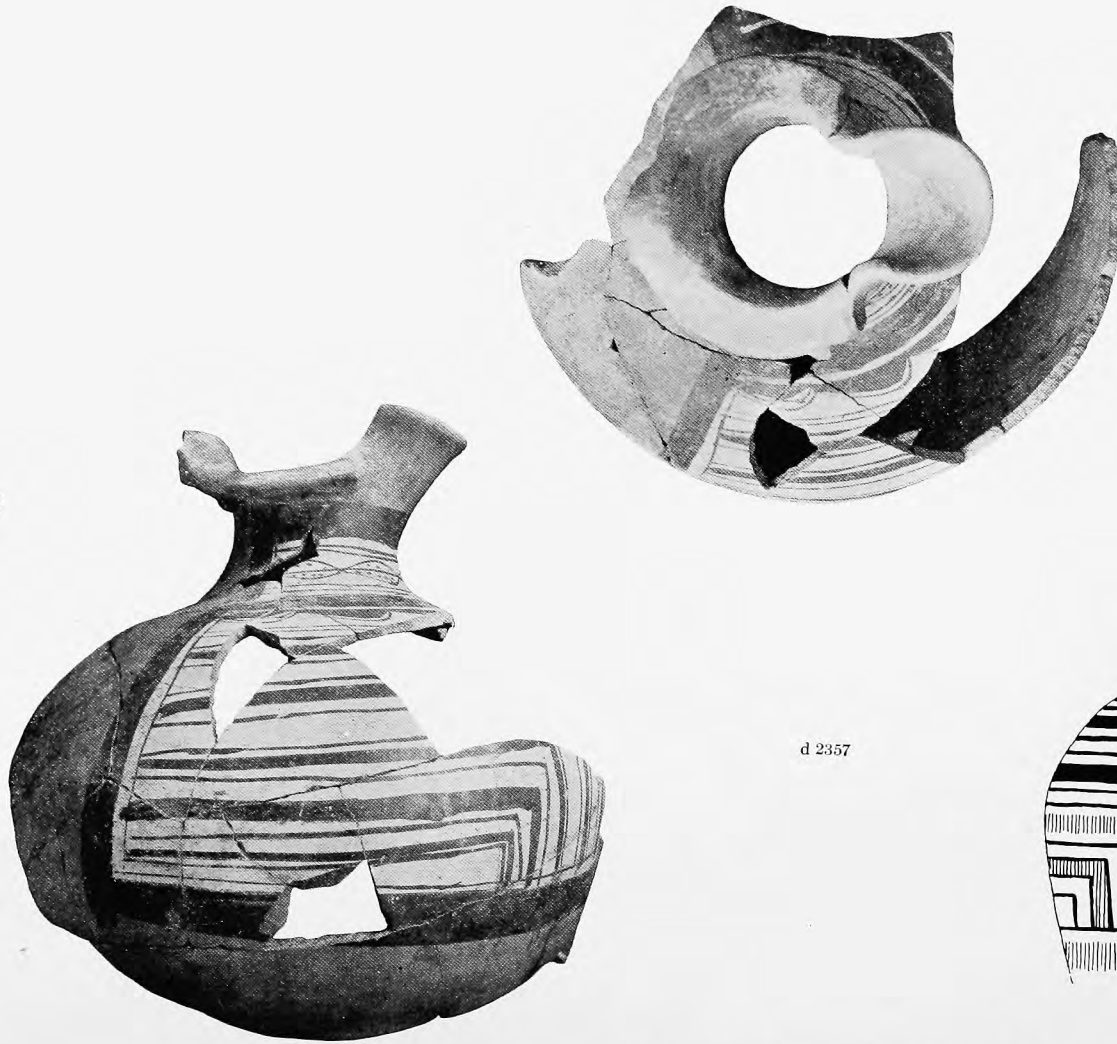


c 89



FIG. 42.—LARGE PITCHER. SCALE, 1:5

34



d 2357



FIG. 43.—LARGE PITCHER. SCALE, ABOUT 1:5



35



c 1411



c 128

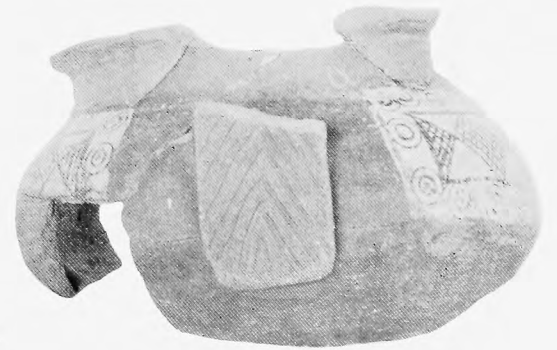


FIG. 44.—JARS. SCALE, ABOUT 2:5



cultural deposit. Most of them have flat or ring bases. No. a 470 has two knobs with string-holes. No. b 1313 has a semi-pedestal base and a belled orifice. No. c 128 (Fig. 44; cf. Pl. X), a medium-sized jar, presumably had two band handles bent at right angles; the creamy white panel has a geometrical design. This vessel also may be called "Galatian." Large jars with wide orifices and two handles, similar in form to those of the Post-Hittite-Phrygian period, appear very frequently; but these later jars have striped ornamentation in panels on the upper part of the body (e.g., d 2676, Fig. 45, and 3254, Pl. X). The handles are band-shaped, and often the base of the neck is emphasized by a ridge of varying cross-section (e.g., Fig. 63). Another type of jar has an ovoid body, a small orifice, and two band handles (e.g., b 456, Pl. X). Jars of this type are often decorated. No. a 511 (Pl. X) is ornamented in a style rather common in this period, and Nos. c 97 and d 1409 (Fig. 45) are decorated in a style resembling that of the Post-Hittite-Phrygian period. Nos. c 96 (Fig. 45), e 1018 (Fig. 46), and b 416b (Pl. X) are jars of a different type. Nos. d 2115 and e 682 (Fig. 46) I would like to call "Hellenistic." The large two-handled jar 184, with its elaborate ornamentation, and fragment b 887 (Pl. X) may be called "Galatian."

No. b 415 (Pl. XI), a large jar with two handles bent at right angles and extending from rim to shoulder, resembles closely a certain type of Greek amphora. Related to this piece are smaller jars with belled orifice, ovoid body, and flat or slightly concave bottom (d 355 and d 1155, Fig. 47; and c 2429 and e 876, Fig. 48). The handles are sometimes beveled (d 1155 and e 876). These jars were all found in cultural deposits belonging distinctly to the period of the second half of the first millennium B.C. On the other hand, a very similar jar (e 1286)<sup>24</sup> was found in a cultural deposit belonging definitely to the Post-Hittite-Phrygian period, in circumstances which make it very improbable that it was intrusive there.

The jars of "kitchen ware" (Figs. 49-50 and Pl. XI) are very similar to those of the previous period. They have a large orifice, a flat base, and one or two band handles. No. c 81 (Fig. 50) has a squat body, a concave bottom, and two band handles, and No. e 881 has a lateral tubular spout at right angles to its one high band handle.

The only complete storage vessels found (e 1349 and c 90, Fig. 51) resemble those of the previous period but are by no means as large, nor do they have ribs around the body. The numerous fragments of such vessels show that many of them had painted ornamentation, at least on rim and neck (Fig. 58). Another type, with handles, is represented by No. c 1412 (Fig. 52).

Nos. d 2360 (Fig. 53) and d 862 (Fig. 54) are fragments of flasks. No. d 1043 (Fig. 54) is a flask with two perforated lugs. Several vessels with ovoid bodies, small orifices, and pointed, perforated bottoms may have been sprinklers (e.g., e 2293, Fig. 55, and a 314, Pl. XI), but a worn band around the body of No. e 2293 suggests that they may have been used as dropping-bottles or funnels also. Nos. a 519 (Pl. XI) and c 82 (Fig. 54) are zoöomorphic vessels. No. e 1356 (Fig. 55) is a fragment of a rectangular vessel with funnel-shaped bottom and rams' heads in relief at the corners. A similar fragment with painted ornamentation was found in 1928 (a 9).<sup>25</sup> No. b 335 (Pl. XI) is a large rectangular trough with zigzag decoration in relief; several fragments of such vessels were found. It is possible that the sherds with painted decoration in Figure 77 belonged to a vessel of similar shape. Other vessels of various forms are represented in Plate XI. Nos. 231 and b 1305 seem to be beakers. Although Nos. 155 and b 732 are similar in shape to the two beakers, their use is problematical. The use of vessel b 576 also is unknown.

<sup>24</sup> *OIP* XXIX, Fig. 430.

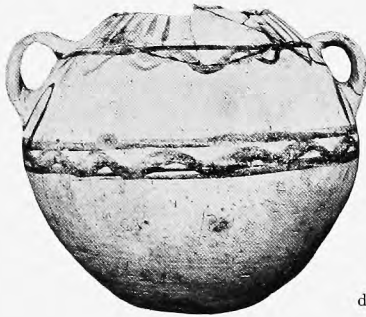
<sup>25</sup> *OIP* XX, Fig. 84. The reconstruction of No. e 1356 in Pl. XI of this volume has been made after a complete vessel of this type found by the expedition in 1929 at Çandır (Fig. 56).



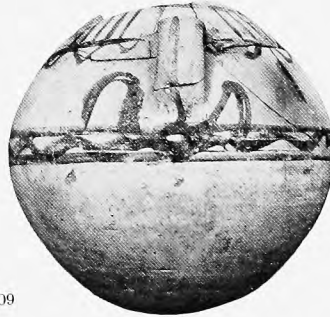
c 96



c 97



d 1409



d 2676

FIG. 45.—JARS. SCALE, 1:5



d 2115



e 682



e 1018

FIG. 46.—JARS. SCALE, ABOUT 1:5



c 1554



c 1109



c 2613



d 355



d 1155



FIG. 47.—JARS. SCALE, ABOUT 2:5



c 2429



e 876



FIG. 48.—JARS. SCALE, 1:3





e 1409



e 2301



e 1408



e 543



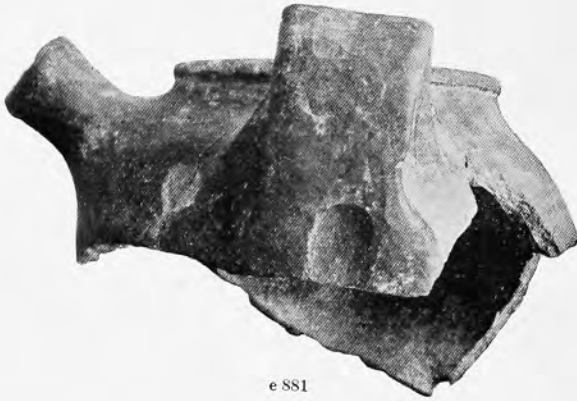
e 1405



FIG. 49.—"KITCHEN WARE." SCALE, 1:5



d 542



e 881



d 1275



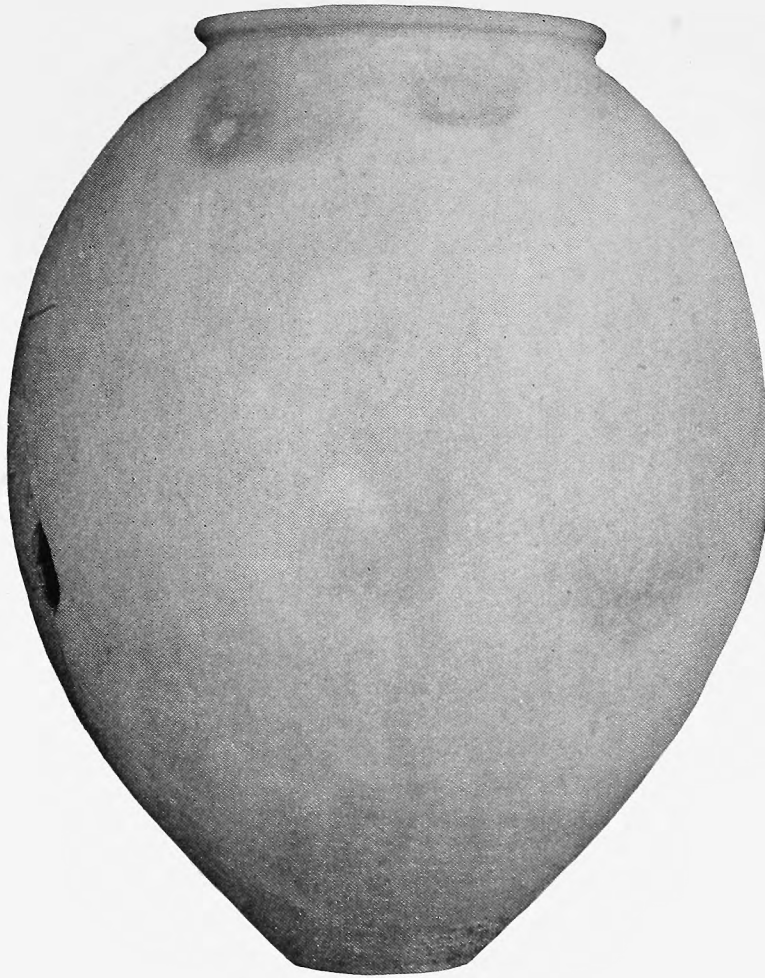
e 184



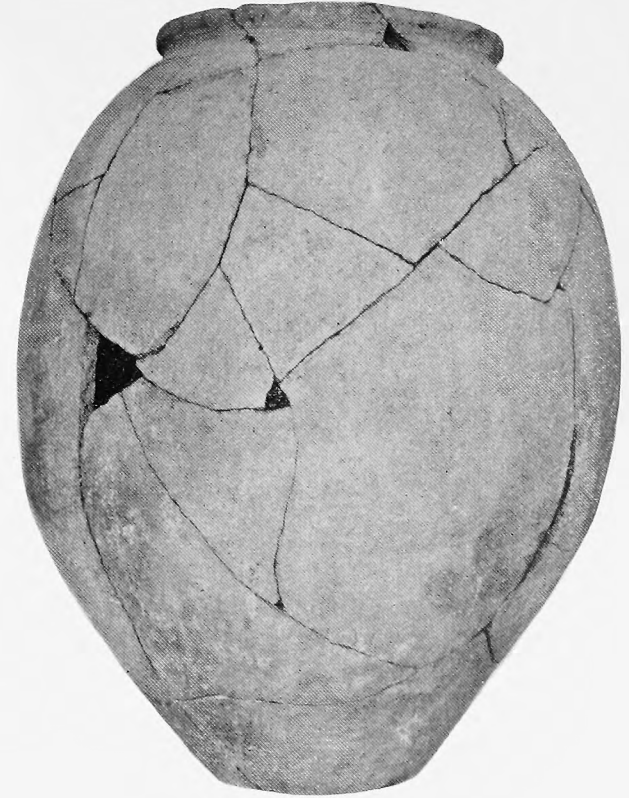
e 81

FIG. 50.—"KITCHEN WARE." SCALE, 2:5

43



e 1349



e 90

FIG. 51.—STORAGE VESSELS. SCALE, ABOUT 1:5



FIG. 52.—STORAGE VESSEL. SCALE, 1:5

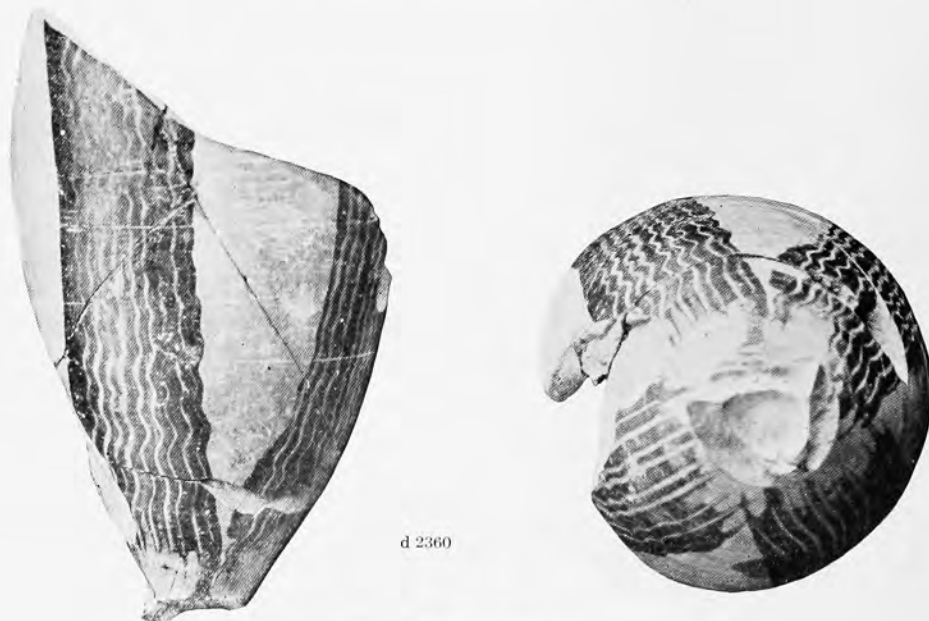


FIG. 53.—FLASK. SCALE, 3:5



c 82



d 1043



d 862

FIG. 54.—MISCELLANEOUS VESSELS. SCALE, 2:5



46



e 2293



e 1356

FIG. 55.—MISCELLANEOUS VESSELS. SCALE, 2:5

## DETAILS

The variety of shapes of rims is naturally very great. Typical are the sharply accentuated rims of storage vessels (Fig. 58). Large jars with striped ornamentation have sharply profiled rims (Fig. 66). Jars which are characterized by lug handles also have sharply profiled rims, which often show ornamentation on the lip (Fig. 72 11-16). Vessels of the ware characterized by a purplish brown wash often have flaring rims. Of the various other types appearing in this period the cross-sections in Figures 57-59, 62, 67, 69, 72, 74, 76, and 78-80 give an adequate representation.

Band handles are especially common. Sometimes they appear with a right-angled bend (e.g., b 415, Pl. XI, and c 128, Pl. X). Other handles characteristic for this period are grooved



FIG. 56.—RECTANGULAR VESSEL FOUND AT CANDIR

(Fig. 78 3-6). Ledge handles appear sometimes (Fig. 78 1). Jars of a certain type have lug handles (Fig. 72 11-16). Another type of jar with a flaring rim sometimes has beveled handles (e.g., e 876, Fig. 48). A few knob handles appear, some showing string-holes; a few sherds have knob handles shaped like knucklebones (e.g., Fig. 80 7). A peculiar form of handle appears in Figure 78 2.

Bottoms are usually flat, rounded, or slightly concave. Ring bases appear, as well as pedestal and semi-pedestal bases. In Figure 79 13 is illustrated a fragment of a vessel which seemingly had legs.

Beak-spouts appear on one type of small pitcher. Other pitchers have clover-leaf orifices, sometimes combined with beak-spouts. A few lateral tubular spouts were found (Fig. 60); the shapes of Nos. 2-6 are especially interesting.

Decorative motives are illustrated in Figures 57-58, 60-65, 67-69, 71-77, and 79-80.<sup>26</sup>

<sup>26</sup> In the drawings of sherds the darker color of the decoration appears in black, whereas the lighter is in shading; if there is a third, still lighter color, it is stippled.

DESCRIPTIONS OF INDIVIDUAL VESSELS<sup>27</sup>

## Bowls

- 276 (Pl. IX; *OIP* XX, Pl. II A). Bowl with semi-pedestal base, .074 high, .190 in diameter;<sup>28</sup> fine, very well made ware; <sup>29</sup> grayish buff paste; moderately fired; brownish buff slip over entire vessel; white, red, and dark brown stripes on interior and exterior. Found in E-F 12-13, possibly in association with coin 267.<sup>30</sup>
- 3363 (Pl. IX). Fragmentary bowl .045 h., .215 d.; fine, very well made ware; reddish buff paste; moderately fired; buff to reddish buff slip over entire vessel. Found in a refuse deposit of this period on the western extension of the citadel mound.
- 3364 (Pl. IX). Fragmentary bowl .060 h., .227 d.; medium, well made ware; reddish buff paste; moderately fired; buff slip over entire vessel showing pronounced concentric burnishing marks. Found in a refuse deposit of this period on the western extension of the citadel mound.
- 3365 (Pl. IX). Fragmentary bowl with knob handles on rim, .030 h., .120 d.; medium, well made ware; reddish buff paste; moderately fired; reddish buff slip over entire vessel; traces of blackish brown design on rim. Found in a refuse deposit on the western extension of the citadel mound.
- 3367 (Pl. IX). Fragmentary bowl .040 h., .150 d.; fine, well made ware; reddish buff paste; moderately fired; buff to reddish buff slip over entire vessel; highly burnished. Found in a refuse deposit on the western extension of the citadel mound.
- 3368 (Pl. IX). Fragmentary bowl .045 h., .200 d.; medium, well made ware; grayish buff paste; moderately fired; slip over entire vessel, now grayish buff as a result of probably accidental heat but showing traces of the original reddish buff. Found in a refuse deposit on the western extension of the citadel mound.
- 3369 (Fig. 30 and Pl. IX). Fragmentary bowl with semi-pedestal base(?), .060\* h., .220 d.; medium, well made ware; reddish buff paste; moderately fired; red slip over entire vessel; design of white and reddish brown concentric rings in center of interior, and white and reddish brown stripes around exterior and interior of rim. Found in a refuse deposit on the western extension of the citadel mound.
- c 1504 (Fig. 30 and Pl. IX). Bowl .055\* h., .232 d.; fine, very well made ware; buff paste; moderately fired; light brownish buff slip over entire vessel. Found 1.60 deep in AA 24.
- c 1953 (Fig. 31 and Pl. IX). Bowl .085 h., .225 d.; fine, very well made ware; reddish buff paste; moderately fired; reddish buff slip over all; on inside concentric rings in brownish red, gray, and creamy white; on outside ornamentation in brownish red and gray on a creamy white panel. Found 3 meters deep in Z 24.
- c 2200 (Fig. 32 and Pl. IX). Bowl .065 h., .173 d.; fine, very well made ware; reddish buff paste; moderately fired; reddish buff slip over all; on inside concentric rings in brownish red and grayish white; on outside red and grayish bands on a creamy white panel. Found beneath the Roman-Byzantine foundations in U 26.
- c 2249 (Fig. 31 and Pl. IX). Bowl .085 h., .218 d.; similar to No. c 1953. Found 3 meters deep in a pit in R 29.
- c 2745 (Fig. 30 and Pl. IX). Fragmentary bowl .040\* h., .205 d.; fine, very well made ware; buff paste; moderately fired; reddish buff slip over entire vessel; design in brownish red and blackish brown. Found 2.60-3.10 deep in U 27.
- d 356 (Fig. 30 and Pl. IX). Bowl .035 h., .148 d.; fine, well made ware; buff paste with gray core; moderately fired; wet-smoothed. Found 1.80-2.10 deep in T 27.
- d 2356 (Fig. 30 and Pl. IX). Bowl .035 h., .126 d.; very fine, well made ware; buff paste; moderately fired; carefully applied buff slip over entire vessel. Found 2.20 deep in Q 31.
- e 1276a (Fig. 33 and Pl. IX). Bowl .070 h., .180 d.; fine, well made ware; buff paste; moderately fired; reddish buff wash on upper part of exterior, reddish buff slip over interior; molded pattern on lower part and bottom of exterior. Found below the Roman-Byzantine level in S 18 with e 1277a.

<sup>27</sup> Only a few of the vessels found from 1927 to 1929 are enumerated here. Other vessels of this period found in those seasons are described in *OIP* VI 249-57 and *OIP* XX 40-51. Drawings of typical forms from the seasons of 1927-32 are given in Pls. IX-XI.

<sup>28</sup> The measurements, hereafter abbreviated to the form ".074 h., .190 d.," are given here, as elsewhere, in fractions of meters. The dimensions given are maximal, but in the case of jars, pitchers, etc. they are for the body only and do not include handles or spouts. Asterisks distinguish dimensions of preserved portions of incomplete objects. In a few cases one dimension only, or none at all, can be given.

<sup>29</sup> All vessels of this period are grit-tempered.

<sup>30</sup> *OIP* VII 54.

BOWLS WITH PEDESTAL BASES

- d 1624 (Fig. 30 and Pl. IX). Fragmentary bowl, pedestal base missing, .060\* h., .210 d.; one lug handle preserved; medium, well made ware; buff paste; heavily fired; reddish buff slip, discolored by fire, over entire vessel; much faded floral design in center of interior. Found 3.00-3.20 deep in T 28.
- e 1519 (Fig. 30 and Pl. IX). Bowl, pedestal base now partly broken off, .060\* h., .260 d.; medium, fairly well made ware; buff paste; moderately fired; wet-smoothed; reddish wash on rim. Found in refuse between the Phrygian and Hellenistic levels in H 8.

PLATE

- d 421 (Fig. 34 and Pl. IX). Plate with ring base, .047 h., .410 d.; fine, very well made ware; buff paste; moderately fired; brownish slip over exterior and reddish slip over interior, which is decorated with incised concentric circles around center. Found 1.80 deep in S 30.

SMALL PITCHERS

- e 37 (Fig. 38 and Pl. IX). Pitcher with clover-leaf orifice and high band handle, .148 d.; carinated rim except on the middle lobe, which serves as spout; fine, very well made ware; buff paste; lightly fired; yellowish buff wash on body below design panel and above it, extending inside rim, but not on handle; design in reddish brown and brownish red on buff panel. Found with No. e 36, .80 deep in J 27.
- e 53 (Fig. 38). Fragmentary pitcher with flat base, .200\* h., .182 d.; medium, well made ware; reddish buff paste; moderately fired; wet-smoothed; brownish red stripes on a creamy band above a band of incised lines on shoulder. Found 1.80 deep in U 28.
- e 697 (Fig. 36 and Pl. IX). Pitcher with clover-leaf orifice and high band handle, .082 h., .118 d.; fine, very well made ware; buff paste; moderately fired; carefully polished buff slip on exterior, extending inside rim. Found 1 meter deep in I 31.
- e 1113 (Fig. 37). Fragmentary pitcher .245\* h., .265 d.; medium, well made ware; grayish buff paste; moderately fired; buff slip over exterior, partly stained by fire. Found 3 meters deep in A 24.
- e 1553 (Fig. 38 and Pl. IX). Fragmentary pitcher .065\* h., .100 d.; very fine, very well made ware; buff paste; moderately fired; reddish buff wash on exterior; design in brownish black and brownish red. Found 1.10 deep in CC 24.
- d 321 (Fig. 38 and Pl. IX). Fragmentary pitcher .066\* h., .080 d.; medium, well made ware; buff paste; moderately fired; yellowish buff slip over exterior; design in blackish brown. Found 1 meter deep in R 31.
- d 471 (Fig. 38 and Pl. IX). Pitcher with beak-spout, .095 h., .095 d.; fine, well made ware; buff paste; moderately fired; buff slip over exterior, extending inside rim; design in lustrous black. Found 1.75-1.80 deep in T 30.
- d 567 (Fig. 36 and Pl. IX). Pitcher with clover-leaf orifice and one band handle, .160 h., .164 d.; medium, very well made ware; moderately fired; grayish buff paste; wet-smoothed. Found about 1.15 deep in P 29.
- d 744 (Fig. 36 and Pl. IX). Pitcher with clover-leaf orifice, .100 h., .116 d.; medium, well made ware; moderately fired; buff paste; reddish buff slip on neck, rim, and handle; traces of much faded striped design in brownish black and reddish brown above median body. Found 2.95-3.35 deep in T 30.
- d 929 (Fig. 35). Fragmentary pitcher .095\* h., .100 d.; fine, fairly well made ware; grayish buff paste; moderately fired; wet-smoothed on upper part of body, roughly finished below median body line. Found in a limestone block, probably a door socket, in S 30.
- d 931 (Fig. 38 and Pl. IX). Pitcher with clover-leaf orifice, .102 h., .103 d.; fine, well made ware; buff paste; moderately fired; buff slip over exterior, extending inside rim; design in blackish brown and brownish red. Found 1.40-1.85 deep in R 28.
- d 1631 (Fig. 38 and Pl. IX). Pitcher with clover-leaf orifice, .077 h., .108 d.; fine, well made ware; buff paste; moderately fired; buff slip over exterior, extending inside rim; remains of reddish wash from median body to inside of rim; design in brownish red. Found 2.80-3.30 deep in T-U 27.
- d 2002 (Fig. 37 and Pl. IX). Pitcher with clover-leaf orifice, .096 h., .125 d.; fine, well made ware; buff paste; heavily fired; buff slip over exterior, extending inside rim. Found in P 29.
- d 2204 (Fig. 37 and Pl. IX). Pitcher with clover-leaf orifice and handle at right angles to spout, .200 h., .164 d.; coarse, fairly well made ware; grayish buff paste; moderately fired; wet-smoothed. Found 2.40-2.45 deep in Q 28.

LARGE PITCHERS

- e 36 (Fig. 41 and Pl. X). Fragmentary pitcher .370\* h.; medium, well made ware; reddish buff paste; moderately fired; light reddish buff slip over exterior, up to edge of rim; design in black and reddish brown on a



cream-colored panel; a reddish brown wash has been applied to the vessel outside the panel. Found with e 37, .80 deep in J 27.

- e 89 (Fig. 42 and Pl. X). Pitcher with clover-leaf orifice, .560\* h., .460 d.; medium, well made ware; buff paste; moderately fired; thin buff slip over exterior; design in brownish black and reddish brown on a creamy white panel; a small perforation appears in the middle of the bottom; three old breaks have been mended with ties. Found with e 90, 2.25 deep in U 28.
- d 1280 (Fig. 39 and Pl. IX). Pitcher with semi-pedestal base, .360 h., .220 d.; medium, well made ware; moderately fired; buff paste; reddish buff slip over exterior, extending inside rim. Found 2.20-2.50 deep in S 31.
- d 2357 (Fig. 43 and Pl. X). Pitcher with clover-leaf orifice, .380\* h., .420 d.; coarse, very well made ware; buff paste; moderately fired; reddish buff slip over exterior, extending inside rim; design in blackish brown and brownish red on a creamy white panel. Found 2.00-2.10 deep in P 28.
- e 882 (Fig. 39 and Pl. IX). Pitcher with clover-leaf orifice, .360 h., .290 d.; fine, well made ware; buff paste; moderately fired; whitish buff slip over exterior, extending inside rim. Found in a Hellenistic deposit in C-D 9.
- e 1350 (Fig. 39 and Pl. IX). Pitcher with clover-leaf orifice, .550 h., .440 d.; coarse, well made ware; buff paste; heavily fired; reddish buff slip over exterior, extending inside rim. Found with No. e 1349 in C 13-14.<sup>31</sup>
- e 1441 (Fig. 40 and Pl. IX). Pitcher with beak-spout in a clover-leaf orifice, .543 h., .493 d.; coarse, well made ware; grayish buff paste; moderately fired; reddish buff slip over exterior, extending inside rim. Found in B 13-14.

#### SMALL JARS

- e 1109 (Fig. 47 and Pl. X). Jar .073 h., .099 d.; coarse, fairly well made ware; buff paste; moderately fired; roughly finished. Found 2.10 deep in A 24.
- e 1554 (Fig. 47 and Pl. X). Jar .090 h., .084 d.; fine, very well made ware; buff paste; moderately fired; carefully burnished, almost suggestive of a glaze. Found 1.10 deep in CC 24.
- e 2613 (Fig. 47 and Pl. X). Jar .089 h., .090 d.; fine, well made ware; reddish buff paste; moderately fired; reddish buff slip on exterior. Found 2.90 deep in T 29.

#### LARGER JARS

- b 4166 (Pl. X). Jar .320 d.; medium, well made ware; grayish buff paste; moderately fired; light grayish buff slip decorated with brownish red stripes. Found in K 13.
- b 456 (Pl. X). Two-handled jar with small orifice, .300\* h., .370\* d.; medium, well made ware; buff paste with gray core; moderately fired; reddish brown slip. Found in a refuse deposit between the Phrygian and Hellenistic levels in G 8.
- e 96 (Fig. 45 and Pl. X). Jar with small orifice, .250\* h., .350 d.; medium, well made ware; buff to reddish buff paste with gray core; moderately fired; wet-smoothed; design in reddish brown. Found 1.30 deep in M 29.
- e 97 (Fig. 45 and Pl. X). Fragmentary jar with small orifice and probably two handles, .255\* h., .290 d.; medium, well made ware; reddish buff paste; moderately fired; wet-smoothed; design in reddish brown. Found 1.30 deep in M 29.
- e 128 (Fig. 44 and Pl. X). Jar of medium size with large orifice and two handles, .102\* h., .175 d.; medium, well made ware; buff paste; moderately fired; dark red slip on outside of vessel to upper edge of sharply profiled rim; design in brownish red and reddish brown on a creamy white panel; upper edge of rim shows a brownish red design on a creamy white stripe; handle decorated with an incised herringbone design. Found 2.80 deep in U 28.
- e 1411 (Fig. 44). Jar with small orifice, .277\* h.; medium, well made ware; buff paste; moderately fired; wet-smoothed; design in brownish red and reddish brown on a creamy white panel. Found 3 meters deep with Nos. e 1404-10 and e 1412 in a room in A 24.
- d 1409 (Fig. 45 and Pl. X). Two-handled jar .195\* h., .230 d.; medium, well made ware; buff paste; moderately fired; light buff slip on exterior; design in blackish brown. Found 2.50-2.85 deep in R 30.
- d 2115 (Fig. 46). Jar with small orifice, .460 h., .290 d.; medium, well made ware; buff paste; moderately fired; buff slip; purplish brown wash on upper part of exterior, extending from inside rim to just below median body. Found 4.40 deep in U 28.
- d 2676 (Fig. 45 and Pl. X). Jar with large orifice and two handles, .300\* h., .495 d.; coarse, very well made ware; buff paste; moderately fired; reddish buff slip over exterior, extending inside rim; design in brownish red on a creamy white panel. Found 2.85 deep in R 28.

<sup>31</sup> Cf. OIP XXIX, Fig. 376.



- e 682 (Fig. 46 and Pl. X). Jar with small orifice, .380 h., .245 d.; medium, well made ware; buff paste with gray core; moderately fired; lower part of exterior wet-smoothed; purplish brown wash on upper part of exterior, extending from inside rim to just below median body. Found in a deposit of the Hellenistic period in C-D 12.
- e 1018 (Fig. 46 and Pl. X). Jar with small orifice and a flattened space at median body with two knobs, .550\* h., .360 d.; coarse, fairly well made ware; buff paste; moderately fired; buff to reddish buff slip of varying shades on exterior; design in brownish red. Found in a refuse deposit of the Hellenistic period in C 12.

## TWO-HANDLED JARS WITH BELLED ORIFICES

- e 2429 (Fig. 48 and Pl. XI). Jar .222 h., .105 d.; fine, very well made ware; buff paste; moderately fired; light buff slip on outside, extending inside rim; carefully polished. Found 2.40 deep in U 29.
- d 355 (Fig. 47 and Pl. XI). Jar .148\* h., .128 d.; fine, well made ware; buff paste; moderately fired; reddish buff slip on exterior; purplish brown wash on ends of handles and around rim, extending inside. Found 1.80-2.10 deep in T 27.
- d 1155 (Fig. 47 and Pl. XI). Jar with handles of octagonal cross-section, .230 h., .125 d.; medium to fine, well made ware; buff paste; moderately fired; purplish brown wash on exterior, extending inside rim; a few spots on inside of each handle, not covered by the wash, show a buff slip. Found 1.50-1.80 deep in Q 27.
- e 876 (Fig. 48 and Pl. XI). Jar with handles of octagonal cross-section, .280 h., .182 d.; very fine, very well made ware; buff paste with gray core; moderately fired; purplish brown wash over exterior, extending inside rim as far as neck line; buff slip shows on bottom. Found in a refuse deposit of the Hellenistic period in C-D 9.

## "KITCHEN WARE"

- e 81 (Fig. 50 and Pl. XI). Two-handed jar .132 h., .175 d.; medium, very well made ware; reddish buff paste; moderately fired; thin red slip over entire vessel. Found with No. e 82, 1.10 deep in J 25.
- e 184 (Fig. 50). Fragmentary jar, probably with only one handle, .212 h., .195 d.; coarse, fairly well made ware; reddish buff paste; moderately fired; wet-smoothed and subsequently blackened by fire. Found 3.10 deep in U 28.
- e 543 (Fig. 49). One-handed jar .231 h., .243 d.; coarse, fairly well made ware; reddish buff paste; moderately fired; wet-smoothed; subsequently blackened by fire. The pot, containing skeleton e X8 and animal bones, stood orifice up with no cover slab. Found 1 meter deep in YY 24.
- e 1404 (Pl. XI). One-handed jar .207 h., .218 d.; coarse, fairly well made ware; grayish buff paste; moderately fired; wet-smoothed; subsequently blackened by fire. Found with Nos. e 1405-12 (e 1410 is a sherd), 3 meters deep in a room in A 24.
- e 1405 (Fig. 49 and Pl. XI). One-handed jar .201 h., .208 d.; coarse, fairly well made ware; buff paste; moderately fired; wet-smoothed; subsequently blackened by fire. Found with No. e 1404.
- e 1406 (Pl. XI). One-handed jar .204 h., .207 d.; coarse, fairly well made; reddish buff paste; moderately fired; wet-smoothed; subsequently blackened by fire. Found with No. e 1404.
- e 1407 Jar with one handle, .203 h., .209 d.; like No. e 1406. Found with No. e 1404.
- e 1408 (Fig. 49 and Pl. XI). One-handed jar .170 h., .184 d.; coarse, fairly well made ware; reddish buff paste; moderately fired; wet-smoothed; subsequently blackened by fire. Found with No. e 1404.
- e 1409 (Fig. 49 and Pl. XI). Large bowl with two(?) ledge handles on shoulder, .186 h., .415 d.; coarse, well made ware; reddish buff paste; moderately fired; wet-smoothed. Found with No. e 1404.
- d 542 (Fig. 50 and Pl. XI). One-handed jar .100 h., .120 d.; coarse, poorly made ware; grayish buff paste; heavily fired; wet-smoothed. Found 2.30-2.50 deep in R 30.
- d 1275 (Fig. 50 and Pl. XI). Jar .061 h., .071 d.; fine, fairly well made ware; grayish buff paste; heavily fired; wet-smoothed. Found 2.80 deep in S 28.
- e 881 (Fig. 50 and Pl. XI). Jar or pitcher with lateral tubular spout and band handle, .120\* h., .172 d.; coarse, fairly well made ware; buff paste; heavily fired; black slip over all. Found in a Hellenistic deposit in C-D 9.
- e 2301 (Fig. 49; cf. b 1302, Pl. XI). Large bowl with one ledge handle opposite a spout at rim, .140 h., .380 d.; medium, well made ware; reddish buff paste; moderately fired; wet-smoothed; several holes made anciently for repairing. Found in a refuse deposit between Levels 3b and 4a M in L 12.

## STORAGE VESSELS

- e 90 (Fig. 51 and Pl. XI). Storage vessel .525 h., .430 d.; medium, well made ware; buff paste with gray core; moderately fired; buff to reddish buff slip with variations due to firing. Found 2.40 deep in U 28.

- c 1412 (Fig. 52). Storage vessel with ovoid body and two handles, .520\* h., .501 d.; medium, well made ware; reddish buff paste; moderately fired; buff slip over exterior extending inside rim; two ribs encircle body, one at upper, one at lower end of handles. Found 3 meters deep with Nos. c 1404-11 in a room in A 24.
- c 1349 (Fig. 51 and Pl. XI). Storage vessel .640 h., .524 d.; coarse, well made ware; buff paste; heavily fired; buff slip with reddish buff blotches, due to firing, on exterior, extending inside rim. Found with No. c 1350 in C 13-14.<sup>32</sup>

# MISCELLANEOUS VESSELS

- b 576 (Pl. XI). Vessel .239 h., .078 d.; medium, well made ware; grayish buff paste; moderately fired; dark buff slip. Found in F-G 8.
- b 732 (Pl. XI). Beaker(?) .294\* h., .195 d.; medium, well made ware; grayish buff paste; moderately fired; buff to grayish buff slip. Found 2.70-3.20 deep in X 19.
- b 1305 (Pl. XI). Beaker .135 h., .107\* d.; medium, well made ware; buff paste; moderately fired; wet-smoothed. Found in I 3.
- c 82 (Fig. 54). Fragmentary vessel in the shape of an animal, .110 h., .100 d. of body; handmade; medium, fairly well made ware; reddish buff paste; moderately fired; buff slip on exterior. Found with No. c 81, 1.10 deep in J 25.
- d 862 (Fig. 54 and Pl. XI). Flask with pedestal base, .235\* h., .102 d.; medium, fairly well made ware; buff paste; moderately fired; roughly finished. Found 1.60-2.10 deep in T 31.
- d 1043 (Fig. 54 and Pl. XI). Flask with two perforated knobs for handles, .187 h., .100×.160 d.; handmade; medium, very well made ware; buff paste; moderately fired; buff slip over exterior, extending inside rim; three concentric circles incised at each side. Found 2.10 deep in Q 28.
- d 2360 (Fig. 53 and Pl. XI). Fragmentary flask(?) .140\* h., .082 d.; fine, very well made ware; buff paste; moderately fired; yellowish buff slip over exterior; design in reddish brown. Found 2.00-2.10 deep in P 28.
- e 1356 (Fig. 55 and Pl. XI). Rectangular vessel with open, funnel-shaped bottom, .370\* h.; coarse, well made ware; buff paste; moderately fired; buff slip over all; stripes of yellowish red paint on rim, at angles of corners, and above base; ram's head in relief on corner of rim. Found in a refuse deposit of the Hellenistic period in H 8.
- e 2293 (Fig. 55 and Pl. XI). Funnel(?) .160 h., .108 d.; medium, well made ware; buff paste; moderately fired; buff slip below median body; dark red slip above median body, extending inside rim; a rubbed space around the center seems to indicate that it was used to set in a pot with a larger orifice. Found in a refuse deposit of the Hellenistic period in J 8.

# DESCRIPTIONS OF POTSDHERDS

## FIGURE 57. RIM PIECES OF BOWLS

COARSE WARE	
Buff paste, wet-smoothed	3
Reddish buff paste, wet-smoothed	1-2
wet-smoothed on outside, buff slip on inside	17, 21
MEDIUM WARE	
Buff paste, brownish buff slip, burnished	5
red slip, burnished	22, 25, 35, 37, 43-46
dark red slip	29
reddish buff slip, buff on lip	24, 28
buff slip, reddish wash on inside, extending over rim	36, 40, 47
reddish wash	27
Buff paste with gray core, buff slip	39
yellowish buff slip	34
outside wet-smoothed, brownish buff slip on inside; ledge on inside of rim	48
Grayish buff paste, buff slip	31
Reddish buff paste, buff slip	4
buff slip, brownish black decoration on lip	19, 49
buff slip, reddish brown wash on rim	30
reddish buff slip, burnished	6-9, 18, 23, 26, 32, 38, 42

<sup>32</sup> Cf. *OIP* XXIX, Fig. 376.

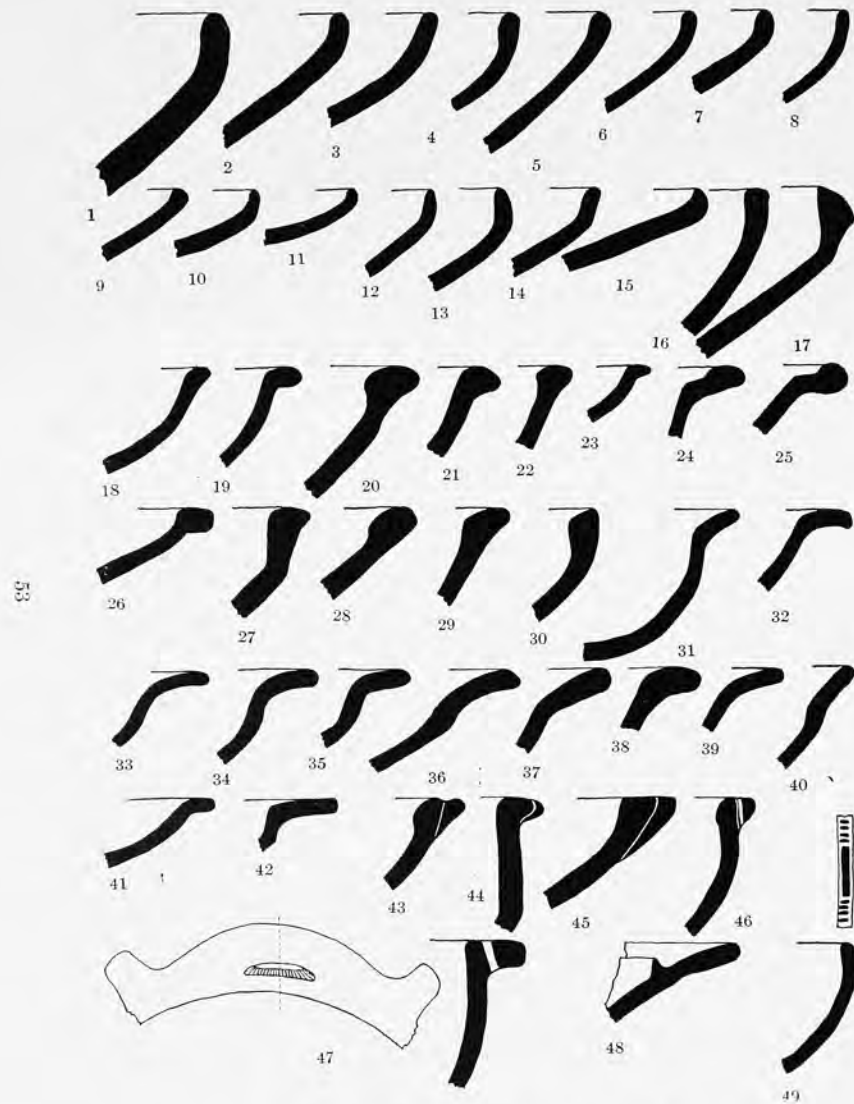


FIG. 57.—RIM PIECES OF BOWLS. SCALE, 1:3



FIG. 58.—RIM PIECES OF STORAGE VESSELS. SCALE, 1:3

pinkish buff slip . . . . .	11, 16, 20
light brownish buff slip, burnished . . . . .	12
Reddish buff paste with gray core, buff slip . . . . .	13

FINE WARE

Buff paste, buff slip, burnished . . . . .	14
brownish buff slip, burnished . . . . .	33
Yellowish buff paste, whitish buff slip . . . . .	10, 15, 41

FIGURE 58. RIM PIECES OF STORAGE VESSELS

COARSE WARE

Buff paste, buff slip with reddish brown decoration . . . . .	8
Reddish buff paste with buff core, reddish buff slip with brownish black decoration . . . . .	3

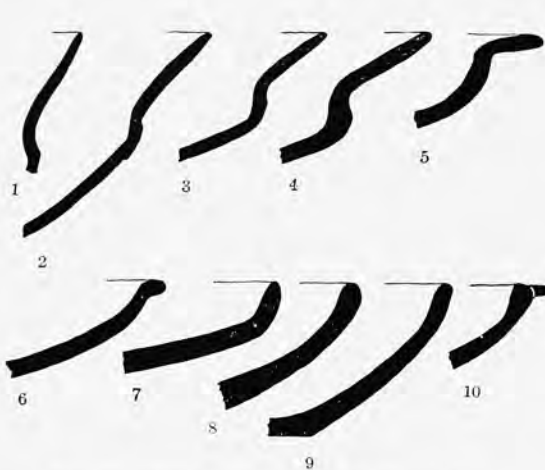


FIG. 59.—RIM PIECES OF BOWLS. SCALE, 1:3

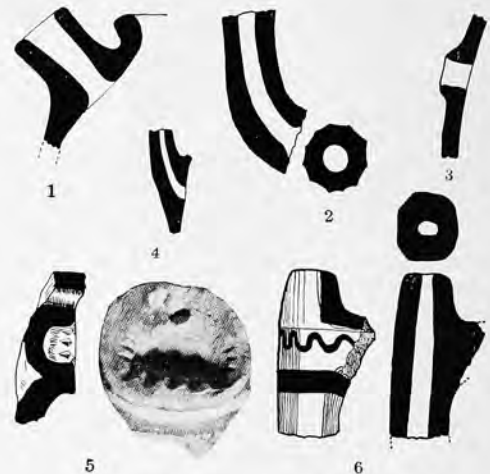


FIG. 60.—SPOUTS. SCALE, 1:3

MEDIUM WARE

Buff paste, wet-smoothed; on lip, buff slip and incised figure . . . . .	2
buff slip . . . . .	6, 10
buff slip with reddish brown decoration . . . . .	1
Grayish buff paste, reddish buff slip . . . . .	9
Reddish buff paste, wet-smoothed . . . . .	4
buff slip with brownish black decoration . . . . .	7
Reddish buff paste with gray core, reddish buff slip; on lip two impressions of a hairpin . . . . .	5

FIGURE 59. RIM PIECES OF BOWLS

All are of fine, grayish buff ware with reddish buff to buff slip and thick purplish brown wash inside and outside of rim or all over.

FIGURE 60. SPOUTS

MEDIUM WARE

Reddish buff paste, wet-smoothed; lateral spout . . . . .	1
reddish buff slip with reddish brown decoration . . . . .	6
Reddish buff paste with gray core, reddish buff slip . . . . .	3
reddish buff slip decorated with purplish brown stripes; spout in the shape of an animal's muzzle . . . . .	5



FINE WARE

Buff paste, buff slip	2
Reddish buff paste with gray core, reddish buff slip	4

FIGURE 61. DECORATED SHERDS

All except No. 14 are of medium ware.

1. Buff paste; cream-colored panel with brownish red and reddish brown decoration.
2. Buff paste; reddish buff slip; cream-colored panel with brownish red and reddish brown decoration.
3. Buff paste; reddish buff slip; buff panel with brownish red and reddish brown decoration.
4. Buff paste; buff slip with brownish red and reddish brown decoration.
5. Reddish buff paste; reddish buff slip; creamy white panel with reddish brown and brownish red decoration.
6. Reddish buff paste; red slip; pinkish buff panel with reddish brown decoration.
7. Buff paste; buff slip and reddish wash; creamy white background with brownish red and reddish brown decoration.
8. Reddish buff paste; buff slip with red and reddish brown decoration.
9. Reddish buff paste; buff slip; creamy white panel with brownish red and reddish brown decoration.
10. Reddish buff paste; red slip; creamy white band with brownish black and red decoration.
11. Reddish buff paste with gray core; red slip; cream-colored panel with brownish black decoration.
12. Reddish buff paste; reddish buff slip; creamy white panel with brownish black decoration.
13. Reddish buff paste with gray core; red slip; cream-colored panel with purplish red and reddish brown decoration.
14. Fine ware; reddish buff paste; brownish buff slip; creamy white band with reddish brown decoration.
15. Reddish buff paste; reddish buff slip; creamy white panel with reddish brown decoration.
16. Grayish buff paste; brownish buff slip; creamy white panel with reddish brown decoration.

FIGURE 62. DECORATED SHERDS

All are of medium ware.

1. Body piece of large jar or pitcher; buff paste with gray core; buff slip with faded reddish brown decoration.
2. Rim piece of jar; reddish buff paste; reddish buff slip with purplish red decoration.
3. Rim piece of jar; reddish buff paste with buff core; reddish buff slip with faded reddish brown decoration.
4. Rim piece of jar; buff paste with gray core; buff slip with faded brownish red decoration.
5. Rim piece of jar; reddish buff paste with gray core; reddish buff slip.
6. Rim piece of jar; reddish buff paste; reddish buff slip with traces of red decoration.
7. Neck piece of pitcher; reddish buff paste; creamy white panel with red and purplish brown decoration.
8. Rim piece of jar; reddish buff paste; reddish buff slip.
9. Body piece of large jar; reddish buff paste with gray core; buff slip with brownish red stripes; incised herringbone pattern.
10. Rim piece of pitcher(?); reddish buff paste; reddish buff slip.
11. Body piece of jar; reddish buff paste; buff slip with reddish brown and brownish red decoration on creamy white band.
12. Body piece of jar or pitcher; reddish buff paste; reddish buff slip with reddish brown and red decoration.
13. Neck piece of pitcher; grayish buff paste; buff slip with brownish red and reddish brown decoration.
14. Bottom piece; reddish buff paste with grayish core; reddish buff slip with creamy white panel and reddish brown and brownish red decoration.
15. Rim piece of jar; reddish buff paste; reddish buff slip with reddish brown decoration.
16. Body piece of jar; buff paste; buff slip with reddish brown decoration, much faded.

FIGURE 63. BODY PIECES OF LARGE JARS WITH STRIPED DECORATION AND RIDGES

All are of medium, reddish buff ware, sometimes with buff or grayish core.

PHOTOGRAPHS

Creamy white slip with light brown stripes	4 (same piece as 13)
with dark red stripes	5 (same piece as 9)
Buff slip, creamy white panel with brownish red stripes	8 (same piece as 24)
Pinkish buff slip with red stripes	1 (same piece as 16), 6 (same piece as 15)
Reddish buff slip, pinkish buff panel with dark red stripes	7 (same piece as 12)
Thin reddish buff slip, creamy white panel with reddish brown stripes	2 (same piece as 21), 3 (same piece as 18)



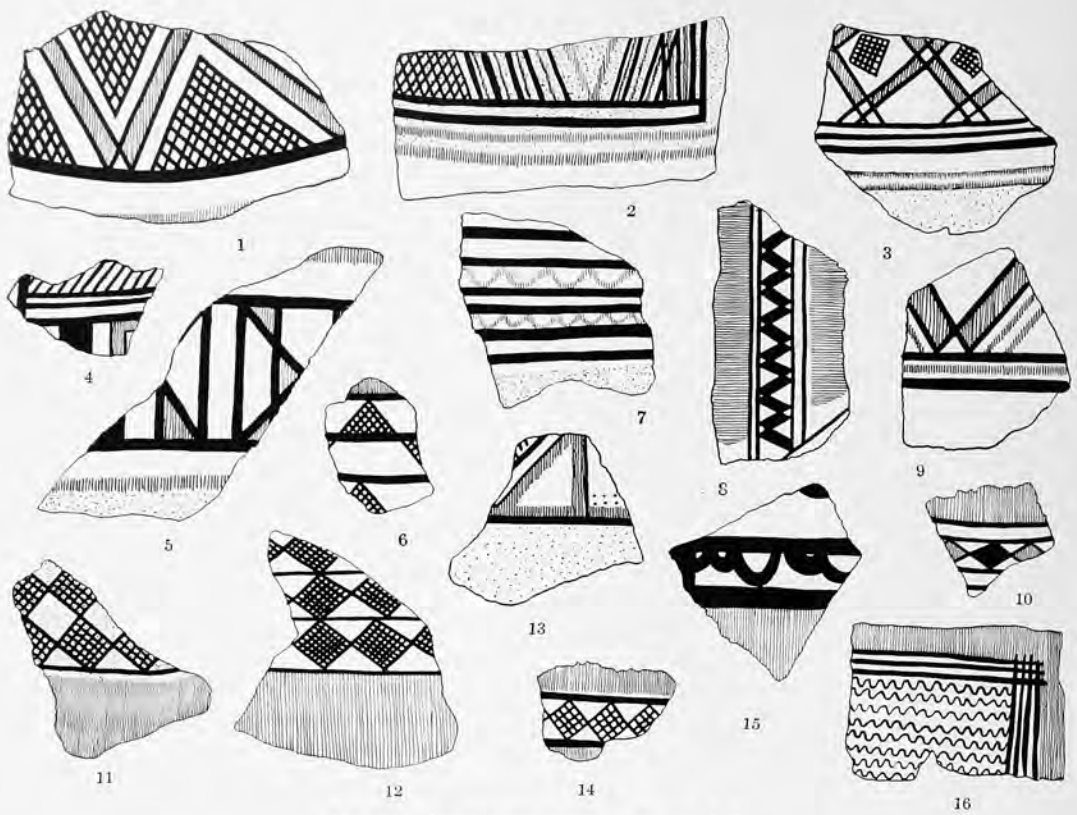


FIG. 61.—DECORATED SHERDS. SCALE, 1:3



FIG. 62.—DECORATED SHERDS. SCALE, 1:3

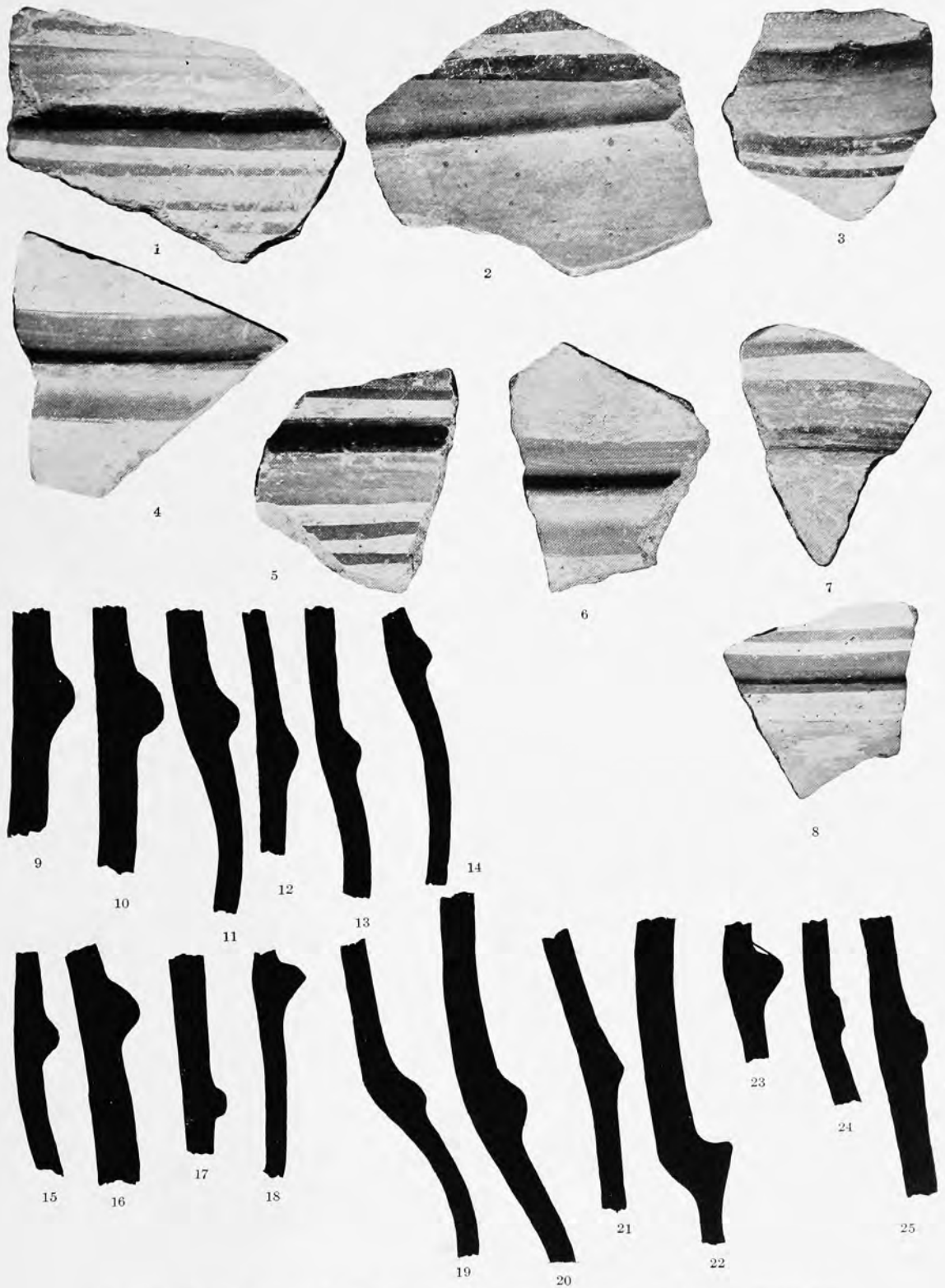


FIG. 63.—BODY PIECES OF LARGE JARS WITH STRIPED DECORATION AND RIDGES. SCALE, 1:2



1



2



3



4



5



6

FIG. 64.—RIM AND BODY PIECES OF LARGE JARS WITH STRIPED DECORATION. SCALE, 1:2

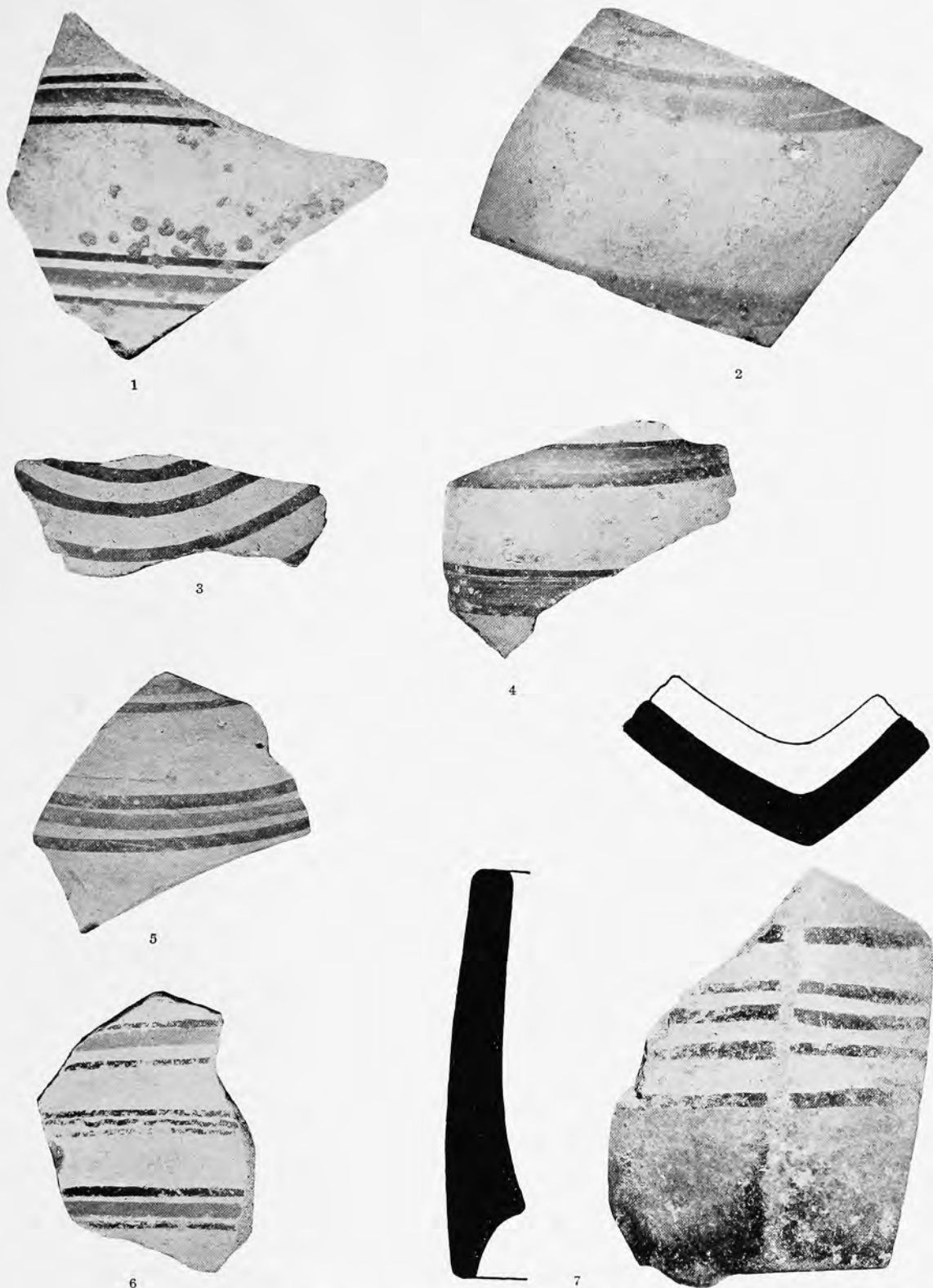


FIG. 65.—STRIPED SHERDS. SCALE, 1:2

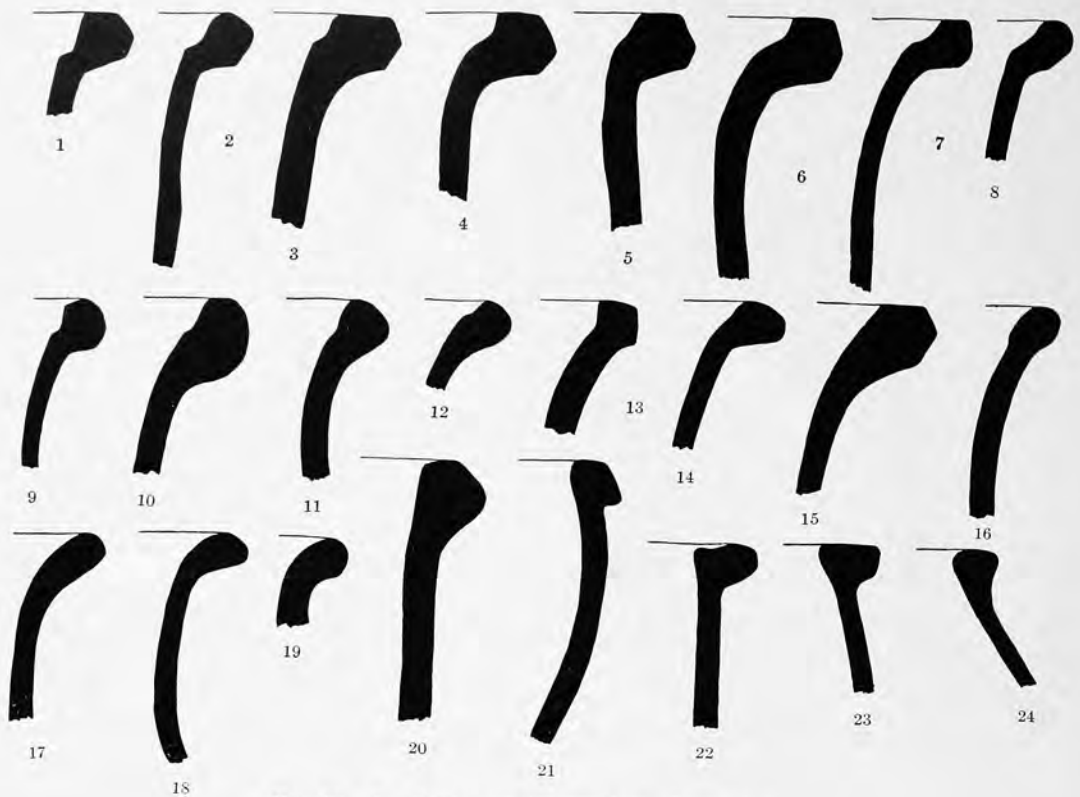


FIG. 66.—RIM PIECES OF STRIPED JARS. SCALE, 1:3

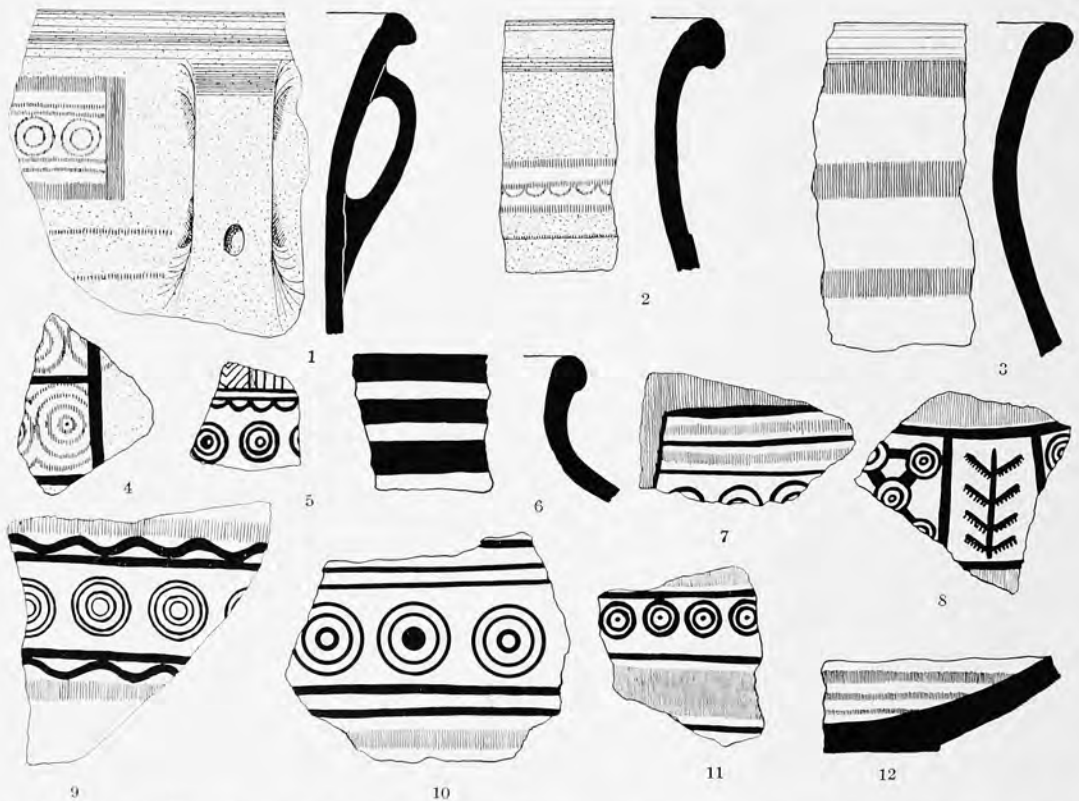


FIG. 67.—RIM AND BODY PIECES OF LARGE JARS WITH STRIPES AND CONCENTRIC RINGS. SCALE, 1:3 (Nos. 1-2 ARE SHOWN 1:6)



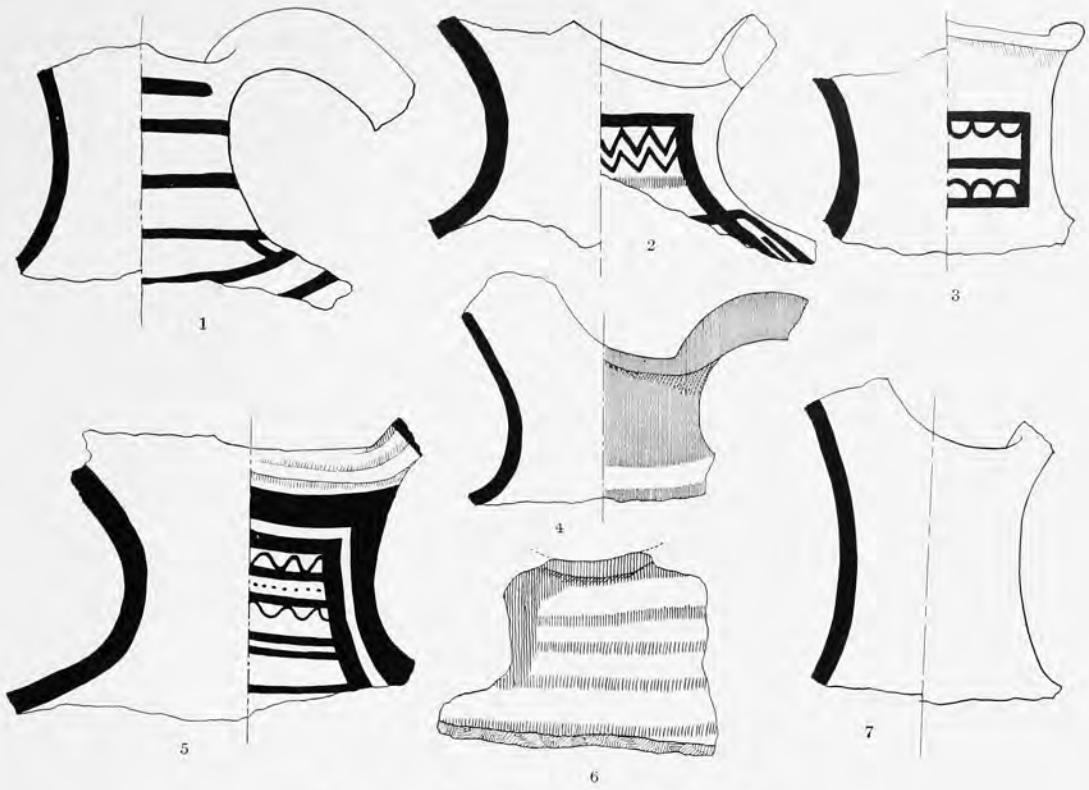


FIG. 68.—CLOVER-LEAF ORIFICES. SCALE, 1:3

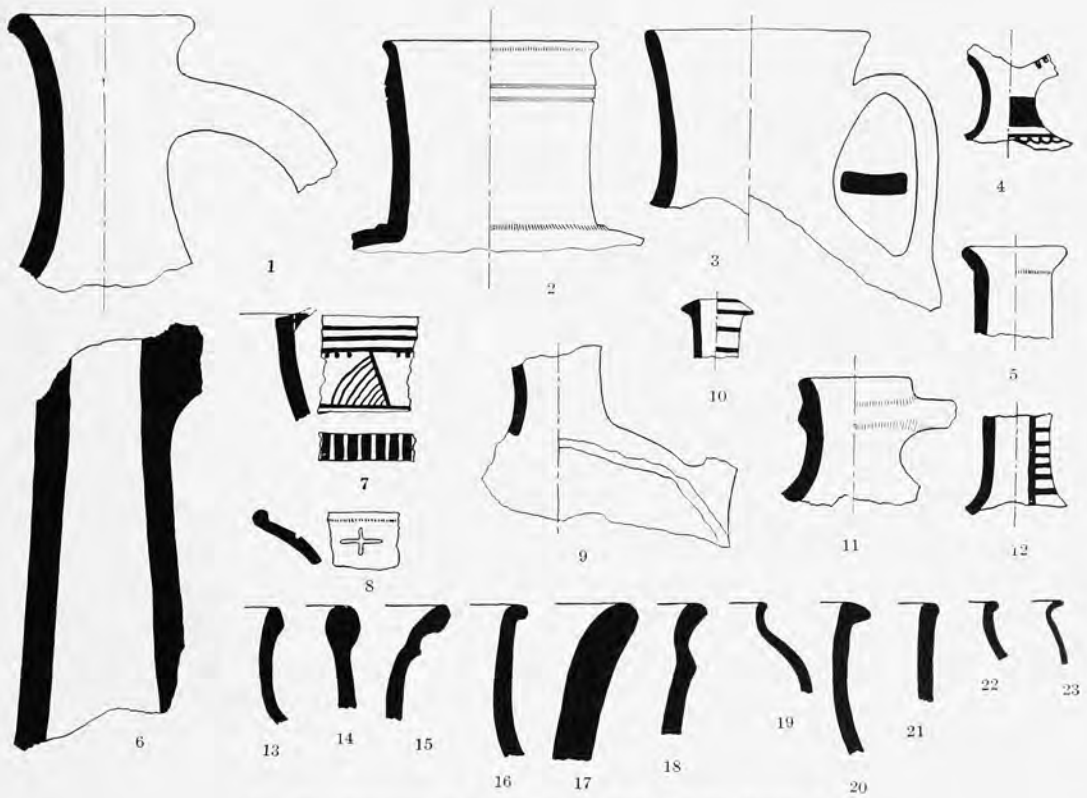


FIG. 69.—ORIFICES OF PITCHERS AND SMALL JARS. SCALE, 1:3

CROSS-SECTIONS

Buff slip, reddish brown stripes . . . . .	17
creamy white panel, decoration in brown and brownish black . . . . .	22 (same piece as Fig. 64 4)
Light buff slip, brownish red stripes . . . . .	19
purplish red stripes . . . . .	20
Grayish buff slip, creamy white panel with brown stripes . . . . .	25
Reddish buff slip, creamy white panel with brownish red stripes . . . . .	10



FIG. 70.—HANDLE OF A LARGE PITCHER. SCALE, 2:5

Thin reddish buff slip, brownish red stripes . . . . .	23
Creamy white panel, light brown stripes . . . . .	11
purplish red stripes . . . . .	14

FIGURE 64. RIM AND BODY PIECES OF LARGE JARS WITH STRIPED DECORATION

- All are of medium, reddish buff ware, sometimes with buff or grayish core.
- 1. Whitish buff slip; creamy white panel with ornamentation in lustrous dark red paint; on rim a blackish brown stripe.
  - 2. Light buff slip; cream-colored panel with purplish red stripes and concentric rings in reddish brown.
  - 3. Creamy white panel with stripes and concentric rings in blackish brown.
  - 4. Buff slip, creamy white panel with stripes in brown and brownish black (same piece as Fig. 63 22).
  - 5. Red slip; creamy white panel with stripes in reddish brown and red.
  - 6. Brownish buff slip; creamy white panel with purplish red stripes.

FIGURE 65. STRIPED SHERDS

1. Medium, grayish buff ware; grayish buff slip; creamy white panel with brownish red and reddish brown stripes.
2. Grayish buff paste; light reddish buff slip; cream-colored panel with blackish brown and red stripes.
3. Reddish buff paste; light reddish buff slip with reddish brown stripes.
4. Buff paste; pinkish buff slip with brownish red stripes bordered by blackish brown lines.
5. Buff paste with gray core; light reddish buff slip with blackish brown and red stripes.
6. Buff paste with gray core; buff slip with blackish brown and light brown stripes.
7. Reddish buff paste with gray core; reddish buff slip; creamy white panel with reddish brown stripes.

FIGURE 66. RIM PIECES OF STRIPED JARS

All are of medium ware.

## BUFF PASTE

Buff slip, creamy white panel with brownish black stripes	8
Light buff slip with brownish red and reddish brown stripes	22
Brownish buff slip with reddish brown stripes	23

## BUFF PASTE WITH GRAY CORE

Buff slip with alternating brownish black and brownish red stripes	19
--	----

## REDDISH BUFF PASTE, SOMETIMES WITH BUFF OR GRAYISH CORE

Buff slip, burnished stripes	14, 18
dark red stripes	15
reddish wash, creamy white panel with brownish red stripes	21
thin reddish wash, creamy white panel with dark red stripes	5
thin reddish wash, creamy white panel with reddish brown decoration	10
creamy white panel with purplish red stripes	4
with purplish red stripes and concentric rings	2
with purplish red and blackish brown stripes	9
Reddish buff slip, purplish red stripes	1, 20
blackish brown stripes	24
creamy white panel with red stripes	3, 17
with dark red stripes	7, 11
with purplish red stripes	6
pinkish buff panel with red stripes	16
with dark red stripes	12
Pinkish buff slip with red stripes	13

FIGURE 67. RIM AND BODY PIECES OF LARGE JARS WITH STRIPES AND CONCENTRIC RINGS

All are of medium ware.

1. Reddish buff paste; reddish buff slip; cream-colored panel with purplish red decoration; depression at base of handle; rib below panel.
2. Reddish buff paste; buff slip; creamy white band with purplish red decoration; rib below band.
3. Reddish buff paste with gray core; reddish buff slip with red stripes.
4. Buff paste; reddish wash; creamy white panel with decoration in purplish brown and brownish red.
5. Buff paste; buff slip with decoration in brownish red and reddish brown.
6. Reddish buff paste; buff slip with reddish brown stripes.
7. Buff paste; reddish slip; creamy white panel with brownish black and reddish brown decoration.
8. Reddish buff paste; red slip; creamy white panel with brownish black decoration.
9. Buff paste; light reddish buff slip; pinkish buff panel with brownish black and brownish red decoration.
10. Buff paste; grayish buff slip; creamy white panel with reddish brown and brownish black decoration.
11. Buff paste; buff slip; purplish red and reddish brown decoration.
12. Reddish buff paste; reddish buff slip with parallel red stripes around vessel on inside and outside (bottom piece).

FIGURE 68. CLOVER-LEAF ORIFICES

All are of medium ware.

1. Reddish buff paste; buff slip; purplish brown stripes.
2. Buff paste; buff slip; blackish brown and brownish red decoration; red wash beneath handle.
3. Reddish buff paste with gray core; reddish buff slip; creamy white panel with reddish brown decoration.
4. Reddish buff paste with gray core; reddish buff slip; creamy white panel with red decoration.
5. Buff paste; buff slip; decoration in blackish brown; reddish wash on rim and beneath handle.
6. Reddish buff paste with gray core; creamy white slip with red decoration.
7. Buff paste; light brownish buff slip.

FIGURE 69. ORIFICES OF PITCHERS AND SMALL JARS

MEDIUM WARE	
Buff paste, wet-smoothed	14
buff slip	3, 9
red slip; roughly incised cross	8
Buff paste with gray core, brownish buff slip	5
Brownish buff paste, wet-smoothed	11
Grayish buff paste, buff slip, blackish brown decoration	12
Reddish buff paste, wet-smoothed	16
wet-smoothed (buff)	17
buff slip	13
buff slip, reddish brown decoration	7
light reddish buff slip	2
reddish buff slip with brownish black decoration	4
dark red slip	15
whitish buff slip	6
Reddish buff paste with gray core, reddish buff slip	20
light brownish buff slip	1
FINE WARE	
Buff paste, buff slip, burnished	21
Grayish buff paste, buff slip, blackish brown decoration	10
light brownish buff slip	22-23
Reddish buff paste, wet-smoothed	18
reddish buff slip	19

FIGURE 70. HANDLE OF A LARGE PITCHER

Medium, reddish buff ware with gray core, red on outside.

FIGURE 71. DECORATED SHERDS

MEDIUM WARE	
Buff paste, whitish buff slip, decoration in reddish brown and brownish red, much faded	1
creamy white slip, decoration in brownish red and reddish brown	7
reddish buff slip, creamy white panel with decoration in brownish red and reddish brown	3
Buff paste with gray core, buff slip, reddish brown and brownish red decoration	17
Reddish buff paste, buff slip, red decoration	4 (neck piece of pitcher), 11
brownish red decoration (handle piece)	2
reddish brown and brownish red decoration	18-19
creamy white slip, brownish red and reddish brown decoration	6, 20
pinkish buff slip, reddish brown and brownish red decoration	13
light reddish buff slip, red decoration	16

## THE SECOND HALF OF THE FIRST MILLENNIUM B.C.

65

reddish buff slip, dark red decoration	10
cream-colored panel with red decoration	5
red slip, creamy white panel with red decoration	9
Reddish buff paste with gray core, creamy white slip, reddish brown and red decoration	14
reddish brown and brownish red decoration	8

## FINE WARE

Buff paste, buff slip, reddish brown decoration (bottom piece)	23
whitish buff slip on both sides; on inside, brownish red and reddish brown decoration (bowl fragment)	22
Buff paste with gray core, red slip, creamy white panel with reddish brown and brownish red decoration	12
Grayish buff paste, red slip, white panel with blackish brown stripes, much faded	21
Reddish buff paste, red slip, creamy white panel with brownish black and red stripes (neck piece)	15

## FIGURE 72. RIM PIECES OF JARS

All except No. 13 are of medium ware. Nos. 11–16 have lug handles.

1. Buff paste; reddish buff slip; creamy white panel with reddish brown and red decoration.
2. Buff paste with gray core; reddish brown slip on outside; creamy white panel with reddish brown decoration.
3. Buff paste; reddish buff wash on lip and neck; creamy white panel with brownish red and reddish brown decoration.
4. Buff paste; buff slip with brownish red decoration.
5. Reddish buff paste with gray core; buff slip with lustrous red and mat reddish brown decoration.
6. Buff paste with gray core; buff slip; creamy white panel with brownish red decoration.
7. Buff paste; buff slip with reddish brown stripes.
8. Buff paste; buff slip with reddish brown decoration; beneath lip traces of reddish wash.
9. Buff paste; buff slip with reddish brown decoration on lip.
10. Reddish buff paste; buff slip on lip and beneath rim; brownish black and purplish red decoration.
11. Buff paste; buff slip with stripes in reddish brown; light brown wash on rim and lug handle.
12. Reddish buff paste with gray core; orange-buff slip; creamy white panel with brownish red stripes.
13. Fine ware; grayish buff paste; buff slip; on lip and handle, reddish brown and brownish red decoration on a creamy white background.
14. Reddish buff paste with buff core; reddish buff slip; creamy white panel with reddish brown decoration.
15. Buff paste; light buff slip with reddish brown decoration.
16. Reddish buff paste with gray core; reddish buff slip; creamy white panel with reddish brown and red decoration.

## FIGURE 73. FRAGMENTARY VESSEL a 824

Fragments of a large jar; medium, reddish buff ware; reddish buff slip; creamy white panel with blackish brown and reddish brown decoration (*OIP* XX, Fig. 46).

## FIGURE 74. DECORATED SHERDS

1. Fragment of large handle; coarse, reddish buff ware with gray core; wet-smoothed on inside; light buff slip with blackish brown decoration on outside.
2. Medium, reddish buff ware; red slip with black decoration.
3. Medium, buff ware; buff slip with reddish brown and brownish red decoration.
4. Fine, reddish buff ware; light reddish buff slip; creamy white panel with brownish red and reddish brown decoration.
5. Fragment of jar or pitcher; medium, reddish buff ware; buff slip, dark red to right of panel; lustrous blackish brown decoration.
6. Medium, grayish buff ware; buff slip with lustrous reddish brown decoration.
7. Medium, reddish buff ware; cream-colored slip with lustrous brownish red decoration.
8. Fine, buff ware; buff slip with reddish brown and brownish red decoration.
9. Bowl fragment; medium, reddish buff ware; reddish buff slip on outside; buff slip with lustrous brownish red decoration on inside.



10. Medium, buff ware; whitish buff slip with reddish brown decoration.
11. Medium, buff ware; buff slip with reddish brown decoration.
12. Medium, buff ware; whitish buff slip with reddish brown and brownish red decoration.
13. Knob handle; medium, buff ware; wet-smoothed.
14. Medium, reddish buff ware; whitish buff slip with reddish brown and brownish red decoration.
15. Fragment of bowl; medium, reddish buff ware; reddish buff slip with purplish red stripes on outside; buff slip with purplish red and reddish brown decoration on inside.
16. Fragment of goblet; fine, buff ware; buff slip on inside of rim; creamy white panel with red and reddish brown decoration.
17. Fragment of cup; fine, buff ware; buff slip extending inside rim; decoration in red and reddish brown (now faded to gray).

FIGURE 75. DECORATED SHERDS

Buff slip, brownish black and reddish brown decoration . . . . .	8
lustrous black and brownish red decoration . . . . .	3
blackish brown and brownish red decoration (discolored by heat) . . . . .	2
Light buff slip, blackish brown and reddish brown decoration . . . . .	1, 4
blackish brown and red decoration . . . . .	5
brownish black and red decoration . . . . .	7
Light brownish buff slip, brownish red decoration . . . . .	6
reddish brown and blackish brown decoration . . . . .	9

FIGURE 76. DECORATED SHERDS

Buff slip, lustrous black and brownish red decoration . . . . .	3
Light buff slip, blackish brown and brownish red decoration . . . . .	1
Light brownish buff slip, blackish brown decoration . . . . .	2
blackish brown and reddish brown decoration . . . . .	4
creamy white panel with blackish brown and brownish red decoration . . . . .	6
Reddish buff slip, creamy white panel with brownish red and gray decoration . . . . .	5

FIGURE 77. FRAGMENTS OF A LARGE VESSEL

Light buff slip with black and brownish red decoration.

FIGURE 78. HANDLES

All except No. 7 are of medium ware.

1. Ledge handle; reddish buff paste; buff slip.
2. Buff paste; buff slip; red paint on handle.
3. Buff paste; buff slip.
4. Buff paste; whitish buff slip; brownish red paint on handle.
5. Reddish buff paste; light reddish buff slip; red paint on handle; two knobs on base of handle.
6. Reddish buff paste with gray core; wet-smoothed.
7. Fragment of small pitcher; fine, buff ware; brownish red slip; creamy white paint on outside of handle, with blackish brown decoration.
8. Reddish buff paste with gray core; buff slip on outside of handle; three depressions on base of handle.

FIGURE 79. HANDLES AND BOTTOMS

MEDIUM WARE	
Buff paste, buff slip . . . . .	9-10, 14-15
Buff paste with gray core, wet-smoothed . . . . .	17
Grayish buff paste, buff slip with reddish brown decoration . . . . .	1
Reddish buff paste, buff slip . . . . .	12
buff slip with reddish brown decoration . . . . .	3, 4 (handle piece), 5 (neck piece of pitcher), 6

reddish buff slip, reddish brown decoration (probably a leg or support)	13
brownish red paint on outside of handle	2
light reddish buff slip	7
Reddish buff paste with gray core, wet-smoothed	8
buff slip	11

FINE WARE

Reddish buff paste, buff slip	16
-------------------------------	----

FIGURE 80. DECORATED SHERDS

- 1. Medium, gray ware; gray slip.
- 2. Medium, grayish buff ware; buff slip with blackish brown decoration.
- 3. Medium, reddish buff ware; reddish buff slip.
- 4. Medium, reddish buff ware; whitish buff slip with blackish brown decoration.
- 5. Fine, buff ware with gray core; light buff slip; relief ornament outlined in reddish brown.
- 6. Medium, reddish buff ware; buff slip with reddish brown decoration.
- 7. Fine, buff ware with gray core; buff slip.
- 8. Fine, grayish buff ware; buff slip.
- 9. Medium, buff ware; buff slip; brownish red stripe on rim; iron inlay near rim.
- 10. Medium, reddish buff ware; buff slip; decorative burnishing.

Pottery figurines are described on pages 88–91; a pottery seal, on page 93; minor pottery objects, including “whorls,” on page 120. For chemical analyses of pottery see pages 336–38.

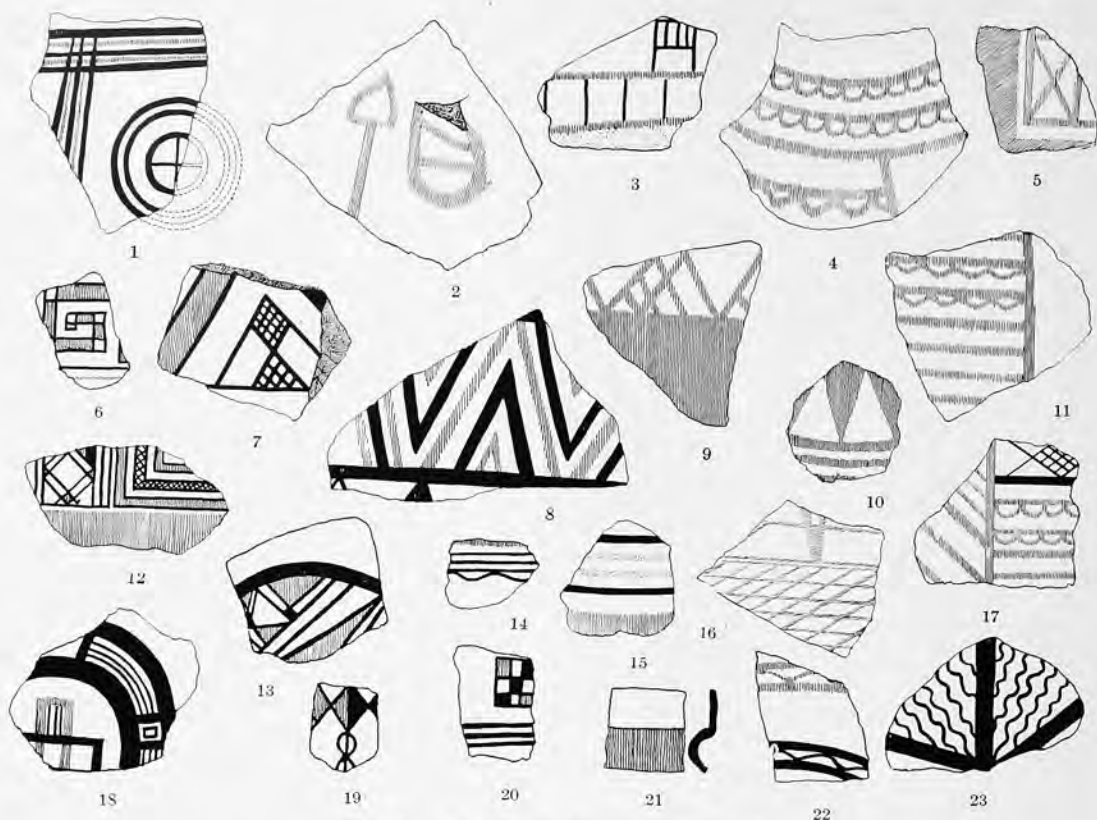


FIG. 71.—DECORATED SHERDS. SCALE, 1:3



FIG. 72.—RIM PIECES OF JARS. SCALE, 1:3

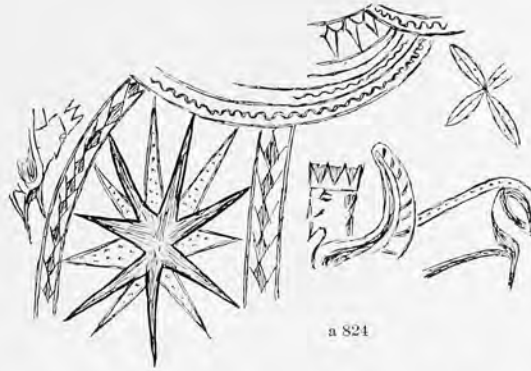


FIG. 73.—FRAGMENTARY VESSEL a 824. SCALE, ABOUT 1:3

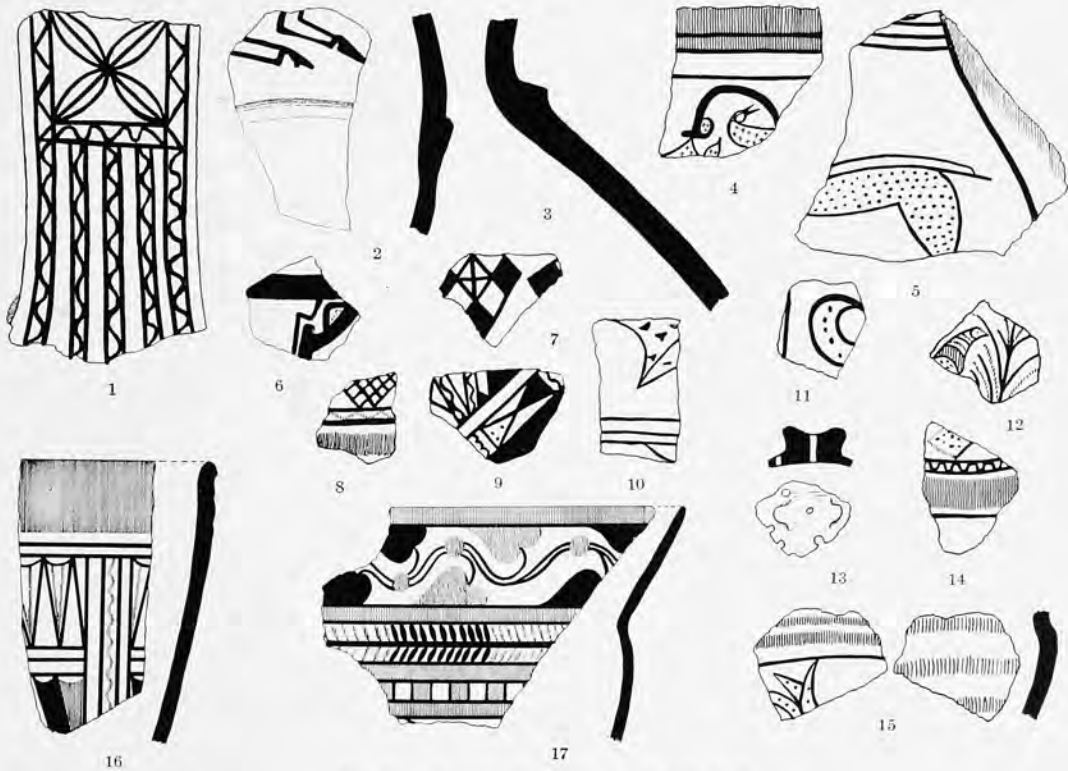


FIG. 74.—DECORATED SHERDS. SCALE, 1:3

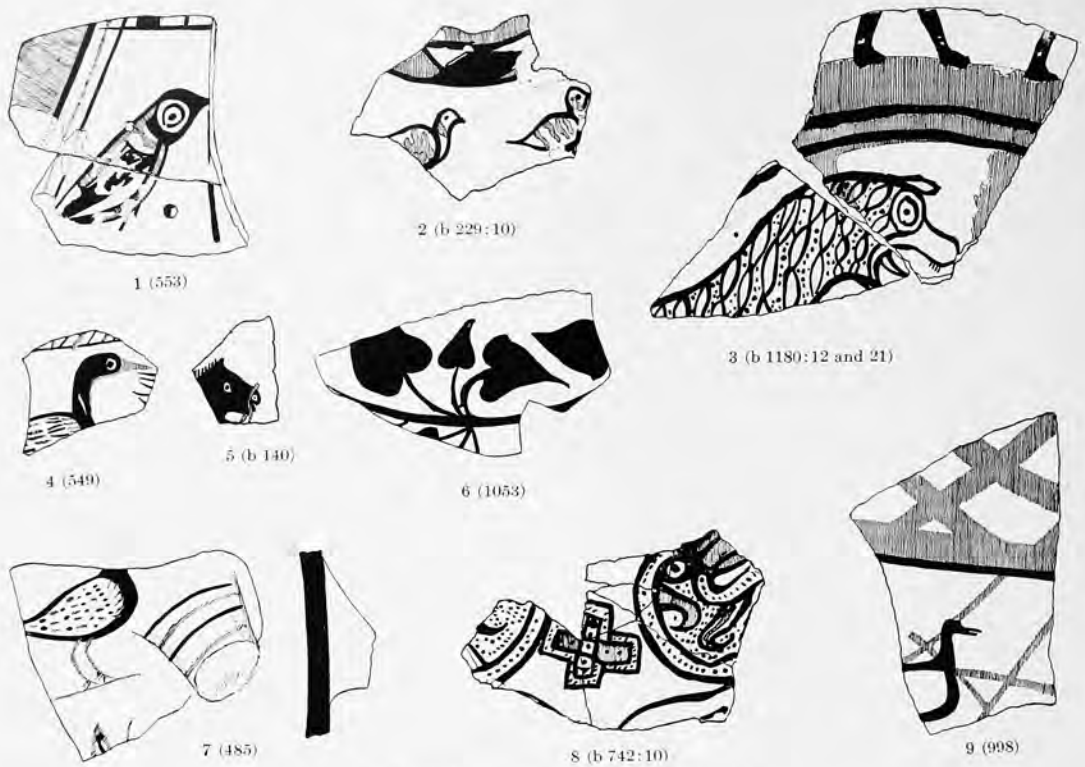


FIG. 75.—DECORATED SHERDS. SCALE, 1:3



FIG. 76.—DECORATED SHERDS. SCALE, 1:3



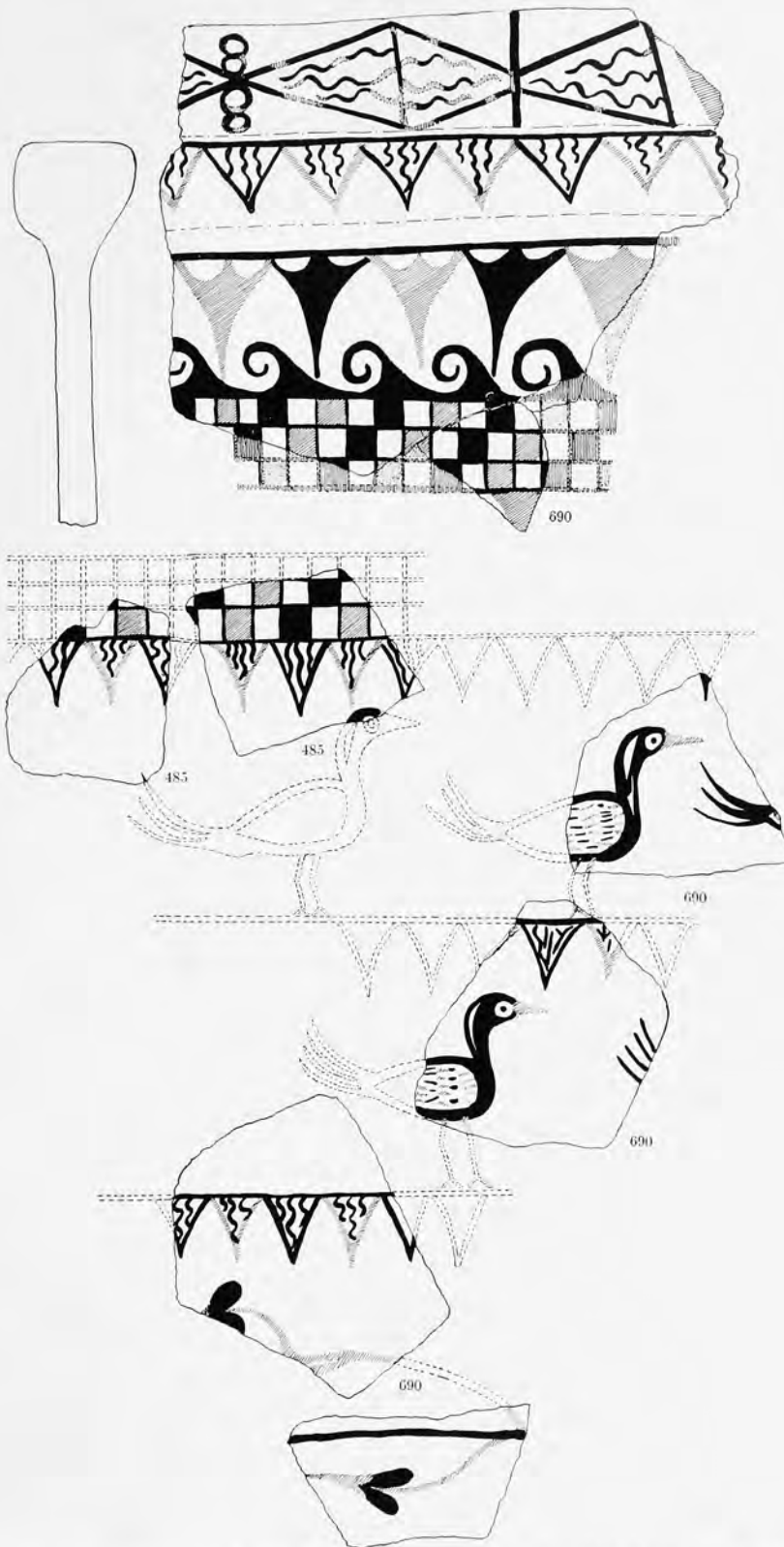


FIG. 77.—FRAGMENTS OF A LARGE VESSEL. REPRODUCED FROM *OIP* XX, PL. VI. SCALE, 2:5

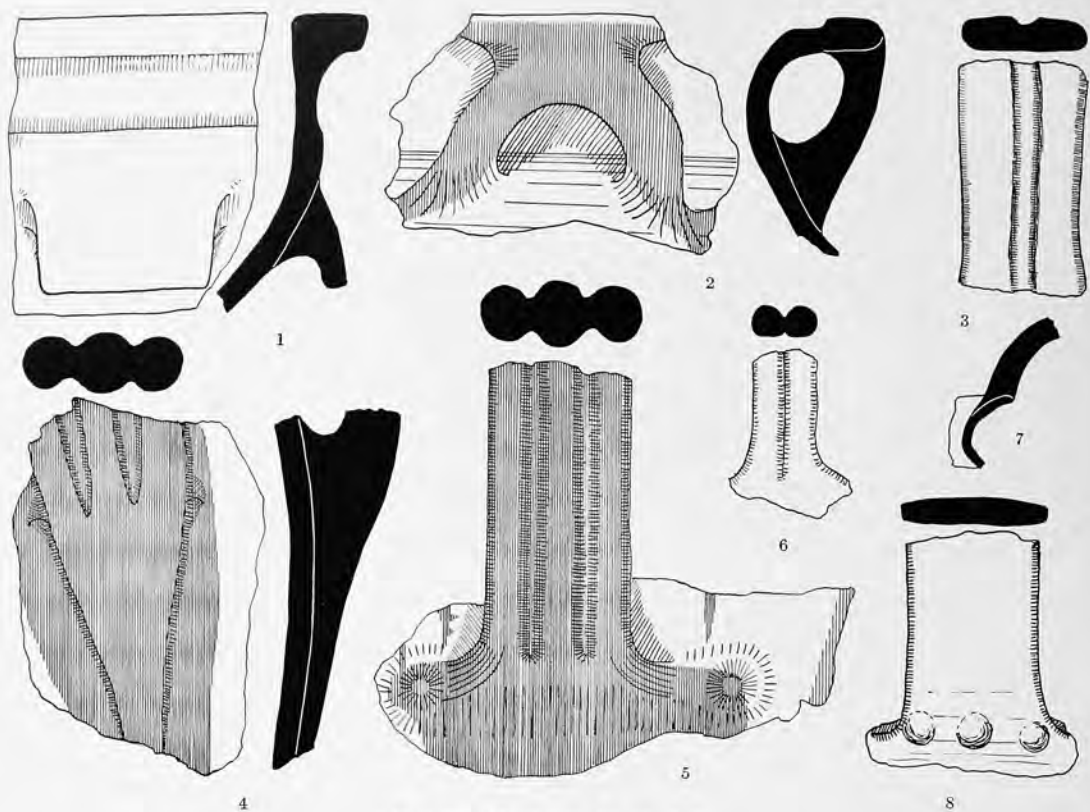


FIG. 78.—HANDLES. SCALE, 1:3

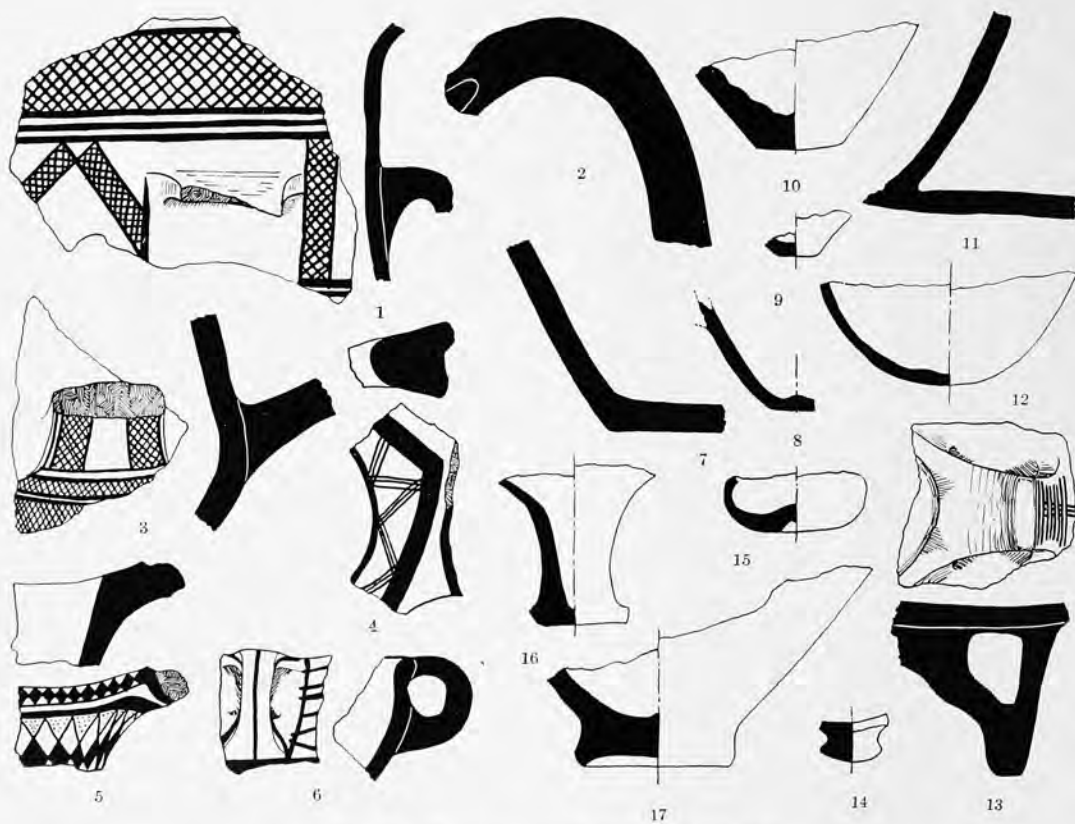


FIG. 79.—HANDLES AND BOTTOMS. SCALE, 1:3

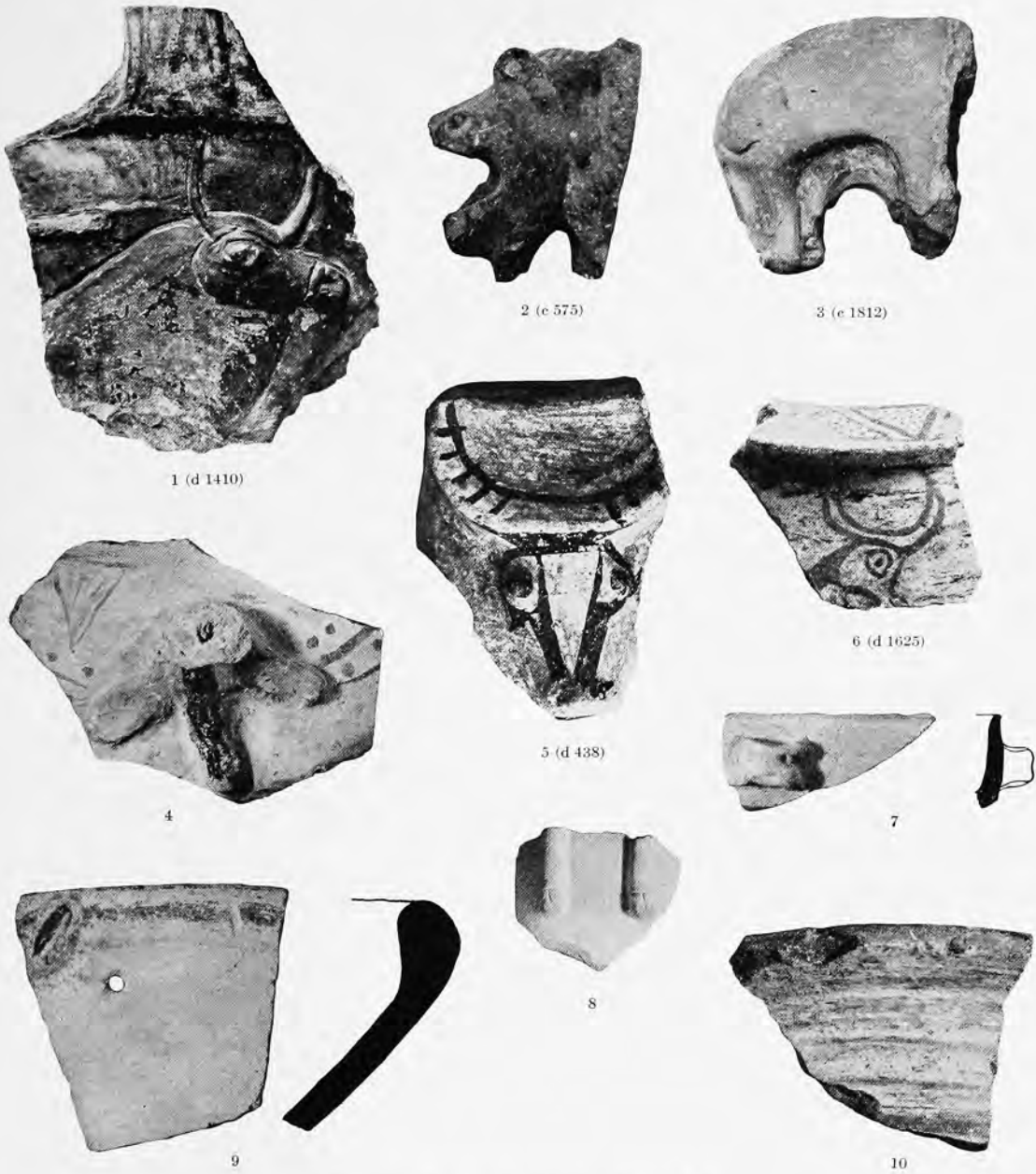


FIG. 80.—DECORATED SHERDS. SCALE, 1:2

GREEK, HELLENISTIC, AND ROMAN POTTERY FROM ALIŞAR

By FREDERICK O. WAAGÉ

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This report<sup>33</sup> has been written on the basis of photographs, drawings, written descriptions, and a collection of sherds sent to me by Dr. H. H. von der Osten, from which I selected representative specimens. So little pottery of the Classical Age from the hinterland of Asia Minor has been published that a more than passing mention of the material seemed to be justified despite the fact that there was no archeological evidence for dating it.<sup>34</sup> The chronological limits of the two periods (the second half of the first millennium B.C. and the Roman-Byzantine period) in which it was found are naturally of no significance here, since there is little good Greek or Roman pottery which cannot be assigned to the proper century purely on internal evidence. It is, however, a matter of first interest to determine what kind of pottery was being used at the inland towns of this important land, and the excavations at Alişar have brought the first light to bear upon that dark territory. I am indebted to Dr. von der Osten for taking the pains to supply all the available data and to Dr. N. C. Debevoise for his interest in the matter.

BLACK-GLAZED POTTERY<sup>35</sup>

There are about a dozen black-glazed sherds of varying quality. The clay is pure, fine-grained, and hard-baked; tiny flecks of silver mica and minute yellow grains are usually present. The earliest piece is a foot (Fig. 81 1) of a shape common in the second half of the 6th century B.C.; the glaze has been partly oxidized, especially inside, to brown and olive hues. Some eight fragments are to be assigned to the later 5th and the 4th century B.C.; the glaze is of good quality and gloss but, in several cases, has the faint metallic sheen which became pronounced in the Hellenistic age. The shapes include the "fish plate," very common in the 4th century<sup>36</sup> (Pl. VII 3 and Fig. 81 2), and the kantharos, the popularity of which continued into the Hellenistic age.<sup>37</sup> The metallic sheen is most pronounced in Figure 86 5,

<sup>33</sup> The following abbreviations have been used:

<i>Arch. Anz.</i>	K. Deutsches archäologisches Institut. Archäologischer Anzeiger. Beiblatt zum Jahrbuch (Berlin, 1890—).
<i>Antioch I</i>	Elderkin, George W., ed. Antioch-on-the-Orontes. I. The Excavations of 1932 (Princeton, 1934).
<i>Ephesos I</i>	Österreichisches archäologisches Institut. Forschungen in Ephesos. I (Wien, 1906).
<i>Ath. Mitt.</i>	K. Deutsches archäologisches Institut. <i>Athenische Abteilung</i> . Mitteilungen (Athens etc., 1876—).
<i>OIP</i>	Chicago. University. The Oriental Institute. Oriental Institute Publications (Chicago, 1924—).
<i>OIP VI</i>	Osten, H. H. von der, and Schmidt, Erich F. The Alishar Hüyük, Season of 1927. Part I (1930).
<i>OIP XIX-XX</i>	Schmidt, Erich F. The Alishar Hüyük, Seasons of 1928 and 1929. Parts I-II (1932-33).
<i>OIP XXVII</i>	Gelb, Ignace J. Inscriptions from Alishar and Vicinity (1935).
<i>OIP XXIX</i>	Osten, H. H. von der. The Alishar Hüyük, Seasons of 1930-32. Part II (1937).
<i>Olbia</i>	Knipowitsch, T. N. Die Keramik römischer Zeit aus Olbia in der Sammlung der Eremitage (Römisch-Germanische Kommission des Deutschen Archäologischen Instituts, Frankfurt a. M. Materialien zur römisch-germanischen Keramik. IV. Untersuchungen zur Keramik römischer Zeit aus den Griechenstädten an der Nordküste des Schwarzen Meeres. I [Frankfurt a. M., 1929]).
<i>Priene</i>	Wiegand, T., Schrader, H., et al. Priene. Ergebnisse der Ausgrabungen und Untersuchungen in den Jahren 1895-1898 (Berlin, 1904).

<sup>34</sup> [Cf. p. 19.—H. H. v. d. O.]

<sup>35</sup> The term "glaze" rather than "varnish" will be used throughout this report to denote the more or less glossy coating characteristic of Greek and Roman pottery.

<sup>36</sup> David M. Robinson, *Excavations at Olynthus V* (Johns Hopkins University, "Studies in Archaeology," No. 18 [Baltimore, 1933]) Pls. 190-91, Nos. 1044-58.

<sup>37</sup> See Homer A. Thompson in *Hesperia, Journal of the American School of Classical Studies at Athens* III (1934) 320, Fig. 5, Nos. A 27-29.

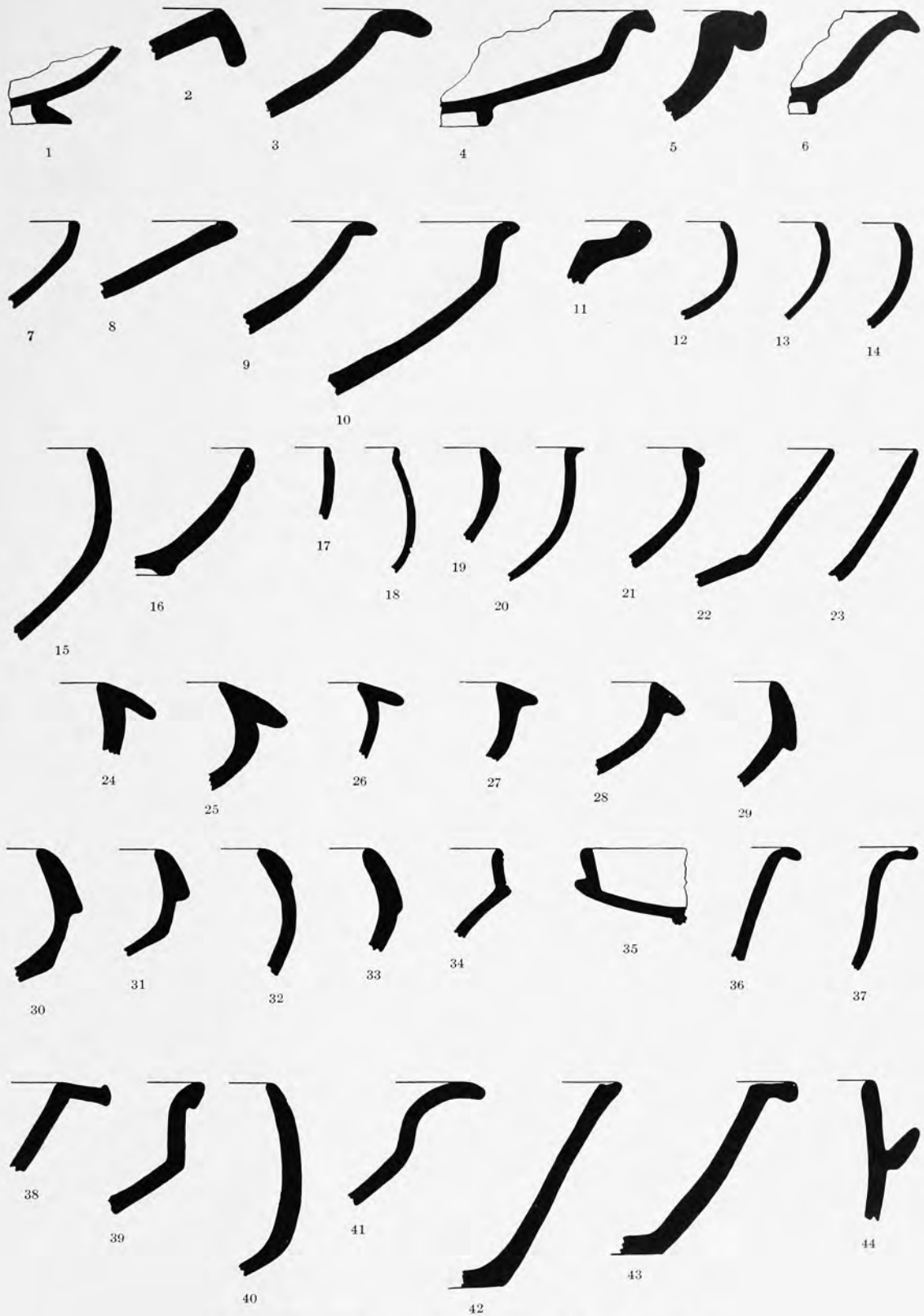


FIG. 81.—RIM AND BOTTOM PIECES OF FINE WARE. SCALE, 1:2



which has good brown glaze; the foot was not glazed. This may be as late as the 2d century B.C., a rough date which Figure 81 3 with its dull black glaze can share.

A comparison of these sherds with fragments of plain, black-glazed pottery from Athens in my possession proves them to be identical with few exceptions (Pl. VII 3 is one); chemical and petrographic analyses alone could give stronger evidence. It can be said with reasonable confidence that plain Attic ware was being imported, on a small scale, perhaps in the 6th and certainly in the 5th and 4th centuries B.C.

#### GRAY WARE

This is the name applied more appropriately to describe the body than the surface of a kind of *bucchero* current in northwestern Asia Minor and the adjacent islands. Tracing its ancestry back perhaps to the Minyan ware of the Aegean Middle Bronze Age, it is well documented in the 7th century B.C. and lasts into Hellenistic and early Roman times, when it seems to have spread abroad from several centers.<sup>38</sup> Two distinct varieties must be distinguished: (a) black-glazed ware which differs from the ordinary in having the clay, as well as the glaze, reduced in the firing; (b) unglazed ware the surface of which is usually given a high polish. The latter, more primitive method was, to the best of my knowledge, not employed at any Classical site in Greek, Hellenistic, or Roman times to give a final finish to the surface of a vase; it is interesting to find that at inland Alishar the majority of gray-ware sherds are treated thus, although the shapes are mostly Hellenistic. Glazed fragments represent a large closed shape (glazed outside only) and the bowls of Figure 81 4-5 (the former bowl not glazed below the angle of the exterior). The glaze is of fair gloss, and the clay is pure and hard; the size of No. 5 made grit-tempering necessary. Figure 81 4 is a variant form of a common Hellenistic bowl which more often takes the proportions of the polished fragment shown in Figure 81 6.<sup>39</sup> Figure 81 5 has a certain affinity with types of rims found in "Pergamene" and Samian wares.<sup>40</sup>

The unglazed sherds may be highly or only slightly polished, and the surface color ranges from dull gray to deep black; the body varies in quality and mica content (Fig. 81 6-11). Nos. 7 and 9 in Figure 81 are too undifferentiated to be significant; No. 8, which has a single groove just inside the upper edge, resembles a "Pergamene" shape.<sup>41</sup> No. 10 is related to No. 4 and perhaps also to the "Pergamene" prototype of the concave cup of Roman times.<sup>42</sup> No. 11 seems to lack Hellenistic parallels. Other polished sherds include the horizontally grooved fragments of deinos-shaped bowls, part of an open bowl with flaring rim (Pl. VII 11), plain rims of cups or small bowls, and pieces of two "fluted kantharoi."<sup>43</sup> Coarser fluting forms a

<sup>38</sup> Werner Technau, "Griechische Keramik im samischen Heraion," *Ath. Mitt.* LIV (1929) 6-64, esp. p. 48 and Beilage XXVIII (Samos); Winifred Lamb, "Grey Wares from Lesbos," *Journal of Hellenic Studies* LII (1932) 1-12, esp. p. 1 (Lesbos etc.); *Hesperia* III 471 (Athens); F. O. Waagé in *Antioch* I 73.

<sup>39</sup> *Hesperia* III 436, Fig. 117, No. D 5, middle of 2d century B.C.

<sup>40</sup> *Antioch* I 70 and Pl. XV 5. The Samian parallels, bowls from Athens and Corinth as yet unpublished, are much closer.

<sup>41</sup> G. A. Reisner, C. S. Fisher, and D. G. Lyon, *Harvard Excavations at Samaria, 1908-1910* (Cambridge, Mass., 1924) I 305, Fig. 185, No. 18a; F. O. Waagé in *Hesperia* II (1933) 286 and Pl. VIII 46.

<sup>42</sup> *Antioch* I 72, Fig. 5, No. 29-102-570 (from Baisān).

<sup>43</sup> The flutes are narrow grooves made by incision and arranged in closely or widely spaced panels; a flat shoulder intervenes between the side and the high, plain, thin lip, which resembles that of *Hesperia* III 320, Fig. 5, No. A 28. Note that a round-bottomed jar from the Post-Hittite-Phrygian deposit (a 1064, *OIP* XIX, Fig. 325) and a small jar with a semi-pedestal base from the same deposit (e 1354, *OIP* XXIX, Fig. 430) are decorated rather similarly and that one of the "kantharos" fragments (Fig. 86 2) is not unlike them in shape. If the find-spots of Nos. a 1064 and e 1354 are unimpeachable, the two "kantharos" sherds may belong to the same cultural level; in that case, might we suppose that all four are clay versions of the metal prototype whence the Greek shape ultimately derived? Cf. fragments from Gordion with similar decoration: G. and A. Körte, *Gordion* (K. Deutsches Archäologisches Institut, *Jahrbuch. Ergänzungsheft*

band around No. 123 (Fig. 82), and the incised decoration on No. b 229:63+42<sup>44</sup> (Fig. 82) is inspired by that of the incised or molded wares described below.

BLACK-GLAZED POTTERY WITH INCISED DECORATION

In Figure 82 appear several fragments briefly described as "incised, black, polished" (200, 500, 550a-b, and 1031).<sup>44</sup> The prominence of the incisions, to judge from the drawings, would indicate that the body was not reduced but was oxidized, in which case we are not dealing with gray ware; furthermore, both shape and decoration prove a definite connection with the

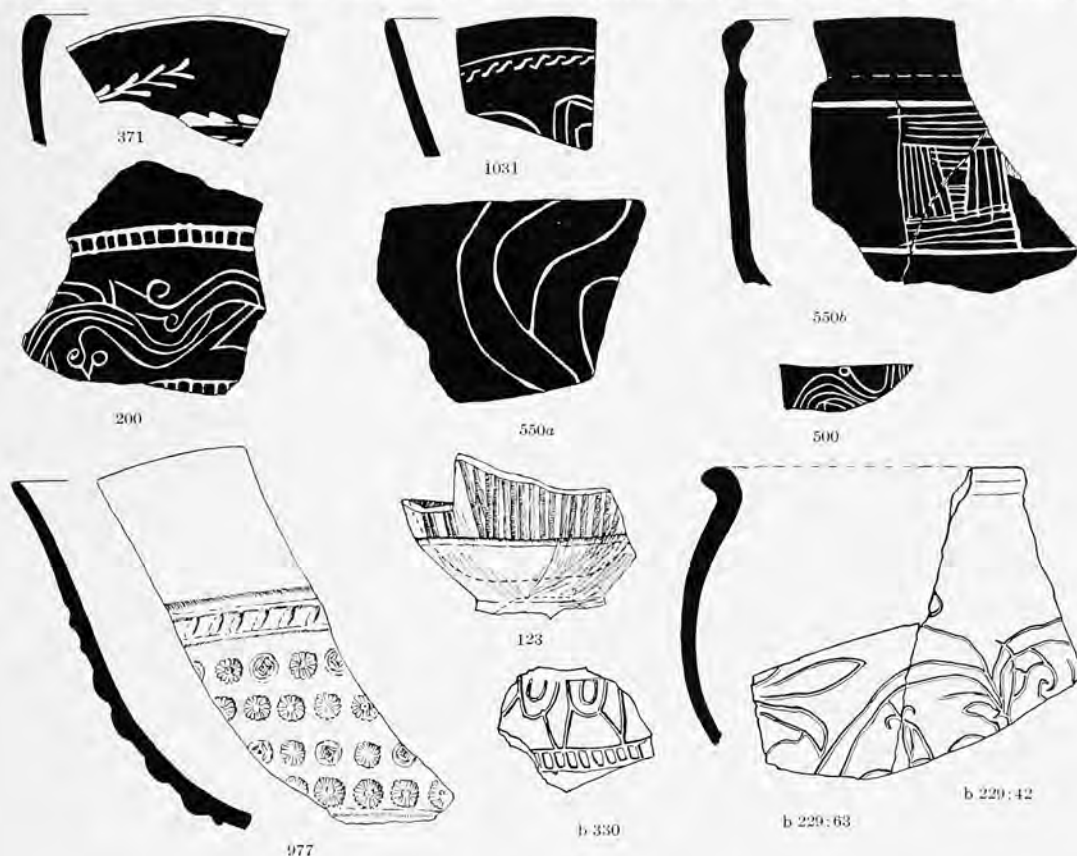


FIG. 82.—MISCELLANEOUS FINE-WARE SHERDS. SCALE, 1:2

Hellenistic pottery known as "West Slope Ware." Therefore I am inclined to think, and the description of No. 371 as "iridescent black with a plant pattern in brown" tends to support the judgment, that these sherds may be glazed rather than polished, since incisions on carboniferous ware are inconspicuous unless filled in with white pigment, which is not recorded as present here. At all events the inspiration of "West Slope Ware" is patent, as well as the fact that a very late stage of the ware is represented. The designs are poorer, coarser, and so in all probability later than those of any of the vases published by Thompson;<sup>45</sup> therefore they fall after the beginning of the 1st century B.C.

V [Berlin, 1904]) Fig. 102, No. 45, and Figs. 186 and 215; those of Figs. 186 and 215 are said to be Hellenistic in date. [The assignment of the two vessels a 1064 and e 1354 to the Post-Hittite-Phrygian period can hardly be questioned, as both vessels were found on the citadel mound, where the Post-Hittite-Phrygian deposit is sharply divided from that of the following period by a thick destruction deposit.—H. H. v. d. O.]

<sup>44</sup> OIP XX, Pl. X.

<sup>45</sup> *Hesperia* III 438 ff.

## POLYCHROME POTTERY

This comprises pieces of several distinct kinds of pottery. Most striking is the fine sherd in Plate VII 1. The pure, hard, reddish brown clay contains a little fine mica and is gray at the core. The illustration shows the colored bands outside; inside they are slightly wider and run white below, then red, brown, and black, the brown being a thin wash and not the exposed body, since close examination proves that it laps over the black at one spot. The colors are hard and firm, and the uniform, moderate gloss of both surfaces seems due to polishing; marks of a burnishing tool are visible inside but not on the exterior. The fragment seems to belong to the lower part of the body of a kylix. The outside gives the effect of painting on a white slip, an Ionian practice, and this sherd probably belongs within that realm of influence. The clay looks almost identical in quality and even in firing with that of Figure 81 1; in the absence of any parallels for the decoration, a date in the 6th or 5th century B.C. may be hazarded on the basis of the shape.

Plate VII 2 is made of grit-tempered brown clay covered with a purple-brown slip inside and around the rim and with a buff slip on the body below, over which is laid the decoration of brownish black bands with cream-colored dots; both surfaces are well polished. The sherd is described as a fragment of a small pitcher; but the flaring lip and polished interior indicate that it must have been a very open one. The fragment lies outside the Hellenic tradition and cannot be identified or dated on the basis of Greek wares known to me.<sup>46</sup>

Equally non-Greek is Plate VII 4, a ware represented by the complete bowls c 1953, c 2200, and c 2249 (Figs. 31-32). The hard clay, only a bit coarser than that of Plate VII 1 and completely oxidized, may well be the same. The colored bands inside the complete bowls, although much narrower and substituting gray-blue for black, may form another bond. The shape is not far from that of the gray-ware fragment in Figure 81 10; the nearest approach to it in Greece is a *lebes* of the end of the 4th century B.C. from Athens, on which, curiously enough, the black glaze is limited outside to two narrow bands around the shoulder.<sup>47</sup> Again, however, it must be admitted that this ware is not Hellenic. Colored bands occur also on both surfaces of an open bowl with plain rim which came from the same plot as a coin of Philip Arrhidaeus (323-316 B.C.).<sup>48</sup> On the other hand, the normal shape is sometimes found without painted decoration.<sup>49</sup>

We return to familiar ground with Plate VII 5. The clay is the same as that of Plate VII 4; but the interior and rim are covered by a thin, red-brown glaze of moderate gloss, and the exterior is decorated in brown and orange-brown on a lustrous slip. Technique, colors, and motives are those found on *lagynoi*.<sup>50</sup> The shape is that of a large straight-sided bowl; it probably had a cover, for the only shapes known in this ware are pitchers (*lagynoi*) and pyxides. In Greece it was still common in the second half of the 2d century B.C., but it seems to have passed out of use before the time of Augustus.<sup>51</sup>

## MOLDED BOWLS

This interesting series includes the fragment No. 977 (Fig. 82), others shown in Figures 83-84 and Plate VII 9, and the nearly complete specimens 3268-69,<sup>52</sup> c 1276a (Fig. 33), and

<sup>46</sup> [Several complete vessels and sherds of this ware are described on p. 20.—H. H. v. O. O.]

<sup>47</sup> *Hesperia* III 318, Fig. 4, No. A 25. Cf. Siegfried Loescheke in *Ath. Mitt.* XXXVII (1912) Pl. XXVIII 22, a bowl of the 1st century after Christ from Çandarlı near Pergamon.

<sup>48</sup> No. 276, *OIP* XX 40 and Pl. II.

<sup>49</sup> No. 3270, *OIP* VI 249 and Fig. 213.

<sup>50</sup> Gabriel Leroux, *Lagynos: recherches sur la céramique et l'art ornemental hellénistiques* (Paris, 1913). The object to the right of the leaf in our Pl. VII 5 is probably a lyre (cf. Leroux's p. 38, No. 66).

<sup>51</sup> *Hesperia* III 450-51. To the best of my knowledge, the ware is not found in deposits at Corinth which date after the foundation of the Roman colony in 44 B.C.

<sup>52</sup> *OIP* VI, Figs. 216-17. No. 3269 is drawn in our Pl. IX.



1 (= Pl. VII 9)



2



1



2



3



3



4



6



4



5

79



5



6



9



7



8



10

FIG. 83.—FRAGMENTS OF MOLDED BOWLS. SCALE, 2:3

FIG. 84.—FRAGMENTS OF MOLDED BOWLS. SCALE, 2:3



b 1352<sup>53</sup> (Pl. IX). The clay of Plate VII 9 is like that of Plate VII 4-5 except that the quantity of mica is greater and tiny yellow inclusions and grit appear. Its interior and rim are covered with a red-brown slip or wash moderately glossy from polishing; the molded part outside is neither slipped nor polished.<sup>54</sup> This, a polished bowl of Hellenistic type, is an outstanding example of that combination of Greek and "barbarian" elements which characterized Hellenistic civilization in the Near East. The one other fragment available for examination, however, was covered with an almost mat red wash similar to that said to occur on No. e 1276a (p. 48). Thus it appears that we have to do with two groups of molded bowls: (a) importations from some Hellenistic center where bowls were completely covered by a glaze which had degenerated into a lusterless wash- or sliplike red coating; (b) local imitations of these whereon an attempt was made to produce a glossy surface by recourse to the still extant practice of polishing.

The out-turned rim is the type favored at Athens and adopted at Antioch and Pergamon, so the imported group must ultimately derive from the products of one of these centers.<sup>55</sup> There can be no doubt that the imported fragments from Alişar form a distinct group and thereby add another to those already known, wheresoever the group may have originated. The rather crude ornamentation and comparatively shallow shape prove that it is a late offshoot. The breakdown of the decoration has gone beyond that of Athenian bowls of the beginning of the 1st century B.C.;<sup>56</sup> and, although a provincial origin may be partly responsible, probably none of the pieces is as early as that. In fact, they approach the poor quality of some bowls from Antioch which date into Roman times, but not, it is likely, beyond the 1st century after Christ.<sup>57</sup>

#### RED-GLAZED POTTERY

##### "PERGAMENE" WARE

The earliest red-glazed pottery, "Pergamene" ware, was not imported by Alişar; but its influence is seen in several fragments of large plates which imitate it.<sup>58</sup> The nearly complete object d 421 (Fig. 34 and Pl. IX) is a late example of the common form of plate; the thin fabric and small, square foot point to the latter half of the 1st century B.C. Another fragment has a flatter floor and a thicker rim rising almost at right angles; the clay of this and several other sherds is hard and gritty. The vessels were carelessly fired, and clay and glaze vary much in color on the same piece. Plate VII 10 is a particularly unsuccessful specimen if one supposes that the red color of "Pergamene" glaze itself was the aim of the potter.

#### ROMAN POTTERY

None of the seven recognizable red-glazed wares which were widely used in eastern Mediterranean lands from the 2d century B.C. until the Dark Ages is directly represented among the

<sup>53</sup> *OIP* XX, Fig. 160.

<sup>54</sup> The descriptions of Nos. 3268-69 show that they share the same characteristics.

<sup>55</sup> F. Courby, *Les vases grecs à reliefs* (Paris, 1922) pp. 277 ff.; *Hesperia* III 454; *Antioch* I 67 f.

<sup>56</sup> *Hesperia* III 405, Nos. E 74 ff. A bowl from Gordion (G. and A. Körte, *Gordion*, Fig. 220) is of the same shape as those from Alişar, but the poor photograph and meager description make it impossible to determine whether it is a Hellenistic importation or a local imitation.

<sup>57</sup> *Antioch* I 68 and Pl. XIV k-m. With the decoration of these late bowls from Antioch and Alişar compare that on some two-handled cups from Pompeii covered with a vitreous (alkaline-siliceous?) glaze: Vittorio Spinazzola, *Le arti decorative in Pompei e nel Museo nazionale di Napoli* (Milano, 1928) Pl. 218.

<sup>58</sup> For an appraisal of this ware see *Antioch* I 68-72. To the literature given there add *Hesperia* III 471-72. It is perhaps well to repeat that the use of the old name "Pergamene" is continued because of the lack of any other eligible to become current. The place (or maybe even places) where the ware was made remains unknown.



Alişar sherds.<sup>59</sup> As just noted, the influence of the earliest of these, "Pergamene" ware, is reflected in the shape of some large plates; and copies of some of the later wares also are present, but not the wares themselves. Alişar seems to have been too far from the sea, by which this pottery was carried abroad. Red-glazed pottery, however, was used there in large amounts, and the mass of it quite swamps the comparatively small number of sherds described thus far. Two characteristics serve to unite it as a group: the only partial covering of the exterior with the glaze and the pure, hard, thin body of all the better pieces. The glaze is uniformly good, forming, although thin, a hard, adherent, and impervious coat. Both its color and that of the clay, however, are subject to wide variation. On some fragments both are a light, almost orange, red (Pl. VII 6); on others the clay is brown, and the brown-red glaze has a silvery metallic luster (Pl. VII 8); still others show intermediate stages. While the two major varieties, light and dark, are quite distinct in some cases, the whole gamut of variation is run between them, and on one sherd the exterior is typically light red while the interior is of a browner hue with a distinct luster. The difference would, then, be due to firing, especially since in several cases the same shapes appear both light and dark. Yet it is likely that the fewer, lighter fragments are slightly earlier and that, after the silvery luster had appeared by chance upon occasion, a conscious effort was made to produce it. This is exactly what happened in the later 4th and 3d centuries B.C.; there the bright sheen made the black vessels shine in light like silver; here, on the red glaze, it gleams like bronze.

Accordingly all the red-glazed pottery will be treated as a group, and individual differences will be noted under each shape just in case future studies should prove them to be significant. The frequency of the pottery is, for the days of the Pax Romana, no safe proof of strictly local origin, and the really excellent quality of much of it favors rather importation from some large and not too distant city. On this point it may be remarked that, even for such an old ceramic center as Athens, present evidence shows all the better tableware to have been imported from at least the later 3d century after Christ until pottery itself is lost sight of in the Dark Ages of the 7th and 8th centuries. The source which may have supplied Alişar cannot be identified, since practically no Roman pottery from inner Asia Minor is recorded. A few pieces, apparently not of a known ware, found at Gordion and Ankara, may be related, since some of the shapes are similar.<sup>60</sup> Parallels for Alişar shapes will be cited on the basis of a fairly complete catalogue of all profiles of the known and many of the unidentified wares which have been published.

Nos. 12-15 in Figure 81, d 493 (Fig. 184 and Pl. XII), and 2302 (Pl. XII).<sup>61</sup> Small cups and bowls. The sizes and minor variations in the rim are myriad in this, the most common shape. No. 15 is unusually large. No. 12 has light red glaze and medium clay; the others are of the darker variety with the luster which reaches its most pronounced state here—even the photograph of No. d 493 betrays it. Some low feet of no great diameter, probably belonging here, show that the shape was fairly wide for its depth. Such incurving rims on cups, common in the Hellenistic age, are much rarer than one might expect in Roman times. A close parallel exists at Olbia, which may be late Samian;<sup>62</sup> nearer home, at Ankara, they seem to be more common.<sup>63</sup> The graceful shape of No. d 493 stands alone.

<sup>59</sup> These wares are made the basis of a description of the Roman pottery found in the Athenian Agora during the first season of excavation: *Hesperia* II 285 ff.; this is supplemented by *Antioch* I 68 ff. It should be noted that Late A and Late B wares are incorrectly described in the former as glazed, whereas further observation shows them to be slipped and polished; this technique is quite unheard of in Greek lands during the historical period and definitely proves a foreign origin for the pottery thus treated.

<sup>60</sup> G. and A. Körte, *Gordion* Fig. 190; Kurt Bittel in *Arch. Anz.* XLVII (1932) cols. 256 ff.

<sup>61</sup> *OIP* VI, Fig. 215.

<sup>62</sup> *Olbia* p. 39, Type 32c.

<sup>63</sup> *Arch. Anz.* XLVII, cols. 258-59, Nos. 13 and 22.

Two whole bowls, Nos. d 1629-30 (Fig. 184 and Pl. XII), seem from the photographs and descriptions to be coarser variants of the same shape. They are described in the field records as being entirely covered with a "YR 7/6 slip" and a "R-YR 6/8 slip" respectively;<sup>64</sup> this may mean that they are not glazed at all or, as is less common, that they are completely covered with a poor glaze. No. b 2807,<sup>65</sup> although found with Roman sherds, looks more Hellenistic, and the description indicates that it was stacked in the oven and misfired. Stacking and careless firing are typical of the Hellenistic age; compare a rather similar bowl from Baisān whereon the result was more striking and attractive.<sup>66</sup>

The only foot which carries a potter's stamp is Plate VII 7, with XAPA in a rectangle.<sup>67</sup> Although XAPIC is common in Samian and "Pergamene" wares, XAPA appears to be unique. Its proper translation makes a problem, for the normal meaning of "joy, delight," is rather out of place in the center of a pot; perhaps we may approach the original connotation more closely by a freer rendering such as "good luck." Rectangular stamps were preferred by the eastern provincial wares throughout the 1st century, and the foot-shaped stamp of the later Italian ware occurs rarely. The glaze of this fragment is medium with a faint luster; the exterior of the foot, as usual here, is not glazed. The form of the rim cannot be determined, but force of numbers favors the incurving type; enough of the side is preserved to show that the shape was a small bowl rather than a cup.

Nos. 16-21 in Figure 81. Similar but with variant rims. No. 16 is cruder than usual; the irregularities of the exterior are due to careless potting. Nos. 16-17 are medium, Nos. 18-21 dark. Such variations in shape cannot yet lay claim to significance of time or place, so the quotation of more or less similar ones would serve no useful purpose. One may, however, note a possible connection of No. 21 with the generic shape of No. 28 below; it is rather closely matched at Ankara.<sup>68</sup>

Nos. 22-23 in Figure 81. Bowls with angled sides. No. 22 is of the best quality, light red; No. 23 is coarser and unglazed inside. No. b 2816 (Pl. XII) is a complete specimen.<sup>69</sup> The form is derived from one found in "Pergamene" ware.<sup>70</sup>

Nos. 24-28 in Figure 81. Overhanging rims of large bowls. No. 24 is of the fine light variety; the others are of the darker. Although "Pergamene" ware, copying metal, possessed such rims,<sup>71</sup> it was probably Italian (Arretine) ware, even more imitative of metal, which made the bowls popular in the Near East.<sup>72</sup> One line of the subsequent development is illustrated by these five sherds, whereon the angle below the rim becomes filled in and the rounded surface of the flange is flattened but its inclination preserved. Almost in the form of No. 28 it is then adopted by one of the later Roman wares, Late B, and slightly transformed to become one of its most common forms.<sup>73</sup>

Nos. 29-31 in Figure 81. Overhanging rims of bowls. Nos. 29-30 medium; No. 31 medium outside, dark inside. The shape apparently shows another, and the more popular, development of the overhanging rim. It was especially common in Samian ware of about the 2d cen-

<sup>64</sup> [The color designations in the field records follow A. H. Munsell, *Book of Color* (Baltimore, 1929).—H. H. v. d. O.]

<sup>65</sup> *OIP* XX, Fig. 160; drawn in our Pl. IX.

<sup>69</sup> *OIP* XX, Fig. 160.

<sup>66</sup> *Antioch* I 70, Fig. 2.

<sup>70</sup> *Antioch* I 71, Nos. 6-8 and references.

<sup>67</sup> *OIP* XXVII, No. 95.

<sup>71</sup> *Ibid.* p. 70, No. 5.

<sup>68</sup> *Arch. Anz.* XLVII, col. 257, No. 10.

<sup>72</sup> Cf. F. Oswald and T. D. Pryce, *Terra Sigillata* (London, 1920) Pl. XLI 1; *Hesperia* II, Pl. VIII 83.

<sup>73</sup> *Hesperia* II, Pl. IX 170, from which was derived the form published by Karl Kübler in *Ath. Mitt.* LVI (1931) 79, Fig. 3, No. 2.

tury after Christ.<sup>74</sup> The form was copied by local potters, at Athens for instance;<sup>75</sup> and these at Alişar may originate from the same source, although the rest of the shape differs. As usual, the Samian specimens are without feet, and what is the straight lower part of Nos. 30–31 would be the Samian flat bottom. No parallels for the Alişar shape are at hand; it can easily have arisen by supplying the Samian shape with a foot. This form of rim is carried on in Late B ware too, practically as it appears in No. 31.<sup>76</sup>

Nos. 32–33 in Figure 81. Thickened rims of bowls. Medium, both slightly darker inside than outside. Typologically this form is a degeneration of No. 29; since these lighter pieces look a bit earlier than Nos. 29–31, they may represent a parallel development from a common ancestor.

Nos. 34–35 in Figure 81. Carinated rims of bowls. No. 34 is light, No. 35 dark red, glossy but not lustrous. These are two, and not the most dissimilar, varieties of the commonest type of rim for plates, bowls, and cups throughout Roman times; three more complete pots are Nos. b 1684 and b 2800 (Pl. XII)<sup>77</sup> and No. 2301.<sup>78</sup> Certainly derived from and probably developed in metal, the type may be seen taking form in Hellenistic black-glazed ware and in the red "Pergamene" pottery.<sup>79</sup> In the latter half of the 1st century B.C. the metal form, used in bowls and plates, was generally adopted in the "Pergamene," Samian, and Italian wares and by their influence spread abroad.<sup>80</sup> No. 34 and No. b 1684 are concave cups, the most frequent shape; the latter's low foot indicates a derivation from Samian ware,<sup>81</sup> and its shape a date in the middle of the first century of our era.<sup>82</sup> No. 35 likewise is closest to Samian shapes.<sup>83</sup>

Nos. 36–39 in Figure 81. Rims of various shapes. All are rather dark and not of the best quality. For No. 36 two Samian approximations may be noted.<sup>84</sup> No. 37 has very close parallels at Athens, Corinth, and Olbia, also in Samian ware.<sup>85</sup> Flat rims are too common to be distinctive, although No. 38 approaches the later rather than the early wares in its proportions. The only shape similar to No. 39 is a Samian plate the dimensions of which are much more squat.<sup>86</sup>

Nos. 40–41 in Figure 81. Rims of plates or bowls. The first seems to be a direct and fairly well made imitation of the commonest shape of Late A ware, a large, deep plate;<sup>87</sup> the body, although pure and hard, is thicker and is covered by a dull, thin brown-red glaze. No. 41 may be a more distant echo of the curved rims popular in Late A and B, for it does not correspond exactly with them; the glaze is redder and the body coarser.

Nos. 42–44 in Figure 81. Large bowls and basins. Hard, pure, and moderately thin body; thin, hard glaze of a fair gloss the color of which shows various hues of dark red and brown. These, especially in the common form of No. 42, are remarkable for a peculiar technique of decoration. Outside, the body is carefully smoothed (usually over the whole surface) and com-

<sup>74</sup> *Ath. Mitt.* LIV 50, Fig. 42; *Hesperia* II, Pl. IX 107–9.

<sup>75</sup> *Hesperia* II, Pl. IX 213 and 215. Nos. 213–17 are incorrectly classed as Late C in the text; they are local products and should be listed with the others under D 3 on p. 307.

<sup>76</sup> *Ibid.* Pl. IX 164.

<sup>77</sup> *OIP* XX, Fig. 160.

<sup>78</sup> *OIP* VI, Fig. 214.

<sup>79</sup> *Hesperia* II, Pl. VIII 42; *Antioch* I 72, Fig. 5, No. 29–102–570 (from Baisān).

<sup>80</sup> Several varieties are represented in the fragments from Ankara; see *Arch. Anz.* XLVII, cols. 258–59, Nos. 14–19. No. 14 resembles No. b 2800 but is squatter; No. 17 approximates No. b 1684; and No. 15, No. 34.

<sup>81</sup> *Olbia*, p. 15, Type 4.

<sup>82</sup> Cf. Oswald and Pryce, *op. cit.* Pl. XXXVIII 3a–b (Tiberio-Claudian).

<sup>83</sup> *Priene*, Fig. 550, No. 125; *Ephesos* I 174, No. 62; *Hesperia* II, Pl. IX 101. *Olbia*, p. 37, Type 21 A b similarly derives from Samian, if it is not itself a late piece.

<sup>84</sup> *Ephesos* I 172, No. 39; *Olbia*, p. 17, Type 9.

<sup>85</sup> *Priene*, Fig. 550, No. 132.

<sup>86</sup> *Olbia*, p. 18, Type 10; those from Greece are not published.

<sup>87</sup> *Hesperia* II, Pl. IX 118 and 136–37.



pletely covered with glaze; inside, however, the final smoothing is limited to narrow bands about half a centimeter apart. Therefore the glaze shows its fair gloss on the outside and on the smoothed bands inside, but appears almost mat where it sinks into the rough surface of the spaces between the bands. The appearance is that of a pot with the interior polished in bands; but several fragments prove beyond doubt that the effect was not produced by this means at all, for the glaze has an independent gloss which, naturally, is obscured unless applied to a very smooth and level surface. Since a few sherds, quite like these in all respects, have recently been found at Antioch, we are dealing with a distinct ware of more than purely regional distribution. The irregularity of firing is in keeping with the rather late date which is indicated by the pieces of the following group. One nearly complete pot of this shape, No. e 1277a (Fig. 184 and Pl. XII), is recorded as "fine, buff, well made, wet-smoothed," and no slip or glaze is mentioned. This specimen was found with molded bowl No. e 1276a, but it is not specified whether it was under such circumstances as to indicate contemporaneity, or merely in a dump.<sup>88</sup> The date of the shape is fairly well established as late Roman by the fragments mentioned below, and it would take invulnerable evidence to pull the molded bowls so far from their Hellenistic ancestors. The only two parallels in my index indicate that such open, flat-bottomed vessels were shallow in Hellenistic and deep in Roman times.<sup>89</sup>

Figures 85 and 86 7 and No. c 51 (Fig. 184 and Pl. XII). The third one of the late Roman wares, Late C, is marked by considerable variations in color of glaze and clay which sometimes make it difficult to isolate the imported pieces and to decide whether they are the products of one or more centers. For although specific importations from one place must have set the type, local imitations of different degrees of quality soon sprang up at various sites. The sherds from Alishar, being rather carelessly made on the whole, are readily recognized as copies. They were probably made at the same place as the preceding group, for several have the peculiar alternation of rough and shiny bands inside (Figs. 85 6 and 86 7). This in turn helps to date that group, since Late C ware appears in Greece toward the end of the 4th century of our era.<sup>90</sup> The Late C designs are of three kinds, geometrical, animal, and Christian (crosses); only the first, perhaps the earliest of the three, occurs here. Stamped designs were not originated by Late C; they were used earlier, in Late B, and grew out of the custom of impressing the potter's seal at the center of the vessel. For this stamp some 2d century Samian pots substitute a rosette. Figure 85 5 has a similar design; it must be the earliest of the stamped sherds from Alishar, probably 3d century.<sup>91</sup> The inside is covered by a dark glaze with a silver sheen, the presence of which on this piece is one of the reasons for assuming that this glaze is later than the lighter glaze which does not possess a silver sheen. Not enough stamped pottery has been published to judge of the significance of the designs themselves; but those on the Alishar pieces usually differ to some extent from those on the pottery of the best quality, which probably represents the imported ware, the original Late C. The foot shape (Fig. 85 3 and 7), for instance, does not occur in the latter group; it derives, of course, from the earlier potter's stamp *in planta pedis*. The dish c 51 breaks the rule of shape, which is remarkably uniform in this ware.

<sup>88</sup> [The vessels were found together below the Roman-Byzantine level in S 18. In that area the levels between the Hittite and the Roman-Byzantine deposits were very scanty and much disturbed.—H. H. v. d. O.]

<sup>89</sup> Reisner, Fisher, and Lyon, *Harvard Excavations at Samaria, 1908-1910* I, Fig. 174, No. 56 (classed under "Babylonian-Grecian Pottery, 700-300 B.C."); *Ath. Mitt.* XXXVII, Pl. XXVIII 42 (from Çandarlı near Pergamon; later 1st or 2d century after Christ).

<sup>90</sup> *Hesperia* II 303-4.

<sup>91</sup> Cf. *Ath. Mitt.* LVI 84-85 and Beilage XXXVI B, Nos. 1-3.



FIG. 85.—SHERDS WITH STAMPED DECORATION. SCALE, 2:3

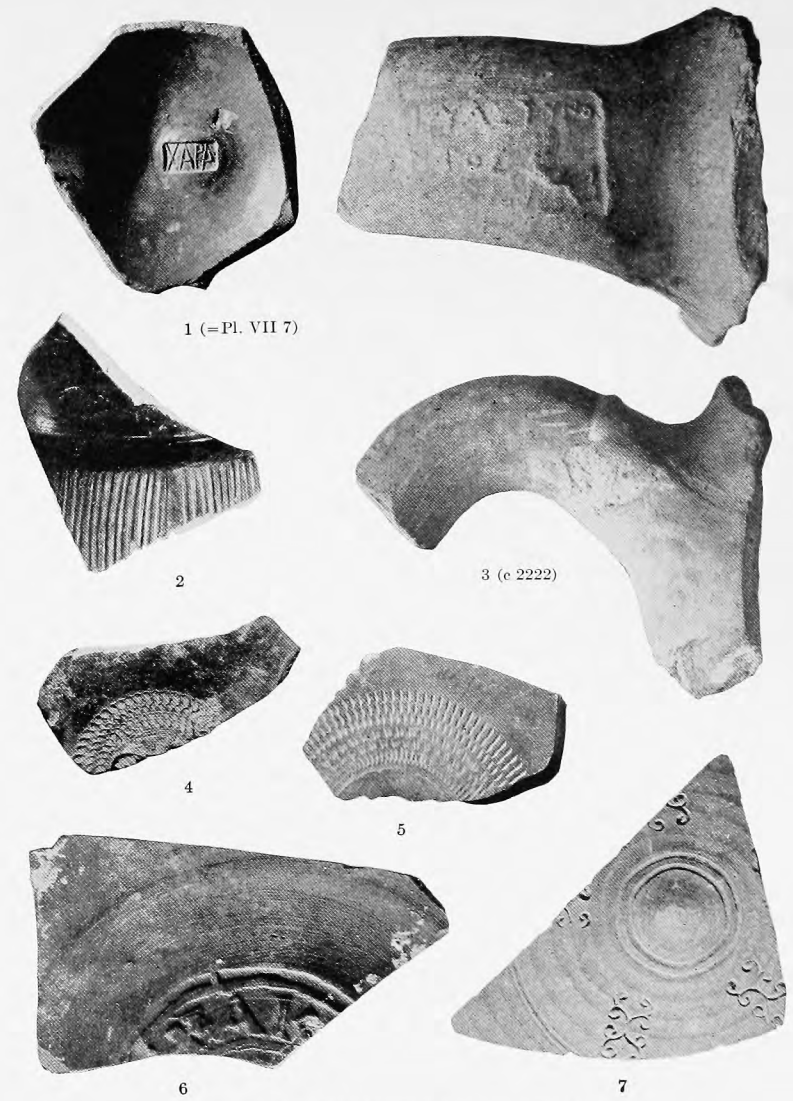


FIG. 86.—MISCELLANEOUS SHERDS. SCALE, 2:3



## MISCELLANEOUS POTTERY

No. c 2693 (Fig. 184 and Pl. XII). Small bowl; field record states: "fine buff ware; a polished R-YR 4/6<sup>92</sup> slip covers entire vessel." The "polished slip" on this Roman pot is probably a glaze which here departs from the usual at Alishar by covering the vessel completely. The shape is allied to one found in "Pergamene," Italian, and late Samian wares.<sup>93</sup> Here it is shallower than other examples and may belong rather to the 2d than to the 1st century after Christ.

Nos. 3271-72<sup>94</sup> (the latter in Pl. XII). Roman bowls. No. 3272 may be another variant of the shape of No. c 2693 above.

No. 1073 (Pl. XII).<sup>95</sup> Roman copy of a metal shape well known in silver vessels from Alesia, Boscoreale, and Pompeii—a deep cup on a pedestal.<sup>96</sup> The thin fabric and carefully modeled handles show a close approximation to the metal original and favor a date in the century 50 B.C.—A.D. 50 rather than later.

No. 880 (Pl. XII).<sup>97</sup> Deep, round-bottomed bowl; a local or regional product. Grooves below the rim are found on Roman pottery, usually not of the very best quality, from the 2d century on; compare Figure 87 2 and 7 and see below.

Figure 86 3.<sup>98</sup> Stamped amphora handle. The presence of the title 'αστυνό[μος] identifies the handle as coming from South Russia.<sup>99</sup> The stamped amphoras were exported from several centers (Rhodes, Knidos, etc.) during a period which extended from the end of the 5th century B.C. at least to the end of the 1st century B.C.<sup>100</sup>

Figure 86 6.<sup>101</sup> Such pottery with a stamped inscription around the center is unfamiliar to me, and without an examination of the fragment it is impossible to venture a date. Some early Christian silver vessels have inscriptions similarly placed, and the inspiration here is probably from metal.<sup>102</sup>

Figure 86 4-5. The decoration of these sherds is another instance of that influence of metal vases on pottery which can be traced throughout antiquity. In this case it is rather remote. Athenian plates of the 5th century B.C. copied not only the shape but also the decoration of metal vases—stamped palmettes within circles formed by a succession of short, almost parallel indentations. Through the 4th century B.C. and the Hellenistic age the palmettes gradually degenerated in form, and the rouletted circles often were multiplied. The study of the chronology of these variations has only begun; since they were not exactly uniform everywhere, the dated pieces from Athens offer no specific parallels.<sup>103</sup> No. 5 is probably the earlier; the roulettes and as much as one can see of the palmette of No. 4 resemble the decoration of a "Pergamene" plate from Antioch.<sup>104</sup> It is likely that both sherds belong to the 2d century B.C.

Figure 87 1, 3, and 8. While the influence of metal vases upon pottery was always present, it reached maxima of importance at different periods. There was one in the 5th century B.C.

<sup>92</sup> [The color designations in the field records follow A. H. Munsell, *Book of Color* (Baltimore, 1929).—H. H. v. d. O.]

<sup>93</sup> "Pergamene": Reisner, Fisher, and Lyon, *op. cit.* Fig. 185, Nos. 5a-c; *Olbia*, p. 22, Type 12b. Italian: Oswald and Pryce, *op. cit.* Pl. XXXIX 1. Samian: *Olbia*, p. 32, Type 29. Cf. also *Arch. Anz.* XLVII, cols. 256-57, No. 7 (from Ankara).

<sup>94</sup> *OIP* VI, Fig. 213.

<sup>95</sup> *OIP* XX 103 and Pl. XI.

<sup>96</sup> Eugénie Strong, *Art in Ancient Rome* (New York, 1928) II 40, Figs. 305 and 307; V. Spinazzola, *op. cit.* Pl. 234.

<sup>97</sup> *OIP* XX 103 and Pl. XI.

<sup>98</sup> *OIP* XXVII, No. 96.

<sup>99</sup> Virginia Grace in *Hesperia* III (1934) 276, No. 221.

<sup>100</sup> *Ibid.* pp. 197 ff.

<sup>101</sup> *OIP* XXVII, No. 97.

<sup>102</sup> O. M. Dalton, *Catalogue of Early Christian Antiquities and Objects from the Christian East in the Department of British and Mediæval Antiquities and Ethnography of the British Museum* (London, 1901) Nos. 358-59.

<sup>103</sup> *Hesperia* III 430-32 and Fig. 115.

<sup>104</sup> *Antioch* I 71 and Pl. XIV 13.

which set the shapes and decoration for Greek and Hellenistic plain tableware, another at the end of the 4th century B.C. which initiated the molded bowls, and a third about the middle of the 1st century B.C. which set the shapes of Roman tableware. But there was another in the 3d century after Christ which has not been sufficiently emphasized, although the fact is established by the shapes and decoration of Late A and of the later, and probably in some respects



FIG. 87.—MISCELLANEOUS SHERDS. SCALE, 2:3

derivative, Late B ware.<sup>105</sup> These fragments 1, 3, and 8 are not copies of any known Late A or B shapes, but the curved and spreading rims and the decoration have a certain similarity and are definitely metallic. Since the curve of No. 1 seems to indicate an oval rather than a circle, it may have been a platter rather than a plate;<sup>106</sup> the clay is a hard, pure brown-red, the glaze medium. The curved radial rouletting of No. 8 has exact counterparts in Late A

<sup>105</sup> *Hesperia* II 294 ff.

<sup>106</sup> Cf. Oswald and Pryce, *op. cit.* Pl. LVII 1 (pottery); Friedrich Drexel, *Alexandrinische Silbergefäße der Kaiserzeit* (Bonn, 1909) Pl. VIII 1 (metal).

bowls, and extant metal vessels show its origin.<sup>107</sup> The reference to the Late A pottery is not intended necessarily as an implication of a 3d century date for these sherds but merely as an illustration of indubitable metal influence in late Roman times. Without further evidence it can be said only that the Alishar sherds fall about the 3d-4th century.

Figure 87 2 and 5-6. The incised and ribbed decoration of coarse pottery in the Classical period has not been studied. My general impression, gained from excavating at Antioch, Athens, and Corinth, is that incised wavy lines and comb decoration do not become usual before the 3d century of our era. This simple ornamentation of course goes back to the Bronze Age and survives to the present. No. 6 is certainly late Roman (about 3d-4th century), and it is possible that Nos. 2 and 5 belong at the end of antiquity (about 5th-6th century) rather than in the early Middle Ages.

Figure 87 7. Carelessly made horizontal handles assume this form in any age, but the straight rim with groove near the edge and the whole look of the piece place it in the 2d-4th century after Christ.

Figure 87 9. Fragment, apparently of a bowl, with widely spaced and prominent ridges on the interior. The imitation may be of a glass rather than of a metal shape. It is probably late Roman.

To summarize, we may say that Alishar stands once removed from the main body of Classical pottery, with the exception of its few Athenian importations. During the Hellenistic age regional traditions (polychromy and polishing) persist alongside of, and even appear in conjunction with, types derived from Hellenistic wares. With the coming of Roman domination and standardization they die out, and red-glazed pottery becomes the rule; in it we may recognize the product of some not-too-distant metropolis which drew its inspiration from favorite wares of the Empire, especially, it seems, from the Samian.

FREDERICK O. WAAGÉ

## FIGURINES

Only a few figurines, either human or animal, can be ascribed to this period (Figs. 88-89).

The very crude pottery bust e 1398 was found in a refuse deposit of this period in P 0-1. No. e 168, representing a small human foot, is of whitish opaque glass on which a sandal is indicated by brownish drawn glass; it is perforated. No. e 1132 is a small bust of Sekhmet made of light green frit, perforated from side to side. A small Horus eye of light greenish frit (e 146) was found in a refuse deposit of this period in 1932. In 1928 three such amulets were found in Levels 2-3 M.<sup>108</sup> A very interesting piece is No. d 400, part of a femur head on which a winged sphinx with a decorated conical headdress is shown in relief.

No. d 2007, a bone pendant in the form of a perched bird, was found in the deposit of this period in the complex of 1931 (in Q 28). It is similar to one found in 1928 in refuse between Levels 2 and 3 M.<sup>109</sup> In 1927 a small lead figurine (3195) probably representing an eagle was found in a deposit of this period.

The animal figurines of pottery shown in Figure 88 are for the most part better made than those of previous periods. Nos. e 76 and e 548 are of reddish buff ware with buff slip; the ornamentation on No. e 76 is reddish brown. No. e 2739 is of reddish buff ware with a reddish buff slip; the tail is creamy white with reddish brown stripes. No. e 2741 (Fig. 89) may have

<sup>107</sup> Pottery: *Hesperia* II 295, Fig. 2, No. 146 and the unnumbered fragments. Metal: Spinazzola, *op. cit.* Pl. 237; E. von Mercklin in *Arch. Anz.* XLIII (1928) col. 443, Fig. 155.

<sup>108</sup> *OIP* XX 61. Professor G. Roeder of Hildesheim has kindly informed me that while Nos. a 541, a 767, and e 146 are probably Egyptian import pieces, No. a 76 may be a Syrian or local copy.

<sup>109</sup> No. a 71, *OIP* XX 61.

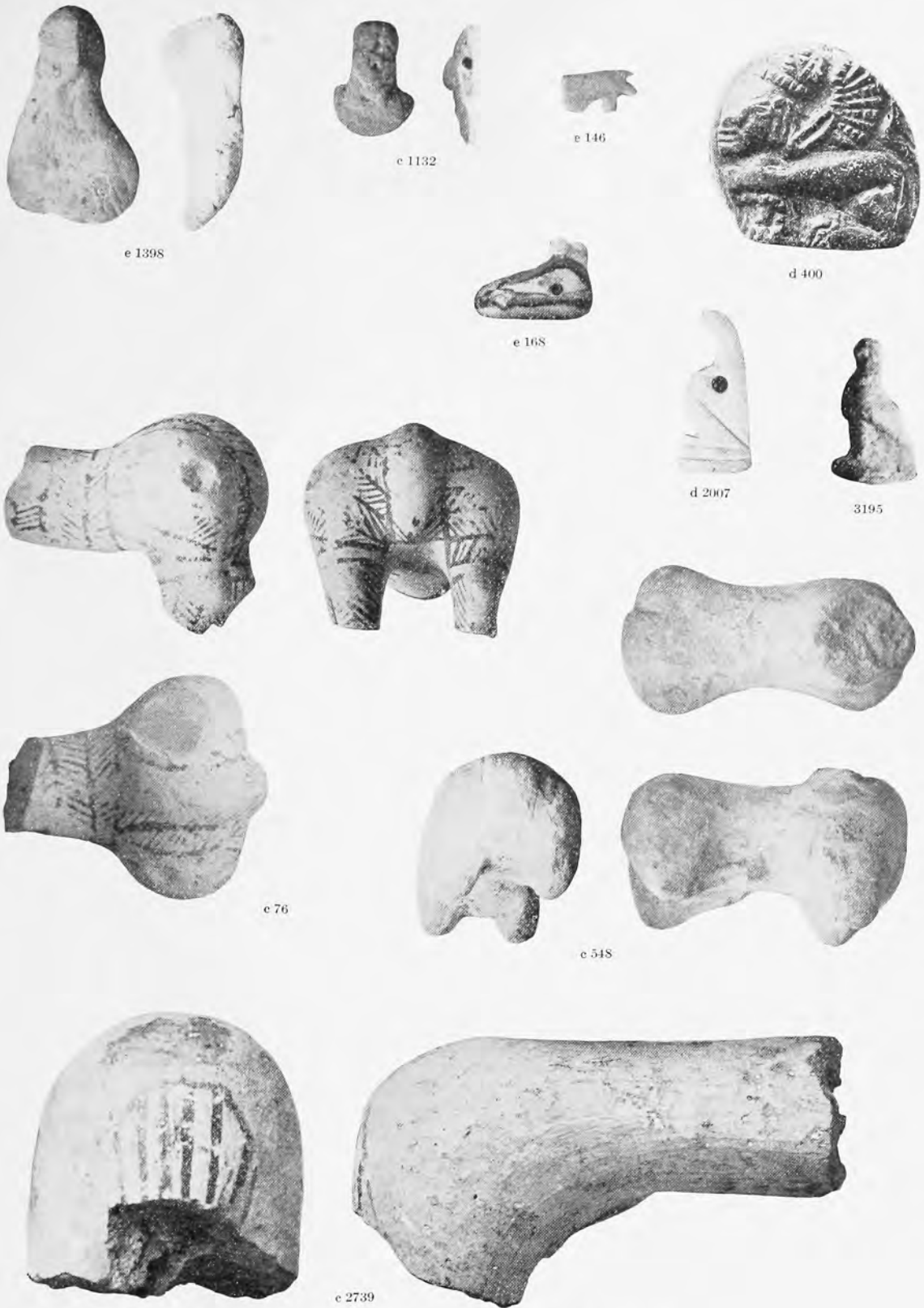


FIG. 88.—FIGURINES AND A RELIEF CARVING. ACTUAL SIZE





e 2741



d 1174



d 556



e 258



d 500



FIG. 89.—ANIMAL FIGURINES. ACTUAL SIZE



been a fragment of a large figurine or part of a vessel; it is of reddish buff paste with buff slip and brownish red ornamentation. Bull's head d 500, of buff ware with yellowish buff slip, may have been attached to a vessel. No. d 1174 is a very fragmentary animal head, and No. e 258 is part of a leg. No. d 556 is a much corroded bronze or copper figurine of an animal.

All the pieces cited came from deposits or refuse belonging definitely to the second half of the first millennium B.C., but it is impossible to ascribe them to any particular cultural phase within that time. No. b 143, a bronze or copper figurine of a dog, found in G 8 in 1929 and at that time tentatively assigned to this period,<sup>110</sup> belongs, as we now know, to the Roman-Byzantine period.

The decoration of vessels with animal heads in relief and with painted figures has been described on pages 21-22. Representations of human beings and animals on seals are described below.

### SEALS

Relatively few seals (Fig. 90) were found in the cultural deposits of this period. In form and design Nos. a 184 and e 748 seem to be survivals of preceding periods; or perhaps they are actually re-used seals of an earlier period. Nos. 737, 1051, and e 785 are conical stamp seals with rounded, perforated tops. The bases of Nos. 737 and 1051 show rather crudely executed designs, probably quadrupeds; No. e 785 shows a well executed long-horned animal with a bird above its back. Nos. 2398, 3101, and 3102 are scaraboids with variations of a design which is common on seals of previous periods. Scaraboid a 779 shows a crouching winged sphinx, behind which appears a branch-shaped design. No. a 40, much worn, shows a deeply incised but unrecognizable design. No. d 863 may be a bead; it is much worn. On one face there is an animal with an arrow piercing its neck; the design on the other face is unrecognizable. Pottery disk e 357 shows almost identical designs on the two faces. No. d 399, of bone, is perhaps a stamp seal with flat base and a handle now broken off, but it may have been a button. The base is ornamented with three groups of concentric circles with centered dots. No. c 2581, a seal or amulet with four rectangular faces, shows a different design on each.

Scaraboids 979 and 979a are Greek imports, probably dating from the late 5th or the 4th century B.C.<sup>111</sup> With these two exceptions none of the seals can be attributed to any distinct cultural phase within this period. Probably Nos. 737, 1051, a 779, c 2581, and e 785 belong within the 7th to 5th century B.C., since they resemble some glyptic objects of that time from North Syria and Cyprus.

### LIST OF SEALS (FIG. 90)

- |      |   |
|------|---|
| 737  | (OIP VII 47). Brownish limestone; conical stamp seal, top broken off; crudely engraved design presumably shows a stag, its antlers inclosing a star. Found in refuse in J 12. |
| 979  | (OIP VII 48). Milky chalcedony; scaraboid, perforated lengthwise; base shows a winged unicorn. Found in a refuse deposit in K 13.   |
| 979a | Bluish chalcedony; scaraboid; base shows a heron. Found in a refuse deposit in K 13.  |
| 1051 | (OIP VII 47). Diorite; conical stamp seal, perforated near top; deeply incised, unrecognizable design, perhaps a quadruped. Found in L-M 12-13.                               |
| 2398 | (OIP VII 47). Black serpentine; scaraboid, perforated lengthwise; cross-shaped design with inscribed angles in the quadrants. Found in GG-IH 13.                              |
| 3101 | (OIP VII 47). Limestone; scaraboid, perforated lengthwise; four groups of angles form an X-shaped design. Found in P-Q 12.  |

<sup>110</sup> OIP XX 59.

<sup>111</sup> I am indebted for this information to Miss Gisela M. A. Richter, associate curator of Greek and Roman art, the Metropolitan Museum of Art, New York.



FIG. 90.—SEALS. ACTUAL SIZE

- 3102 (*OIP* VII 47). Limestone; scaraboid, perforated lengthwise; four groups of angles form an X-shaped design. Found in P-Q 12.
- a 40 (*OIP* XX 64). Serpentine; stamp seal with domed back, perforated lengthwise, and roughly rectangular base; deeply incised design is unrecognizable; a little above the base, on the dome, are two cross-shaped incisions. Found in Level 2 M.
- a 184 (*OIP* XX 64). Serpentine; stamp seal with a partly hollow stem; circular base shows a cross-shaped design with inscribed angles in the quadrants. Found in Level 2 M.
- a 779 (*OIP* XX 64). Rock crystal; scaraboid, perforated lengthwise; behind a crouching winged sphinx wearing a tall headdress is a tree or branch. Found low in Level 3 in N 12.
- e 2581 Black diorite; seal or amulet with four rectangular faces, perforated lengthwise; engraved on the faces are the following designs:
1. A sacred tree.
  2. A human figure, seated on a high-backed chair, wears a pointed headdress; in his hand is a goblet(?), and before him is a probably symbolical design.
  3. Above the back of a quadruped appears a mountain symbol on which stands a human figure with upraised arms; on each side of the human figure is a conventionalized tree or branch.
  4. Before a stag appears a conventionalized tree or branch; above its back, a symbolical design; behind its leg, a mountain symbol; beneath it, an unrecognizable design. At top and bottom of each of these four panels appears a crudely incised rope border. Found 1.90 deep in N 29.
- d 399 Bone; stamp seal, handle now broken off (possibly a button); rectangular base with rounded corners shows three groups of concentric rings with centered dots. Found .60-1.80 deep in Q 30.
- d 863 Black limestone; discoid seal or bead, perforated parallel to the faces; both faces are much worn; one shows an animal, its neck pierced by an arrow; the other, an unrecognizable design. Found 1.60-2.10 deep in T 31.
- e 357 Pottery (perhaps a reground potsherd); discoid seal or amulet, perforated parallel to the faces; each face shows a crudely incised cross-shaped design with angles in each quadrant, encircled by a single-line border. Found in a refuse deposit in S 21.
- e 748 Serpentine; stamp seal with long handle, perforated near the top; rectangular base, now chipped at the edges, is divided into quadrants, each filled with three parallel lines, alternately horizontal and vertical. Found in a refuse deposit of the second half of the first millennium B.C. in H 12.
- e 785 Alabaster; conical stamp seal with rounded top, now broken where it was perforated; oval base shows a bird above the back of a walking long-horned animal. Found in the same deposit as e 748.

### STONE OBJECTS

Flint, obsidian, and chalcedony blades, scrapers, and points like those of previous periods<sup>112</sup> were found frequently. No. e 889 (Fig. 96), an obsidian arrowhead, was found in C-D 9 outside the Phrygian fortress wall with a great number of potsherds of this period, obviously in a refuse deposit. It is therefore probable that it originated in a much earlier period, perhaps the Chalcolithic.<sup>113</sup> Trapezoidal flat axes,<sup>114</sup> hammer axes (e.g., c 2203, Fig. 91), and maceheads were of materials in use in previous periods and present no new forms. No. e 404 (Fig. 91) is a very carefully worked macehead of steatite. No. d 1662, of quartzite, may be either an unfinished macehead or a missile. The type of hammer with two blunt ends and a depression around the middle (e.g., d 1197) is usually more stubby in form than those of the preceding period.<sup>115</sup>

Pestles (e.g., d 1281 and d 1414 of limestone and e 994 of basalt, Fig. 91) and drill handles (e.g., d 1028 of limestone and c 2361 and d 1831 of marble, Fig. 91) also appear in the same forms as before. Perforated whetstones or polishing stones, well known from the Hittite period on,<sup>116</sup> were common (e.g., first two rows in Fig. 92); they were of the same materials as before. No. d 41 (Fig. 92), of slate, must have been used for polishing and whetting. Polishing

<sup>112</sup> Cf. *OIP* XXVIII, Figs. 88-89.

<sup>115</sup> Cf. No. e 692 (*OIP* XXIX, Fig. 481).

<sup>113</sup> Cf. Nos. c 265 and e 1765 (*OIP* XXVIII, Fig. 89).

<sup>116</sup> Cf. *OIP* XXIX, Figs. 261 and 482.

<sup>114</sup> Cf. Nos. d 1461 and e 433 (*OIP* XXIX, Fig. 261).

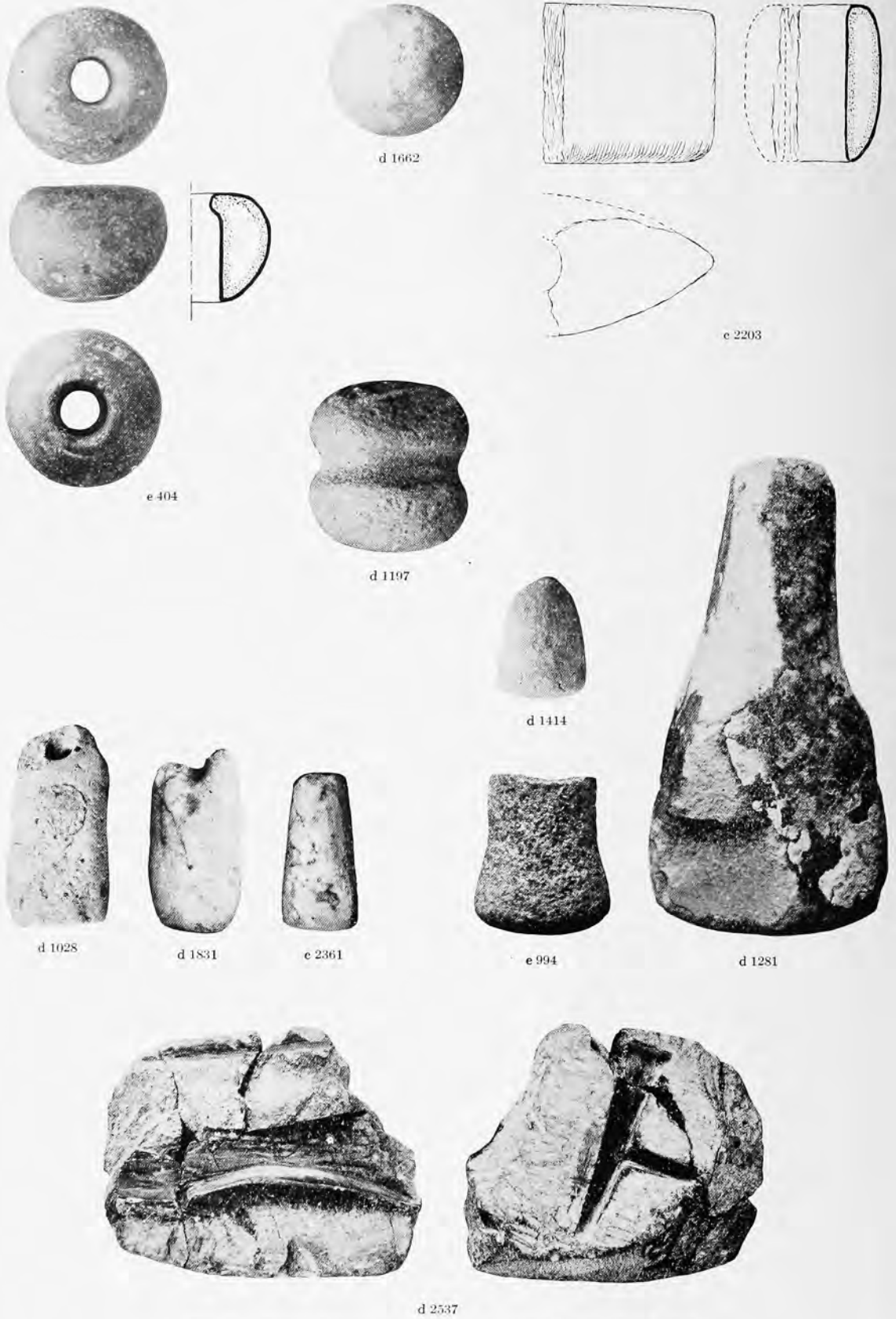


FIG. 91.—STONE IMPLEMENTS, WEAPONS, AND A MOLD. SCALE, 1:2



FIG. 92.—STONE IMPLEMENTS, VESSELS, AND A MOLD. SCALE, 2:3



pebbles were common, as were rough hammerstones. A fragmentary mold of serpentine (d 2537, Fig. 91) shows on one side a form for an ax with lugs, on the other a form for a chisel or small flat ax. It was found in a deposit definitely of this period in P 28. No. c 2236 (Fig. 92) is the upper half of a small serpentine mold with two tie holes.

Although the old metate was still in use, a new type of hand mill appeared in this period (Fig. 93).<sup>117</sup>

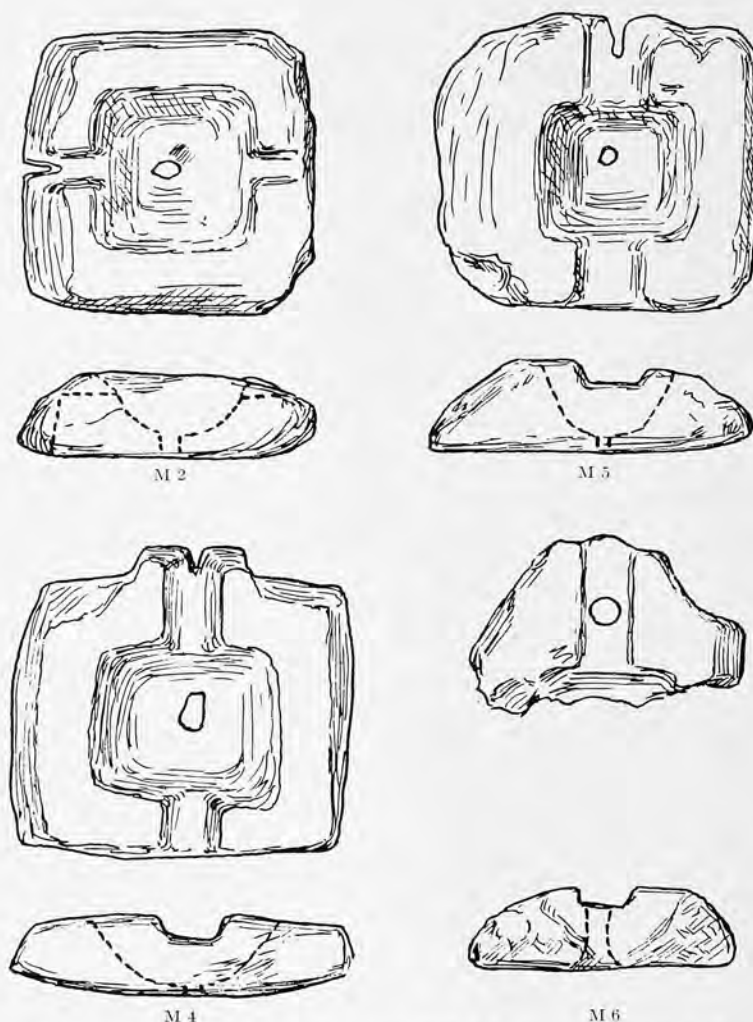


FIG. 93.—MILLS. REPRODUCED FROM *OIP* XX, FIG. 116. SCALE, 1:10

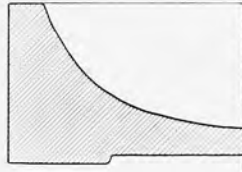
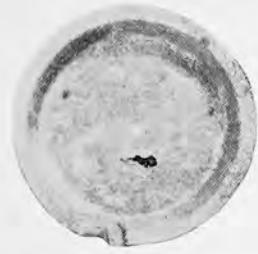
Vessels of sandstone or basalt are rather numerous (Fig. 94). The flat bowls with three legs had appeared for the first time in the Post-Hittite-Phrygian period.<sup>118</sup> A fragment of such a vessel with part of a Greek inscription (b 2198)<sup>119</sup> may belong to this period, but more probably belongs to the Roman-Byzantine period. No. c 150 (Fig. 92), of serpentine, the top of which forms a shallow bowl, may possibly be an incense-burner. No. c 1550 (Fig. 92) is a fragment of the rim of a very fine obsidian vessel. Other fragmentary stone vessels belonging to this period were found in 1928 and 1929.<sup>120</sup>

<sup>117</sup> *OIP* XX 2 and 76-77.

<sup>119</sup> *OIP* XX 109-10; *OIP* XXVII, No. 94.

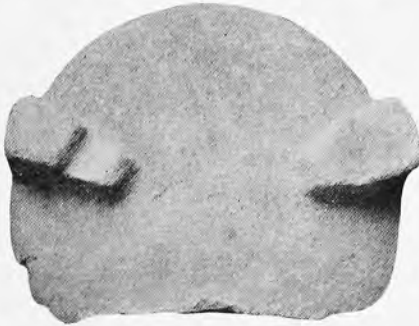
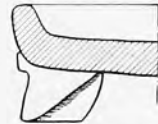
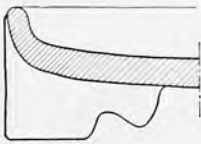
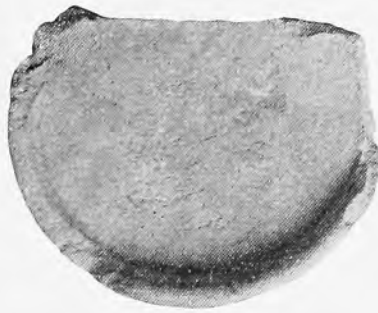
<sup>118</sup> *OIP* XXIX, Fig. 483.

<sup>120</sup> *OIP* XX 74.



e 1112

e 14



d 422



d 357

FIG. 94.—STONE VESSELS. SCALE, 1:5

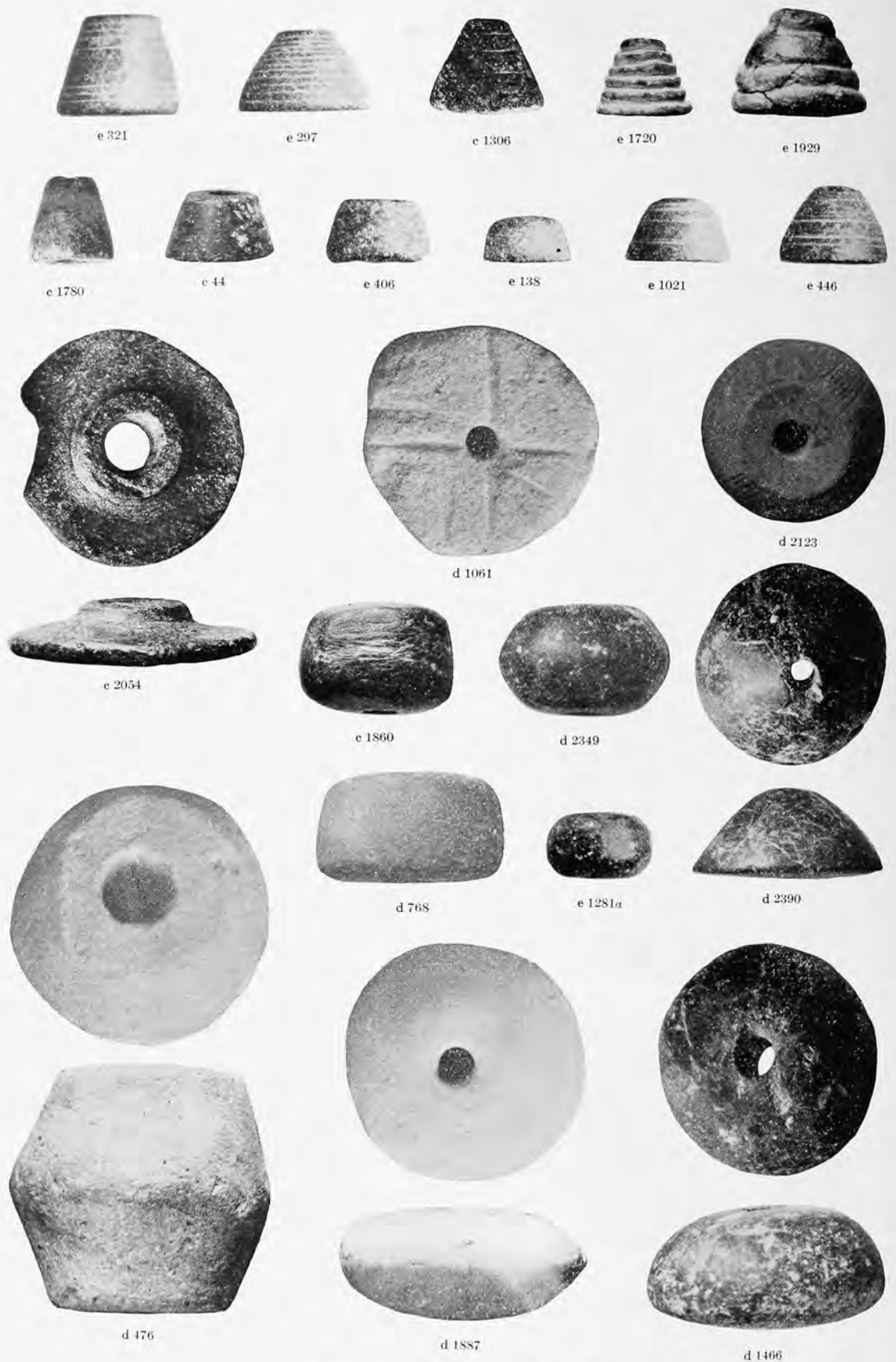


FIG. 95.—STONE "WHORLS." ACTUAL SIZE

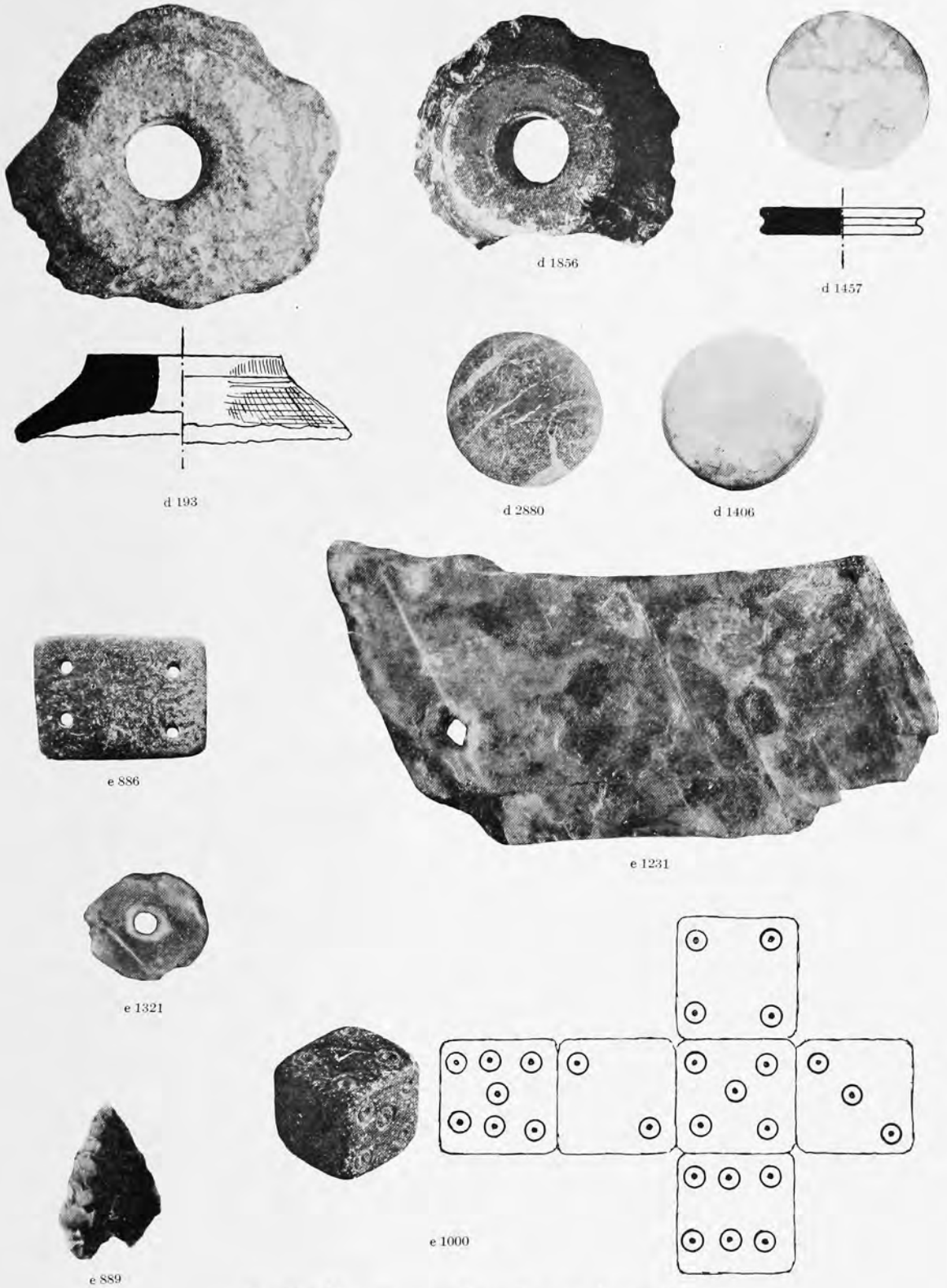


FIG. 96.—MISCELLANEOUS STONE OBJECTS. ACTUAL SIZE



FIG. 97.—MISCELLANEOUS STONE OBJECTS. ACTUAL SIZE



With this period "whorls" of a new type appear. They are truncated cones, sometimes encircled by parallel incisions or grooves (e.g., Fig. 95) and sometimes with similar circles on the base. The few "whorls" of this type found in the destruction layer above Level 4a on the citadel mound probably belong to this period rather than to the Post-Hittite-Phrygian period. Figure 95 also shows other stone "whorls" of this period. The material is usually serpentine, although slate, limestone, and marble also were used.

Of the objects shown in Figure 96, Nos. d 193 and d 1856, of serpentine, and d 1457, d 2880, and d 1406, of marble, may have been lids. A number of thin mica slabs appeared (e.g., e 1231) which were probably used as windowpanes. A perforated mica object (e 1321) may have been a bead. The thin rectangular piece of serpentine e 886, with perforations in the four corners, is noteworthy. Two dice (e.g., e 1000) are similar to one found in 1928,<sup>121</sup> numbering from two to seven. Serpentine, limestone, and marble toggles (Fig. 97), of the same forms as in preceding periods, were common. No. e 1594 (Fig. 97) is an amulet or a weight of hematite; No. e 1557 is similar in form, but the material is marble.

Beads and pendants are shown in Figure 97. Most of the pendants in the first row are of limestone. Beads, of which a representative collection is illustrated, are usually of whitish limestone or serpentine. Nos. d 868 and c 1238 are of rock crystal, No. e 1118 is of yellowish red agate, and the faceted bead c 1265 is of reddish chalcedony. Bronze or copper pin d 437 (Fig. 105) has a diorite head.

Stone seals are described on pages 91-93.

### BONE OBJECTS

With this period a bone implement which had appeared sporadically since the earliest periods becomes very common (Fig. 98). It was probably used as an awl; one end is squared or rounded, the other pointed. The cross-section is usually oval. As in preceding periods, bone splinter awls of various sizes and forms were used (e.g., d 1072, d 1792, and e 1586, Fig. 98). Of bone pins (Fig. 99) the form represented by No. c 1658 was most common; this too is a type known from the earliest periods on. A new type of pin is represented by Nos. d 519 and c 60. No. c 126 was perforated through the head. Nos. c 1437, d 555, and d 306 are other bone pins found in deposits of this period. Point d 864 is of a type well known from earlier periods,<sup>122</sup> and several other specimens have been found in the deposits of this period. Nos. c 1986, d 258, and d 786 are flat pieces of bone probably used for polishing. No. d 1118 is a crude bone scraper. No. d 1224 is a fragmentary ivory object.

In Figure 100 is shown a representative collection of bone implements of a type which appears frequently in this period. The flat oblong piece of bone, usually with rectangular cross-section, has a perforation near each end. No. c 896 is a rather large specimen in which there are three perforations. It is quite possible that these are implements for weaving, and that No. e 1542 is another weaving implement. The remaining objects in Figure 100 were probably ornaments; they show no new features of form or decoration.

Other bone objects are illustrated in Figure 101. Knucklebones (perforated and sometimes loaded with iron or lead), perforated finger bones, button-, disk-, or ring-shaped bone objects were all numerous. No. d 1062 is a wrought and perforated knucklebone of a horse. Nos. c 850 and c 2217 are pendants, the latter very carefully wrought and elaborately ornamented. No. d 677 may be a fragment of a pendant. No. d 619 is an animal's tooth, perforated, with a bronze or copper attachment; No. d 591 is a dog's tooth with two deep grooves cut around the middle. Nos. d 1785 and d 2019 may have been parts of lids. Bone tubes, well known in

<sup>121</sup> *OIP* XX, Fig. 119.

<sup>122</sup> Cf. *OIP* XXIX, Fig. 269.

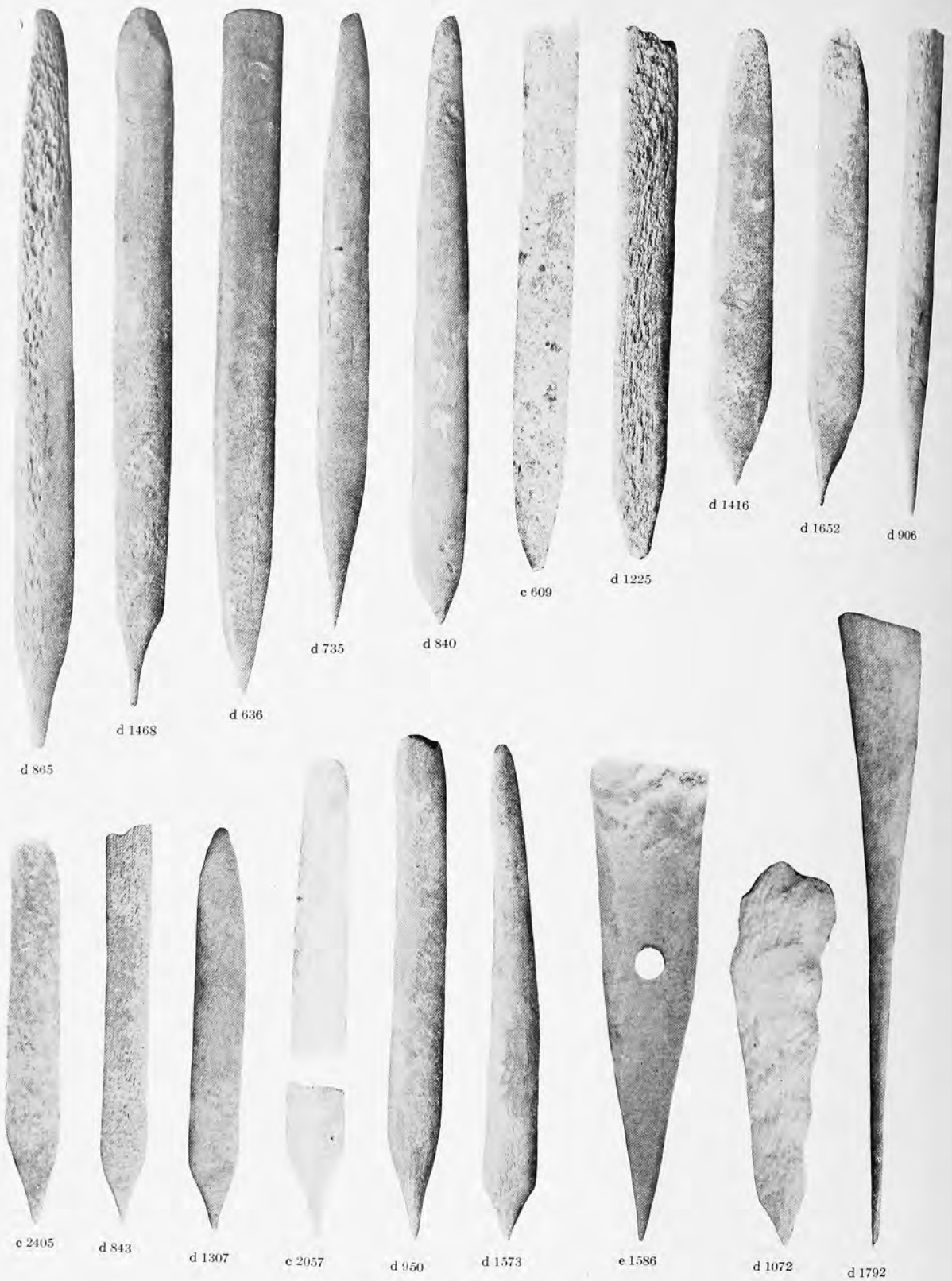


FIG. 98.—BONE AWLS. ACTUAL SIZE



FIG. 99.—BONE PINS AND IMPLEMENTS. ACTUAL SIZE



FIG. 100.—BONE IMPLEMENTS AND ORNAMENTS. ACTUAL SIZE

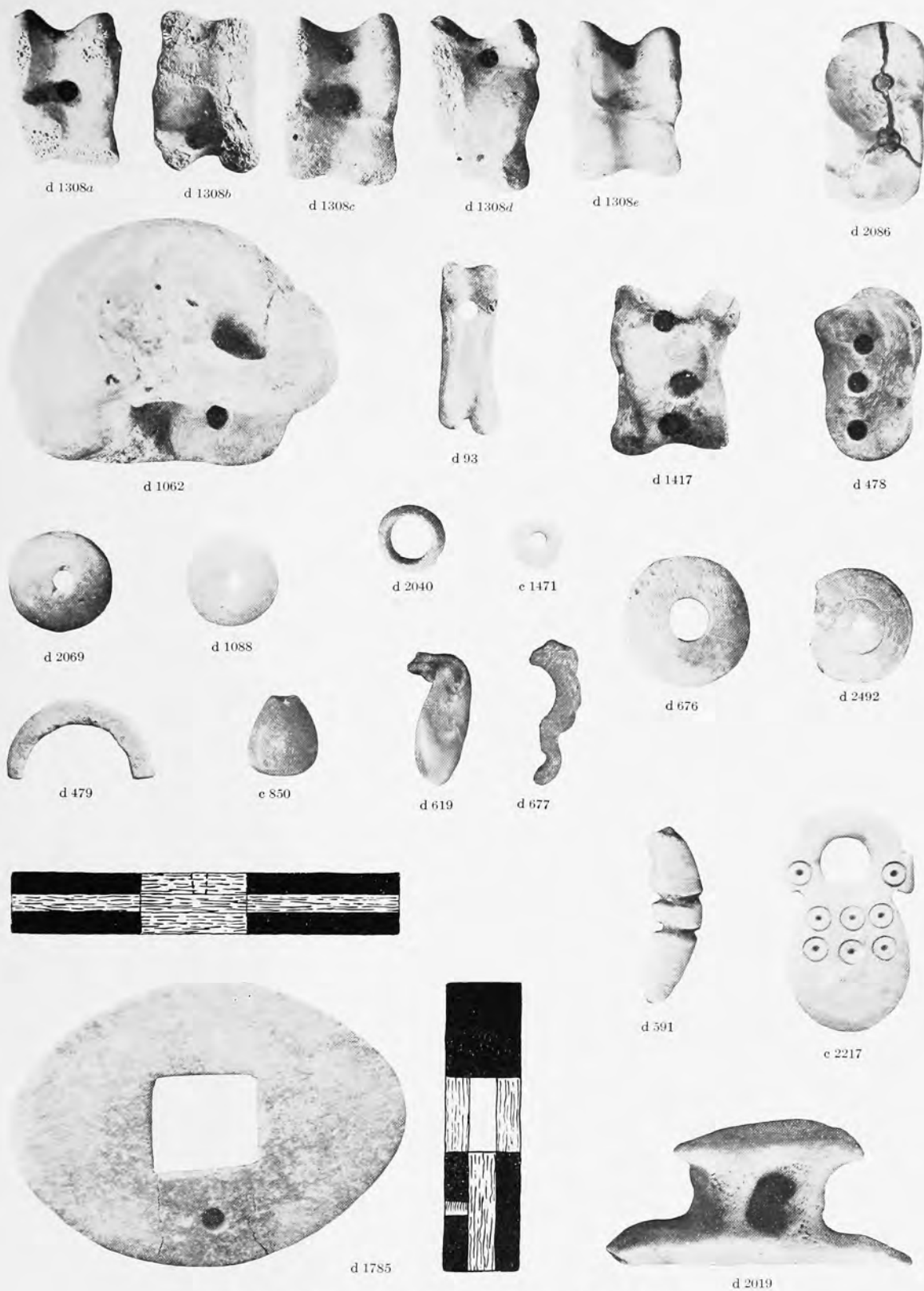


FIG. 101.—MISCELLANEOUS BONE OBJECTS. ACTUAL SIZE



previous periods, were found in deposits of this period also (e.g., c 531, Fig. 102). Of the other bone objects in Figure 102, No. c 866 is a handle, and the use of Nos. d 532 and d 1047 is problematical.

Staghorn was used frequently (Fig. 102). Nos. c 1301, d 757, and c 1332 show the old type of fastening for axes.<sup>123</sup> No. c 2197 is a handle, and No. d 904 seems to be a scraper. The use

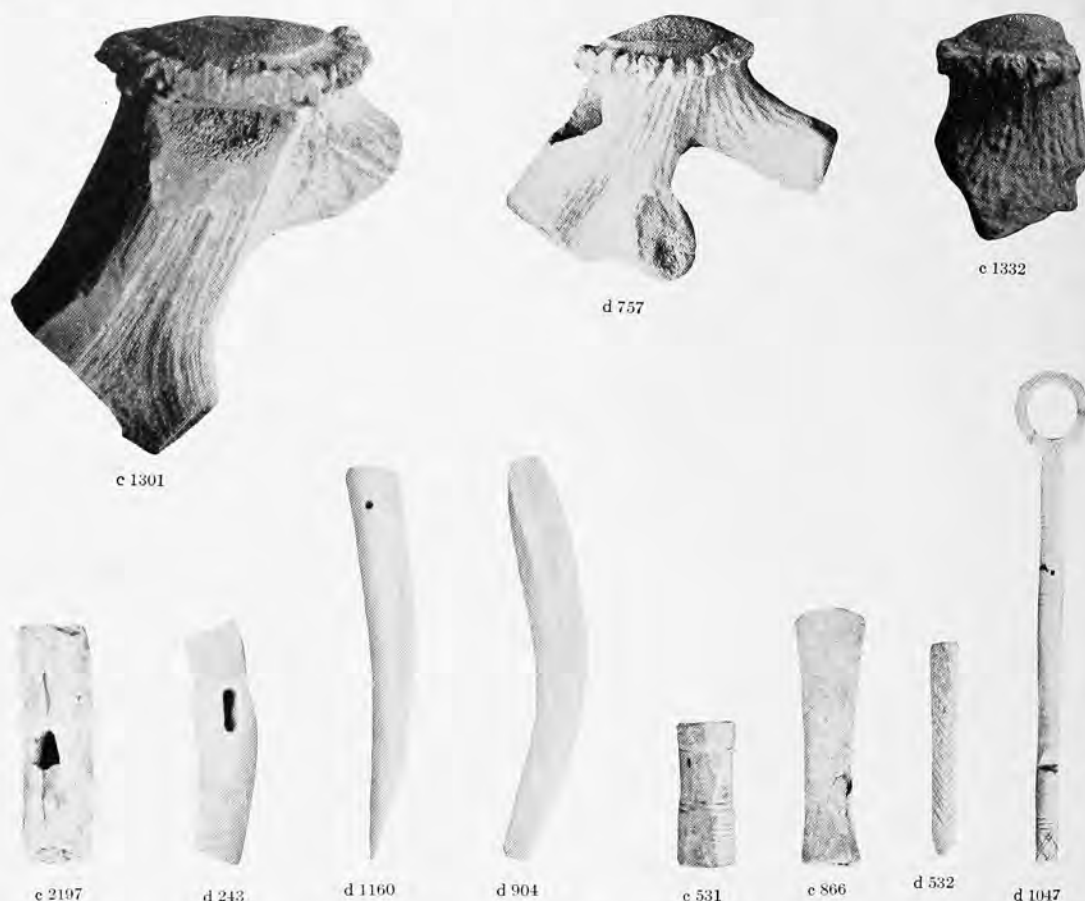


FIG. 102.—BONE AND STAGHORN OBJECTS. SCALE, 2:5

of No. d 243 is problematical. No. d 1160 is a pointed object of horn with a small perforation at the squared end.

Of the bone objects found in deposits of this period during previous years, a spatulate object (b 1007) and a large bone paddle or fan (b 556) should be mentioned.<sup>124</sup>

Bone figurines have been described on page 88, a bone seal (or button) on page 93. For unwrought animal bones see pages 294-309.

## METAL OBJECTS

### BRONZE OR COPPER

The pins of this period (Figs. 103-5) show few new forms, but some older types have disappeared. Some unusual pins are shown in Figure 105. Among them are Nos. d 437, with a diorite head, and d 235, with an electrum head. No. d 2119 has a large star-shaped head, and

<sup>123</sup> Cf. *OIP* XXIX, Fig. 278.

<sup>124</sup> *OIP* XX 83.

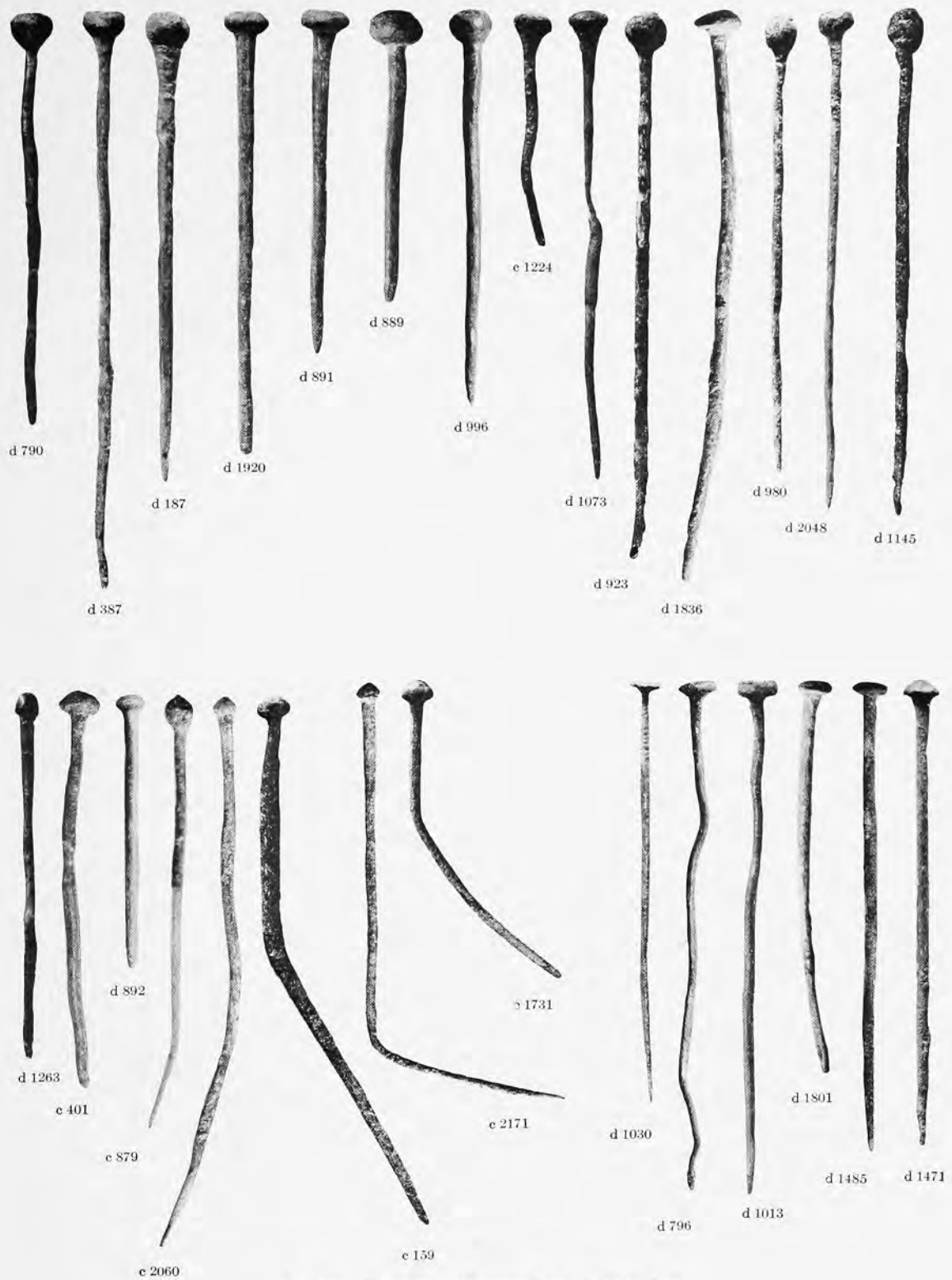


FIG. 103.—BRONZE OR COPPER PINS. ACTUAL SIZE

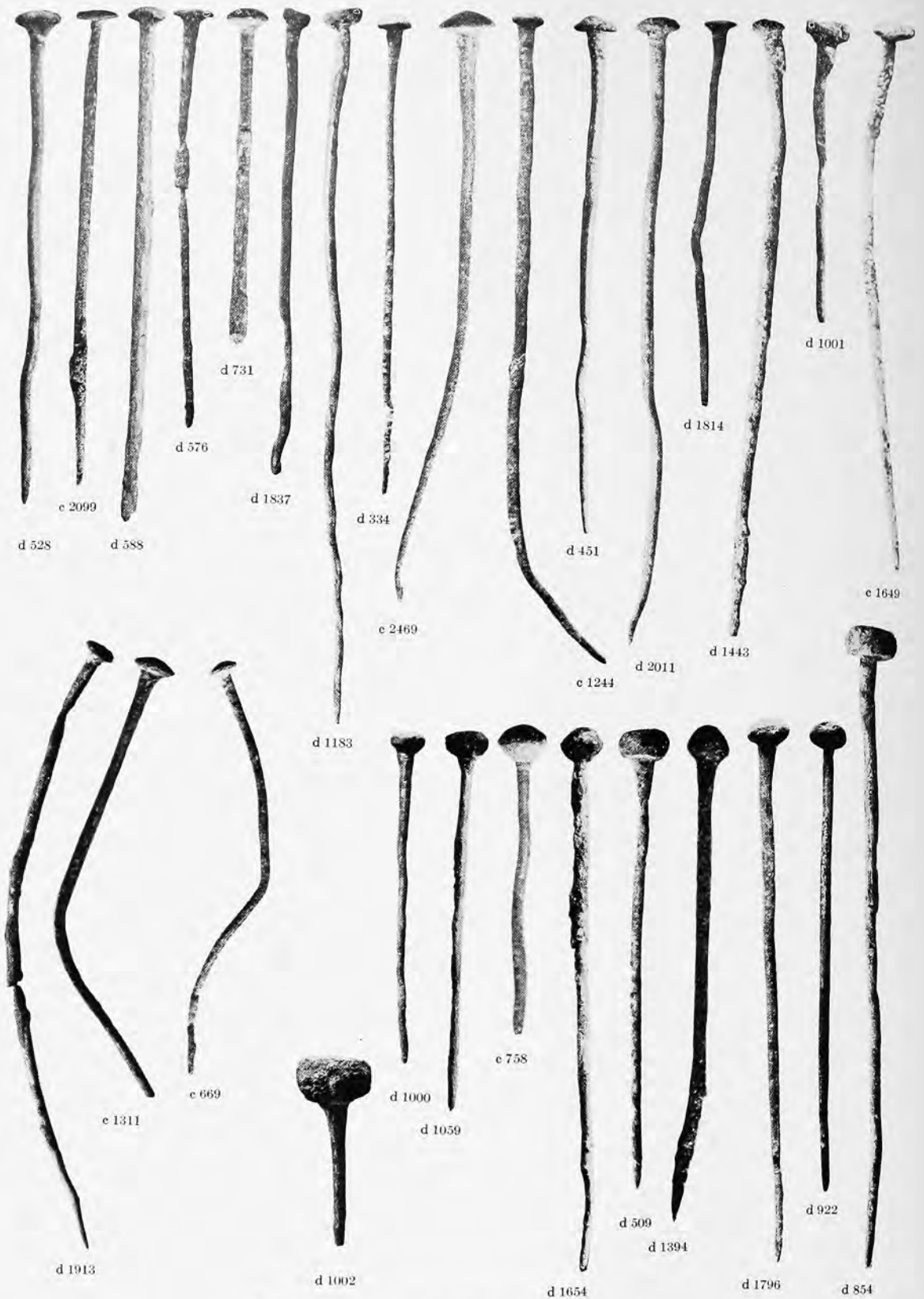


FIG. 104.—BRONZE OR COPPER PINS. ACTUAL SIZE

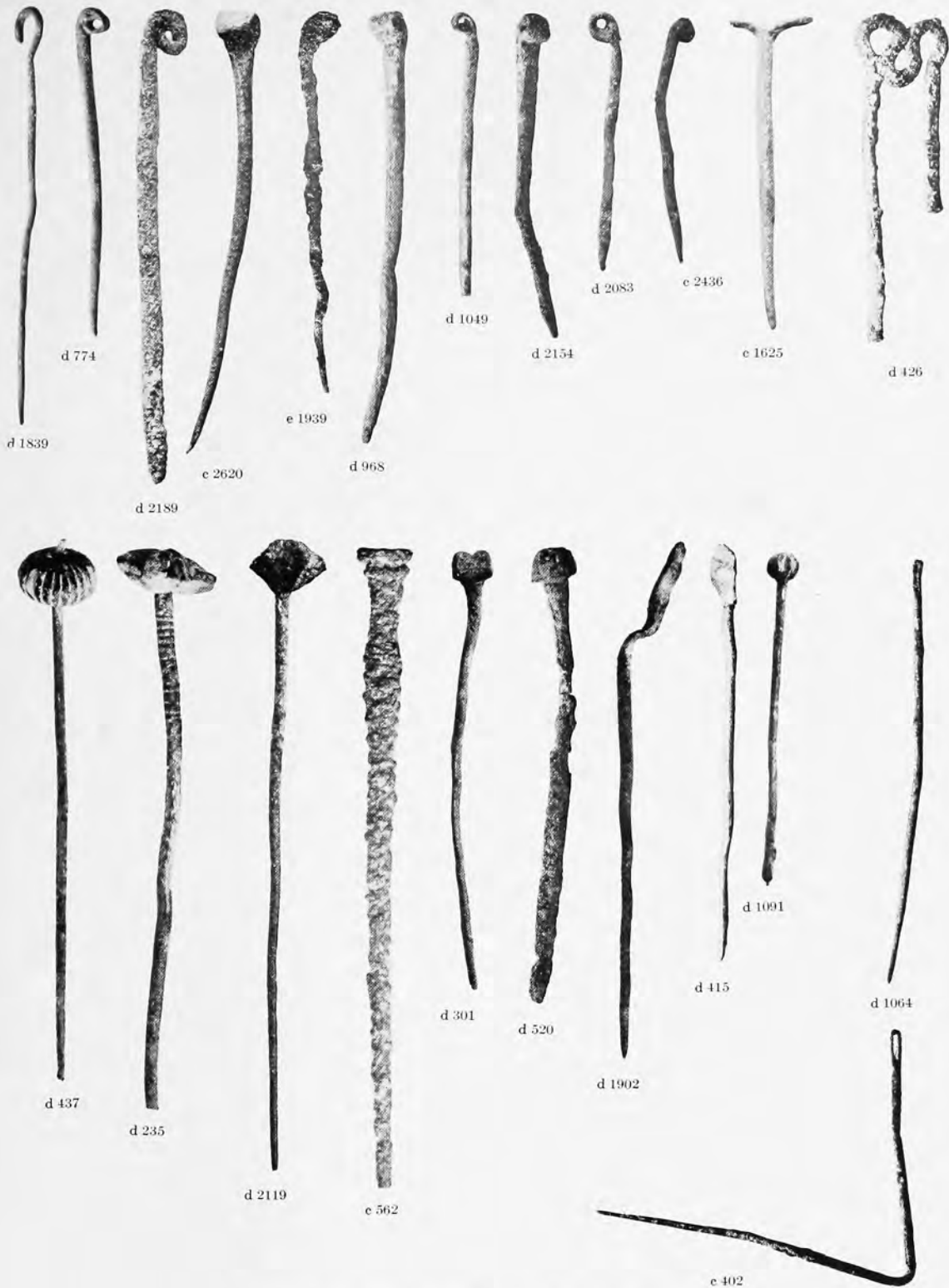


FIG. 105.—BRONZE OR COPPER PINS AND NEEDLES. ACTUAL SIZE

on Nos. d 1902 and d 415 the upper part of the shaft is flattened to form the head. No. d 426 is a hairpin; compare the impressions on a sherd (Fig. 58 5). Needles again show two types; the eye is formed by slitting the shaft or by flattening the upper end and bending it over (e.g., d 1064 and c 402, Fig. 105).

The fibulae of this period (Fig. 106) are listed as Types IIIa-c in the following table. All have nearly semicircular bows. Type IIIa has a round or diamond-shaped cross-section (e.g., c 196 and d 789); Type IIIb has a flattened cross-section (e.g., d 2453). The distinction of Type IIIc is that the apex is emphasized by a globe or disk (c 2518).

The arrowheads, usually three-winged and socketed like those of the previous period,<sup>125</sup> were numerous (Fig. 107). Two arrowheads, each with a tubular shaft, two wings, and one barb (d 67 and c 2485), were found in 1930 and 1931, and several others had been found in 1928 and 1929. It is probable that this type came into Anatolia with the Cimmerians.

BRONZE OR COPPER FIBULAE

TYPE	NUMBER OF EXAMPLES	LEVEL							
		Post-Hittite-Phrygian				Between Post-Hittite- Phrygian and Hellenistic		Hellenistic or Later	
		4c M	4b M	4a M	Terrace	Mound	Terrace	Mound	Terrace
Ia.....	23	2	4	12	2	2		1	
Ib.....	13		2	6	3	1		1	
IIa.....	5	2	2		1				
IIb.....	7	2	1	1	1		2		
IIc.....	2						2		
IIIa.....	13				5*		3		5
IIIb.....	5				1		4		
IIIc.....	1						1		
IV.....	4				1				3
V.....	11						2		9
VI.....	2			1					1
VII†.....	5								5

\* One piece (b 462) was found in 1929 in F 14 "sufficiently deep to minimize the possibility that it had intruded from Alishar IV [Post-Hittite-Phrygian] refuse on top" (*OIP* XIX 208). Nevertheless, this piece is surely intrusive from a later period.

† Miscellaneous shapes.

One small arrowhead of the well known Copper Age type (c 607) was found in a refuse deposit of the second half of the first millennium B.C. Nos. d 506, c 1130, and c 658 are types of lance- or spearheads of this period; No. d 506 has three wings. No. c 1243a is a large, well preserved battle-ax with lugs, and No. d 329 is another type of battle-ax.

Other bronze or copper objects are shown in Figures 108-9. Blades were rare and rather small; on blades c 2062-63 the tangs were bent. No. c 657 is a "razor" of a type well known in the Post-Hittite-Phrygian period.<sup>126</sup> No. c 2243 may have been a linchpin. Nos. c 1980, d 940, c 356, and c 1245a are chisels; No. c 356 has a socket. Nos. c 2601, d 1154, c 960, and d 1172 are more or less fragmentary tweezers. No. d 99 is a flat ring bent in the middle. The uses of Nos. c 399 and c 1511 are problematical; the latter may be a fragment of a key. No. c 165 is an oblong object with some kind of attachment near one end, but it is too much corroded for the original form to be recognizable. Nos. c 1783 and c 1916 are tubes; the latter has several perforations. Nos. c 12, a disk ornamented with an interlaced band, c 74, d 494, and d 1830 were probably ornaments. No. c 2159 seems to be a fragment of a wheel. Nos. c 2519, d 738, and c 959 are small pendants, and No. d 666 is a cylindrical frit bead with a

<sup>125</sup> Cf. *OIP* XXIX, Fig. 496.

<sup>126</sup> Cf. d 1340 and d 1904 (*OIP* XXIX, Fig. 495).





FIG. 106.—BRONZE OR COPPER FIBULAE, A LEAD OBJECT, AND A SILVER OBJECT. ACTUAL SIZE

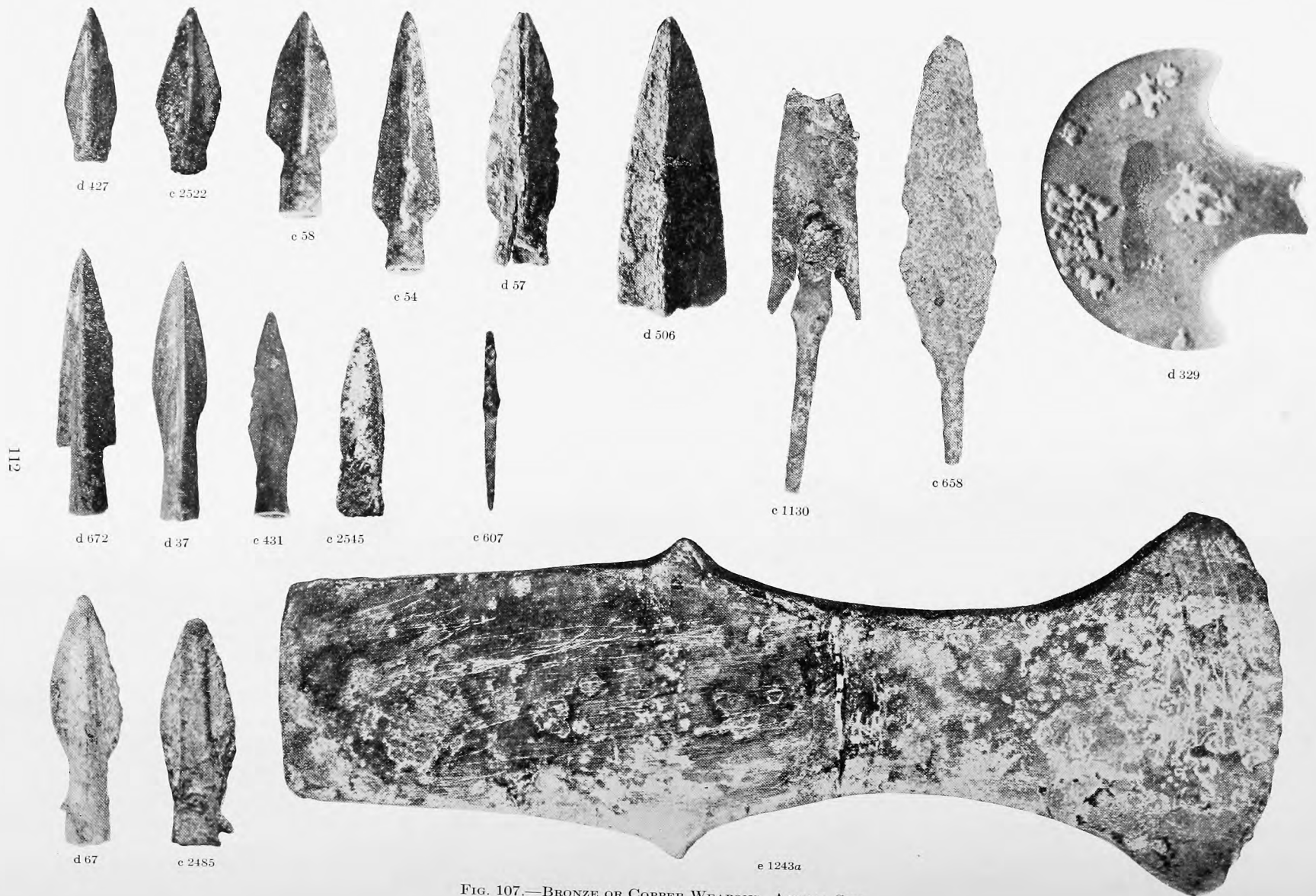


FIG. 107.—BRONZE OR COPPER WEAPONS. ACTUAL SIZE

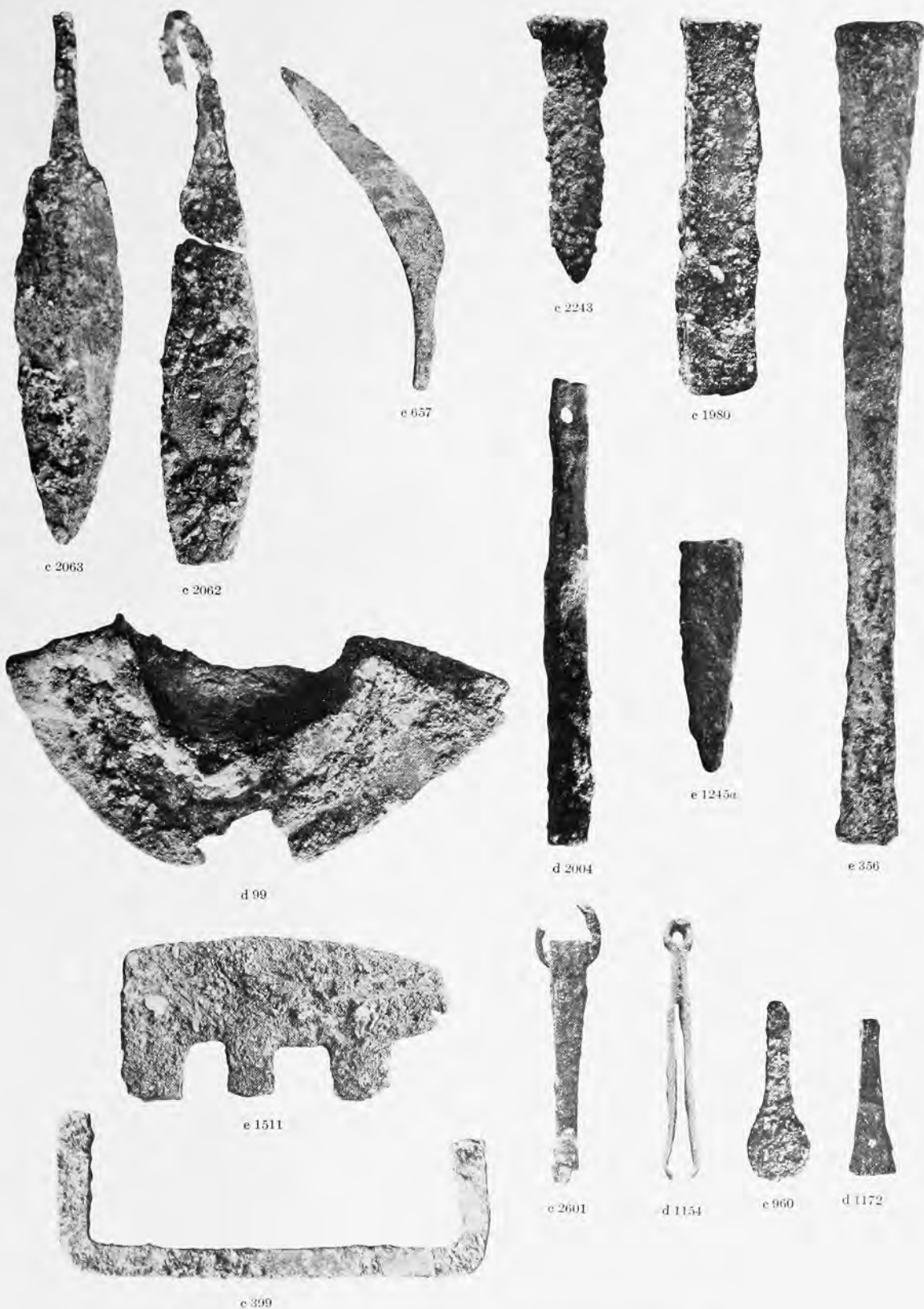


FIG. 108.—MISCELLANEOUS BRONZE OR COPPER OBJECTS. ACTUAL SIZE

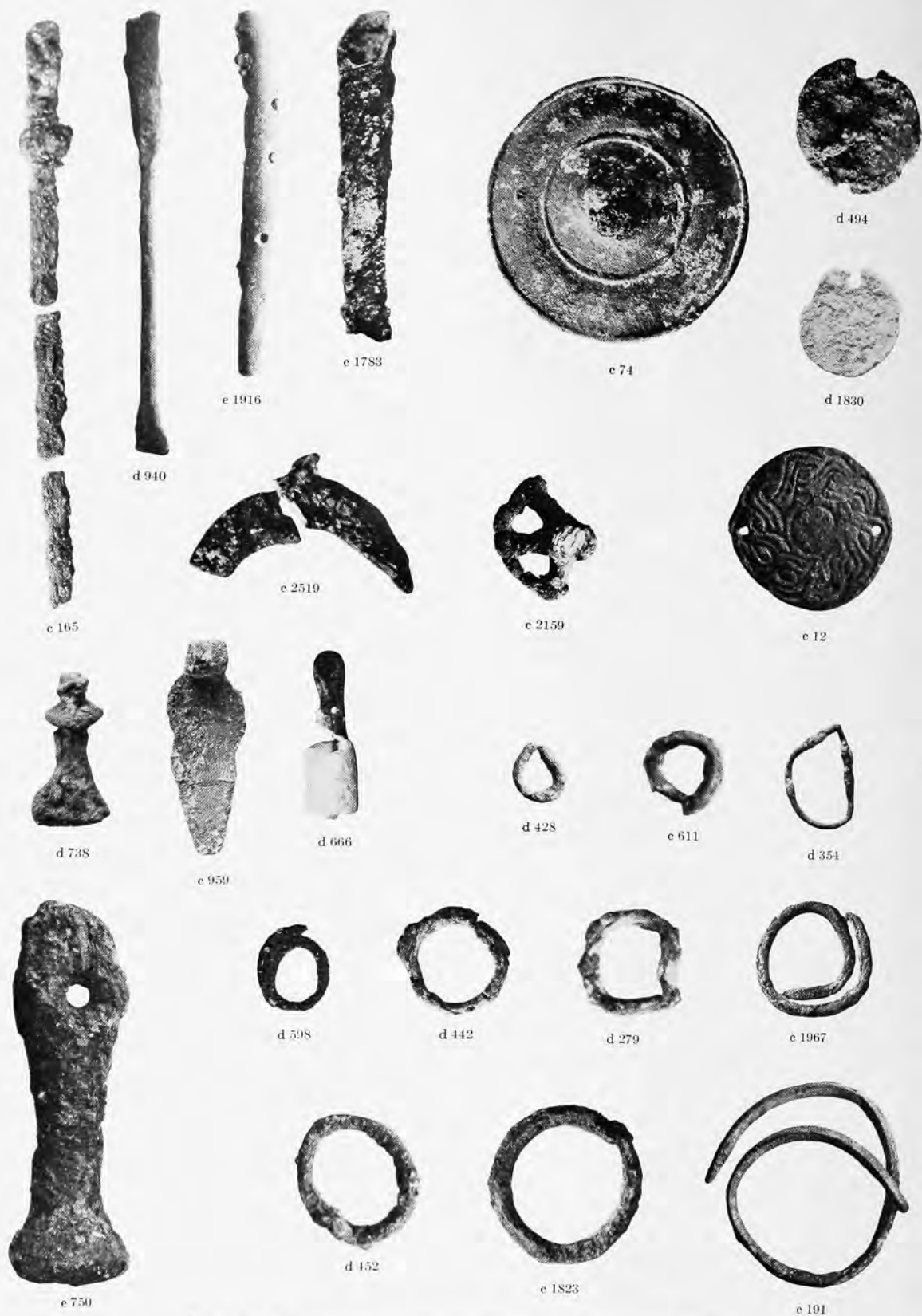


FIG. 109.—MISCELLANEOUS BRONZE OR COPPER OBJECTS. ACTUAL SIZE

bronze attachment. No. e 750 is of problematical use. Figure 109 is completed by a representative collection of rings of various types.

A bronze or copper figurine has been described on page 91. Bronze or copper coins are discussed in chapter vi.

# IRON

One battle-ax with lugs (d 642, Fig. 111) was uncovered, but its attribution to this period is uncertain; it may belong to the previous period. Iron battle-axes of another type (Fig. 110) were found in 1928 and 1929, two of them in refuse deposits of this period and one in a refuse deposit of the Post-Hittite-Phrygian period in the lower fortress. The latter may well be a stray piece, as no similar axes were found in Post-Hittite-Phrygian deposits. Nos. d 650 and e 252 (Fig. 111) are pickaxes, both from culture deposits definitely of this period. Dagger and knife blades are shown in Figure 112; all show tang attachments, and several have rivets still in place. Interesting is the large curved blade d 2534. No. e 2170 (Fig. 111) is a large dagger or small sword with a bone handle. The arrowheads and spearheads (Fig. 113) are all

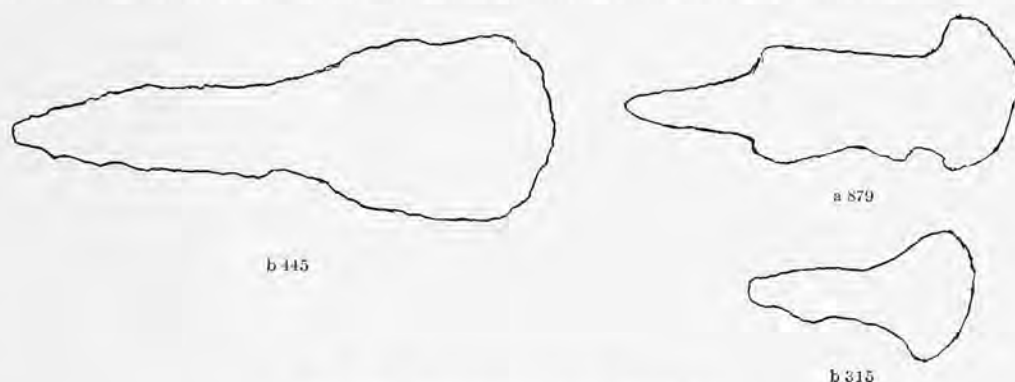


FIG. 110.—IRON BATTLE-AXES. SCALE, 1:2

very much corroded, and their original form is often hard to recognize; but No. e 611, with a tang, seems to be typical for at least one phase of the period. Nos. d 237 and e 723 may have been chisels. The uses of Nos. e 2031, e 265, and e 2268 are unknown.

Other iron objects are illustrated in Figure 114. Nos. e 1302 and e 403 are nails or tacks with very large heads. No. d 1575 is a nail or pin, and No. e 502 is a pin with scrolled head. No. e 2221 is a T-shaped object. Nos. e 815, e 2049, d 873, and e 1455 are rings. No. e 2292 is a snaffle. No. e 1295a was evidently an ornament, but the use of No. d 2797 is unknown. In 1928 a piece of staghorn was found with a fragment of iron in its head.<sup>127</sup> An iron inlay was found in a sherd (Fig. 80 9).

# LEAD

Besides ties for mending pots only a wheel-shaped object, probably for decorative use (e 777, Fig. 106), and a figurine (3195, Fig. 88) of lead could be attributed with certainty to this period.

# GOLD, SILVER, AND ELECTRUM

In 1929 a very thin oval leaf of gold (b 1)<sup>128</sup> was found. The only silver object of this period unearthed in 1930-32 was a spatulate instrument (d 300, Fig. 106). Pin d 235 (Fig. 105) has a head of electrum. Silver coins are discussed in chapter vi.

<sup>127</sup> No. a 383 (*OIP* XX 73).

<sup>128</sup> *OIP* XX 73.





FIG. 111.—IRON WEAPONS AND TOOLS. SCALE, 3:5



FIG. 112.—IRON BLADES. ACTUAL SIZE

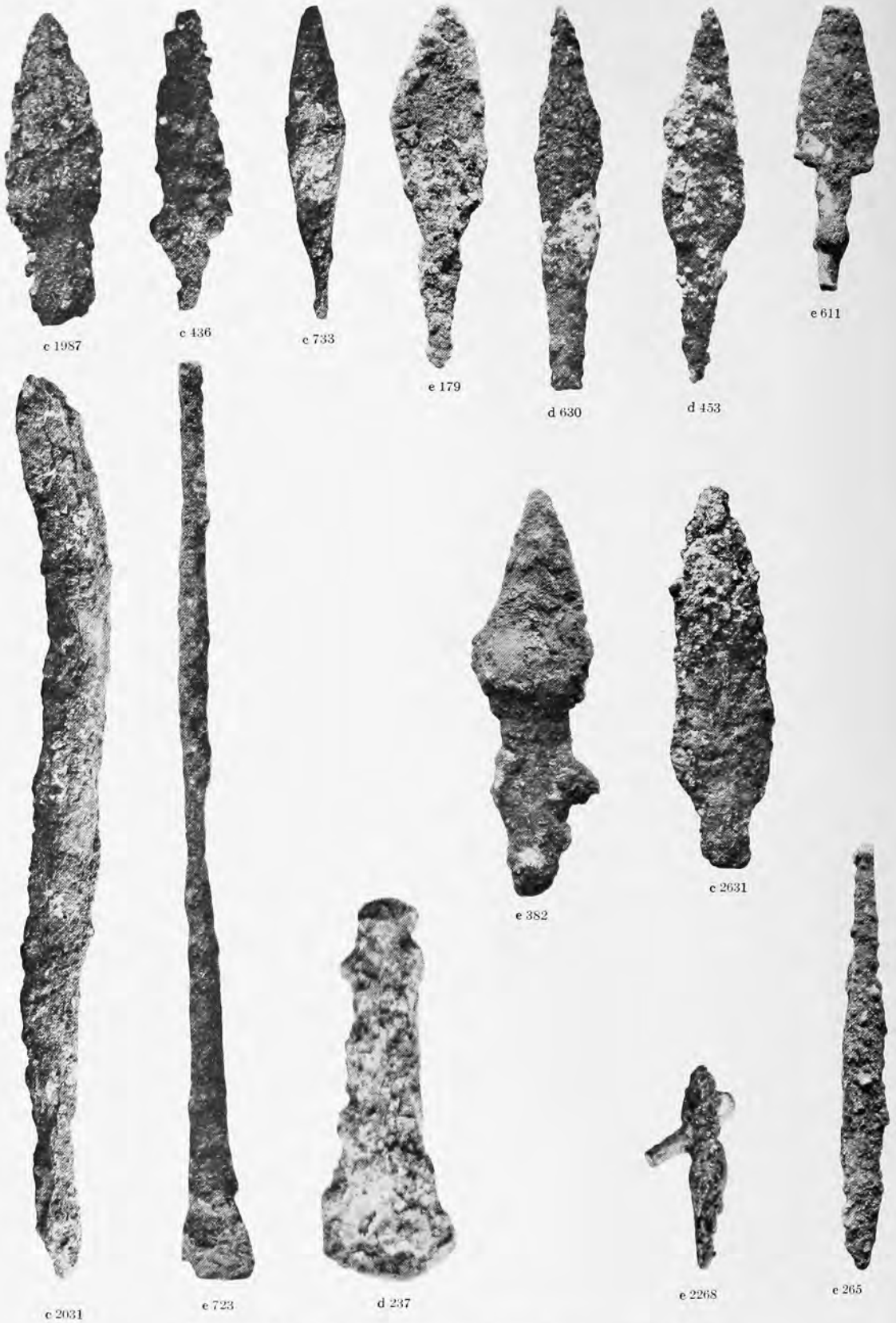


FIG. 113.—IRON WEAPON HEADS AND OTHER OBJECTS. ACTUAL SIZE

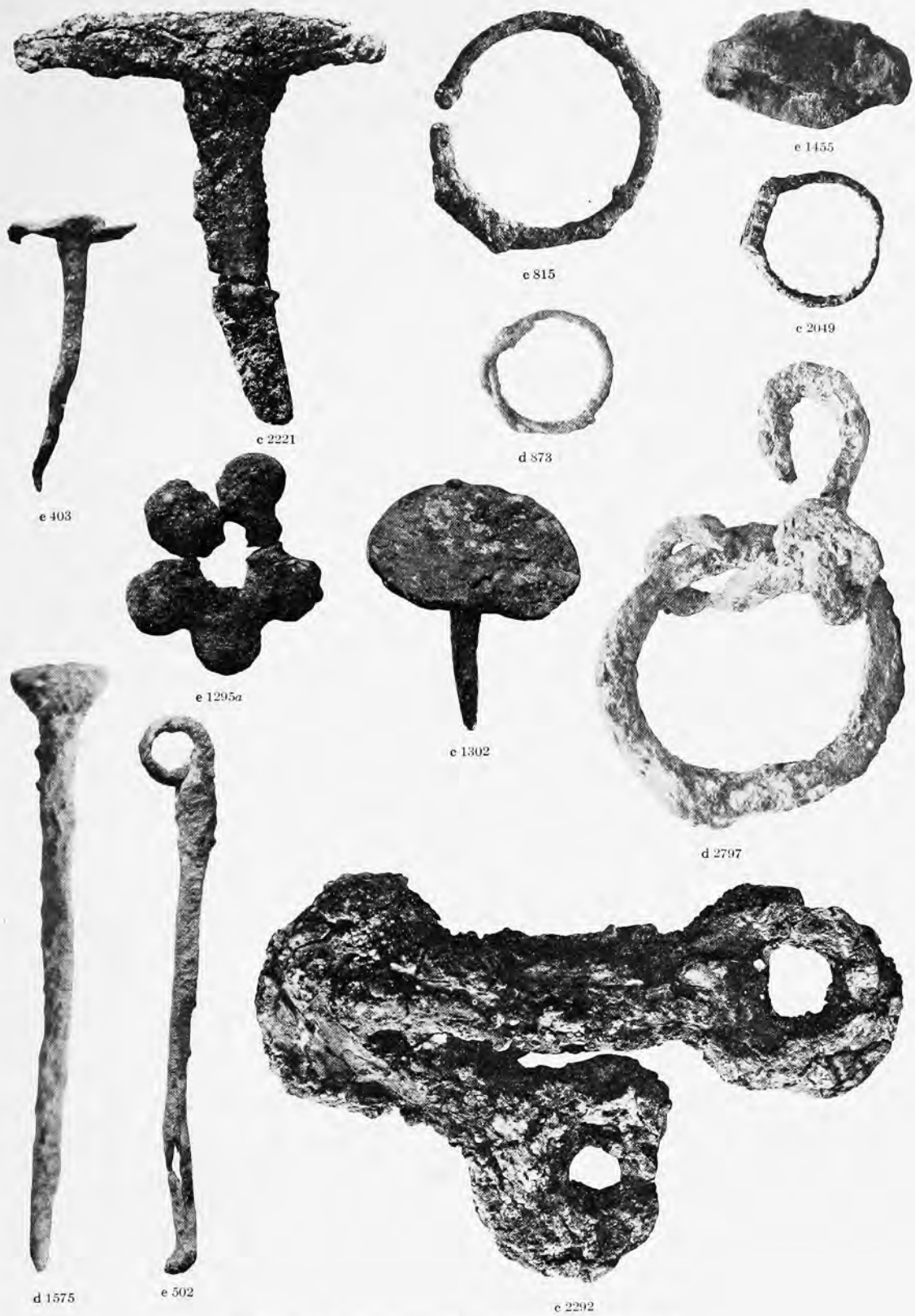


FIG. 114.—MISCELLANEOUS IRON OBJECTS. ACTUAL SIZE

## MINOR OBJECTS OF POTTERY OR CLAY

Figure 115 shows a representative collection of the pottery "whorls" used during this period. Typical is the truncated biconical form (e.g., c 78 and c 2480).

Loom weights show no new forms; in fact, they are hardly to be distinguished from those of the previous periods.<sup>129</sup>

Reworked potsherds, sometimes incised, now become extremely numerous (Figs. 116-18); they began to be abundant in the Post-Hittite-Phrygian period. Their use remains problematical. Some represent animals. The reworked sherds are from the wares of all the previous periods as well as from those of the second half of the first millennium B.C. In this group may be counted potsherds ground into disks with one or more perforations.

In Figure 119 two lids (d 886 and e 1122), a fragmentary rattle (d 1036), and a fragmentary wheel (d 703) are shown. A few pottery lamps were found in 1928.<sup>130</sup>

## FRIT AND GLASS OBJECTS

Frit and glass beads of various sizes and colors (Fig. 120) were common in deposits of the second half of the first millennium B.C. Although it is very dangerous to call such small objects "typical," a few types seem to be more common in this period than at other times. Such are beads ornamented with drops of another color (e.g., c 87), beads with smoothed inlay (e.g., c 1390), and plain beads of ultramarine glass (e.g., c 906 and d 96).

Small discoid beads of light bluish green frit (e.g., d 737 and d 984) resemble those found from the Chalcolithic period on.<sup>131</sup> Two scalloped globular beads of greenish blue frit (c 166 and c 2058) and several plain globular beads of greenish blue or white (discolored) frit came from levels of this period. Two large cylindrical frit beads (d 1055, not illustrated, and d 1570) were discolored by heat.

Two scalloped beads of glazed frit were found in refuse which might belong either to this period or to the Post-Hittite-Phrygian period. No. d 265 has a bluish green glaze, and No. d 777 has a dark blue glaze. A hemispherical bead with scalloped decoration and bluish green glaze (c 978) was found in a Hellenistic deposit, and a similar one (c 367) was in an unidentified deposit.

Two large glass eye beads (c 1761 and e 169) of the type common in the Hittite period<sup>132</sup> occurred in Hellenistic deposits. A third, slightly smaller, is white with bluish green inlay (c 183). Of small eye beads one (c 2333) was in a definitely Hellenistic deposit; and three others, from mixed refuse of this and the preceding period, can probably be ascribed to this period. Nos. c 2333 and c 2568 are each bluish green with four pairs of blue and white eyes. No. d 240 is similar in color but has only three eyes. No. d 1209 is brownish red with three black and white eyes. According to the finds of 1928 and 1929 it is quite possible that all of the small eye beads should be attributed to the Hellenistic period rather than to the Post-Hittite-Phrygian.

Cylindrical or roundish beads ornamented with drops of another color have to be attributed to the Hellenistic period. No. c 87 is purple with yellow drops; No. d 1787 is dark brown to black with yellow drops; No. d 1794 is greenish yellow with yellow drops, each emphasized by a dark green ring at the base; No. c 2220, a truncated biconical bead, is black with yellow drops (mostly broken off).

<sup>129</sup> E.g., *OIP* XXIX, Fig. 507.

<sup>130</sup> Cf. c 489, c 511, and c 394 (*OIP* XXVIII, Fig. 101).

<sup>131</sup> *OIP* XX 151-53.

<sup>132</sup> Cf. *OIP* XXIX 284.



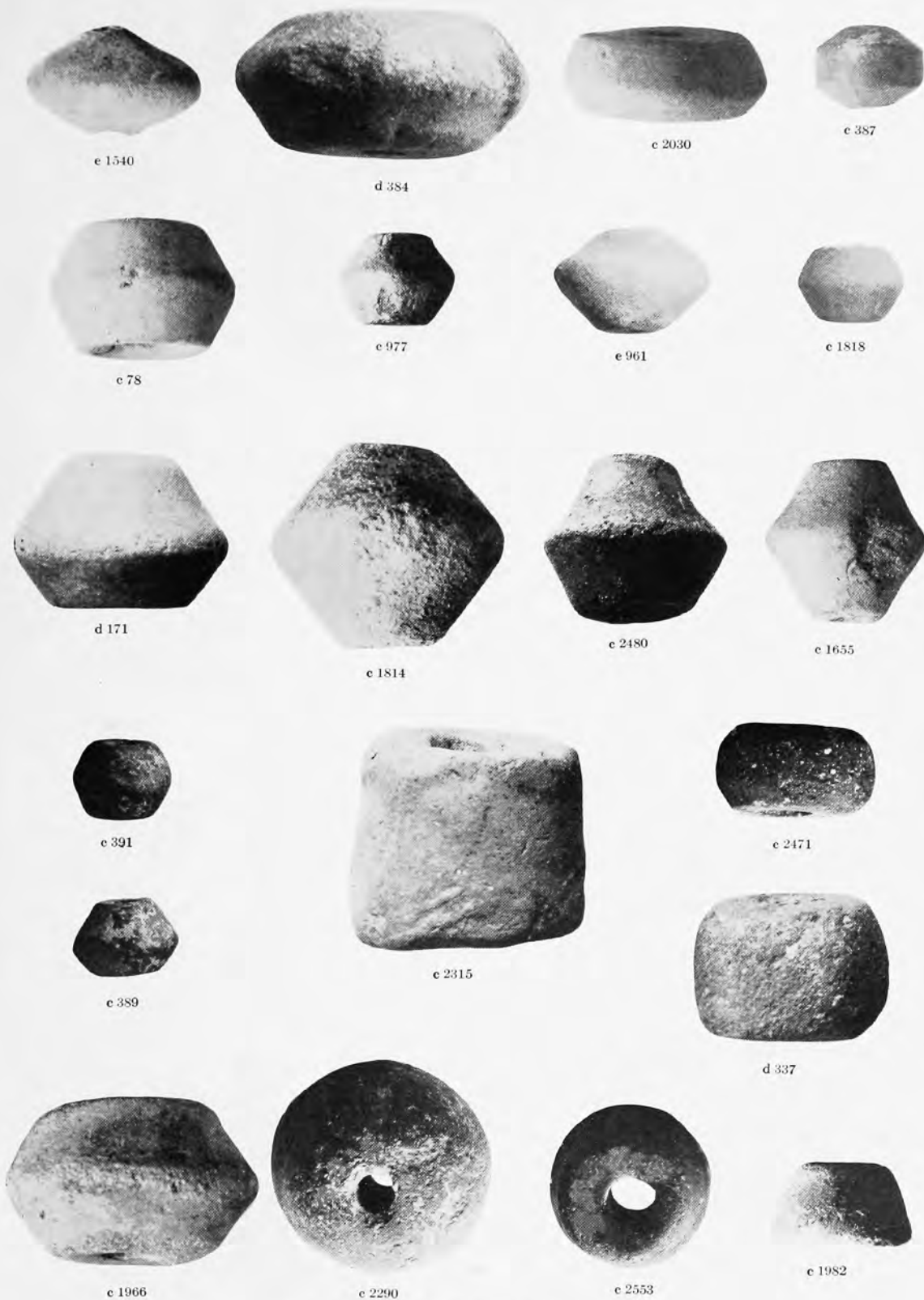


FIG. 115.—POTTERY "WHORLS." ACTUAL SIZE  
121

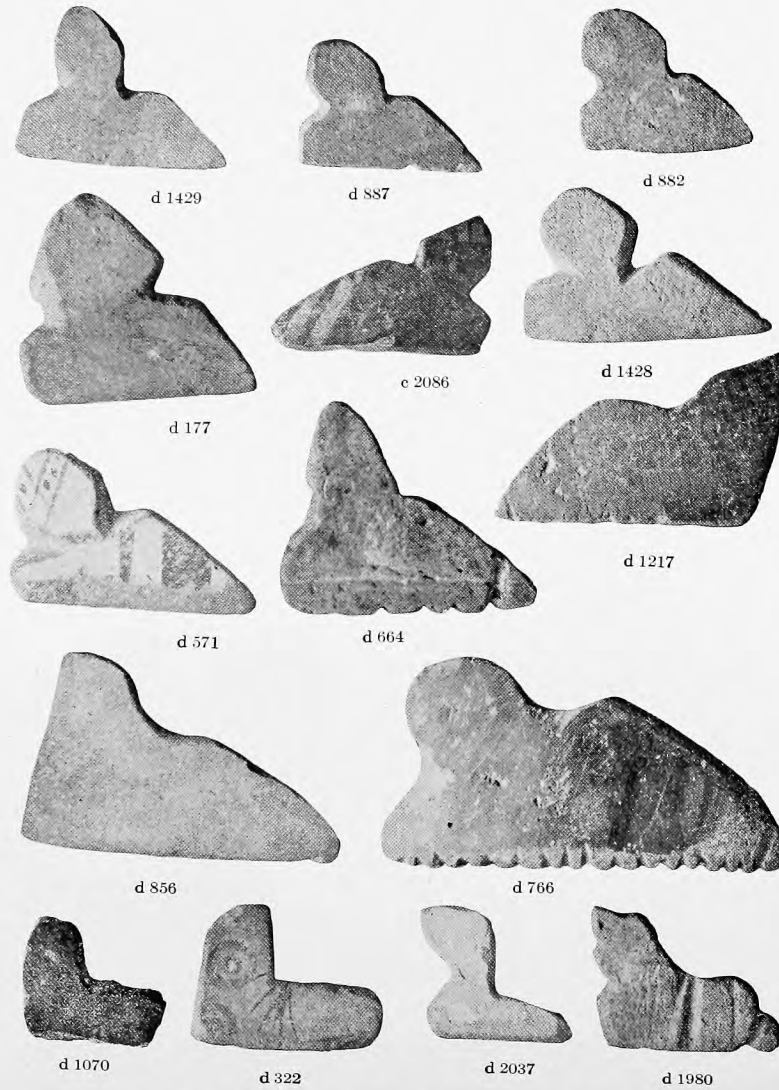


FIG. 116.—REWORKED POTSHERDS. SCALE, 2:3

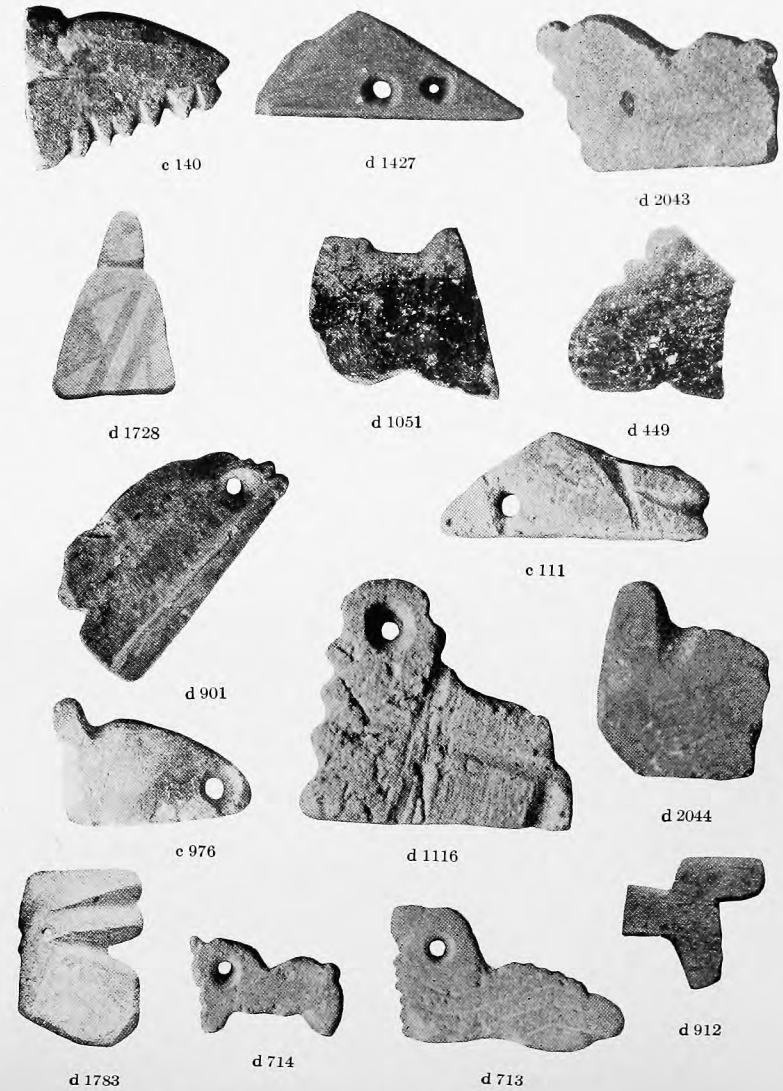


FIG. 117.—REWORKED POTSHERDS. SCALE, 2:3

123

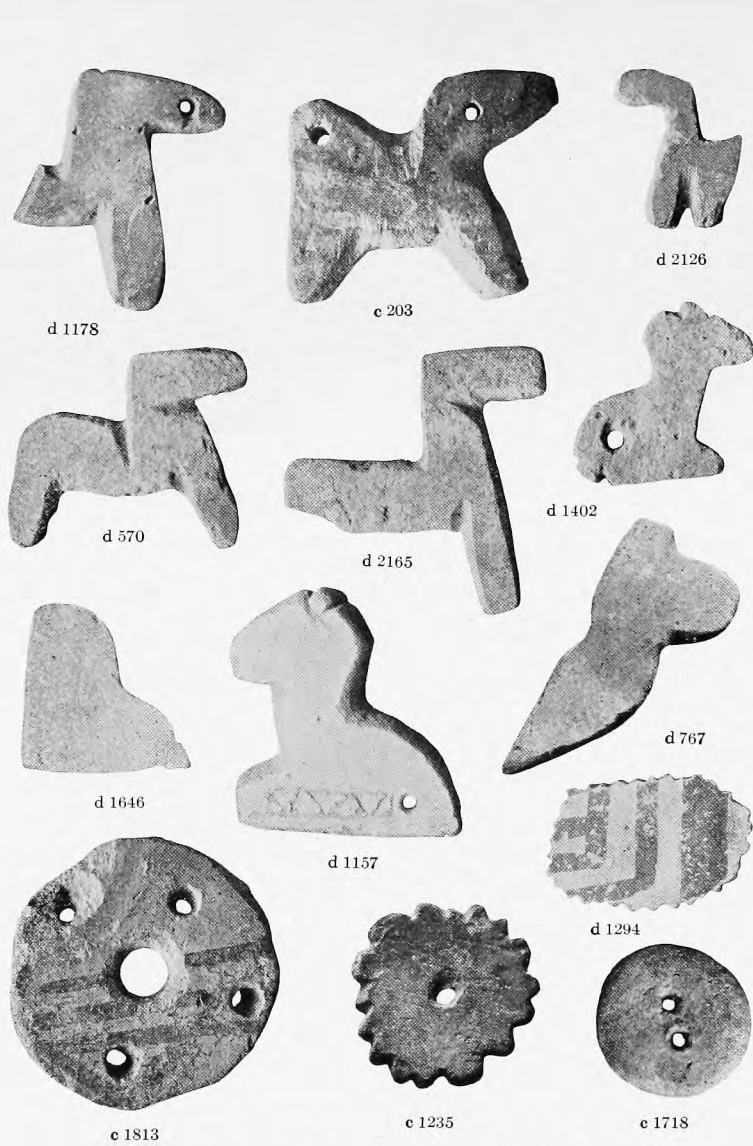


FIG. 118.—REWORKED POTSHERDS. SCALE, 2:3

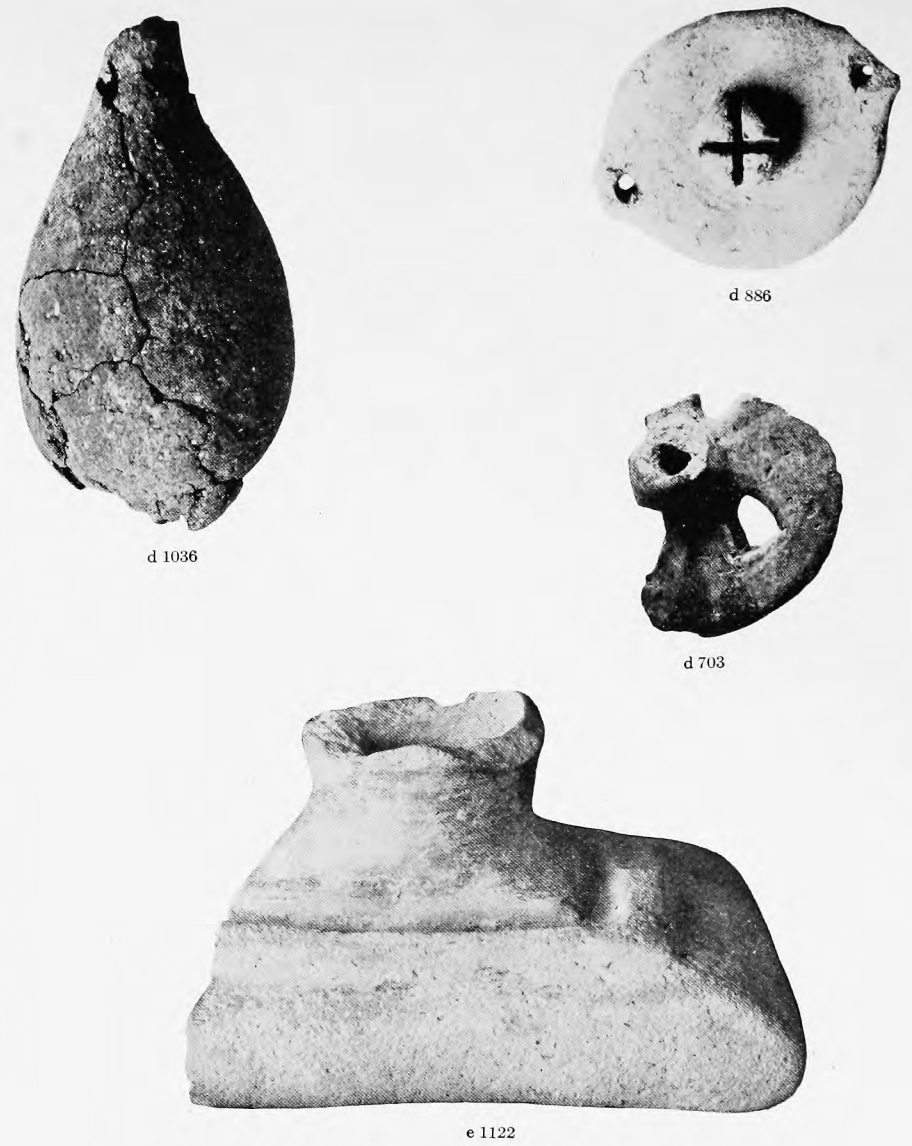


FIG. 119.—MISCELLANEOUS POTTERY OBJECTS. SCALE, 2:3



FIG. 120.—FRIT AND GLASS BEADS. ACTUAL SIZE (EXCEPT e 670, SHOWN 2:1)

More or less globular beads with carefully smoothed inlay seem to have been more common in this period than in others. Two of them (c 1390 and c 2087) were found in a refuse deposit where remains of the Hittite period also appeared, but they have to be considered as stray pieces. No. c 1390 is black with white inlay. No. d 59 is black with a white zigzag inlay which may have been bluish green originally. No. c 2628 is dark brown with white inlay. No. d 454, dark brown with yellow inlay, is roughly triangular in shape. A larger bead, No. e 248, is discolored. No. c 2087, of the same type as No. e 248, is black with yellow stripes. Related to these beads are a plano-convex bead of light blue glass with white inlays (d 330) and a cylindrical bead of black and white glass (e 289). No. c 1116, of blackish glass with three lines of white inlay, was found in a Hellenistic(?) deposit. Elongated beads of ultramarine glass with white threads around the middle (c 1679 and d 795) appeared in this period as well as in the preceding one. Two dark blue glass beads, one with incised five-pointed stars (c 729) and one with a carefully engraved bee (e 670), came from Hellenistic deposits.

Plain elongated beads of ultramarine glass (e.g., c 906, e 106, e 176, and e 377) are related to those with white threads around the middle. Although they were common in the preceding period, they were even more numerous (twenty out of forty recorded specimens) in this period. Small globular beads of ultramarine glass are predominantly Hellenistic (e.g., d 96 and d 847-48). Of twenty-two recorded pieces three were found in deposits which might be Post-Hittite-Phrygian and two in deposits which might be Roman-Byzantine; the other seventeen can be definitely attributed to the Hellenistic period. Two discolored lobate glass beads (c 2542-43) were found in a deposit of this period.

More or less globular glass beads of various sizes, discolored by heat and sometimes iridescent (e.g., c 2582 and c 2483), were found from the Hittite period on. Small beads of various colors were found in all layers from the Hittite on, although they seemed to be more numerous in the Post-Hittite-Phrygian and Hellenistic layers than in the others. Of the twelve found in definitely Hellenistic layers five were blue, two turquoise, one bluish green, one lavender, one red, one yellow, and one yellowish white. From mixed refuse of this and the preceding period came four blue, four turquoise, one light brown, one amber-colored, and one discolored. It is quite possible that any or all of the turquoise glass beads are modern, as our workmen wore such beads on their garments. There were a few very small ring-shaped beads, mostly of light blue glass, which seem to have been most common in this period, although one was found in the preceding period and one in the following.

No. e 884 is a badly deteriorated glass bead of elongated biconical form. A cylindrical bead of yellow glass (c 375)<sup>133</sup> was found in mixed Post-Hittite-Phrygian and Hellenistic refuse. Three barrel beads may belong either to this period or to the Post-Hittite-Phrygian period; No. e 955 is yellow, No. e 1725 grayish green, and No. c 2629 (not illustrated) iridescent. Three roughly pear-shaped beads were found in refuse outside the Hittite city wall; hence their attribution is very uncertain. No. e 893 is dark brown, No. e 894 dark blue, and No. e 1182 brownish red.

No. d 666 (Fig. 109) is a frit bead with a bronze attachment. Frit and glass figurines are described on page 88.

<sup>133</sup> *OIP* XXIX, Fig. 510.



## II

## THE ROMAN-BYZANTINE PERIOD

The remains of the Roman-Byzantine period on the Alişar mound can on the whole be differentiated fairly well from those of the previous period. On the greater part of the mound the Roman-Byzantine deposit is the last, but in a few places it is followed by scanty remains of the Turkish (Osmanlı) period. In Roman-Byzantine times there seems to have been a revival of the settlement at Alişar, but its importance was not as great as it had been in the Copper Age or in the period of the Hittite Empires. Alişar was no longer a fortified city, but instead a small country town. Other settlements in the neighborhood, such as those at Karaveli and Tuzlacık and especially that at Terzilihamam (the Roman *Aquae Saravenae* and the Byzantine *Basilica Therma*) had supplanted it in importance.

What approximate date should be given to the oldest building level of this period is problematical. Although Cappadocia had become a Roman province in A.D. 17, Romanization did not take place much before the time of the Parthian War under Nero. This paralleled the cultural development in the preceding period, when the whole territory had been exposed to Hellenistic influence from the end of the 4th century B.C., but actual Hellenization had not taken place before Ariarathes V in the 2d century B.C. If any deductions from the coin finds are permissible, the settlement of the Roman-Byzantine period seems to have flourished most in the 4th and 6th centuries after Christ (cf. p. 317). With the beginning of the Sasanian invasions in the 7th century the Alişar mound seems to have been deserted.

Due to natural erosion of the citadel mound, only a few scanty remains were found on its top. On the western extension of the citadel mound and on the city terrace, building remains indicate that the settlement was laid out according to a definite plan. Although two main levels could be differentiated, all of the remains seem to be of rather late date, perhaps not much before the Christianization of Cappadocia. The walls of this period are as a whole more carefully set than in earlier structures, and mortar appears in a few instances. Roof tiles were found in several places. The most important building is a little church in O-P 27-28. The frequent appearance of baths characterizes the period. Red-"glazed"<sup>1</sup> ware appears (cf. pp. 80-84); and toward the end of the period ware coated with siliceous glaze is found (cf. pp. 205-9). Of the minor objects, only the coins deserve special mention (cf. pp. 310-22). In the burials, of which a number were found, the bodies were usually in dorsal positions with extended extremities; some were oriented in a general east-west direction, others in a general south-north direction.

## SETTLEMENT REMAINS (FIG. 121)

The remains found on the citadel mound in 1927 (Level 1 M) were very fragmentary.<sup>2</sup> In 1928, while systematically slicing down the levels on the citadel mound, the remains of Level 1 M were reinvestigated. Only one distinct structure, probably a guardhouse built on the top of the mound, could be recognized. Here mortar was used as a binding material.<sup>3</sup> The western extension of the citadel mound and probably the whole city terrace were densely settled during this period. The remains on the western extension unearthed in 1932 have been described in

<sup>1</sup> Quotation marks are used to distinguish the classical "glaze" from the siliceous glaze of the medieval pottery; see p. 74, n. 35.

<sup>2</sup> *OIP* VI 108 ff.

<sup>3</sup> *OIP* XX 92.

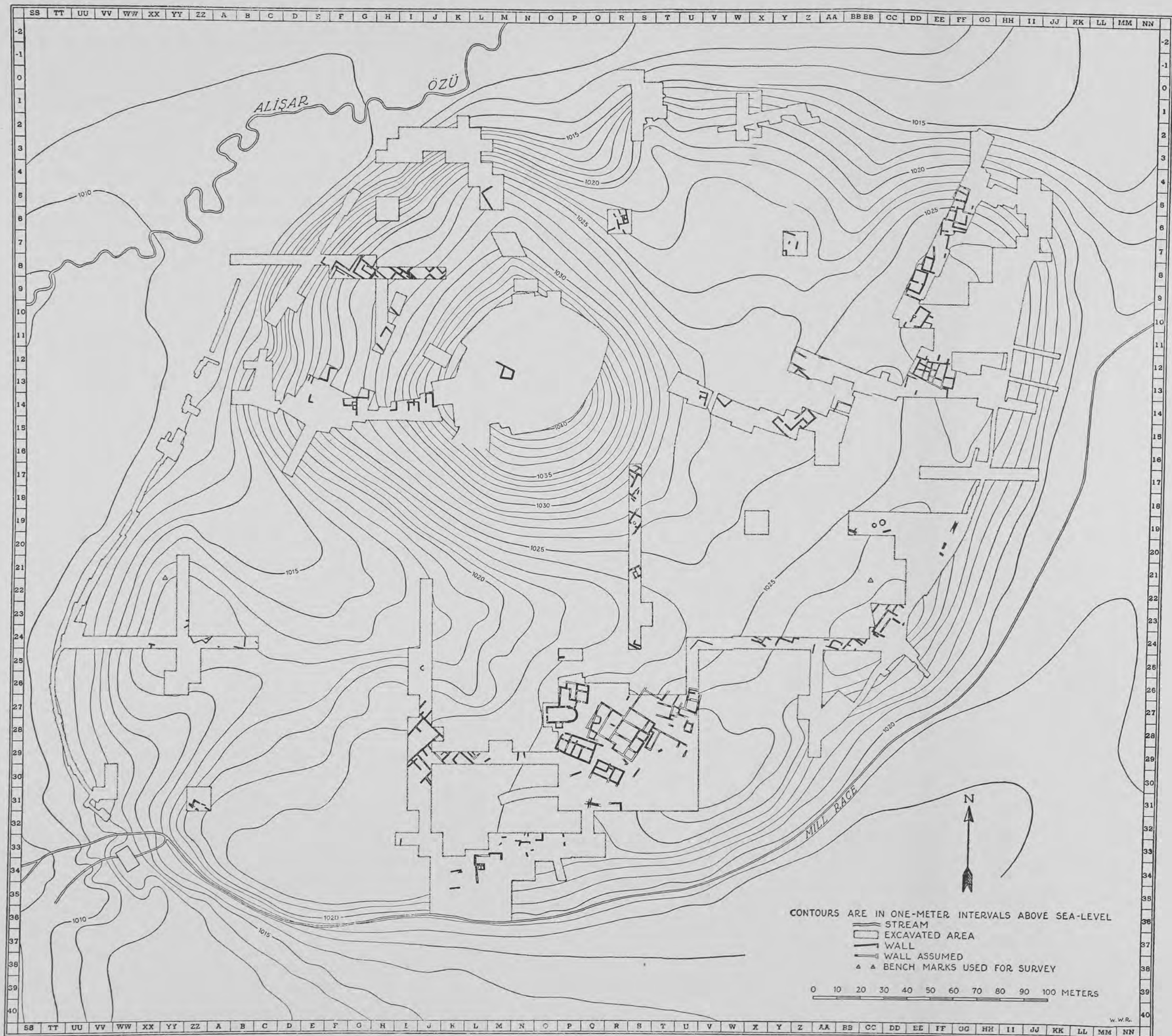


FIG. 121.—PLAN OF THE ALİŞAR MOUND SHOWING REMAINS OF THE ROMAN-BYZANTINE PERIOD (LEVEL 1 M AND LEVELS 2-3 T). SCALE, 1:2000







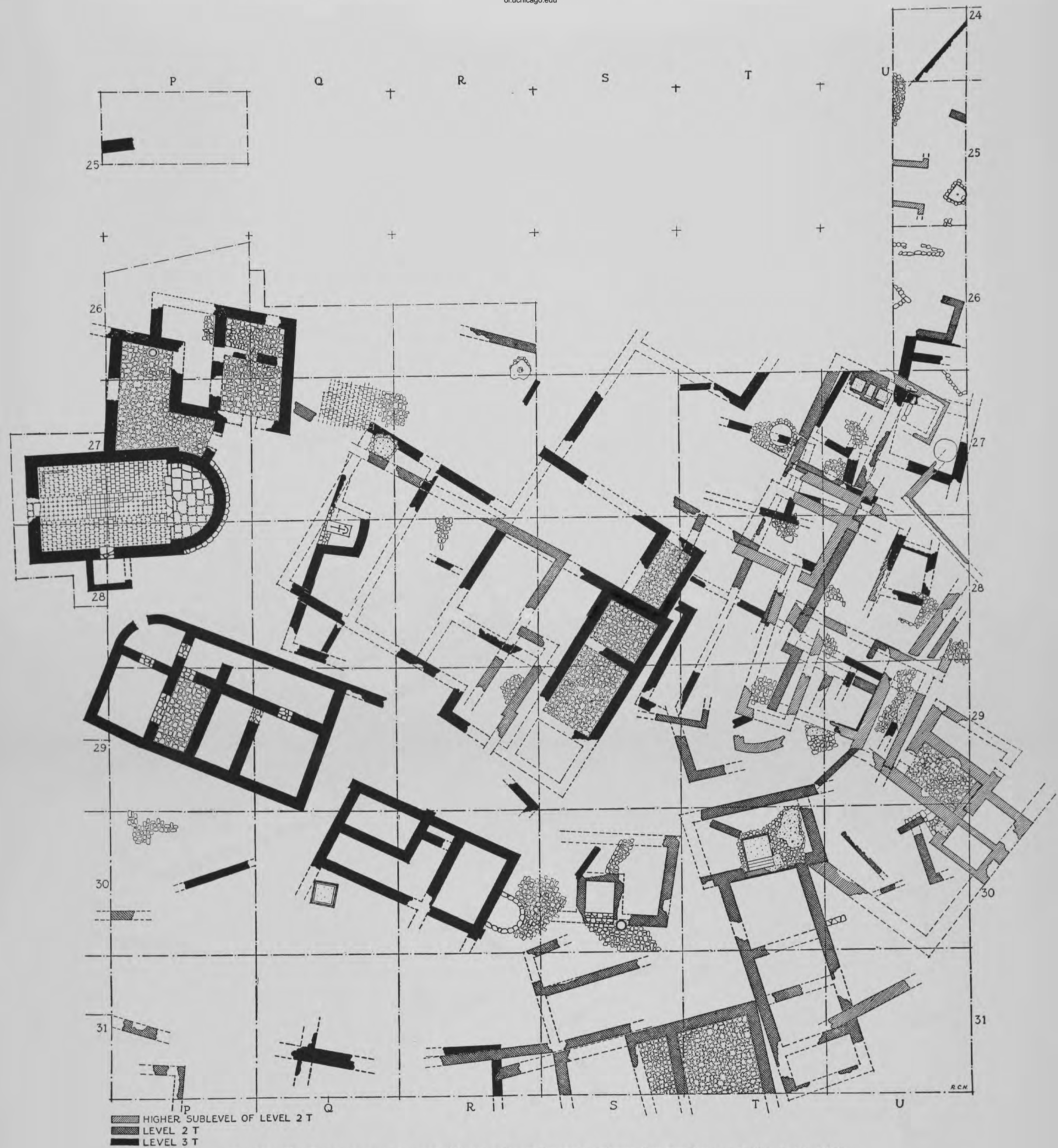


FIG. 123.—KEY DIFFERENTIATING LEVELS 2-3 T AND A HIGHER SUBLEVEL OF LEVEL 2 IN THE COMPLEX OF 1931. SCALE, 1:250



FIG. 124.—EAST-WEST CROSS-SECTIONS OF THE COMPLEX OF 1931. SCALE, 1:200





FIG. 125.—EAST-WEST CROSS-SECTIONS OF THE COMPLEX OF 1931 AND NEAR-BY TRENCHES. SCALE, 1:200



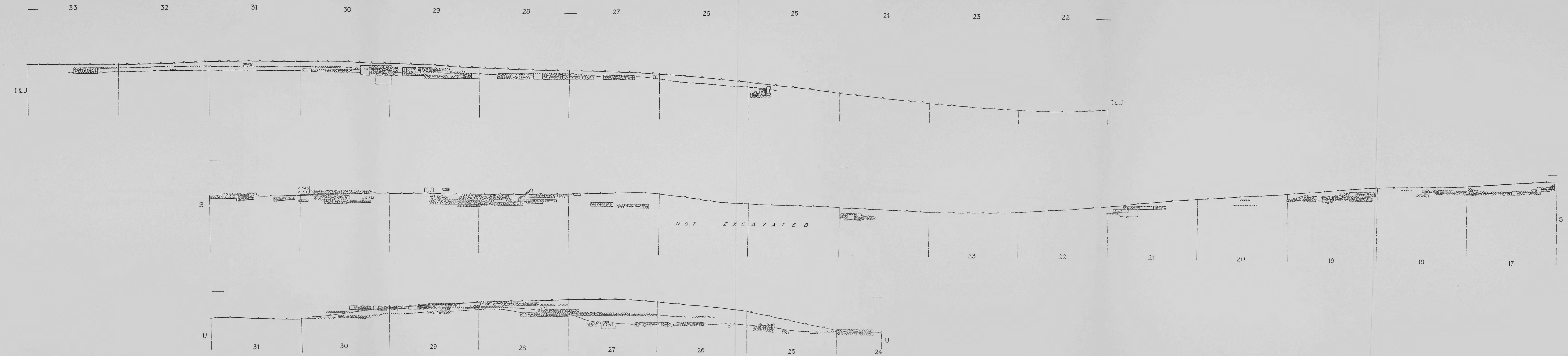


FIG. 126.—NORTH-SOUTH CROSS-SECTIONS OF TRENCHES ON THE SOUTHERN PART OF THE TERRACE, INCLUDING PART OF THE COMPLEX OF 1931. SCALE, 1:200



a report by Dr. Kurt Bittel.<sup>4</sup> From our investigation in 1932 we know that the remains of Level 1 in L-M 5,<sup>5</sup> ascribed to "Period V" in 1929, and those of Level 1 in F-G 8<sup>6</sup> belong to the Roman-Byzantine period. The season of 1932 was too short to permit reinvestigation of the remains unearthed in 1927 on the southernmost spur of the citadel mound,<sup>7</sup> but undoubtedly the majority of the walls of the higher levels there belong to this period.

With few exceptions remains of the Roman-Byzantine period were found wherever we dug on the city terrace. The various building levels of the period could be studied best in the large complex of 1931, where two main levels and a higher sublevel could be distinguished (Figs. 122-26 and Pls. II-III). The lower level (3 T) seems to have been by far the most important. Level 2 T and its higher sublevel were rather fragmentary; the higher sublevel consists mostly of fragmentary pavements and of changes or repairs in earlier buildings.

No special type of construction helps us to attribute any one of the building levels of this period to a definite time. However, on the scanty evidence of a number of coins found scattered over the whole area of the mound, I feel that the most flourishing phase of the settlement during the Roman-Byzantine period was not earlier than the 4th century. Considering the three levels, it is evident that older buildings often were reincorporated, at least partially, into the newer ones. The walls, averaging .70 in thickness, were usually built of stone; their faces were very well set, and the filling between faces was of small stones or dirt. In several instances roof tiles were found, and in a building in U 30 bricks were imbedded in mortar for the construction of a doorway.

Structures of Level 3 T were more or less evenly distributed over the whole area of the complex of 1931, whereas remains of Level 2 T and its higher sublevel covered mainly the eastern part. This may have been due to the presence in O-P 27-28 of a little church which probably originated in Level 3 T but continued to be used in the time of Level 2 T. The church was of the basilica type. Its foundations were very well preserved (Figs. 127-28); the floor level was about .70 below the surface. The church was 7.40 wide and 13.90 long including a semicircular apse at the east end. There was an opening in the west wall, but neither sill nor doorjambs remained. Inside this entrance storage vessel d 1034 was unearthed, its orifice just a little higher than the original floor level. In the middle of the south wall was a doorway leading to what may have been a small baptistry. The floor of the nave was partly covered with tiles, generally measuring .30×.30×.03. A stone step led to the floor of the apse, which was raised .70 and paved with large, nearly square, stones. A building attached to the north side of the church (Fig. 129) was probably the rectory. Storage vessel e 1351 stood in one of the rooms of this house (Fig. 130).

In P-Q 28-29 the foundation of a complete house, probably of Level 3 T, was unearthed (Figs. 131-32). An entrance door at the northwest was set in a curved wall; the jambs radiated from the center of the arc. The vestibule was approximately in the form of a quadrant; at the right a doorway led into a corner room, which in turn gave access to a paved room or court. A broken millstone had been used in the pavement. Behind the paved room, but not connecting with it, were two rooms connected by a doorway the socket stone of which was still *in situ*. From the easternmost room a doorway led into a long passage which was in turn connected with both the vestibule and the paved room. In the passage many mosaic pieces were found (e.g., the group c 1285, Fig. 210). Fragmentary roof tiles were found in all the rooms. The foundation of the whole house sloped down gradually toward the northwest, conforming with the mound surface. Within the house was found a coin (c 1260) of Constantius II.

<sup>4</sup> OIP XXIX 335-39.

<sup>5</sup> OIP XX 27 ff.

<sup>6</sup> OIP XX 36-37.

<sup>7</sup> OIP VI 75, 80-83, 85-93; cf. OIP XX 40.



FIG. 127.—BYZANTINE CHURCH IN P-Q 27-28 FROM NORTHEAST



FIG. 128.—INTERIOR OF THE BYZANTINE CHURCH FROM NORTHWEST, SHOWING PAVEMENT

129



FIG. 129.—BUILDING IN P-Q 26 FROM WEST. STORAGE VESSEL e 1351, STILL COVERED, IN LEFT FOREGROUND

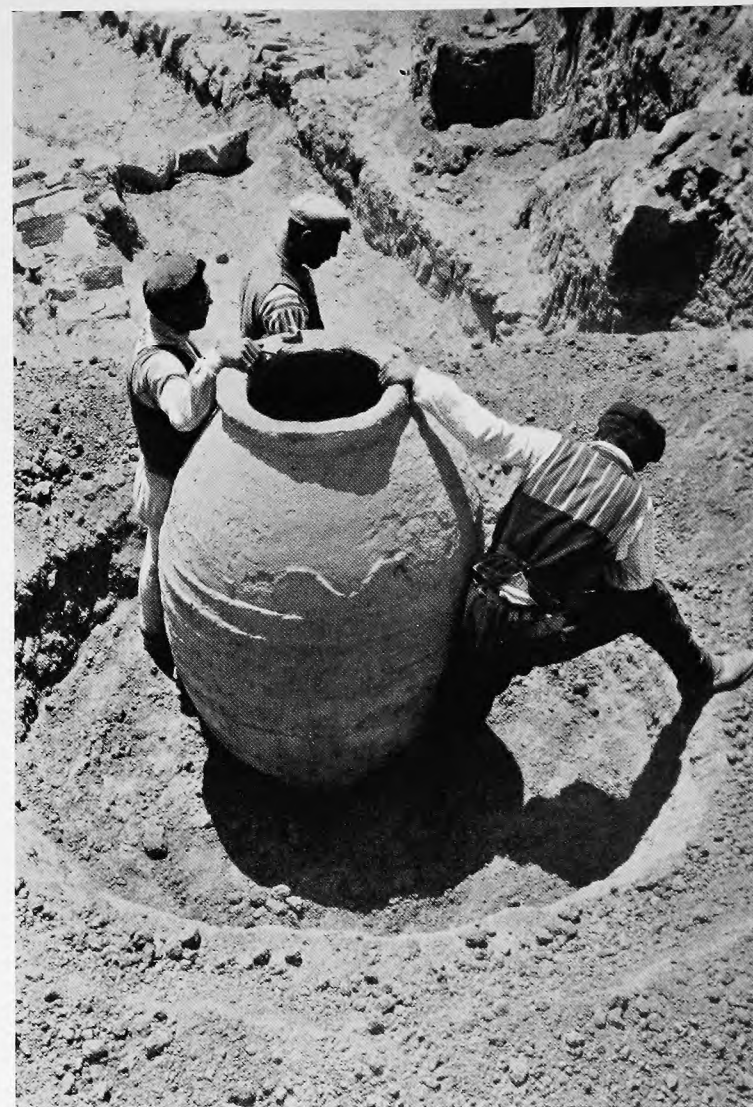


FIG. 130.—REMOVING STORAGE VESSEL e 1351 IN P 26



Part of a second house, oriented about the same and belonging to the same building level, was unearthed in Q-R 30. Interesting is the apselike construction attached to its east wall. In the northwest room were found part of a large storage vessel and a stone mortar (Fig. 133).

Northeast of these two houses appeared fragmentary remains of a very large house or a group of smaller buildings. Within this area (in Q 28) were found six burials, none of them much more than 10 meters from the apse of the church. The most interesting burial (d X12) was in a stone box (see p. 148). A large tombstone,  $1.74 \times .80 \times .30$ , was lying flat at what was apparently the current ground level, about .40 above the top of the box (see Figs. 174-77).

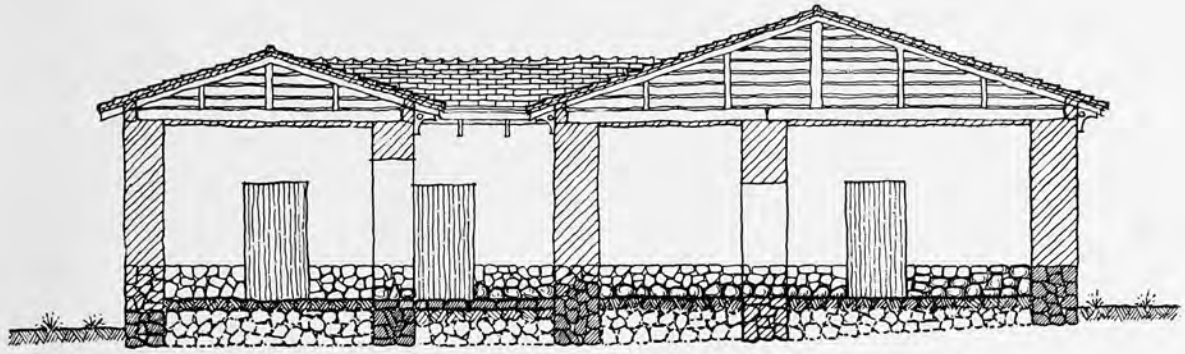
The remains of Level 2 T were fragmentary. In U 27, 1.35 deep, three cement baths were found side by side (Figs. 134-35). All were rectangular, with funnel-shaped bottoms. A step



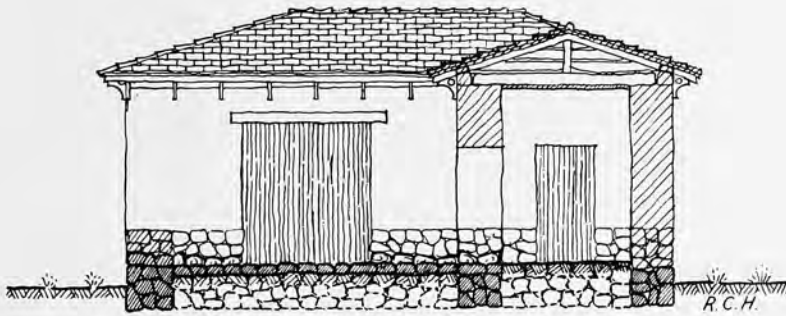
FIG. 131.—HOUSE IN P-Q 28-29 FROM SOUTHEAST

can be discerned leading down into the eastern and middle baths. A similar bath was found in Q 30, but it cannot be attributed to any particular level. A structure of Level 2 T in S 30 may have been a cellar (Fig. 136). Two steps led down into it from an adjacent paved floor; just outside the entrance stood a large fragmentary storage vessel. In the cellar were two stone waterspouts (e.g., Figs. 137-38). South and east of this structure were a number of walls which definitely belonged to this level.

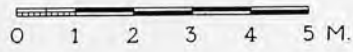
Of the higher sublevel of Level 2 T, the most important remains appear in U-V 29-30. In T-U 29 floors had been constructed by covering stone pavements with a sort of rough concrete made with pebbles of various sizes (Fig. 139). Even more interesting was a doorway in U 30 (Figs. 140-41). The sill was of the concrete just described, smeared over large flat stones. The part of each jamb toward the exterior of the building was built of large flattened boulders standing upright; the parts toward the interior were of baked bricks bedded in mortar .02 thick. The bricks were  $.20-.27 \times .15-.42 \times .05-.07$ .



A



B



H.v.O.

C

FIG. 132.—SECTIONS (A-B) AND RECONSTRUCTION (C) OF THE HOUSE IN P-Q 28-29. SCALE OF A-B, 1:125



FIG. 133.—MORTAR AND FRAGMENTARY STORAGE VESSEL IN A ROOM IN Q 30



FIG. 134.—TRIPLE BATHS IN U 27 FROM SOUTH

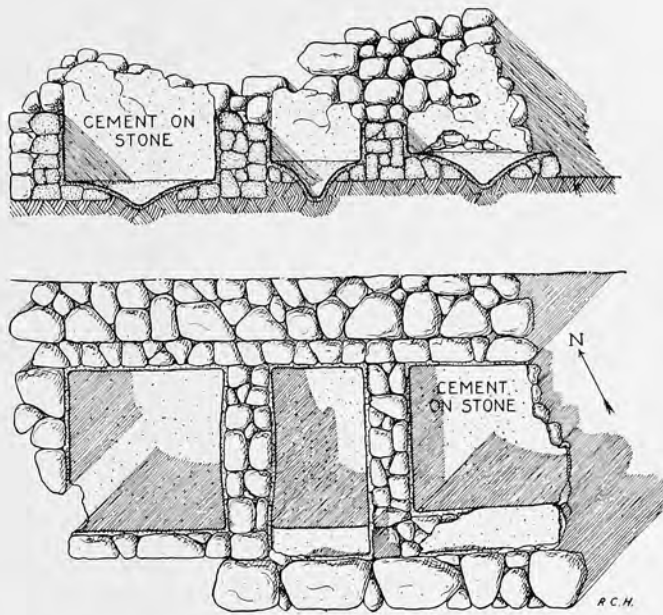


FIG. 135.—PLAN AND CROSS-SECTION OF TRIPLE BATHS IN U 27. SCALE, 1:40



FIG. 136.—CELLAR(?) IN S 30 FROM EAST





FIG. 137.—FIND-SPOT OF WATERSPOUTS IN S 30

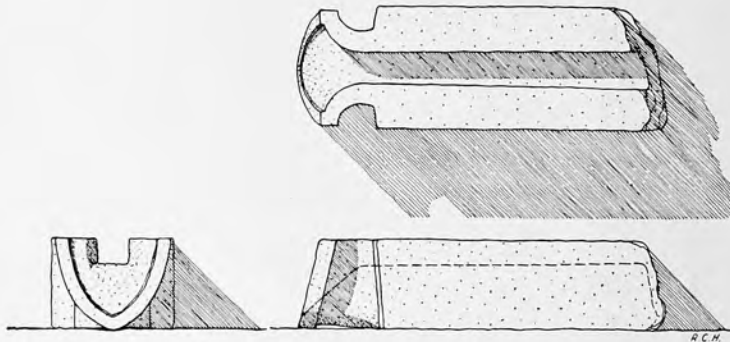


FIG. 138.—PLAN AND ELEVATIONS OF ONE OF THE WATERSPOUTS IN S 30. SCALE, 1:20





FIG. 139.—STORAGE VESSEL d 251 AND PART OF A ROUGH CONCRETE PAVEMENT IN T-U 29



FIG. 140.—STRUCTURES IN U-V 29-30 FROM NORTHWEST



FIG. 141.—DOORWAY IN U 30 FROM INSIDE



FIG. 142.—SOUTH WALL OF BATH IN T 30

In a bath in T 30 a smooth coating of cement was used over the rough concrete of the tub and also on the stone ledge surrounding it (Figs. 142-43). Other noteworthy remains within this area were cemented storage receptacles in T 28 and T 29 (Figs. 144-45). A trough-shaped stone (*a*) in the pavement near the storage tank(?) in T 29 seems to have been a drain. In Q 27, .45 below the surface, fragments of a tile pavement were found (Fig. 146). In a railway cut in M-O 31 (Figs. 122 and 147) several walls and a complete storage vessel (d 1634, Fig. 148) were unearthed; they cannot be definitely attributed to either Level 2 T or Level 3 T.

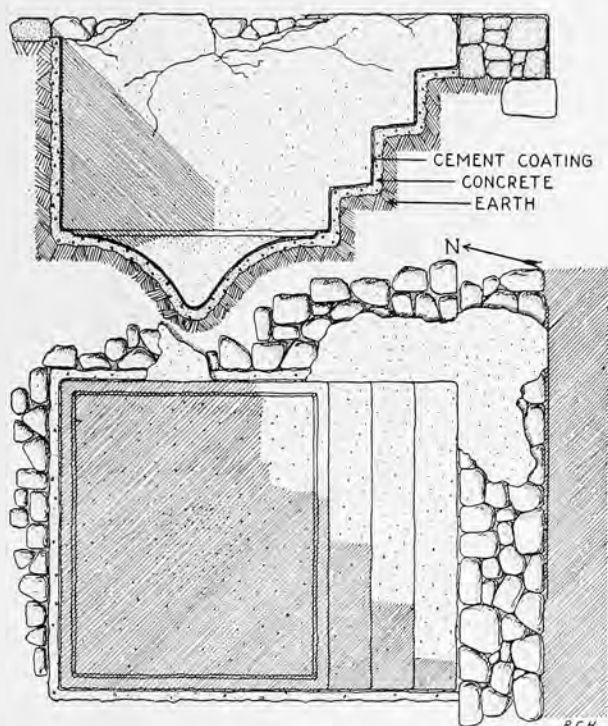


FIG. 143.—PLAN AND CROSS-SECTION OF BATH IN T 30. SCALE, 1:40

Southwest of the complex of 1931 were fragmentary walls and pavements which cannot be attributed with certainty to either Level 2 or Level 3 T (Figs. 125 and 149). In L 34 part of a house and two cement baths (Fig. 150) had been built on the site of the eastern tower of the large gateway of the Hittite period, destroying parts of its foundation. In K 35 a large storage vessel had been set into the ground, destroying part of the foundation of the western tower of the same gateway.

In I-J 27-33 and K-N 29 two building levels could be distinguished. The more important is that which corresponds to Level 3 in the complex of 1931 (Figs. 126 and 151). We found here the remains of what must have been a large and important building or several houses built around an open court. One of the rooms in J 29 was seemingly a kitchen; for it contained an oven (Fig. 152; cf. Fig. 153, left foreground) and a mortar, and outside a doorway in the southwest wall was a refuse pit. On one side of this doorway carefully squared jamb stones were still in place. In the opposite wall of the room was part of a stone sill belonging to a doorway which led to a paved court. In K 29 stood storage jar c 225 (Fig. 153). The remains of the upper building level, which can be identified roughly with Level 2 T of the complex of 1931, consisted solely of small patches of pavement and a few walls (Figs. 126 and 151).



FIG. 144.—CEMENTED STORAGE PIT IN T 28



FIG. 145.—CEMENTED STORAGE PIT WITH DRAIN (a)  
IN T 29



FIG. 146.—TILE PAVEMENT IN Q 27



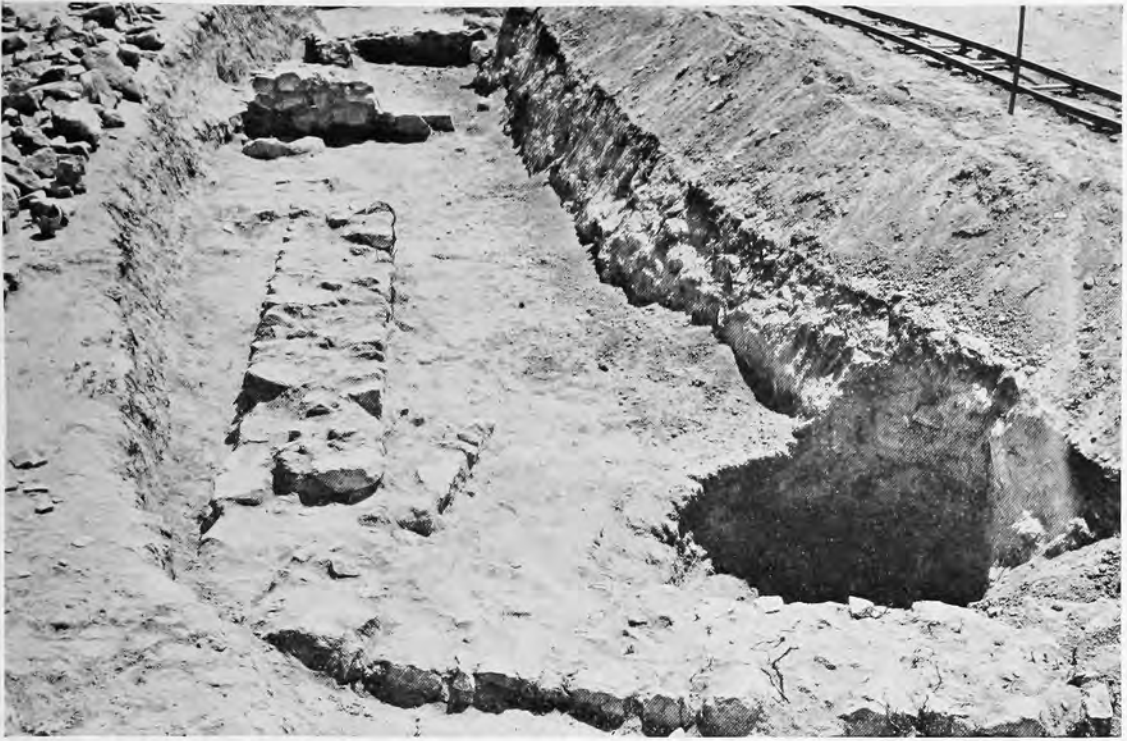


FIG. 147. WALL REMAINS IN A RAILWAY CUT IN M-O 31, FROM WEST



FIG. 148.—STORAGE VESSEL d 1634 IN M 31



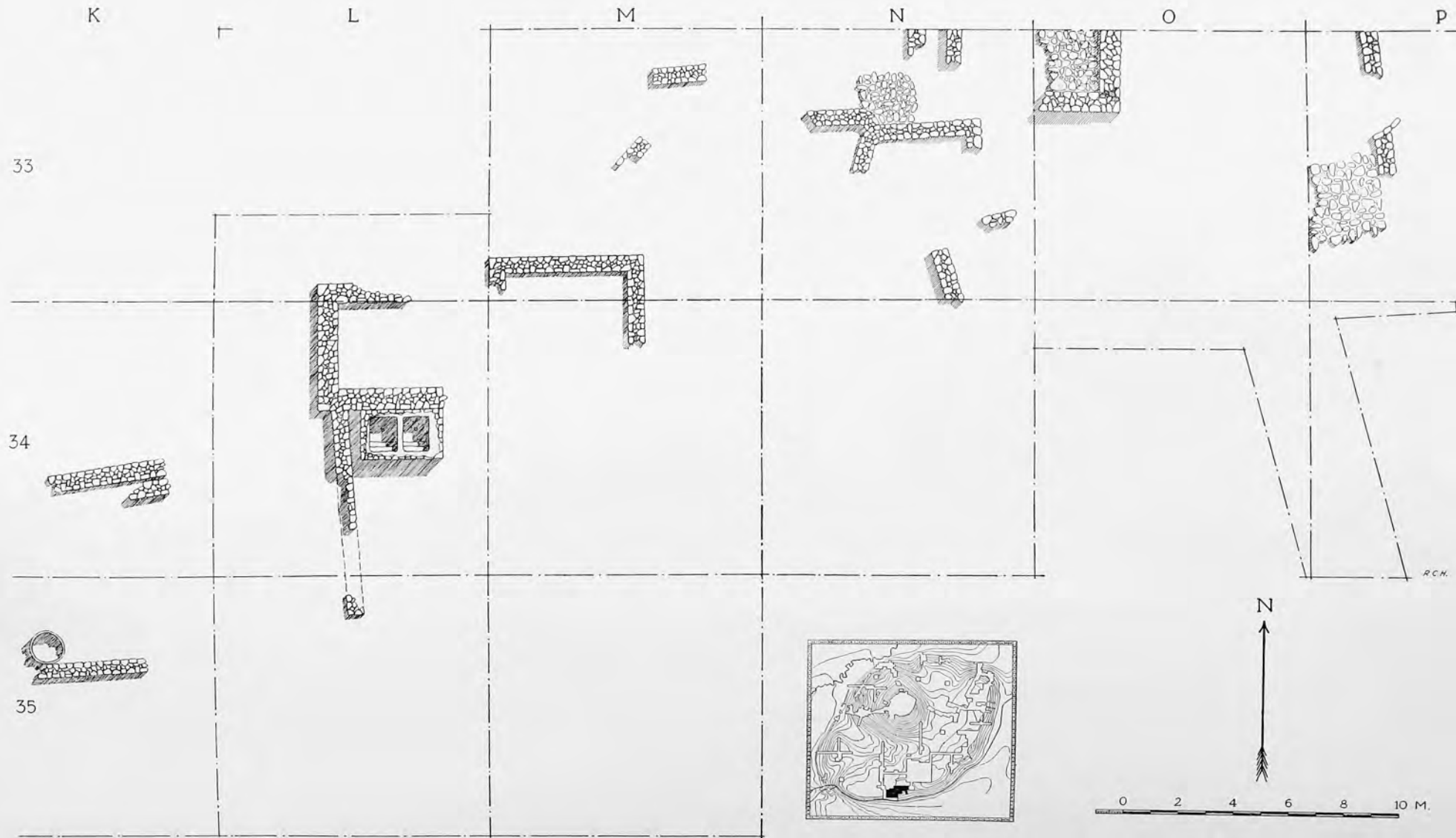


FIG. 149.—PLAN OF ROMAN-BYZANTINE REMAINS IN K-P 33-35. SCALE, 1:200



FIG. 150.—DOUBLE BATH IN L 34 FROM NORTHWEST

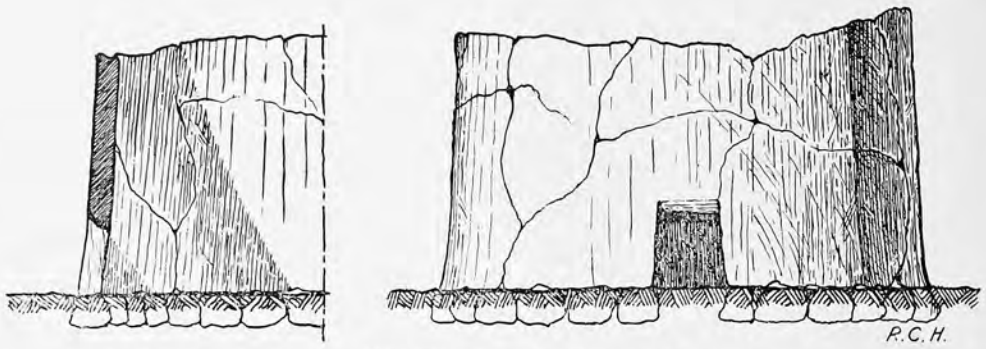


FIG. 152.—OVEN IN J 29. SCALE, 1:10



FIG. 153.—REMAINS IN J-N 29 FROM WEST-SOUTHWEST

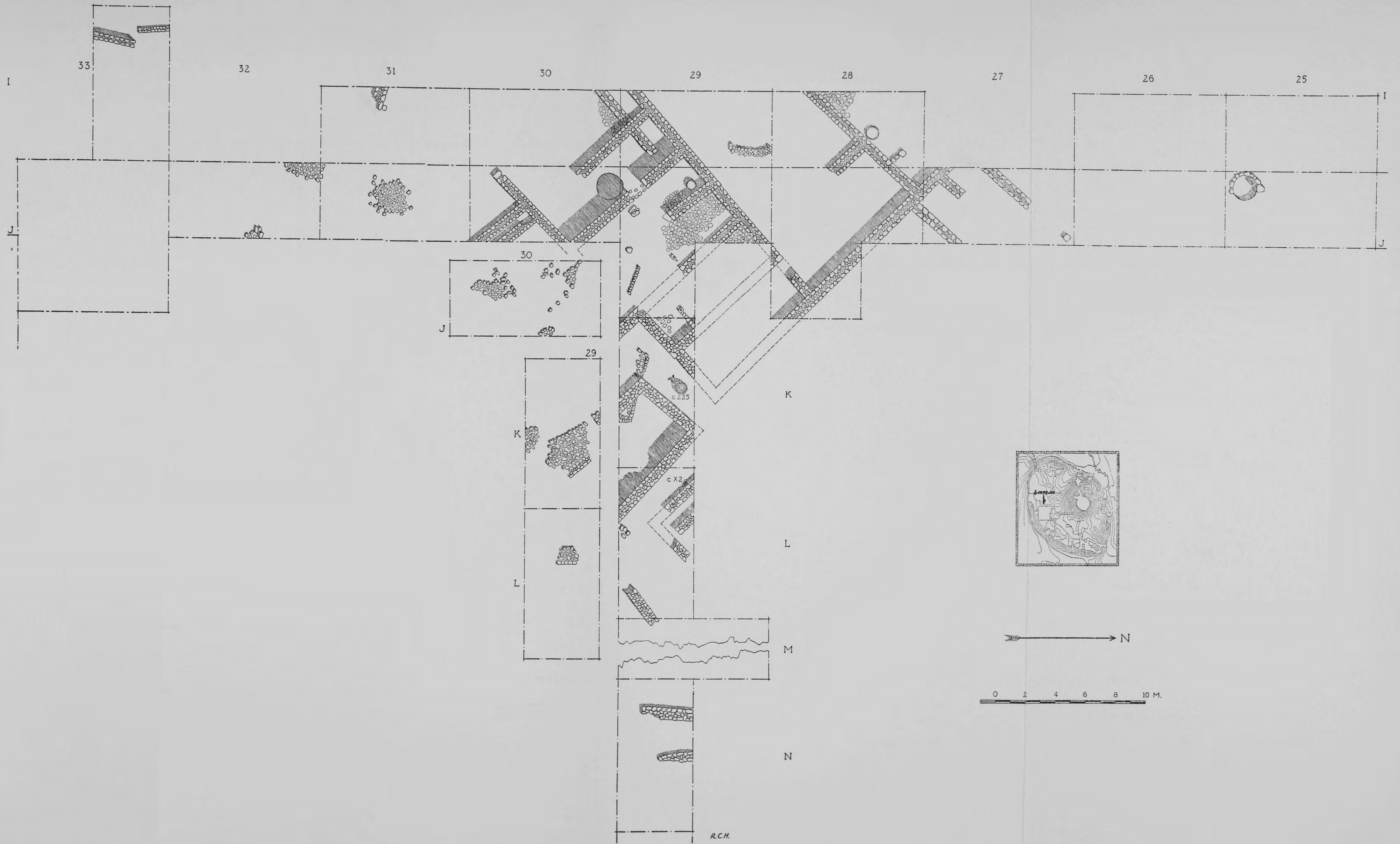


FIG. 151.—PLAN OF ROMAN-BYZANTINE REMAINS IN I-J 25-33 AND K-N 29. SCALE, 1:200





In S 17-24 many well set walls and paved areas were unearthed (Figs. 154-59; cf. Fig. 126). In S 21 there was a very well preserved cement bath with a funnel-shaped drain in the bottom (Figs. 156-58). Set over the drain was a pottery cover with a knob handle. An oblong stone with a groove led to the basin from the southeast. East of it, separated by a wall, was found a cement surface which may have been the slanting bottom of a bath without a funnel-shaped drain. Other well built remains appeared in U 24-26 (Figs. 122-24 and 126) and in the con-



FIG. 154.—REMAINS IN S 17-19 FROM NORTH

nected trench in V-CC 24 and CC-DD 23 (Figs. 160-63). In CC 24 many fragmentary tiles were found (e.g., Fig. 161). In CC 24 two building levels were apparent. In YY 22-25 and WW-B 24 on the southwest part of the terrace only unimportant remains of the period were found (Fig. 164).

Wall remains in ZZ 31, among which Turkish burials were found, and in Level 1 in R 6 are tentatively attributed to this period. According to the architectural description in the files of the Oriental Institute and to the sherd catalogue, part of these remains may belong to the preceding period. In VV 30-31 wall remains, a paved area, and part of a *kerpiç* floor were found very near the surface (Fig. 165); definite attribution to any period is impossible.



FIG. 155.—REMAINS IN S 17 FROM SOUTHEAST



FIG. 156.—BATH IN S 21 FROM NORTHEAST



FIG. 157.—BATH IN S 21 FROM ABOVE

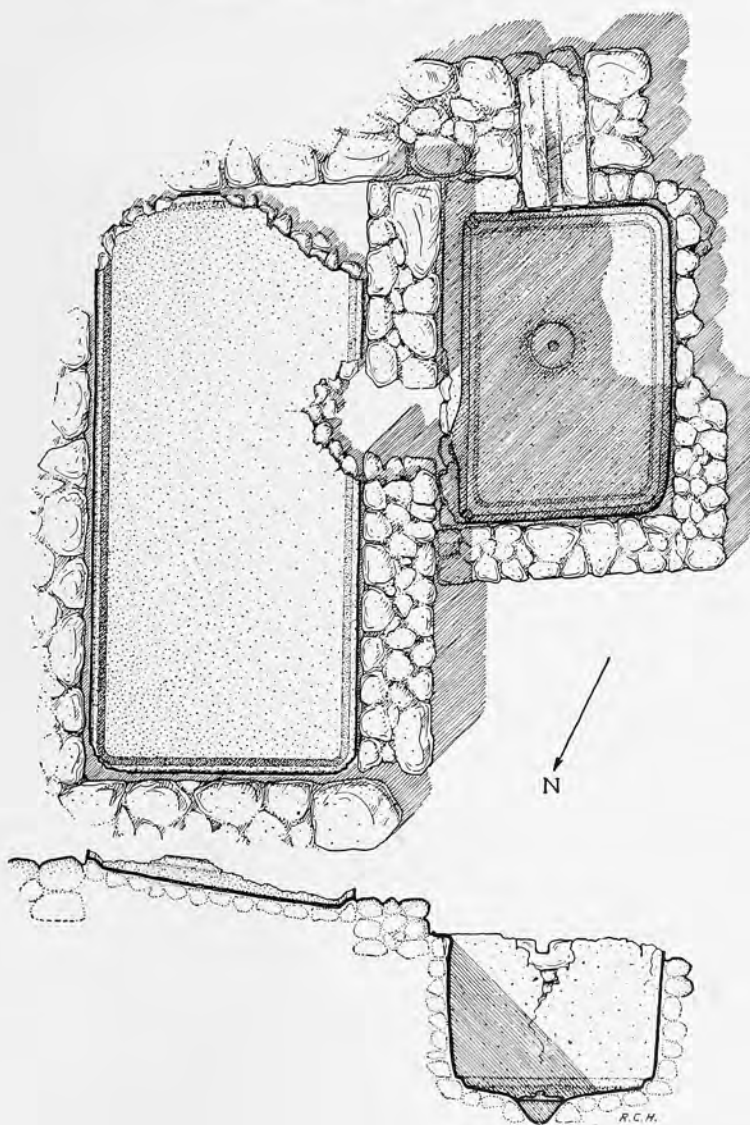


FIG. 158.—PLAN AND CROSS-SECTION OF BATH IN S 21. SCALE, 1:40



FIG. 161.—REMAINS IN CC 24 FROM WEST



FIG. 162.—REMAINS IN DD 23 FROM NORTH



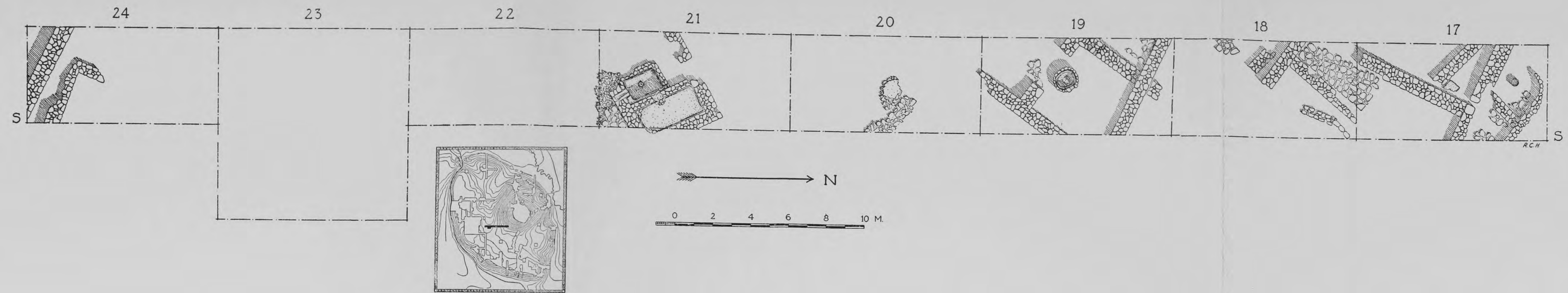


FIG. 159.—PLAN OF ROMAN-BYZANTINE REMAINS IN S 17-24. SCALE, 1:200

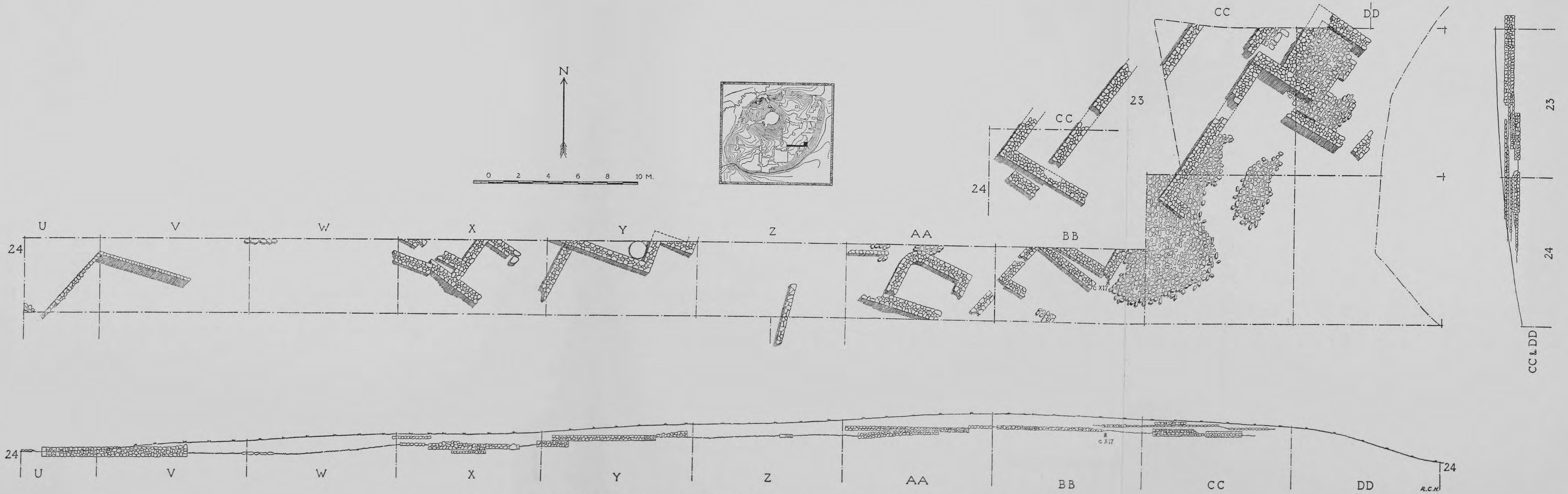


FIG. 160.—PLAN AND CROSS-SECTION OF ROMAN-BYZANTINE REMAINS IN U-CC 24 AND CC-DD 23. SCALE, 1:200





FIG. 164.—PLAN AND CROSS-SECTIONS OF ROMAN-BYZANTINE REMAINS IN YY 22-25 AND WW-B 24. SCALE, 1:200



FIG. 163.—REMAINS IN CC 23 FROM SOUTHWEST

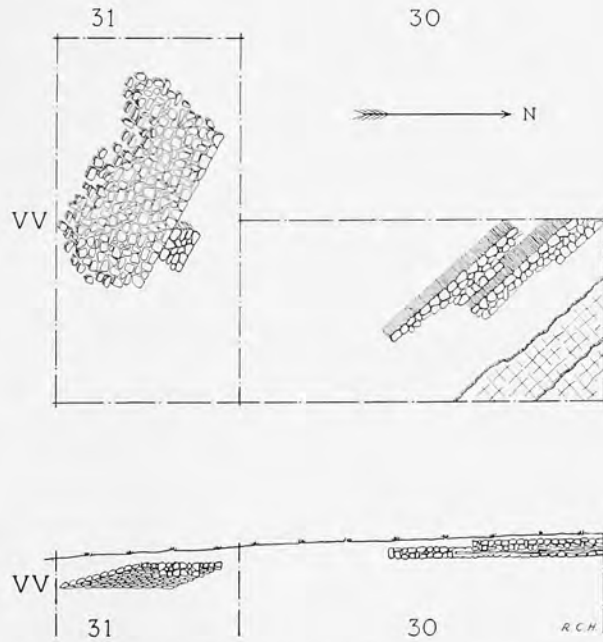


FIG. 165.—PLAN AND CROSS-SECTION OF VV 30-31. SCALE, 1:200

## BURIALS

From 1927 to 1932 twenty-seven skeletons were found which can be attributed with reasonable certainty to the Roman-Byzantine period.<sup>8</sup> Of these, skeletons b X1, d X1, d X4, d X6, d X13, and d X21 were formerly thought to be Hellenistic or earlier.<sup>9</sup> Two skeletons may be later: No. 3223 was buried at a time when the stone foundation of the citadel wall was already considerably washed away and decayed; and No. c X4, found in the southwest part of the city terrace, was at a slightly higher level than the Roman-Byzantine deposits. Two others (3221 and c X1) most probably belong to the Roman-Byzantine period, but there is still a chance that they belong to the end of the Hellenistic period. No. 3221 was found on top of the citadel mound, where the deposits were very shallow and much disturbed; and No. c X1 was found in U 28, where the deposits of the late Hellenistic and Roman-Byzantine periods were very difficult to differentiate. The attribution of burial c X17 is even less positive. It was first attributed to the period of the Hittite Empires; intensive investigation near its find-spot in 1931 and 1932 has shown that so early a date is impossible, but it may belong earlier than the Roman-Byzantine period. Nos. 3222, b X4, and c X8 may belong to the Roman-Byzantine period, but more probably they should be attributed to the Hellenistic period, with which they are described (see pp. 15-19).

Fifteen of the twenty-seven skeletons were assuredly buried. Skeleton d X12 was deposited in a carefully made stone box (Figs. 174-77). A paving tile was used in the end nearest the feet, and the box was covered with a series of flat stones, two of which were re-used water-spouts. About .40 above the cover, apparently on the ground level of that period, lay a large stone slab bearing a cross and an inscription now almost entirely effaced.<sup>10</sup> It is interesting to note that although the top of the tombstone lay to the east, as shown by the cross and inscription, the skeleton lay with its head to the west. The direction of Nos. d X22-25 was about the same. Nos. d X22-24 lay on their backs with legs extended and hands folded over the breast. The position of No. d X25 seemed to have been disturbed. No. d X31 also was deposited in a general east-west direction, but it lay on the right side with legs semiflexed. Nos. d X1-3 and d X7-8 were buried in a general south-north direction. Nos. d X1-3 had their legs outstretched; the first lay on one side; the other two lay on their backs. No. d X7 was on its side, semiflexed, and No. d X8 was in a dorsal position with extended legs. These skeletons of 1931 formed several groups: Nos. d X1-3, of which Nos. d X2-3 were a double burial; Nos. d X7-8; and Nos. d X22-25, of which Nos. d X22-23 were a double burial.

It seems to me noteworthy that of the skeletons found in the large complex of 1931 those near the Christian church (in Q 28) were buried in a general east-west direction, those farther south in a south-north direction. The difference of orientation may well have to do with religion.

Three isolated skeletons (3210a, b X1, and c X1) were buried on their sides, flexed. Each was in a different orientation. A small child (d X9) was buried in a large storage vessel.

It cannot be determined whether the remaining twelve were true burials. Nos. 3210, 3223, and d X13 were very poorly preserved. No. b X38 seems to have been merely dumped into a cist. Nos. d X4-6 were found together in what seems to have been a rather casual disposal. Two of them were in a north-south position; the other, south-north. No. d X21 was a loose

<sup>8</sup> Skeleton b X16, found in S 23, was attributed in *OIP* XIX 212 to the Early Bronze Age. Excavations of 1932 in the S trench make it highly probable that this skeleton is even later than the Hittite period, but it is impossible to determine to which later period it belongs.

<sup>9</sup> In *OIP* XX, Tables I-II they were classified as "Period V," which is now ascribed to the second half of the first millennium B.C., but which included the Phrygian and excluded the Hellenistic period.

<sup>10</sup> *OIP* XXVII, No. 98.

skull. The positions of Nos. 3221, c X4, c X17, and e X17 were either very casual or had been disturbed; I am rather inclined to see in them positions due to violent death.

A crude broken vessel was situated near No. 3210a, but it is very doubtful that it was intended as a mortuary gift. A similar broken vessel was found near No. c X1. No. 3221 had bronze earrings. What may have been a silver earring was found with No. d X7. Fragments which may have belonged to a large pin were found on No. b X1, and a large pin lay over one arm of No. c X17. During the cleaning of No. d X31 an imprint of cloth was discerned, but it could not be photographed as it disintegrated immediately. With skeleton d X13 an iron blade was found.

#### LIST OF BURIALS

- 3210 Earth burial(?) in BB 14 (*OIP* VII 6, Skeleton X<sub>2</sub> in Plot X Stratigraphic Annex). The infans I skeleton, utterly decayed, was found 1.40 deep. The general direction was west-east with the skull originally toward the east.
- 3210a Earth burial in BB 13 (*OIP* VII 5, Skeleton X<sub>1</sub> in Plot X Stratigraphic Annex). The infans I(?) skeleton was found 1.15 deep. It was lying on the left side with legs flexed. The left arm was flexed, and the hand was in front of the face. The right arm was extended with the hand lying between the knees. The direction from sacrum to atlas was 18° west of south. A crude broken vessel was situated .20 west-southwest of the skull.
- 3221 Earth burial(?) in M 11 (*OIP* VII 28, Skeleton X<sub>1</sub> in Plot 53). The juvenile skeleton was found half-buried beneath a wall, .80 below the surface. The position was dorsal, the legs contracted. The skull was turned to the right, facing north. The left arm was contracted, and the hand lay beside the mandible. The right arm was extended, the hand lying beside the pelvis. The body lay west-east, the skull at the east. Two small bronze rings with overlapping ends were found, one at each aural cavity.
- 3223 Earth burial(?) in N 10 (*OIP* VII 30, Skeleton X<sub>1</sub> in Plot 55). The poorly preserved infans II skeleton was found .10 below the mound surface, above the remains of the foundation of the north tower. It lay on its left side with legs flexed.
- b X1 Earth burial in F 8 (*OIP* XX 87-88 and Tables I-II). The skeleton of an adult female was found .80 below the surface and .40 below a stone pavement of the Roman-Byzantine level which had been disturbed by the burial. The skeleton lay on its right side. The left arm, slightly flexed, lay alongside the body. The right arm was extended, the hand being in front of the pelvis. Both legs were flexed, the right one more strongly, and the feet lay in the line of the vertebral axis. The direction from sacrum to atlas was 44° east of north. Two small fragments of bronze or copper, perhaps pieces of a garment pin, were found just under the cranium.
- b X38 Earth burial(?) in EE 10 (*OIP* XX 112 and Tables I-II). The skeleton of an adult female was found in a cist of the Roman-Byzantine level inclosed by a low stone wall. The position of the skeleton was ventral with contracted legs, extended right arm, and flexed left arm. It would seem that this body had been deposited very casually.
- c X1 Earth burial in U 28 (cf. Figs. 122 and 124). The infans I skeleton was found 1.40 below the mound surface, imbedded in a wall. It lay on its right side, semiflexed. One arm and one leg were missing. The remaining arm was bent, with hand at the throat. The femur was at right angles to the pelvis, and the lower leg was parallel to the general line of the skeleton. The direction from sacrum to atlas was south. A small fragmentary pot was found .20 south of the skull.
- c X4 Earth burial(?) in YY 25 (Fig. 166; cf. Fig. 164). The adult(?) skeleton was found .80 deep. It lay on its right side. The left arm was lying at the side; the right arm was bent, with hand at the throat. The right leg was flexed. The femur of the left leg lay in line with the vertebral column, the tibia was bent toward the rear at an angle of 30°, and the fibula was disconnected. The head was south.
- c X17 Earth burial(?) in BB 24 (Fig. 167; cf. Fig. 160; *OIP* XX, Tables I-II). The skeleton of an adult male was found 1.20 deep. It lay in a dorsal position with knees slightly flexed to left. The humeri were lying parallel to the spinal column with the lower arms at right angles and the hands lying on the vertebrae. The direction from sacrum to atlas was 30° south of east. A bronze or copper pin (c 1528) was lying across the left elbow. Associated with this skeleton were a few sheep bones and sherds.
- d X1 Earth burial in Q 30 (Fig. 168; cf. Figs. 122 and 125; *OIP* XX, Tables I-II). The skeleton of an adult female was found .90 deep, just east of a Roman-Byzantine bath. It lay on the left side. The legs were extended, but slightly bent at the knees. The arms were sharply bent, with hands at the face. The direction from sacrum to atlas was north. This skeleton was near Nos. d X2-3.





FIG. 166.—SKELETON c X4 IN YY 25



c 1528

FIG. 167.—SKELETON c X17 IN BB 24. THE MORTUARY GIFT IS SHOWN IN ACTUAL SIZE



FIG. 168.—SKELETON d X1 IN Q 30

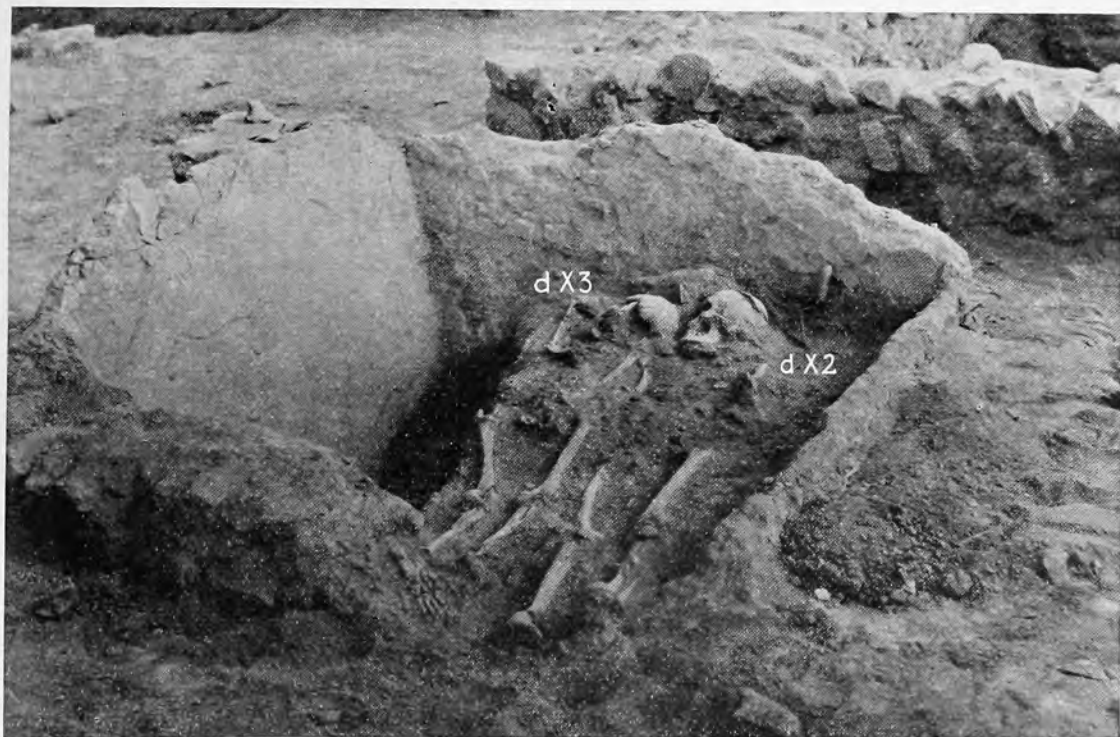


FIG. 169.—SKELETONS d X2-3 IN Q 30

- d X2 Earth burial in Q 30 (Fig. 169; cf. Figs. 122 and 125). The skeleton of an adult male was found .90 deep. It lay on its back with legs extended. The head lay on its right side. The right arm was bent, with the hand in front of the face; the left upper arm was lying at the side. On the left femur appeared a pathological growth. The general direction from sacrum to atlas was north. This skeleton was lying beside d X3 on top of a Roman-Byzantine bath.
- d X3 Earth burial in Q 30 (Fig. 169; cf. Figs. 122 and 125). The very poorly preserved skeleton was found .90 deep, beside skeleton d X2. It lay on its back with legs extended. The head was on the right side. The right arm was bent, with the hand in front of the face. The direction was south-north.
- d X4 Earth burial(?) in R 31 (Fig. 170; cf. Figs. 122 and 125; *OIP* XX, Tables I-II). The adult male skeleton was found .90 deep, south of a fragmentary wall. It lay on its back with legs extended. The right arm was bent, with the hand resting near the displaced head. The direction from sacrum to atlas was 20° east of north. Skeleton d X4 was a little to the east of and partially below d X5 and a little above d X6.
- d X5 Earth burial(?) in R 31 (Fig. 170; cf. Figs. 122 and 125). The adult skeleton was found .90 deep, lying on its face with legs extended. The right arm was bent, with the hand at the head. The left arm was extended. The direction from sacrum to atlas was south. For associations see No. d X4.
- d X6 Earth burial(?) in R 31 (Fig. 171; cf. Figs. 122 and 125; *OIP* XX, Tables I-II). The very much disturbed skeleton of a senile male was found 1.10 deep. The position was probably dorsal. The disconnected skull, on its left side, lay to the right of the spinal column, facing it. The left arm was disconnected and lay at the right side of the body. The right arm was extended. The right leg was flexed. The left femur lay over the right femur, and the left tibia and fibula lay below the right femur, tibia, and fibula. For associations see No. d X4.
- d X7 Earth burial in Q 31 (Fig. 172; cf. Figs. 122 and 125). The adult skeleton was found 1.40 deep. It lay on its right side, semiflexed. The direction from sacrum to atlas was north. Beside the skull was found a fragment of silver (d 252) which may have been an earring. The skeleton was associated with d X8, being slightly east of and above it.
- d X8 Earth burial in Q 31 (Fig. 172; cf. Figs. 122 and 125). The adult skeleton was found 1.50 deep. It lay on its back with legs extended. The maxilla was displaced and lay in the chest cavity. The direction from sacrum to atlas was north. This skeleton was slightly west of and below d X7.
- d X9 Pot burial in S 30 (Fig. 173; cf. Figs. 122 and 125). The infans I skeleton was found 1 meter deep. It lay in the bottom of pot d 543 (Fig. 189), covered by a stone. Its position was indeterminable.
- d X12 Stone-box burial in Q 28 (Figs. 174-77; cf. Figs. 122 and 124; *OIP* XX 131 and Tables I-II). The skeleton of an adult male was found in a stone box near the church (cf. p. 148). It lay on its back with legs extended, the hands resting over the pelvis. The direction from sacrum to atlas was 15° north of west.
- d X13 Earth burial(?) in S 30 (cf. Figs. 122 and 125; *OIP* XX, Tables I-II). The infans II skeleton was found 1 meter deep in an indeterminable position. An iron blade (d 870) was associated with it.
- d X21 Earth burial(?) in P 31 (cf. Figs. 122 and 125; *OIP* XX, Tables I-II). The skull of a juvenile was found 1.45 deep. The mandible was missing.
- d X22 Earth burial in Q 28 (Figs. 178-79; cf. Figs. 122 and 124). The adult skeleton was found 2 meters deep. It lay on its back with legs extended. The skull was tilted to the right and slightly forward. The arms were folded over the chest. The direction from sacrum to atlas was 10° north of west. The skeleton was associated with skeleton d X23, which lay at its left.
- d X23 Earth burial in Q 28 (Figs. 178-79; cf. Figs. 122 and 124). The senile skeleton was found 2 meters deep. It lay on its back with legs extended. The head was tilted slightly forward to the right. The arms were folded over the chest. The direction from sacrum to atlas was 10° north of west. This skeleton was associated with d X22.
- d X24 Earth burial in Q 28 (Figs. 178 and 180; cf. Figs. 122 and 124). The infans I skeleton was found 1.80 deep. It lay on its back with legs extended. The arms were bent and lay across the chest. The direction from sacrum to atlas was 25° north of west. The skeleton was near Nos. d X22-23 and d X25.
- d X25 Earth burial in Q 28 (Figs. 178-79 and 181; cf. Figs. 122 and 124; *OIP* XX, Tables I-II). The juvenile skeleton was found 2.20 deep. It was lying on the right side. The head was bent back. The legs were bent back at the knees, and the arms were doubled under. The direction from sacrum to atlas was 30° west of south.
- d X31 Earth burial in Q 28 (Fig. 182; cf. Figs. 122 and 124). The adult skeleton was found 2.40 deep. It lay on its back with legs semiflexed to the right. The arms extended along the torso. The direction from sacrum to atlas was 5° south of west. An imprint of cloth was discernible beside the left half of the pelvis when the skeleton was first cleaned, but disappeared before a photograph could be taken.
- e X17 Earth burial(?) in I 8 (Fig. 183). The skeleton of a juvenile female was found 1.10 deep. The general direction from sacrum to atlas was 45° south of east. The position seemed to be due to violent death.



FIG. 170.—SKELETONS d X4-5 IN R 31



FIG. 171.—SKELETON d X6 IN R 31





FIG. 172.—SKELETONS d X7-8 IN Q 31. THE MORTUARY GIFT IS SHOWN IN ACTUAL SIZE



FIG. 173.—BURIAL d X9 IN S 30



FIG. 174.—BURIAL d X12 IN Q 28, FROM WEST

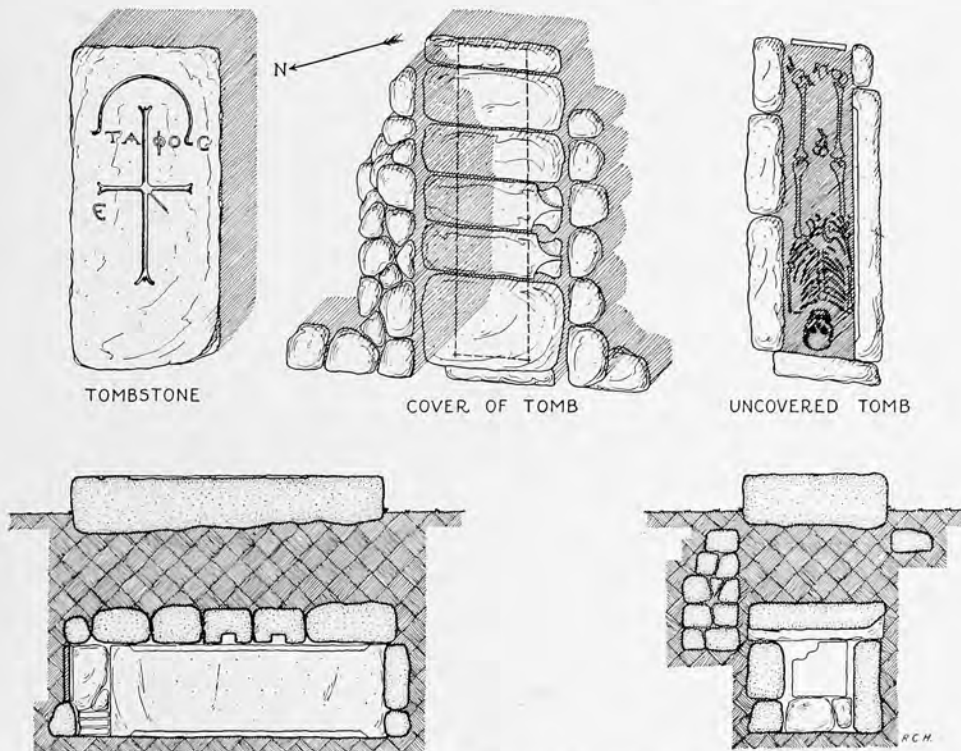


FIG. 175.—DIAGRAMS OF BURIAL d X12. SCALE, 1:40



FIG. 176.—SLABS COVERING THE STONE BOX OF BURIAL d X12



FIG. 177.—SKELETON d X12 IN ITS BOX



FIG. 178.—SKELETONS d X22-25 IN Q 28



FIG. 179.—SKELETONS d X22-23 AND SKULL OF d X25





FIG. 180.—SKELETON d X24 IN Q 28



FIG. 181.—SKELETON d X25 IN Q 28



FIG. 182.—SKELETON d X31 IN Q 28



FIG. 183.—SKELETON e X17 IN I 8

## POTTERY

The pottery of this period may be roughly divided into four groups: fine red-"glazed" ware (see p. 126, n. 1), simple household ware, large storage vessels, and glazed ware (cf. pp. 205-9). The fine red-"glazed" ware (Fig. 184) is described by F. O. Waagé (pp. 80-84).

The household ware does not show any particularly interesting or new forms. It includes the one- or two-handled "kitchen-ware" jars familiar from the two preceding periods (cf. Figs. 49-50). They are of medium, grit-tempered, buff ware, and the slips are hardly recognizable, as the vessels are completely blackened by fire. No. e 1437 (Fig. 186) is a handleless jar. No. e 529 (Fig. 185) is a large bowl with a lid. Pitcher d 320 (Fig. 185) is related to the large pitchers of the preceding period but is plumper in form. Several small bottles with flat or semi-pedestal bases have been found (e.g., Fig. 187).

Interesting are the storage vessels (Figs. 188-89), of which eight were found complete. Three (d 251, d 543, and d 1034) were of medium size. No. d 251 shows an incised design on its shoulder, over which a large cross had been painted in reddish brown. Of the five large storage vessels, No. d 249 is especially interesting for the relief ornamentation on the shoulder, consisting of a wavy band ending in a scroll at each end. In several cases the orifice was still covered by a lid consisting of a disk with a perforation in the middle for a button or handle (cf. Figs. 129 and 139).

DESCRIPTIONS OF INDIVIDUAL VESSELS<sup>11</sup>

## BOWLS

- e 51 (Fig. 184 and Pl. XII). Bowl with flat base, .050 h., .220 d.; fine, very well made ware;<sup>12</sup> buff paste; moderately fired; fine reddish brown slip over entire vessel; stamped designs on exterior. Found 0-70 deep in J 28.
- e 529 (Fig. 185 and Pl. XII). Large bowl with pottery lid, .130\* h., .360 d.; coarse, fairly well made ware; dark reddish brown paste; moderately fired; roughly finished. Found in Level 2 T in U 30.
- e 2693 (Fig. 184 and Pl. XII). Bowl with ring base, .068 h., .170 d.; fine, very well made ware; buff paste; moderately fired; reddish buff slip over entire vessel; carefully polished. Found in a pit belonging to a Roman-Byzantine level in R 29.
- d 493 (Fig. 184 and Pl. XII). Deep bowl .073 h., .096 d.; fine, well made ware; reddish buff paste; moderately fired; fine reddish buff slip over entire vessel; carefully polished. Found 1.30 deep in T 28.
- d 1629 (Fig. 184 and Pl. XII). Bowl with ring base, .070 h., .210 d.; medium, well made ware; buff paste; moderately fired; buff slip over entire vessel. Found 1.80-2.50 deep in S 27.
- d 1630 (Fig. 184 and Pl. XII). Bowl with ring base, .040 h., .108 d.; fine, well made ware; reddish buff paste; moderately fired; reddish buff slip over entire vessel. Found 1.80-2.50 deep in S 27.
- e 1277a (Fig. 184 and Pl. XII). Bowl with flat bottom, .067 h., .256 d.; fine, well made ware; buff paste; heavily fired; wet-smoothed. Found below the Roman-Byzantine level in S 18 with e 1276a.

## PITCHER

- d 320 (Fig. 185 and Pl. XII). Large pitcher .345 h., .309 d.; coarse, fairly well made ware; reddish buff paste; moderately fired; faded reddish wash on exterior, extending inside rim. Found 1 meter deep in R 31.

## JARS

- e 1110 (Fig. 186 and Pl. XII). Jar with two handles and ring base, .160 h., .147 d.; medium, fairly well made ware; buff paste; lightly fired; buff slip over exterior, extending inside rim. Found in a refuse deposit of the Roman-Byzantine period in C-D 6-7.
- e 1437 (Fig. 186 and Pl. XII). Jar .132 h., .178 d.; medium, well made ware; reddish buff paste; moderately fired; wet-smoothed. Found in a Roman-Byzantine deposit in C-D 6-7.
- e 1438 Two-handled jar .229 h., .204 d.; fine, well made ware; buff paste; moderately fired; wet-smoothed. Found .25 deep on southeast part of terrace.

<sup>11</sup> Vessels found from 1927 to 1929 are described in *OIP* VI 248-49 and 251-52 and *OIP* XX 102-3. Drawings of typical forms from the excavations of 1927-32 are given in Pl. XII.

<sup>12</sup> All the pottery of this period was grit-tempered.



d 1629



d 1630



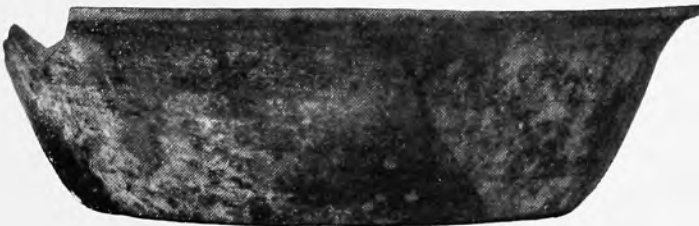
c 2393



c 51



d 493



e 1277a

FIG. 184.—FINE-WARE BOWLS. SCALE, ABOUT 2:5





c 529



d 320



e 33

FIG. 185.—MISCELLANEOUS VESSELS. SCALE, 1:5



e 1437



e 1110

FIG. 186.—JARS. SCALE, 2:5



e 2244



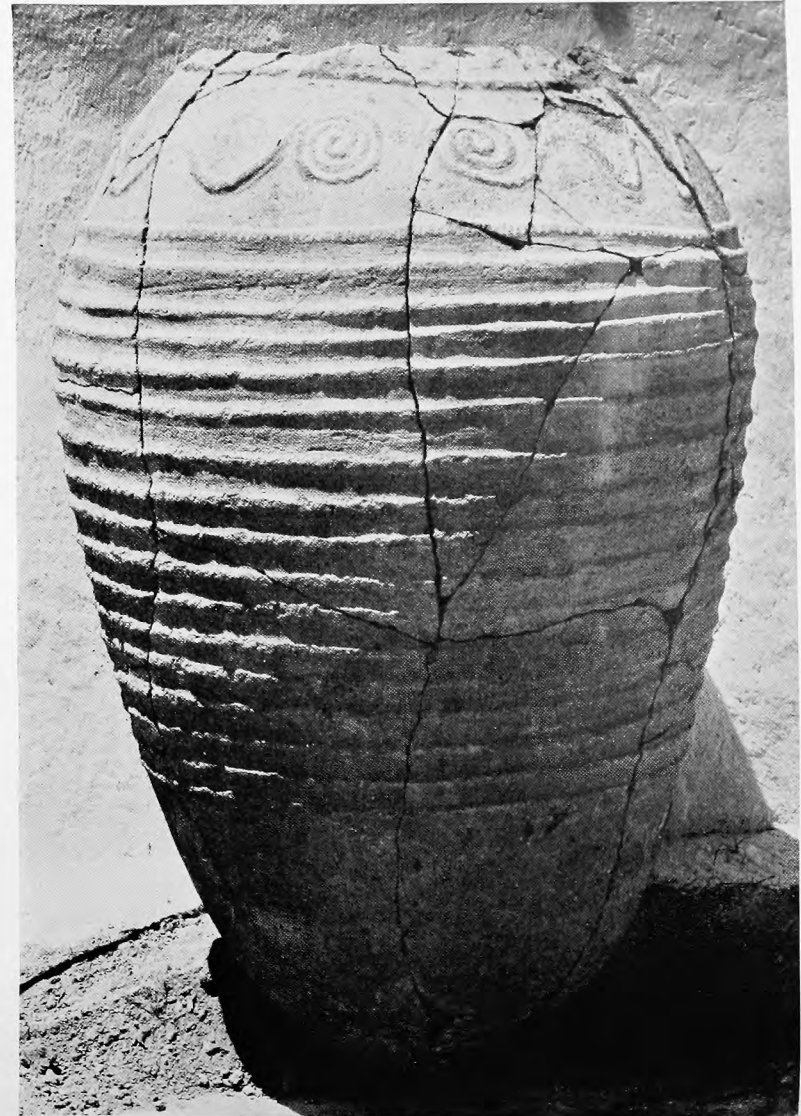
e 663

FIG. 187.—SMALL FLASKS. ACTUAL SIZE

164



c 225



d 249

FIG. 188.—STORAGE JARS. SCALE, 1:10



d 251



d 1034



d 250



d 543

FIG. 189.—STORAGE JARS. SCALE, 1:10



## FLASKS

- c 33 (Fig. 185). Flask .445\* h., .225 d.; fine, well made ware; buff paste; moderately fired; buff wash on exterior. Found just below Level 2 T in J 32.
- c 2244 (Fig. 187 and Pl. XII). Flask .099\* h., .050 d.; fine, well made ware; buff paste; moderately fired; reddish buff slip on exterior. Found just below Level 2 T in U 29.
- e 663 (Fig. 187 and Pl. XII). Flask .070\* h., .040 d.; fine, fairly well made ware; buff paste; heavily fired; roughly finished. Found in Level 2 T in P 25.

## STORAGE VESSELS

- c 225 (Fig. 188 and Pl. XII). Storage vessel 1.200 h., .900 d.; coarse, well made ware; reddish buff paste; moderately fired; wet-smoothed; nine horizontal ribs equally spaced from rim to bottom. Found in Levels 2-3 T in K 29.
- d 249 (Fig. 188 and Pl. XII). Storage vessel 1.360\* h., .955 d.; handmade; coarse, well made ware; buff paste; moderately fired; a whitish wash seems originally to have covered the exterior, but is now distinguishable only in patches; around the shoulder, in relief, is a wavy line terminating in scrolls; below this are seventeen punctate ribs. Found in Level 2 T in S 31.
- d 250 (Fig. 189 and Pl. XII). Storage vessel 1.045 h., .820 d.; handmade; coarse, well made ware; buff paste; moderately fired; whitish wash now barely distinguishable on outside; eight ridges around body. Found in Level 3 T in T 30.
- d 251 (Fig. 189 and Pl. XII; cf. Fig. 139). Storage vessel .710 h., .632 d.; handmade; coarse, well made ware; buff paste; moderately fired; traces of buff wash over exterior; on the shoulder, incised decoration over which another design was later applied in red paint, now faded; one element of the painted design is a cross. Found in Level 2 T in U 29.
- d 543 (Fig. 189 and Pl. XII). Storage vessel .750 h., .480 d.; handmade; medium, well made ware; buff paste; moderately fired; traces of whitish wash over exterior; a single rib and two pairs of ribs are equally spaced between rim and bottom. Contained skeleton d X9 in Level 2 T in S 30 (see Fig. 173).
- d 1034 (Fig. 189 and Pl. XII). Storage vessel with pottery lid, .750 h., .636 d.; coarse, well made ware; buff paste; moderately fired; traces of whitish wash over exterior; incised decoration above median body line. Found in Level 3 T in P 27.
- d 1634 (Pl. XII; cf. Fig. 148). Storage vessel 1.250 h., .870 d.; handmade; coarse, very well made ware; buff paste; moderately fired; traces of whitish wash over exterior; of seven ridges around circumference, the uppermost is punctate between three equidistant groups of chevrons, the second punctate, the rest plain. Found in Level 2 T in O 31.
- e 1351 (Pl. XII; cf. Figs. 129-30). Storage vessel 1.670 h., 1.076 d.; handmade; coarse, fairly well made ware; buff paste; moderately fired; traces of whitish wash over exterior; wavy design in relief on shoulder; six ridges around median body. Found in Level 3 T in P 26.

## FIGURINES (FIG. 190)

In 1927 a small bronze figure of herma type (2056) was found in BB 13-14.<sup>13</sup> It shows the head of a woman with her hair done in a knot. The date of this piece falls within the 1st or 2d century after Christ. A pinhead of greenish glass (1200),<sup>14</sup> showing on each side the head of a woman with elaborate hairdress and necklaces, also was found in 1927. A similar but smaller piece, of dark blue glass (a 95), was found the following year. No. d 12 is a pottery mold for an earring or pendant in the shape of a woman's head. The face of a satyr appears on a bronze or copper handle (1127)<sup>15</sup> found in 1927.

Only five animal figurines can be attributed to this period. No. c 1144 is the forepart of a crude clay figurine. No. d 98, of bronze, representing a bird, was seemingly fastened as a handle to a lid. A dog figurine of bronze (b 143)<sup>16</sup> was attributed in 1929 to "Period V," but is surely Roman. Interesting is No. b 866,<sup>17</sup> showing on a hollow pedestal the head of a deer(?) on which is seated a bird of prey. A fine horse's head of terra cotta (b 1738)<sup>18</sup> may be part of a rhyton.

<sup>13</sup> OIP VI 236.<sup>15</sup> OIP VII 98.<sup>17</sup> OIP XX 105.<sup>14</sup> OIP VII 37.<sup>16</sup> OIP XX 59.<sup>18</sup> OIP XX 96.



2056



a 95



1200



d 12



d 98



c 1144



FIG. 190.—FIGURINES AND A MOLD. ACTUAL SIZE

## SEALS (FIG. 191)

Three flat circular plates of bronze stamp seals were found. The surface of each plate shows that a stem was originally soldered to it. The design of No. d 173, found .85-1.30 deep in Q 31, is a cross with a globe in each of two opposite quadrants, surrounded by a single-line border. No. e 386, found in a refuse deposit of this period in S 20, shows three animals, one above another, and several small globes in the field. No. e 579, found in a much disturbed refuse deposit between the Roman-Byzantine and Hellenistic levels in C-D 9, shows two animals with a bull's head between them above another animal. No. c 793, of bronze, apparently a ring bezel, shows a conventionalized tree(?) with a double ax(?) above it. It was found in YY 23, 1.80-2.60 deep. No. 985<sup>19</sup> is a gem of reddish chalcedony with a flat, faceted back and a convex face on which is engraved a figure of Athene holding a spear. It was found on the surface in C 16, but must be dated within the 2d or 3d century after Christ.<sup>20</sup>

In S 19 was found No. e 234, a circular piece of clay with a convex back and a flat face bearing an impression representing the adoration of the three Magi. The Blessed Virgin, her head surrounded by a halo, is seated on a high-backed chair and holds the child Jesus on her lap. He also has a halo, above which appear a cross and an eight-pointed star. The three Magi seem to have their hands folded on their breasts and wear high cylindrical headdresses. Above the first one appears a crescent. A single line serves as border.

A rim piece of a large storage vessel (d 5) bears an impression of a rectangular seal with what seems to have been a monogram. A frit seal (b 1744)<sup>21</sup> with a crude linear design was found in a Roman hoard .20-.40 deep in HH 8. A typical Sasanian seal (a 724),<sup>22</sup> which belongs temporally within this period, was found in refuse between Levels 3b and 4a M in M 13, where it is of course intrusive. This globular stamp seal with flattened sides is of serpentine. The design on the oval base is unrecognizable; on the back appear remains of what may have been geometrical ornamentation.

## STONE OBJECTS

A few fragmentary hammer axes were found (e.g., d 103, of white marble, and d 817, of diorite, Fig. 192). No. e 448, of porphyry, has an unfinished perforation. No. d 66 is a limestone hammer with roughly rectangular blunt ends, in one of which a cross is crudely incised. The material is a very soft, porous limestone. No. e 8 is a hammer. Several flat axes, well known from previous periods, were found also (e.g., e 240, e 953-54, and c 299, Fig. 193). Polishing stones and whetstones were common (e.g., d 14 and e 777, Fig. 192, and d 55, Fig. 193); No. d 14 is of greenish slate, and the other two are of limestone. Drill handles (e.g., d 700 of marble, Fig. 192) appeared less frequently than in previous periods. No. d 131 (Fig. 192) is a marble lid. Flat basalt or sandstone vessels with three feet (e.g., d 158 and d 814, Fig. 194) became very numerous in this period. No. b 2198,<sup>23</sup> a fragmentary vessel of this type with part of an incised inscription in Greek, may belong either to this period or to the preceding one. No. d 299 is a flat-bottomed marble bowl with carefully decorated protuberances on the rim. No. d 248, of sandstone, is a flat-bottomed bowl with a spout.

Stone "whorls" of the shape typical in the preceding period (e.g., Fig. 195, first two rows) appear in large quantities, but the typical "whorls" of this period are those in the next two rows of Figure 195. A few hemispherical "whorls" also were found. The material is mostly serpentine. Of the miscellaneous stone objects in Figure 193, No. c 390, of diorite, is a die

<sup>19</sup> OIP VII 48.

<sup>20</sup> I am indebted to Miss G. M. A. Richter for this information.

<sup>21</sup> OIP XX 99.

<sup>22</sup> OIP XX 65.

<sup>23</sup> OIP XX 109; OIP XXVII, No. 94.

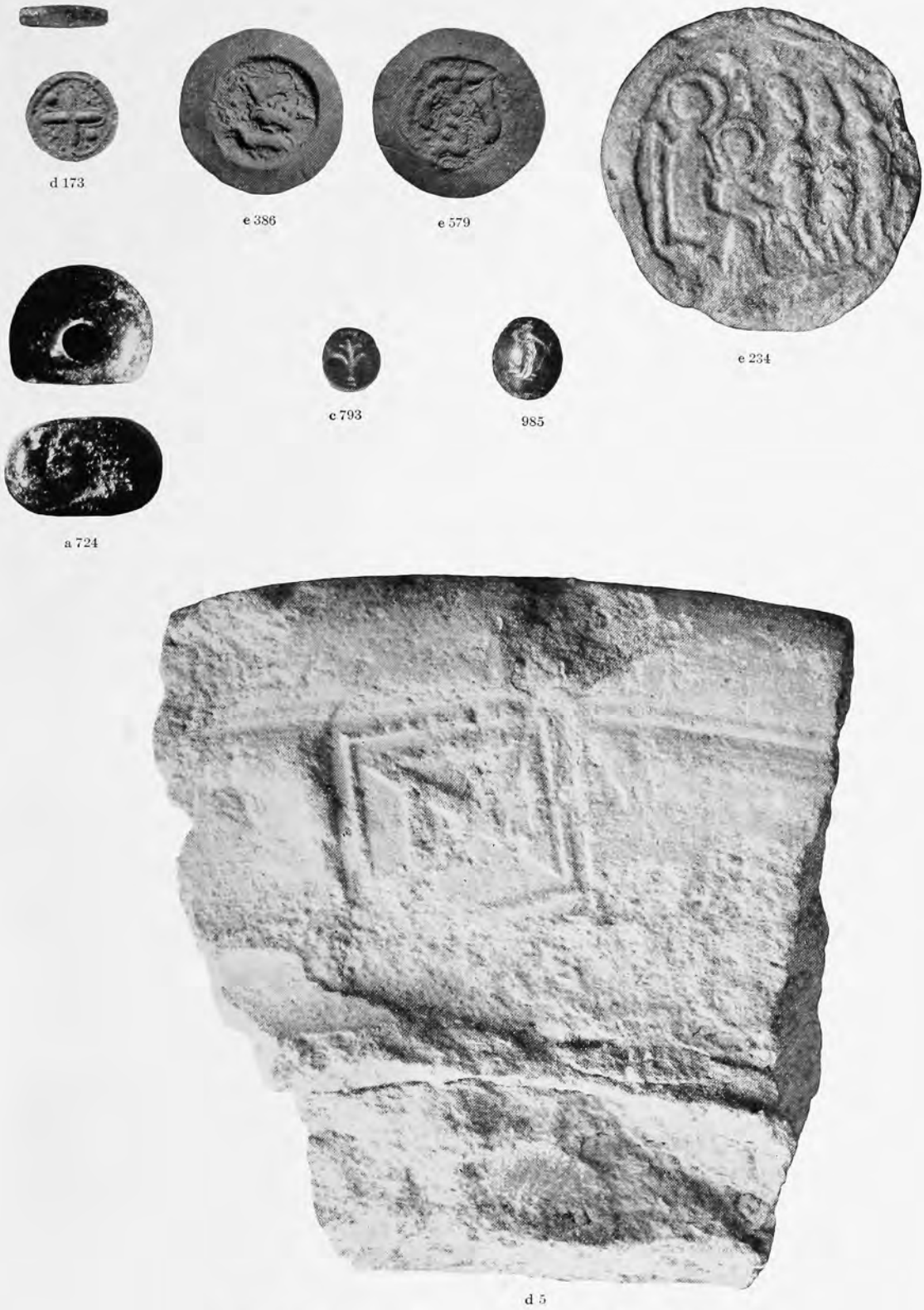
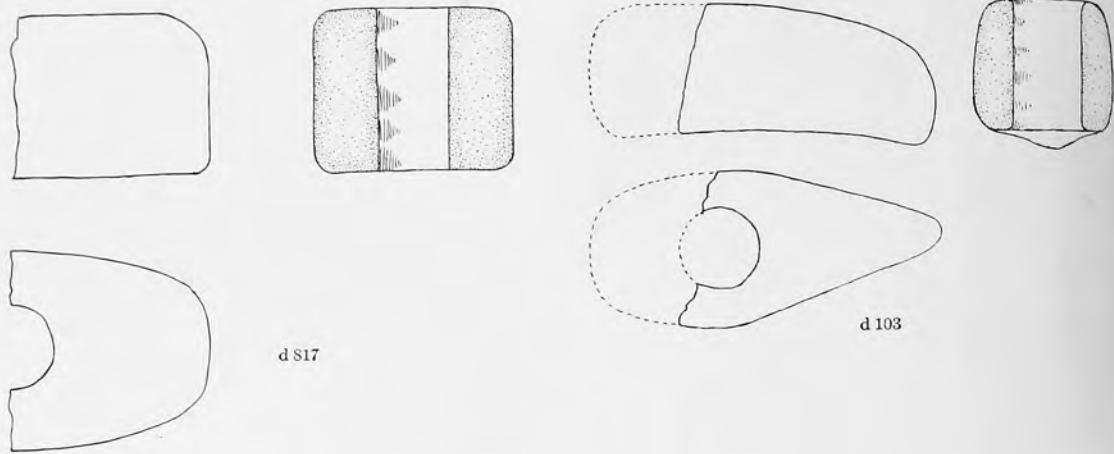


FIG. 191.—SEALS AND ANCIENT IMPRESSIONS. ACTUAL SIZE  
169





d 817

d 103



e 448

d 66



e 8



e 777



d 14



d 700



d 131

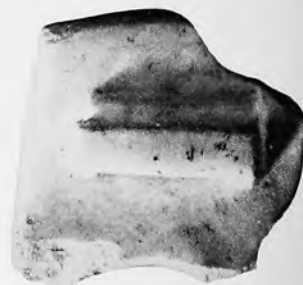


FIG. 192.—STONE TOOLS, WEAPONS, AND A LID. SCALE, 1:2

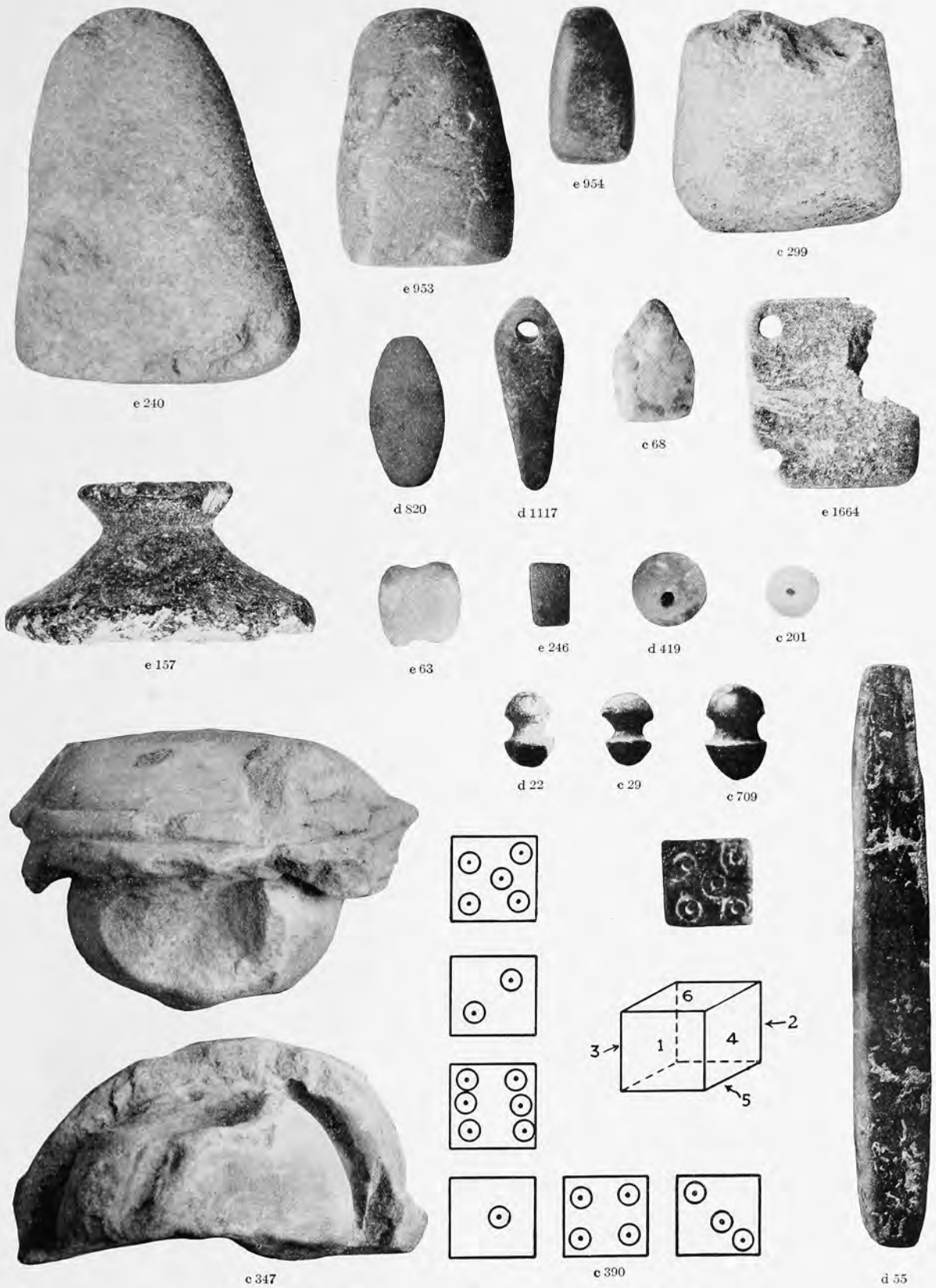


FIG. 193.—MISCELLANEOUS STONE OBJECTS. ACTUAL SIZE

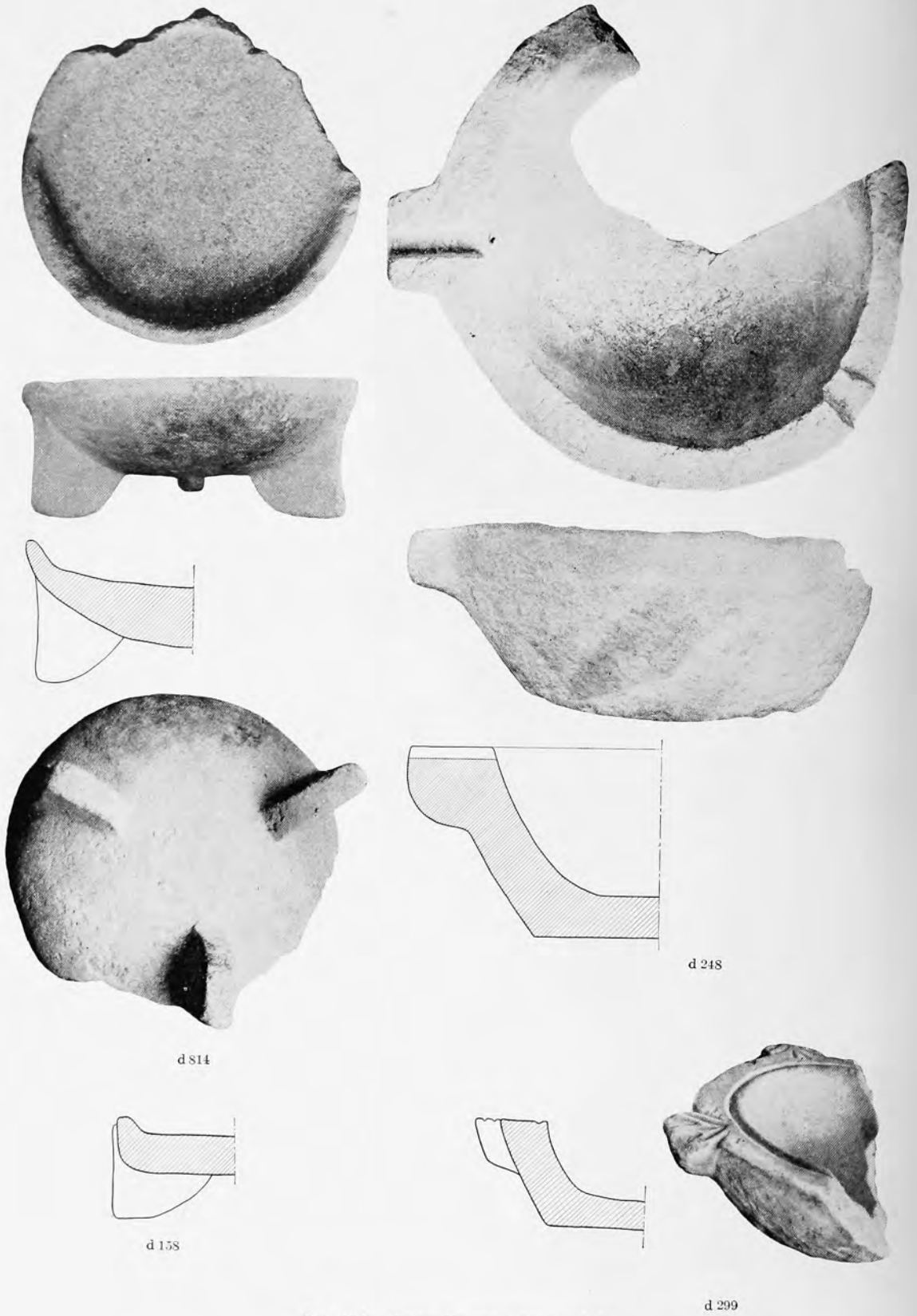


FIG. 194.—STONE VESSELS. SCALE, 1:5

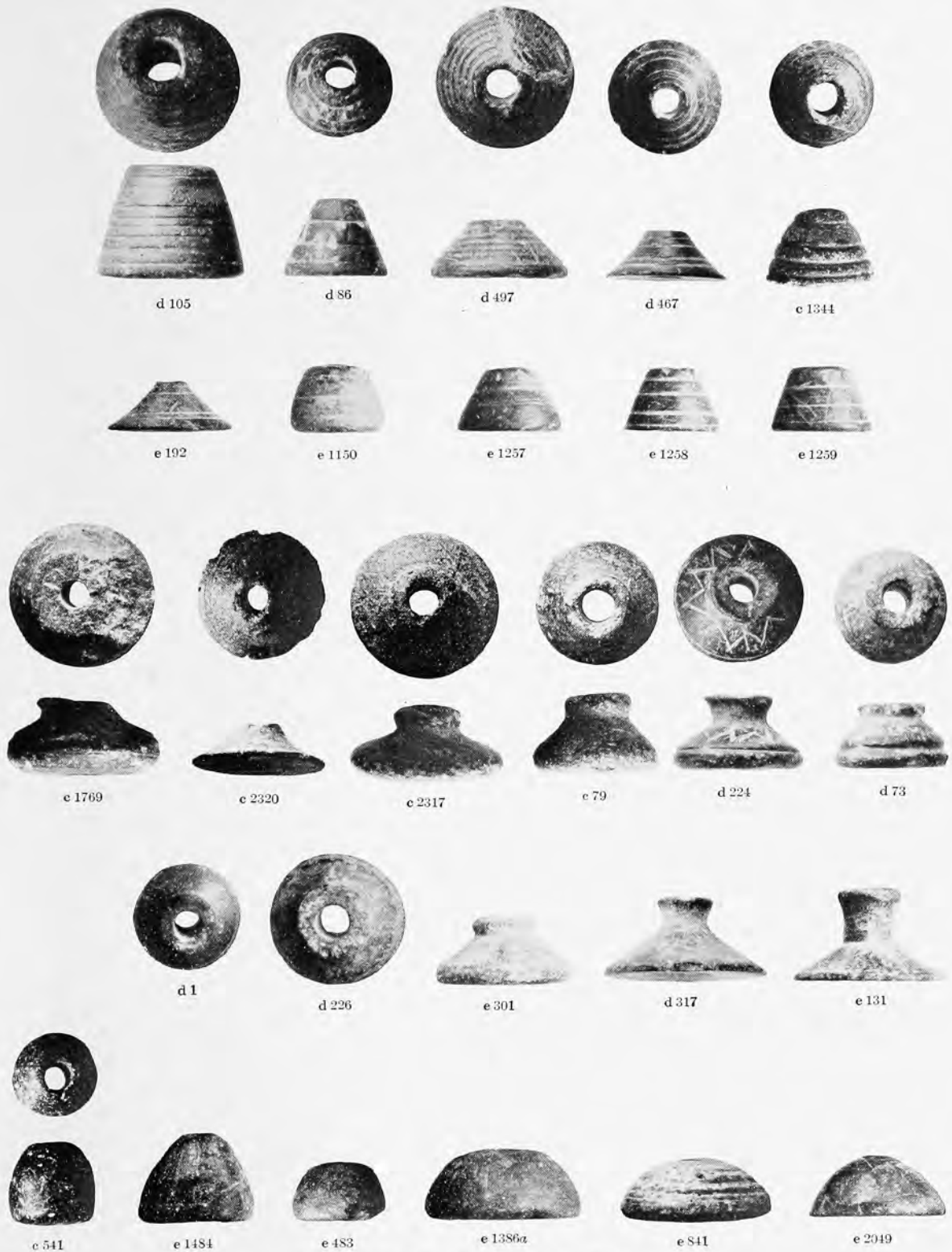


FIG. 195.—STONE "WHORLS." ACTUAL SIZE



numbered from one to six; No. c 1664 is a thin rectangular piece of slate with perforations; and No. c 157 is a serpentine lid. The nature of the marble object c 347 is problematical. Nos. e 63, e 246, d 820, c 201, and d 419 are beads; No. c 68 may have been an amulet; and No. d 1117 is a pendant. Small toggles, well known from previous periods, appeared here also (e.g., c 709, c 29, and d 22).

Simple hand mills and the more elaborate type which appeared for the first time in the preceding period (cf. Fig. 93), as well as mortars (e.g., Fig. 133), were common. Door sockets and simple hammerstones also appeared.

Stone seals are described on page 168.

## BONE OBJECTS

Figure 196 shows awls and pins of this period; no new forms can be distinguished. No. c 798 (Fig. 196) is a bone needle. Handles (e.g., Fig. 197, first row) also show no new forms. Knucklebones of sheep (e.g., d 1400, Fig. 196) or horses (e.g., e 556, Fig. 196) were numerous. Bone tubes with serrated edges (e.g., e 54, e 260, and e 359, Fig. 196) and spatulate objects (e.g., Fig. 197, last row) occurred frequently. No. c 370 (Fig. 197) seems to have been a comb. Slips (e.g., e 1234-35, e 1267, and e 2111, Fig. 197) were common, as were perforated plano-convex pieces (e.g., d 242 and e 1384, Fig. 198). Nos. d 33 and e 1997 (Fig. 198) are of ivory. The uses of some of the foregoing, as well as of the other objects illustrated, are uncertain.

## METAL OBJECTS

### BRONZE OR COPPER

Figures 199-200 show a representative collection of pins found in Roman-Byzantine layers. With the exception of Nos. e 1541, d 1278, e 318, c 2417, and d 314 (Fig. 200), no new forms appear. Pin c 1528 was found with skeleton c X17 (Fig. 167). Needles of the two types known from previous periods (cf. p. 110) were common. No. c 756 is an unusually large needle.

Fibulae of Types IV-VII (cf. table on p. 110) are attributed to this period (Fig. 201). Type IV has a flat, regular bow (e.g., c 1018). Type V, which is similar, has the bow ornamented by groups of three disks and by globes (e.g., d 1473). Fibulae of Type VI have sharply bent bows (e.g., e 776). Miscellaneous forms are included in "Type VII": No. d 505 is a plate with a pin attached; No. e 187 is a fragment of a large fibula with a flat bow; and No. d 908 seems to be a fragment of a fibula bow.

Other bronze or copper objects are shown in Figures 202-3. No. c 157 (Fig. 202) is a small pendant or ornament in the shape of a flat crescent; No. e 1223 is a fishhook; No. e 2 may have been a ferrule, and No. c 1335 is similar in shape but much larger. Nos. d 191 and d 211 are parts of locks. No. e 780 is a foot of a vessel. The other objects in Figure 202 are rings. No. c 2163 (Fig. 203) is a point with a socket. No. e 492 is a chisel. No. c 67 is a pair of tweezers, and No. d 2437 is a fragment of a very large pair. Nos. e 269, e 154, c 2550, and c 34 are small spoons. No. e 299 is the beam of a balance, No. c 1449 an arrowhead, and No. e 1930 an object with two points, one of which is bent. In 1927 a handle of a bronze or copper vessel was found (1127);<sup>24</sup> it is in the shape of an acanthus leaf rising from a grape leaf perforated for attachment and bearing the face of a satyr.

Bronze or copper figurines and seals are described on pages 166 and 168.

<sup>24</sup> OIP VII 98.

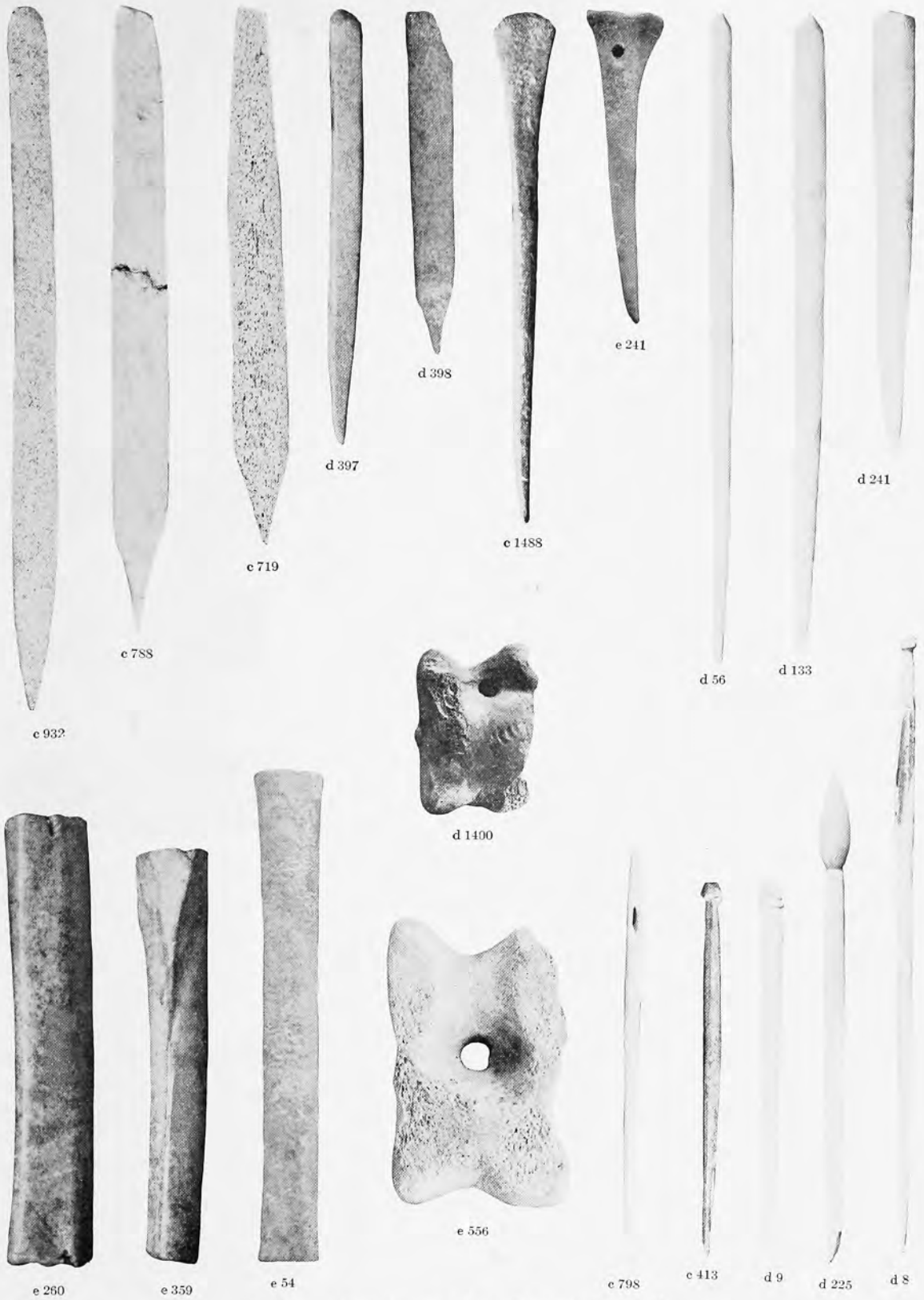


FIG. 196.—MISCELLANEOUS BONE OBJECTS. ACTUAL SIZE

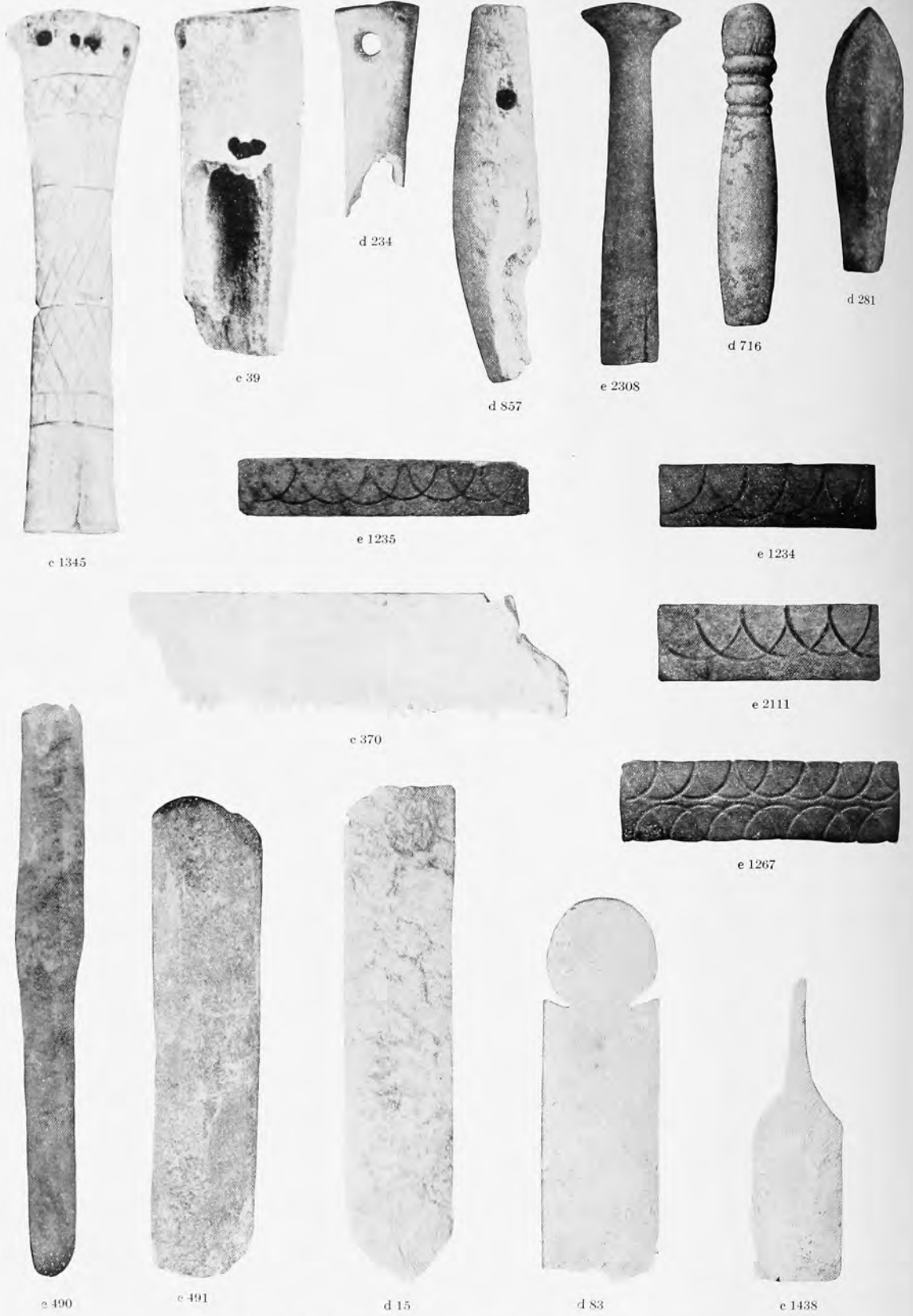


FIG. 197.—MISCELLANEOUS BONE OBJECTS. ACTUAL SIZE



FIG. 198.—MISCELLANEOUS BONE OBJECTS. ACTUAL SIZE





FIG. 199.—BRONZE OR COPPER PINS. ACTUAL SIZE

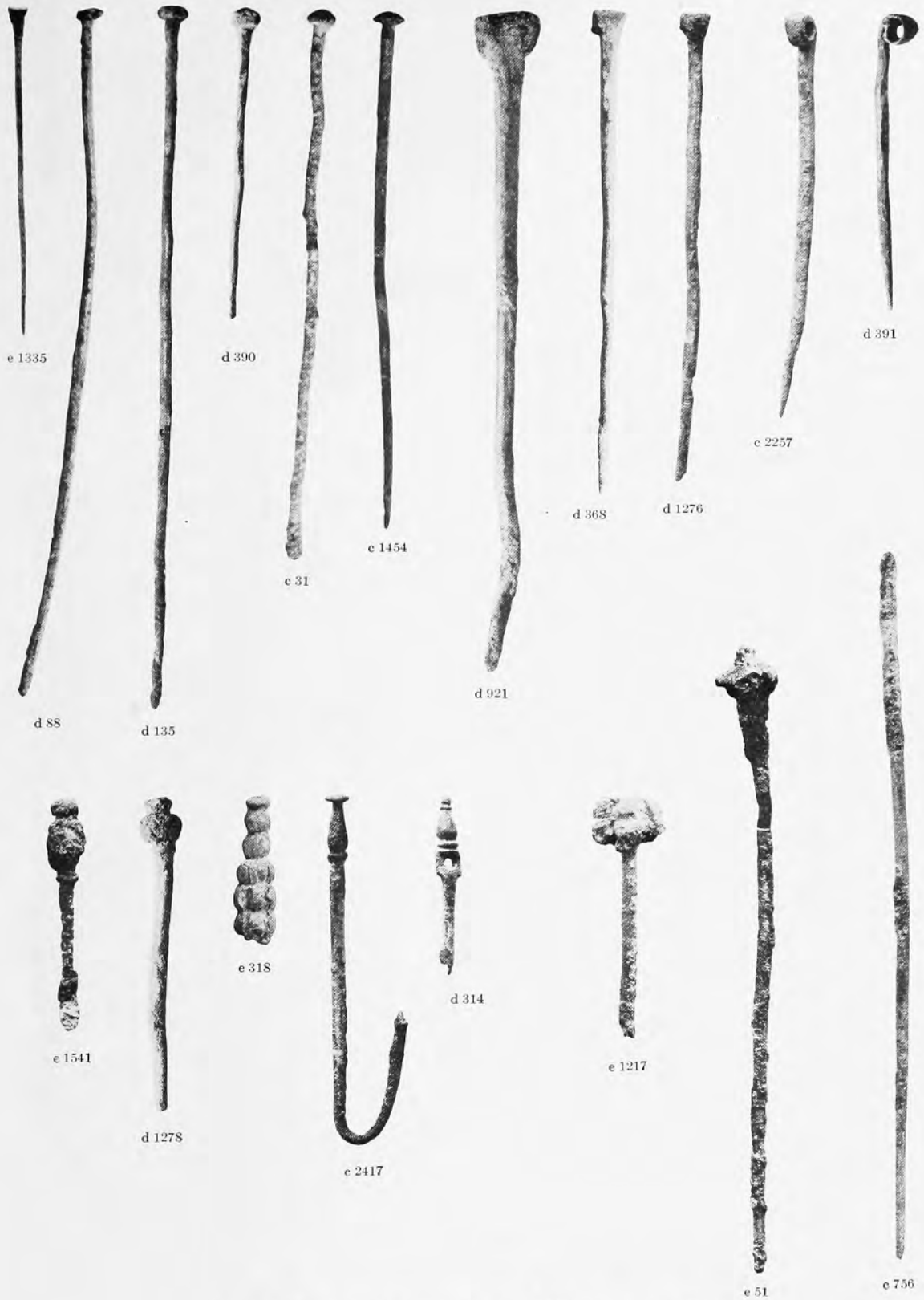


FIG. 200.—BRONZE OR COPPER PINS AND A NEEDLE. ACTUAL SIZE

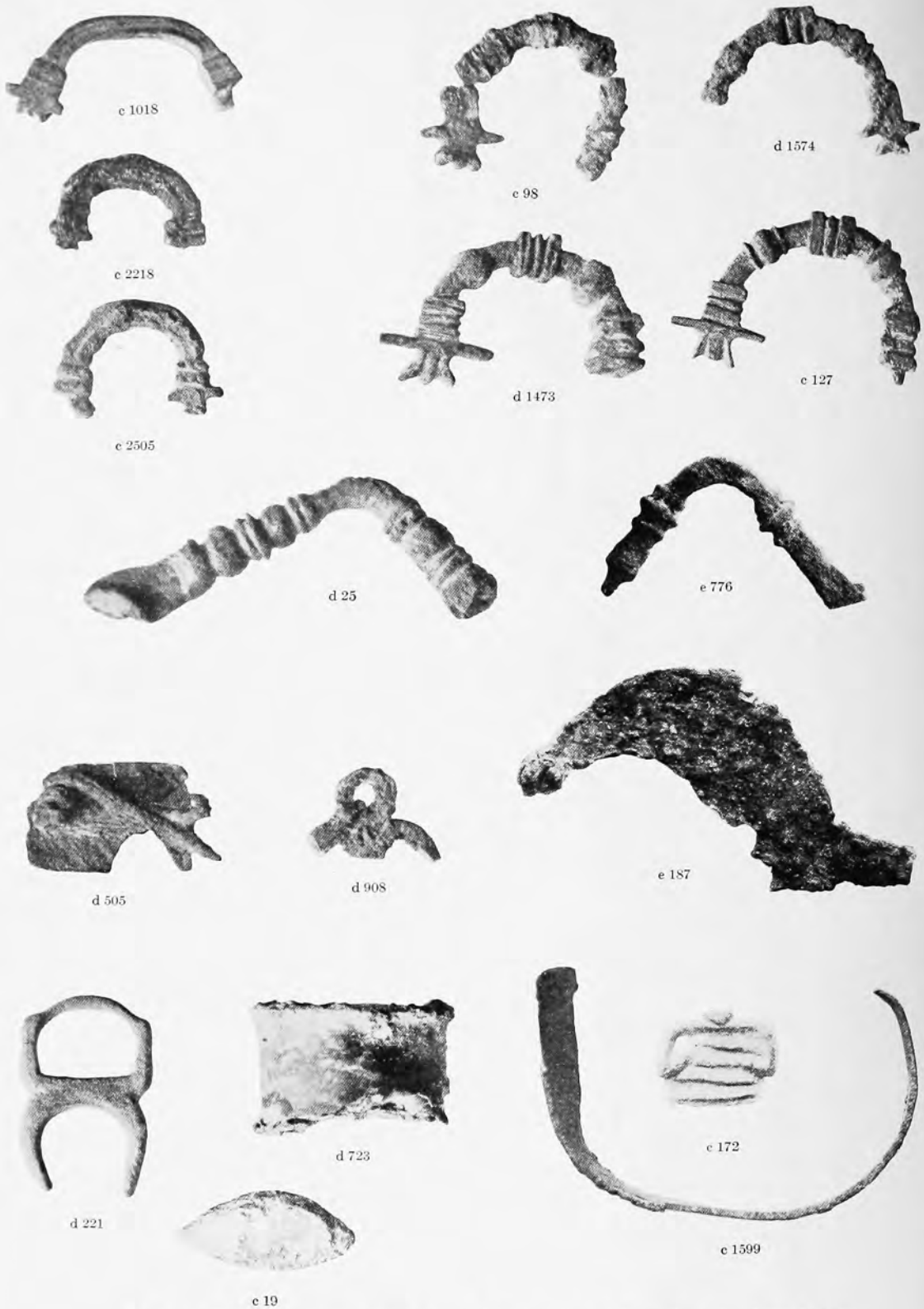


FIG. 201.—BRONZE OR COPPER FIBULAE AND MISCELLANEOUS LEAD OBJECTS. ACTUAL SIZE

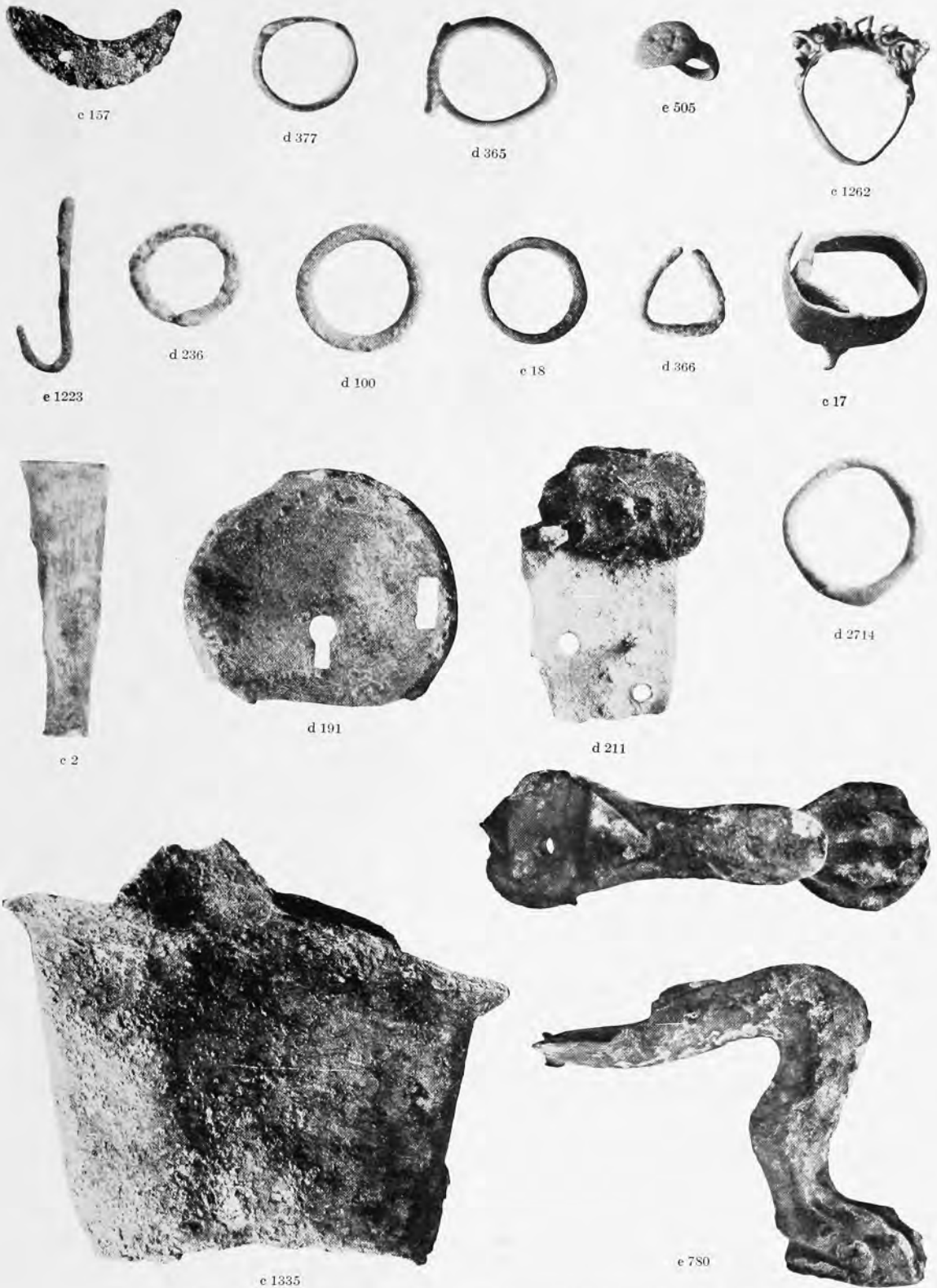


FIG. 202.—MISCELLANEOUS BRONZE OR COPPER OBJECTS. ACTUAL SIZE



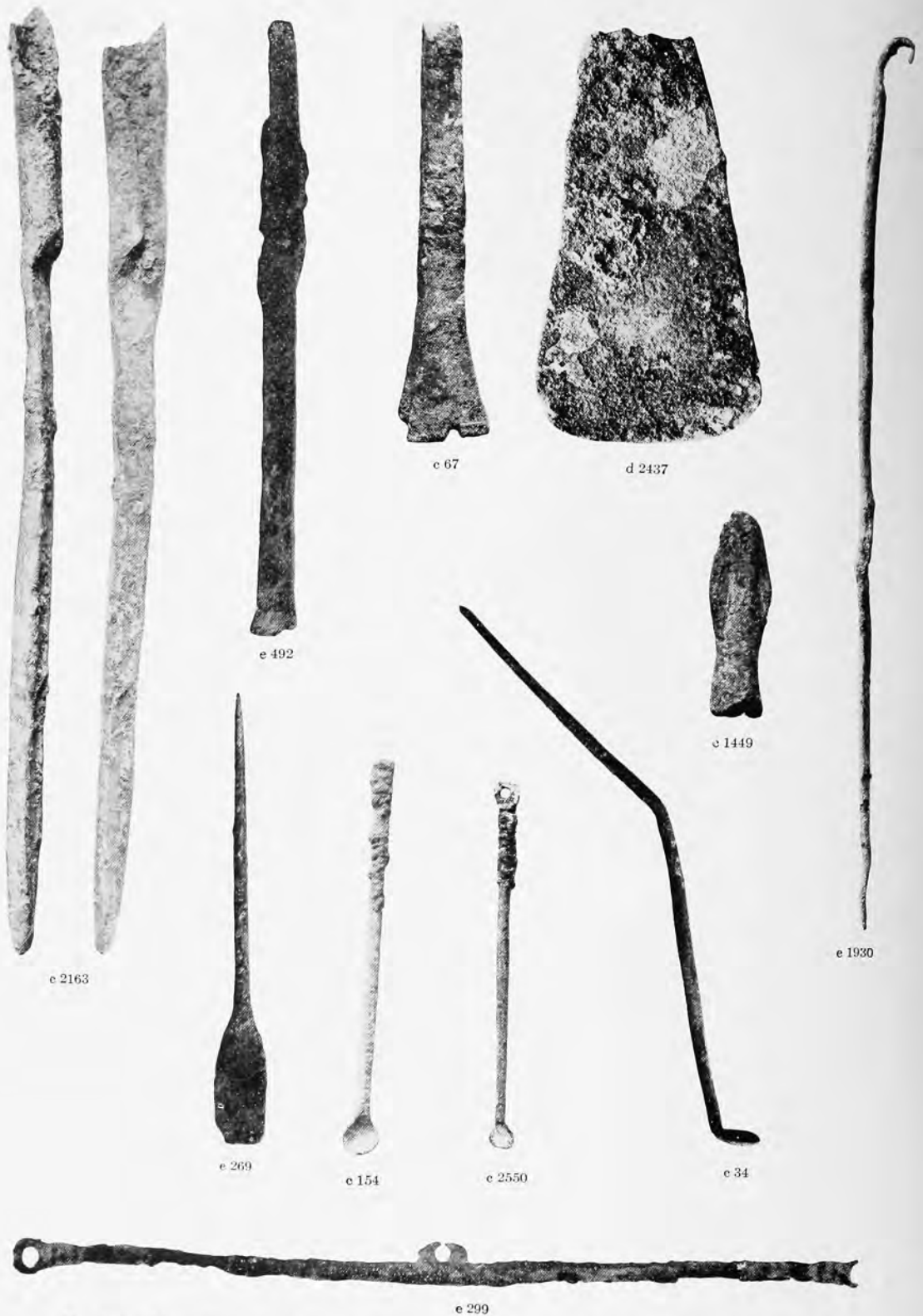


FIG. 203.—MISCELLANEOUS BRONZE OR COPPER OBJECTS. ACTUAL SIZE (EXCEPT e 299, SHOWN 3:5)

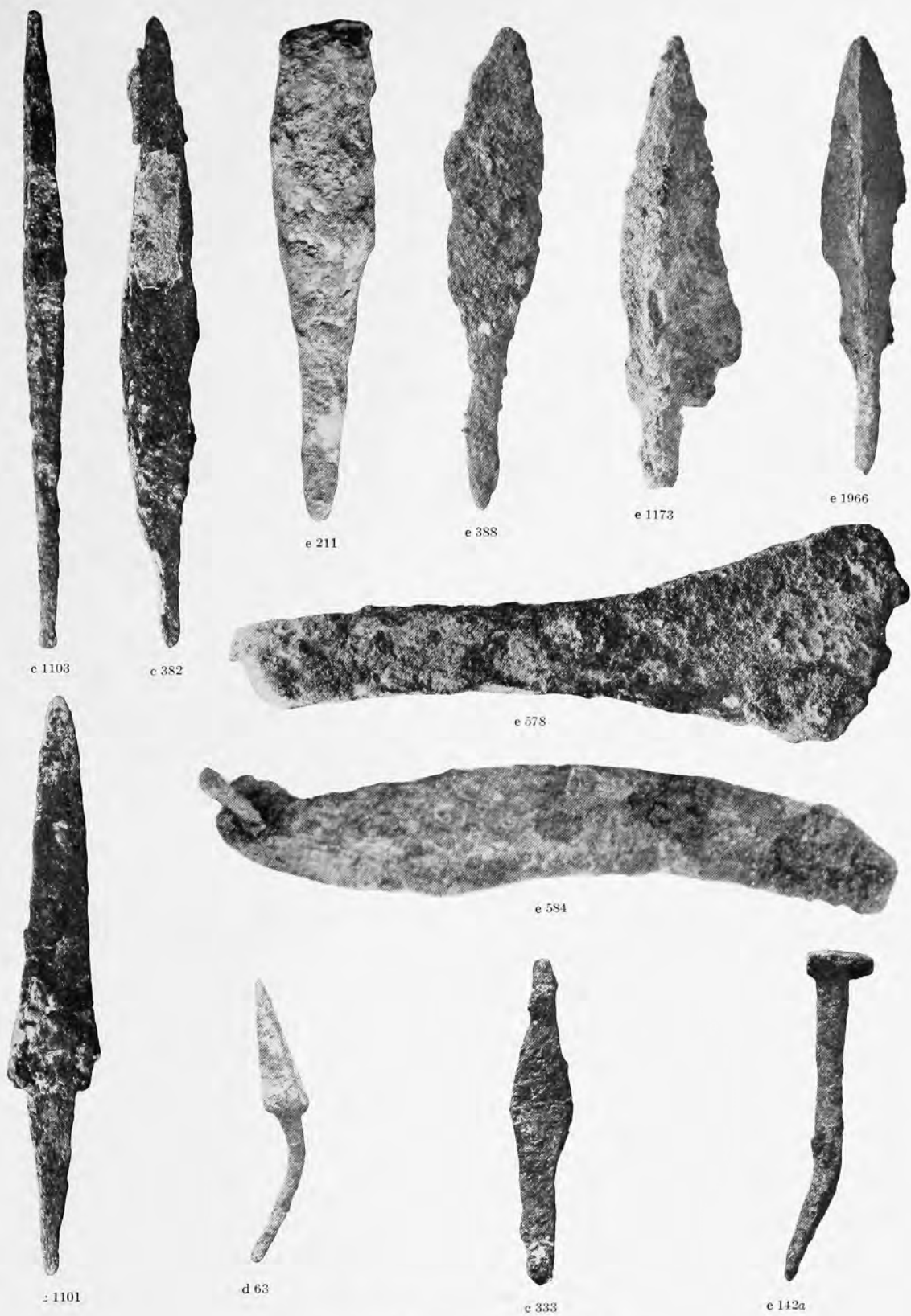


FIG. 204.—IRON OBJECTS. ACTUAL SIZE

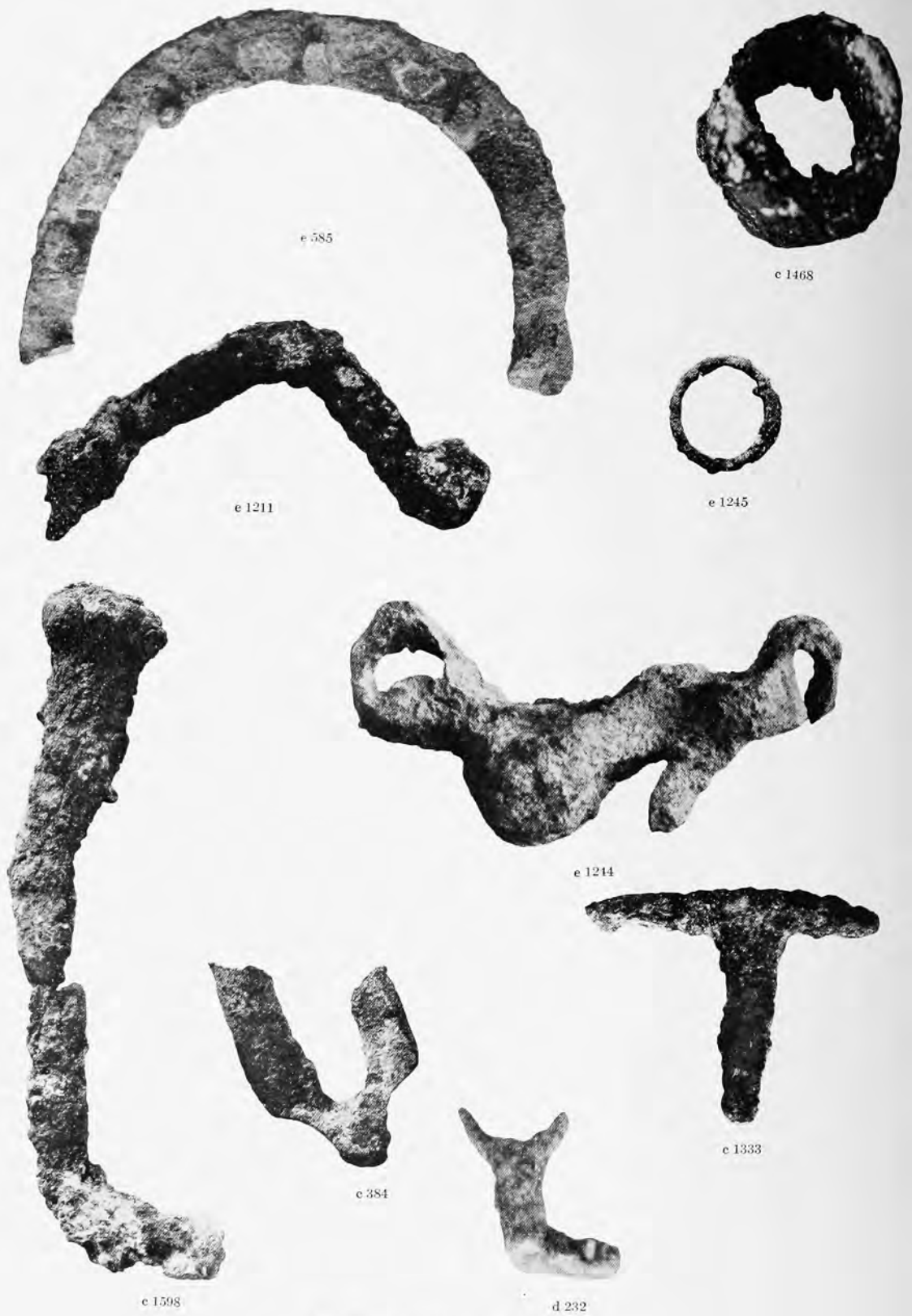
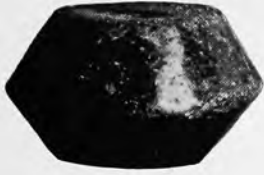
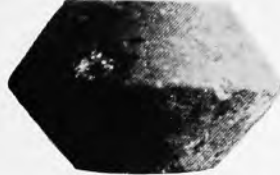


FIG. 205.—IRON OBJECTS. ACTUAL SIZE



e 1883



e 1825



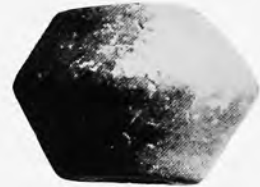
e 1826



e 1089



e 1240a



e 1330



e 2371



e 21



e 1792

FIG. 206.—POTTERY "WHORLS" AND AN ANIMAL HEAD(?). ACTUAL SIZE





e 2295



c 1337



d 4

FIG. 207.—POTTERY LIDS. SCALE, 2:5

## IRON

Iron had now become by far the most common metal used. In Figure 204 are shown the typical lance- and arrowheads. No. e 578 (Fig. 204) is an ax blade, and No. e 584 is a blade with a ring for attachment. No. e 142a is a nail. In Figure 205 are shown two large fibula bows (e 585 and e 1211), a snaffle (e 1244), two rings (c 1468 and e 1245), and a fragment of a key (d 232). No. c 1598 seems to have been a large nail or a linchpin. No. c 1333 is a T-shaped object, perhaps a small hammer. The use of No. c 384 is problematical. An iron blade (d 870) was associated with skeleton d X13.

## LEAD

Except for mending-ties, which appeared frequently, very few lead objects were found (Fig. 201). No. c 19 may have been a missile for a sling, No. d 723 the neck of a small vessel, and No. c 172 an ornament. The uses of Nos. d 221 and c 1599 are problematical.

## GOLD AND SILVER

Coins (cf. chap. vi) were the only gold and silver objects found, except for a fragment of silver which may have been an earring (d 252 with skeleton d X7, Fig. 172).

## MINOR OBJECTS OF POTTERY OR CLAY

The "whorls" of this period are mostly of truncated biconical form, but some with oval and some with semicircular cross-section also appear (Fig. 206). Loom weights resemble those of previous periods.<sup>25</sup> Nos. e 2295, with unintelligible incised signs, c 1337, and d 4 are lids (Fig. 207). No. e 1792 (Fig. 206) may be a rough representation of an animal; perhaps it was part of a vessel or of some other object. No. c 534 (Fig. 209) is perhaps a lamp. A pottery figurine and a pottery mold are described on page 166.

LAMPS<sup>26</sup>

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No. c 512 (Fig. 208). The fine, round, relief lamps which were characteristic of the 2d century after Christ deteriorated rapidly in the following century. One trend was toward accenting the rotundity of the form at the expense of other features; and this, combined with the hasty and careless workmanship of the age, caused the nozzle gradually to be absorbed within the periphery of the body and eventually led to the formation of a quite round lamp.<sup>27</sup> No. c 512 represents an intermediate step in this process.

Nos. c 1499 and d 2533 (Fig. 208). One form of Greek lamp of the 4th century B.C. had a flat top, a rather large filling-hole, and a groove around the top at its very edge.<sup>28</sup> Although it gave rise to several distinct types during the Hellenistic age, some lamps preserved the essential elements of the original shape nearly unchanged. The durable bronze lamps were the chief agents in carrying it on; in them the very edge of the top, originally set off by the groove, was developed into a little ridge, and various forms of handle and nozzle decoration were

<sup>25</sup> Cf. *OIP* XXIX, Fig. 507.

<sup>26</sup> A lamp (b 1739) found with a Roman hoard in 1929 is described in *OIP* XX 97.

<sup>27</sup> *Römische Quartalschrift für christliche Altertumskunde* XI (1897) Pl. III 2, 4, 7, 10, etc. (from Syracuse); Oscar Broneer, *Corinth. Results of Excavations Conducted by the American School of Classical Studies at Athens*. Vol. IV, Part II. *Terracotta Lamps* (Cambridge, Mass., 1930) Pl. XXIII 1501-7; F. O. Waagé in George W. Elderkin, ed., *Antioch-on-the-Orontes. I. The Excavations of 1932* (Princeton, 1934) pp. 63-65 and Pl. X, first two rows.

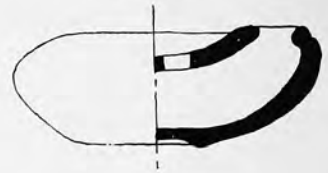
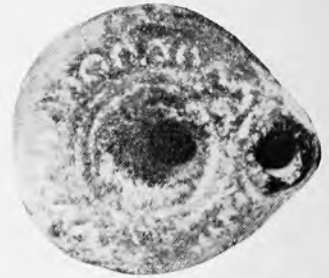
<sup>28</sup> Broneer, *op. cit.* p. 45, Type VII.



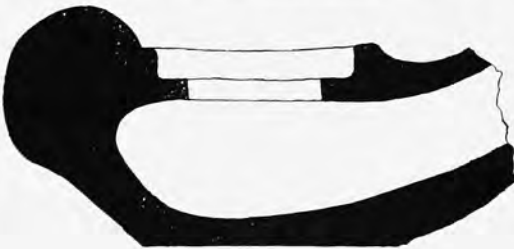
d 3



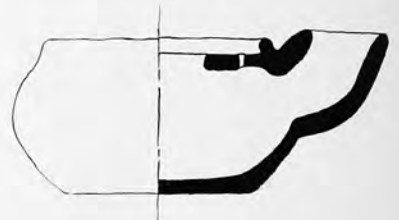
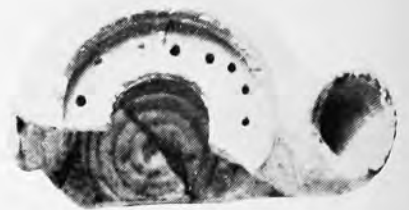
d 60



e 512

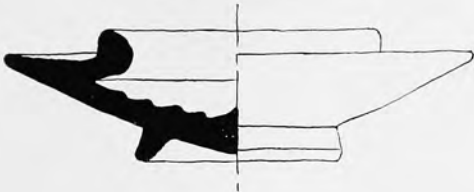
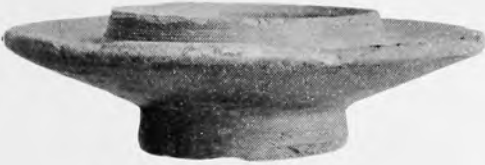


d 2533

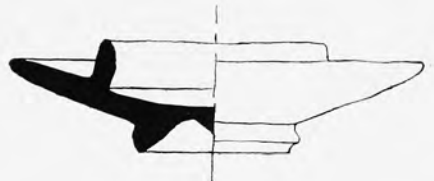


e 1499

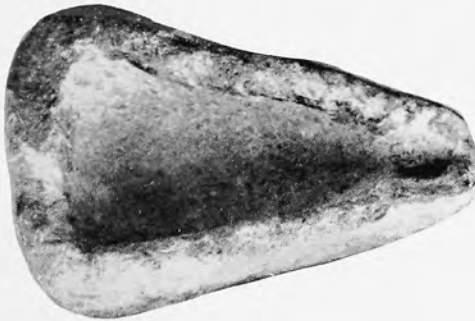
FIG. 208.—POTTERY LAMPS. SCALE, 2:3



d 10



d 239



c 534

FIG. 209.—POTTERY LAMPS. SCALE, 2:3



adopted.<sup>29</sup> These two lamps from Alishar are late Roman and early Byzantine specimens of the type. No. c 1499 is of course the earlier; the slight elevation of the discus around the filling-hole made it necessary to punch holes in it, so that all spilled oil would drain into the interior.<sup>30</sup>

No. 3163.<sup>31</sup> This belongs to the type called "African" because of its numerousness there, and it is important as being one of the few which have been reported from Asia Minor. Specimens are found throughout the Mediterranean world but are most common in North Africa, Sicily, and Italy. In material, technique, and decoration they are closely related to Late B ware and must have shared a home with it somewhere along the African coast, probably in Egypt, whence both lamps and pottery were exported far and wide. The only definite evidence for the date of the lamps is the fact that they do not appear in Athens before the 5th century of our era<sup>32</sup> and that one example in Rome has impressions of a coin of Theodosius II (408-450) on the rim.<sup>33</sup> Attempts made by R. Delbrueck in his *Spätantike Kaiserporträts* to identify the heads on some of the lamps with those of 4th century emperors and empresses are unconvincing, and there is nothing to prove that the typical form, as represented in No. 3163, had developed before the 5th century. These were the last clay lamps of good quality which antiquity produced, and their significance is increased by the frequent occurrence of Christian symbols and scenes on the discus.<sup>34</sup>

Nos. d 3 and d 60 (Fig. 208). The "African" type enjoyed a vogue and a range of exportation equaled by few other kinds of ancient lamps; copies of it and local shapes influenced by it form a large proportion of the lamps made after the 4th century. No. d 60 is a modified copy which still preserves plainly the open discus and closed rim; the side, however, is beveled off flat, and a profile drawing would probably show that it made a sharp angle with the lower half of the body. No. d 3 does not necessarily reveal any influence of the "African" type, since a type of rimless lamp (with the entire top surrounded by a ridge and not merely the discus as in Nos. c 1499 and d 2533) is not infrequent in Christian bronze lamps.<sup>35</sup>

Nos. d 10 and d 239 (Fig. 209). These may have been lamps with free (floating) wicks which the ancient Greek world abandoned during the 5th century B.C. in favor of the fixed wick. Accordingly Classical antiquities offer no parallels.

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## FRIT AND GLASS OBJECTS

Except for small discoid beads of light bluish green frit (e.g., c 22 and e 262, Fig. 210), of the type found from the Chalcolithic period on, and a small cylindrical frit bead with greenish blue glaze (d 844, not illustrated), no frit objects were found in Roman-Byzantine deposits.

Glass beads (Fig. 210) were fairly numerous. Two small eye beads were found: No. d 23 is black with three red, black, and yellowish eyes; and No. e 209 is black with three white eyes. Large truncated biconical beads with thick inlay in another color seem to belong to this period. Nos. c 80 and c 1765 are black with yellow and green inlay; No. e 247 is black with white inlay. No. e 2050 (not illustrated) is a smaller bead with thick inlay. A black-and-white

<sup>29</sup> British Museum, *Catalogue of the Greek and Roman Lamps in the British Museum* by H. B. Walters (London, 1914) Pls. V 61, VI 70, VII 59, etc.

<sup>30</sup> Cf. similar holes on a lamp of the same generic type of the 3d century B.C. in Broneer, *op. cit.* p. 16, Fig. 6, No. 1.

<sup>31</sup> *OIP* VI 248 and Fig. 212.

<sup>32</sup> Karl Kübler in *Athenische Mitteilungen* LVI (1931) 81.

<sup>33</sup> Edmond Le Blant in *École Française de Rome, Mélanges d'archéologie et d'histoire* VI (1886) 230 and Pl. JI 1 (the reverse inscription is misread).

<sup>34</sup> A brief account of these lamps is given by Broneer, *op. cit.* pp. 118-19.

<sup>35</sup> *Römische Quartalschrift* IX (1895) Pls. V-VI, No. B.

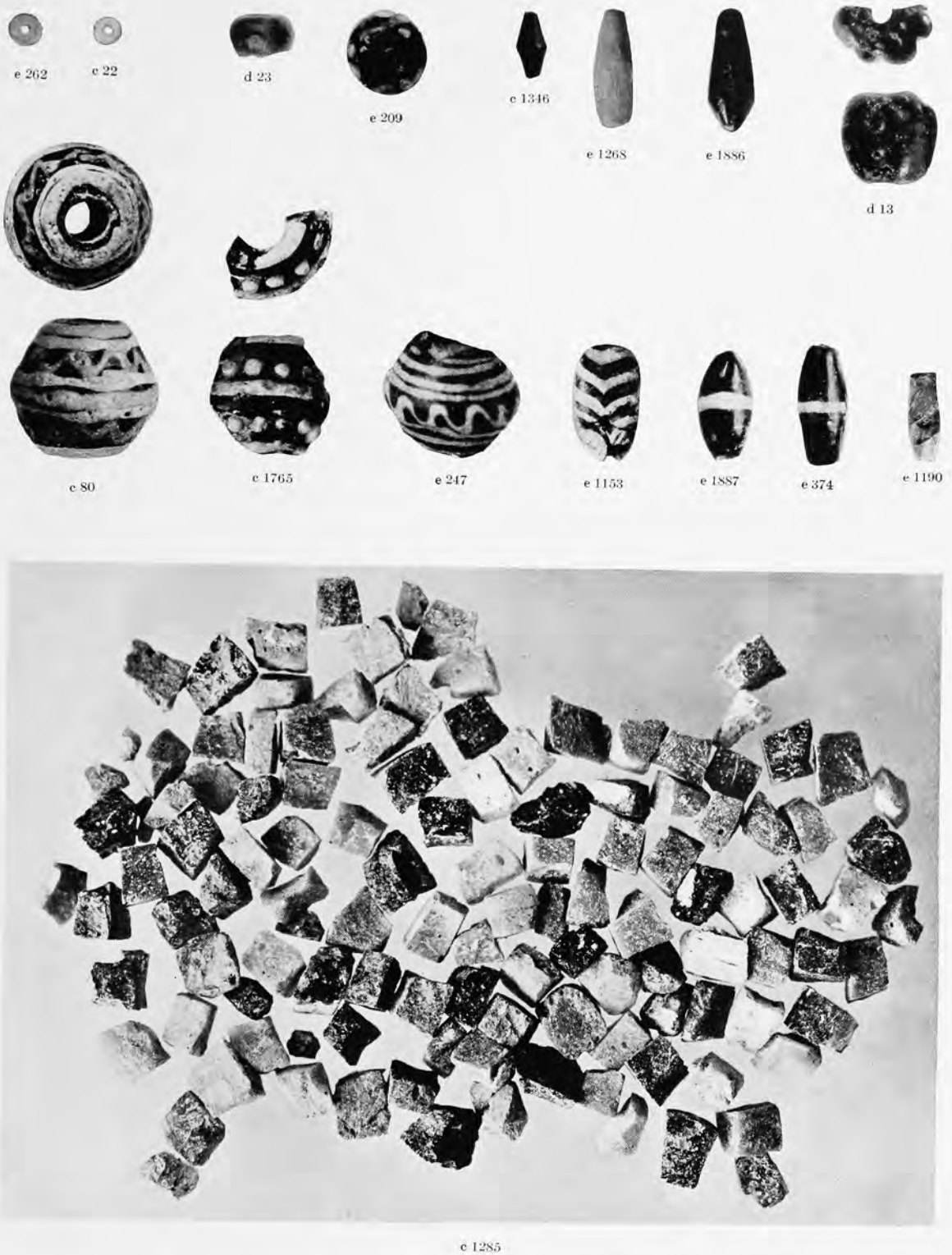


FIG. 210.—FRIT AND GLASS BEADS AND GLASS MOSAIC PIECES. ACTUAL SIZE

striped bead shaped like a scaraboid (e 1153) came from a Roman-Byzantine refuse deposit. Barrel-shaped beads of black glass with a single white stripe around the center appeared in this period (e.g., e 374 and e 1887).

Only three elongated beads of plain ultramarine glass (e.g., e 1190; cf. c 906, Fig. 120) were found in Roman-Byzantine layers. Two small globular beads of ultramarine glass (cf. d 96, Fig. 120) were in deposits which might belong to this period. No. d 13 is a fragmentary scalloped bead of rich dark blue glass.

Small, more or less globular beads in various colors were found again in this period. Of the five pieces, two were turquoise, one light brown, one yellow, and one discolored. It is possible that the turquoise beads are modern, as the workmen wore such beads on their garments. One very small ring-shaped bead of light blue glass was found in a Roman-Byzantine deposit.

Nos. c 1346 and e 1268, elongated biconical beads, are of reddish glass. No. e 1886 is a drop-shaped bead of dark red glass.

Glass mosaic pieces (gold, light green, blue, white, and dark red; e.g., the group c 1285, Fig. 210) were numerous in one room of a building in P-Q 28-29.

A Byzantine weight (c 1600, found in CC 24) for a gold solidus may be dated to the 5th/6th century. It is of deep ruby red glass and has a monogram in relief on a deeply impressed round stamp. Its weight is 4.38 grams.<sup>36</sup>

Other glass objects of this period are described by Miss Christine Alexander on pages 340-44. For glass figurines and a frit seal see pages 166 and 168.

<sup>36</sup> Similar pieces, but with the monogram in slightly sharper detail, are described by Ugo Monneret de Villard, "Exagia bizantini in vetro," *Rivista italiana di numismatica e scienze affini* XXXV=2. ser. V (1922) 104, No. 30. I am grateful to Mr. Edward T. Newell, president of the American Numismatic Society, for this reference and for the description of the weight.

## III

## THE TURKISH PERIOD

After the Byzantine rule had come to an end following the turbulent times of the Sasanian and Arab invasions, the settlement on the Alişar mound ceased to be of any importance; in fact, for a long time the mound seems to have been completely deserted (cf. pp. 317–18). Of the period of the Seljuk domination in Asia Minor no building remains have yet been found at Alişar, nor are any likely to be found there; for the Seljuk and Dānishmand rulers seem never to have actually controlled this particular region. Although it was surrounded by prominent centers such as Amasya, Tokat, Sivas, Kayseri, Kırşehir, and Ankara, this region was the roaming ground of nomads who were more or less independent and who found here ideal grazing grounds with ample water for their livestock. The ancient site of Alişar with its near-by springs and surrounding trees (Pl. II) became a resting-place for these nomad tribes. Since the important north-south trade route, which had surely been a predominant factor in the history of this site, had been shifted eastward by the Seljuks for greater safety,<sup>1</sup> there was no longer an attraction for a permanent settlement here. A few sherds of typical Seljuk character were found in 1927 in Z 12 (e.g., Pl. VIII 1 and Fig. 227 1-2), and during the six seasons of excavation twenty-six coins of the Seljuk period and two Ayyūbid coins were found at various spots on the mound (Fig. 211; cf. p. 316). These coins were probably lost by nomads who had encamped here.

As a result of the Mongol invasion of A.D. 1243 Seljuk Anatolia came under the suzerainty of the Mongols, at first directly, later indirectly under the ilkhans of Persia. With the breaking up of the ilkhans' power, Anatolia gained its independence and broke up into a great number of emirates. The lack of central control was not favorable to the development of art or commerce. The gradual extension of the Osmanli power, which began late in the 14th century, was suddenly interrupted by the invasion of Timur, which led to a temporary destruction of the Osmanli state. But under Muhammet I (Çelebi, 1413–21) the Osmanli state was reconstituted, and toward the end of the 15th century the whole of Anatolia was under Osmanli rule and saw a return of a certain stability and prosperity.

Of presumably early Osmanli remains we uncovered parts of a few buildings of seminomadic character, probably belonging to winter quarters (*kışlak*), and part of a burial ground (Fig. 212). In 1927 we unearthed some one-room structures (in DD 9–10, EE 12, and DD 13), each with some additions.<sup>1a</sup> In 1932 a few more walls in DD–EE 13 were freed (Fig. 213).

The best preserved building was the one in DD 9–10. It was approximately rectangular, with an entrance on the west side. On the north side appeared a niche for a fireplace (Fig. 214), before which lay a fragment of a Byzantine tombstone (Fig. 215). The southern part of the floor was paved. The walls were three or four courses high (about .90) but only one stone wide; the inner surface (that seen from the room) was smooth, while the outer surface was ragged. Sometimes single upright stone slabs appeared (cf. Fig. 217). No binding material except mud could be recognized. These remains were very fragile, and it seems impossible that they represented the walls of the building, much less its foundations. Either earth was piled against these stones or the room was dug out to some extent and then lined with them. Since such buildings were found on the same level with foundations of what must now be considered Roman-Byzantine buildings (cf. Fig. 121), the latter theory is the more probable. In

<sup>1</sup> Cf. *OIC* No. 14, pp. 99f.

<sup>1a</sup> *OIP* VI 158–62 and 129–30.



EE 12 and DD 13 walls of the Roman-Byzantine period seem to have been cut into, and their stones were probably re-used for lining the new rooms. In EE 13 parts of two Roman-Byzantine walls seem to have been re-used. Further evidence for the assumption that such rooms were cut into the earth may be seen in the short wall extending outward from the north side of the entrance to the building in DD 10. This wall may have lined a ramp leading down to

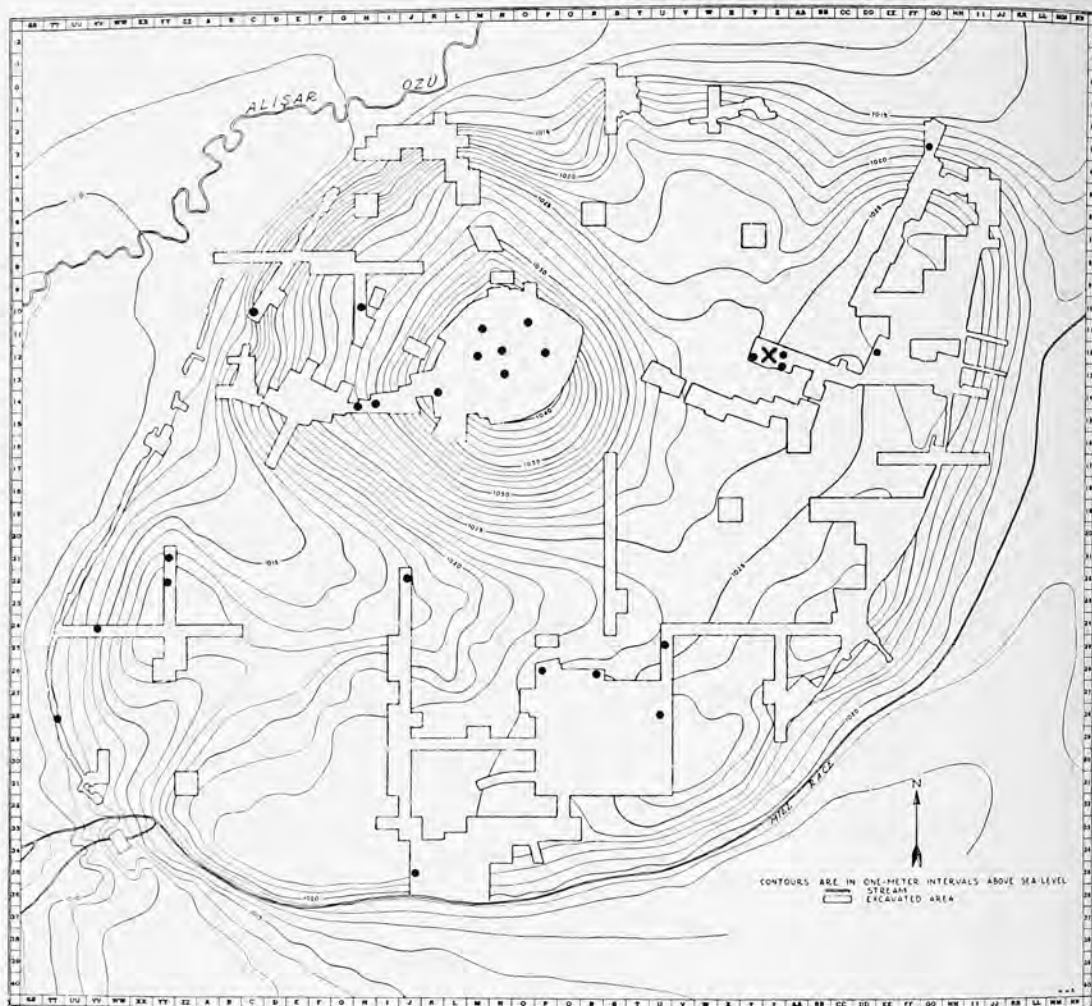


FIG. 211.—PLAN SHOWING FIND-SPOTS OF SELJUK AND AYYÜBID COINS (DOTS) AND OF POTTERY (X). SCALE, ABOUT 3:10,000

the entrance. The fireplace niche on the north side of this room is of the construction still today typical for fireplaces in Anatolia. A second fireplace was found near the entrance. One of the fireplaces in DD 13 showed a floor covered in mosaic fashion with pottery slabs (Fig. 216).<sup>2</sup>

Of the superstructures of these buildings nothing remains. Probably wooden posts were used to support the roofs, for part of such a post standing on a flat stone was found just outside the northwest corner of the structure in DD 9-10.<sup>3</sup> The roofs most probably consisted of wooden beams with earth covering (Fig. 217). It is not surprising that nothing remains of

<sup>2</sup> See *OIP* VI 131 and Figs. 118-19.

<sup>3</sup> See *OIP* VI 160 and Fig. 140.

the roofs, for wood is very scarce in this region, and when a building was abandoned the beams would be carried off to be re-used.

Parts of similar buildings were found in R 26-27 and S 27 (Figs. 218-19) and in J 24 and J 22 (Figs. 220-22). Many examples of such a type (*ahır*) may be found today in Anatolia, built by villagers either on the outskirts of their village or as independent units farther away.



FIG. 212.—PLAN OF ARCHITECTURAL REMAINS OF LEVEL 1 T, SHOWING SURFACE INDICATIONS OF SETTLEMENT (SHADED) AND BURIAL GROUND (⛦) AND FIND-SPOT OF AN OSMANLI COIN (•), SCALE, ABOUT 3:10,000

There the sheep are kept during the winter, and with them stays the shepherd, often with his whole family. Such structures are often used during one winter only and then abandoned—a custom which is apparently an atavism from the seminomadic period.

Other building remains of this period were found in W-Y 14-15 and in Z 12. In W-Y 14-15 three nearly parallel walls appeared just beneath the surface (Fig. 223). Each consisted of two rows of stones .35 apart, the interval being filled with ordinary soil;<sup>4</sup> the whole thickness of each wall was about .85. In some instances the stones were laid in herringbone fashion (Fig. 224). Associated with these walls was a peculiar structure in Y 14, a roughly oval foundation

<sup>4</sup> See OIP VI 149-53.

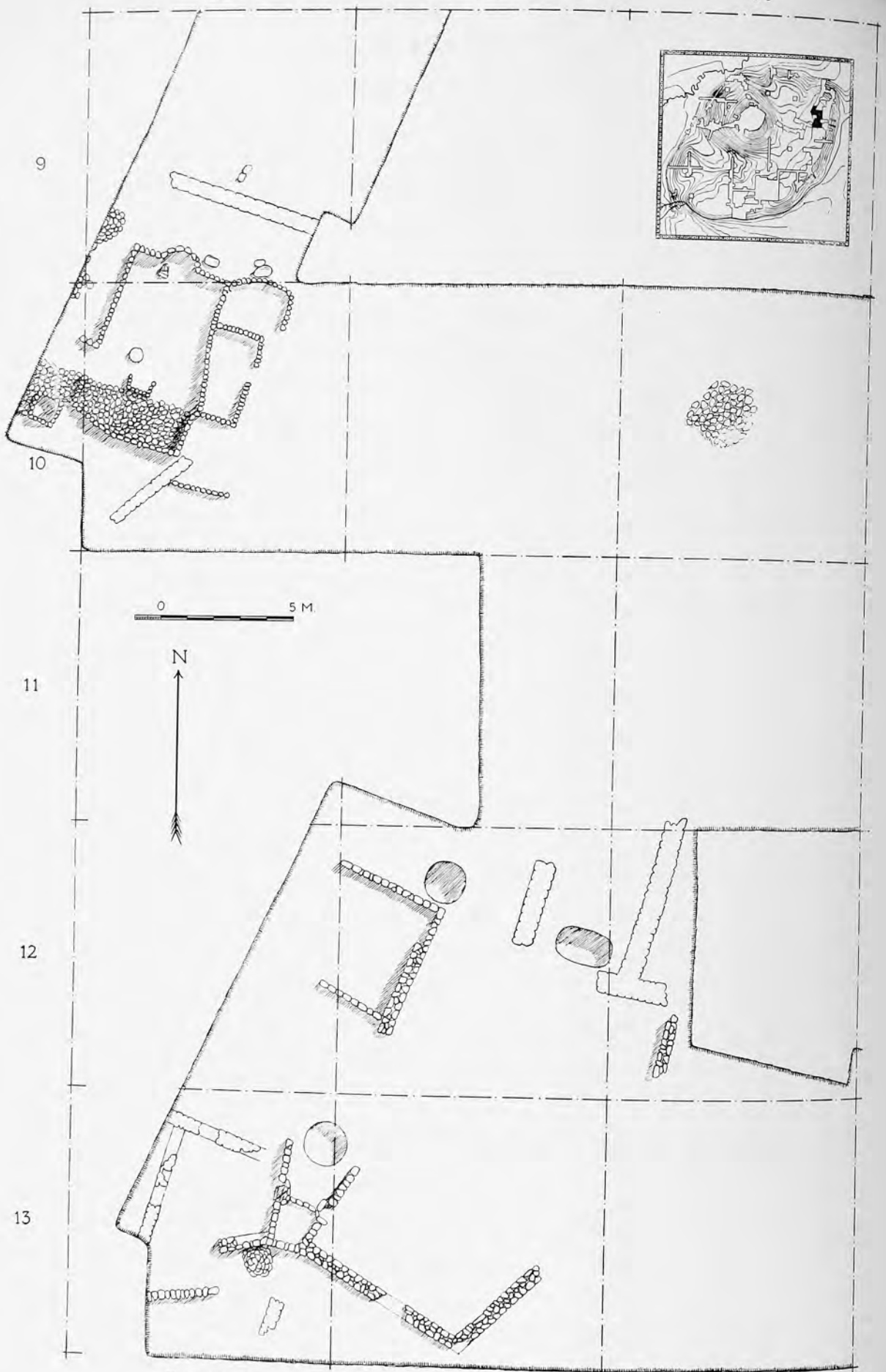


FIG. 213.—ARCHITECTURAL REMAINS OF LEVEL 1 T IN DD-FF 9-13. SCALE, 1:200



FIG. 214.—TURKISH HOUSE WITH FIREPLACE IN DD 9-10. IN MIDDLE DISTANCE A ROMAN-BYZANTINE BUILDING



FIG. 215.—FRAGMENTARY BYZANTINE TOMBSTONE FOUND RE-USED IN DD 9





FIG. 216.—FIREPLACE WITH FLOOR OF POTTERY SLABS IN DD 13

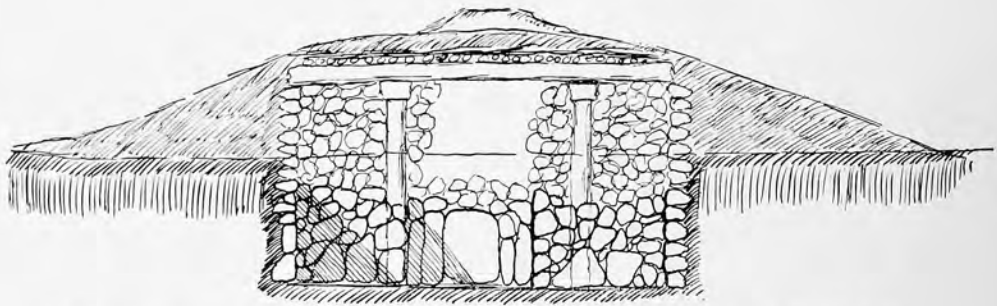


FIG. 217.—RECONSTRUCTED CROSS-SECTION OF THE BUILDING IN DD 9-10. SCALE, 1:75

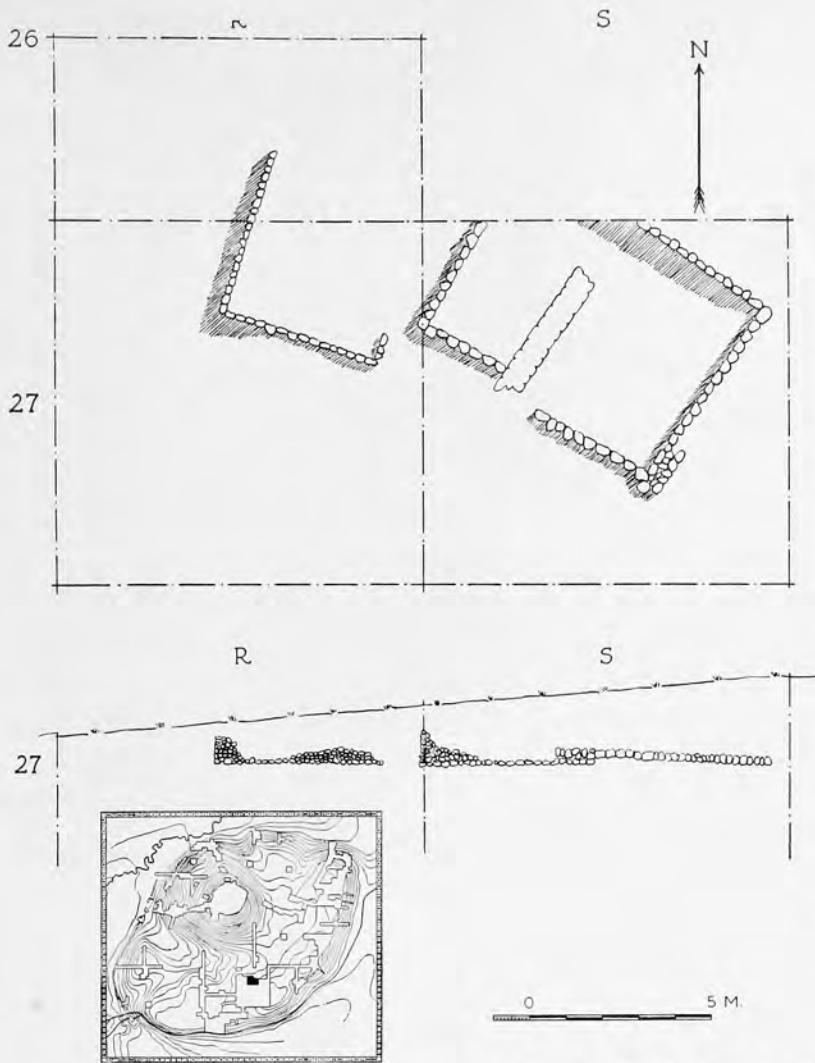


FIG. 218.—PLAN AND CROSS-SECTION OF LEVEL 1 T IN R-S 26-27. SCALE, 1:200



FIG. 219.—REMAINS OF LEVEL 1 T IN R 27, FROM SOUTHEAST

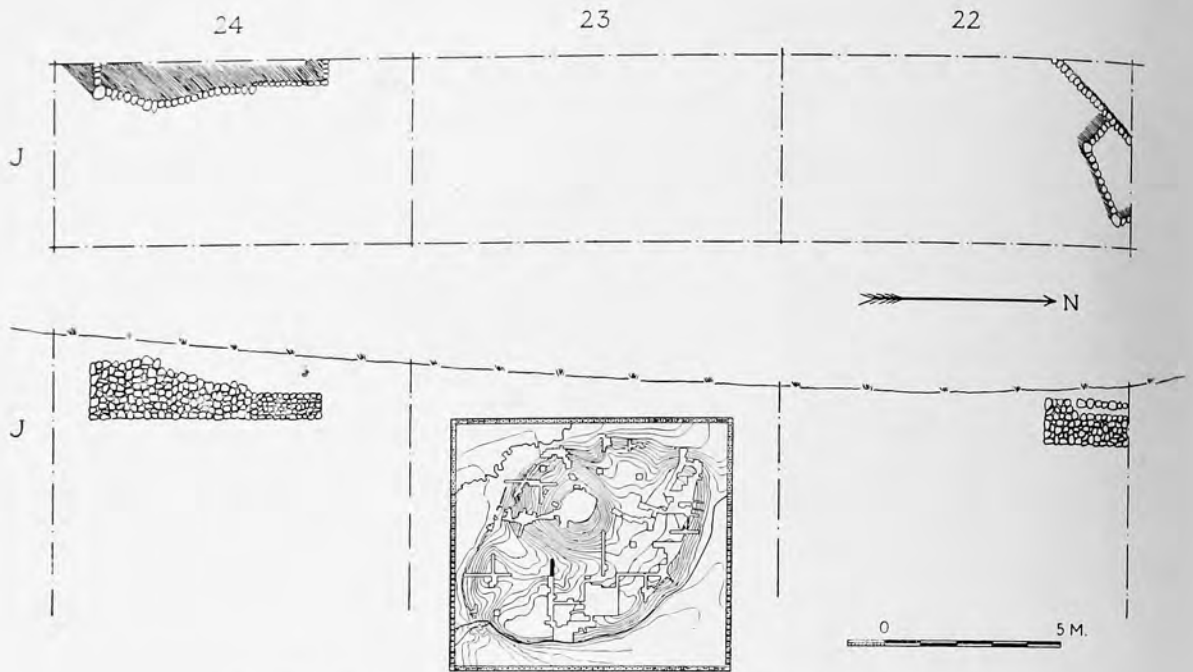


FIG. 220.—PLAN AND CROSS-SECTION OF LEVEL 1 T IN J 22-24. SCALE, 1:200



FIG. 221.—VIEW OF J 23-25 FROM NORTH. TURKISH BUILDING IN FOREGROUND, EARLY BRONZE AGE REMAINS IN MIDDLE DISTANCE, AND REMAINS OF THE PERIOD OF THE HITTITE EMPIRES IN BACKGROUND



FIG. 222.—DETAIL OF THE TURKISH WALLS IN J 24, FROM NORTHEAST

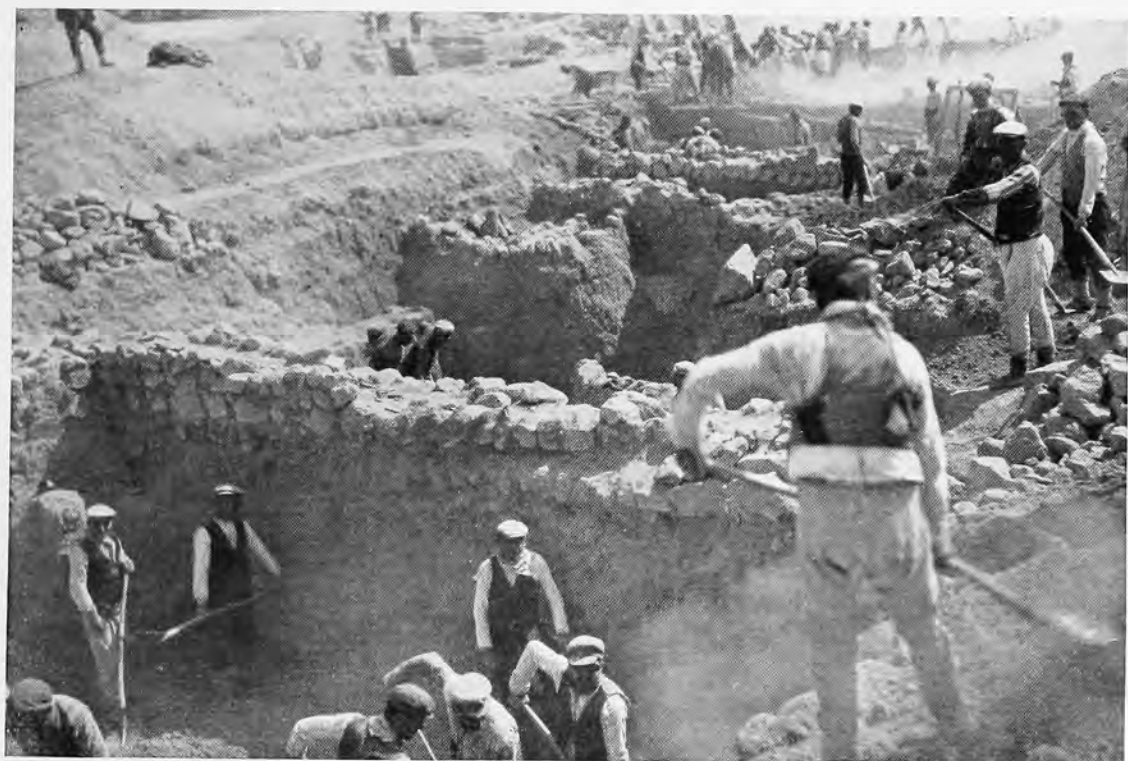


FIG. 223.—REMAINS OF LEVEL 1 T IN W-Y 14-15

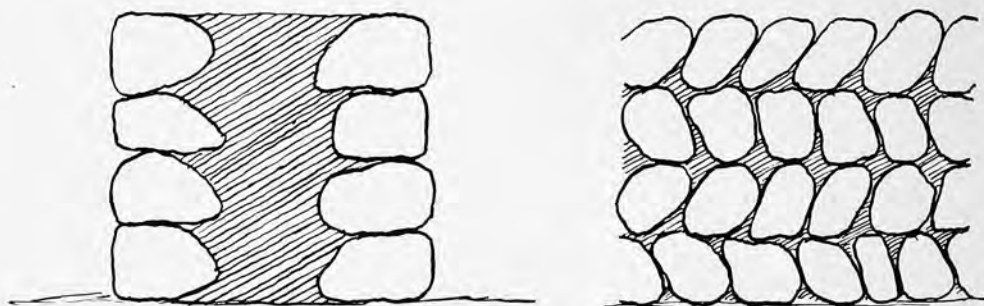


FIG. 224.—DETAILS OF WALL IN X 15

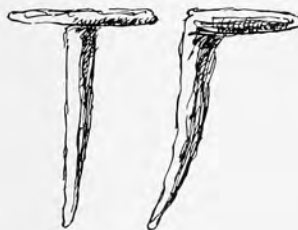




FIG. 225.—OVAL STRUCTURE OF LEVEL 1 T IN Y 14, FROM EAST



2044



2047



e 1431

FIG. 226.—TWO PIPE BOWLS AND AN IRON NAIL. ACTUAL SIZE

with two parallel rows of stones within it (Fig. 225).<sup>5</sup> The remains in Z 12 include a baking-oven<sup>6</sup> of the type found in a level of the second half of the first millennium B.C. (cf. p. 14), a type which is still used. Numerous small areas paved with small or medium-sized stones, found just below the surface, most probably belong to this period.

The burial ground in ZZ 31, as far as unearthed, is described in *OIP* XX 119-20. According to the craniological material, the persons buried there are Armenoids and not Turks, although they were buried in typical Moslem fashion. Armenians had started to infiltrate into this region after the destruction of the Bagratid kingdom, and many of them followed in the wake of the Turkish tribes, especially those under leadership of the Dānishmands. East of the burial ground the surface of the mound indicates other building remains of the Turkish period.

The objects found in Level 1 T are of no particular interest, as there is more and better material from other sites. Besides one small bronze coin of Süleyman I<sup>7</sup> only sherds and a few vessels (e.g., Figs. 227-31), a few blue glass beads, pipe bowls (*lüleler*; e.g., 2044 and e 1431, Fig. 226), and some iron nails (e.g., 2047, Fig. 226) were unearthed. Though glazed sherds were numerous (see below), the majority of the sherds were of plain, wet-smoothed ware of the type that is still in use in Anatolia. Occasionally rough designs were painted on this unglazed ware in creamy white (e.g., Pl. VIII 11 [= Fig. 227 23]<sup>8</sup>). A few fragments of typical Avanos ware appeared also.

<sup>5</sup> See *OIP* VI 150.

<sup>7</sup> *OIP* VII 59.

<sup>6</sup> See *OIP* VI 141-42 and Figs. 126-27.

<sup>8</sup> *OIP* XXVII, No. 100.

REMARKS ON THE GLAZED POTTERY FRAGMENTS FOUND  
AT THE ALIŞAR MOUND

BY †RUDOLF M. RIEFSTAHL

The group of pottery fragments discovered in the upper strata of the Alişar mound and shown to me by Dr. von der Osten consists of the same types as are currently found on the surface at unoccupied sites in Anatolia.<sup>9</sup> Roughly speaking, we can distinguish the following types of finish and decoration:

1. Plain glazes: bottle green, manganese purple, turquoise blue, ocher, and pale yellow. Two colors among these are significant. Turquoise blue glaze (e.g., Pl. VIII 1 and Fig. 227 1) and manganese purple glaze were imported into Asia Minor from Persia after the Seljuk conquest; such fragments therefore cannot be earlier than the 12th century.

2. Turquoise blue glaze with black painted decoration covered with a translucent glaze (e.g., Fig. 227 2). This mode of decoration is typically Seljuk and is to be assigned to the same period as the plain turquoise glazes.

3. Conventionalized floral patterns painted in black, manganese purple, turquoise, or cobalt blue on a white ground and covered with a translucent glaze (Pl. VIII 2 and 4 and Fig. 227 3-5). These appear on the interior surfaces of bowls the exteriors of which are usually covered with a bottle green glaze. Such wares are frequent in Anatolia and can hardly be assigned to a period earlier than the 14th century; they are typical of the early Osmanli period and may have been carried on much longer in provincial manufactures.

4. Sgraffito decoration (Figs. 227 6-17 and 21 and 228-29): reddish body, white slip partly scratched away; covered with pale yellow, bottle green (Pl. VIII 7), or ocher (Pl. VIII 3) glaze. Sometimes the yellow glaze is partly stained with bottle green and ocher, conforming to the incised pattern (e.g., Pl. VIII 5 [= Fig. 227 9]). This typically Byzantine technique was carried on in Anatolia far into the Turkish period. Some of the fragments are of such quality that origin early in the 11th or 12th century can be assumed with a certain degree of probability. That the majority of fragments, however, must belong to the Moslem period is evidenced particularly by one fragment with an Arabic inscription reading *in shā' Allāh* (3122a, Fig. 228).<sup>10</sup> A fragment of a bowl with a bird design (3122b, Fig. 228) is also to be noted particularly.

5. Painted slip decoration (Fig. 227 18-20; Nos. 3122 and 3122b, Fig. 228; and No. 3122d, Fig. 229): reddish paste with a heavy white slip painted with a background color and a conventionalized floral or geometric design in another color, the whole then invested with a thick, translucent, slightly yellowish glaze. This technique is generally found on the outsides of bowls the interiors of which are ornamented with sgraffito decoration. It seems to me an indication of fairly late origin within the Moslem period.

It is particularly to be remarked that the fragments from Alişar do not include any sherds of the typical Turkish wares of the 15th-17th centuries such as were made in İznik or Kütahya. This absence, in my opinion, proves nothing as to period. It proves simply that such wares

<sup>9</sup> For comparative material see G. F. Hudson in British Academy, *Preliminary Report upon the Excavations Carried Out in the Hippodrome of Constantinople in 1927 on Behalf of the British Academy* (London, 1928) pp. 51-54; R. M. Riefstahl in *Art Studies, Medieval Renaissance and Modern*, Part I (Cambridge, Mass., 1930) pp. 162-64; F. Sarre in *Das islamische Milet* (Staatliche Museen zu Berlin, Milet, *Ergebnisse der Ausgrabungen und Untersuchungen seit dem Jahre 1899*, Bd. III, Heft 4 [Berlin und Leipzig, 1935]) pp. 69-88; F. Sarre, "Seljuk and Early Osmanli Pottery of Miletus," *Oriental Ceramic Society* (London), *Transactions*, 1930/31, pp. 20-23.

<sup>10</sup> *OIP* XXVII, No. 99.

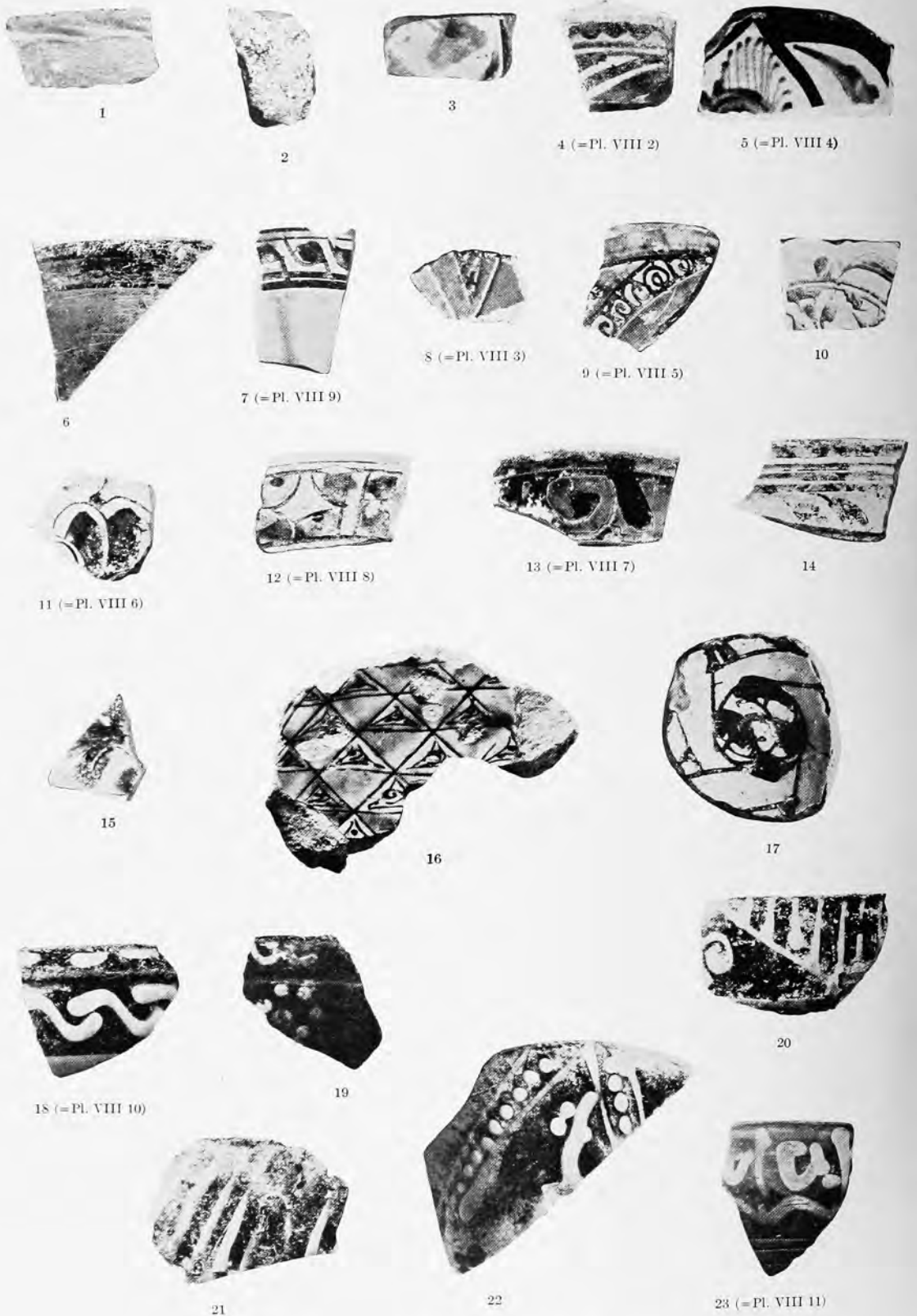


FIG. 227.—POTSDHERDS OF THE TURKISH PERIOD. SCALE, 1:2



3122b



3122



3122a

FIG. 228.—VESSELS OF THE TURKISH PERIOD. SCALE, 1:2



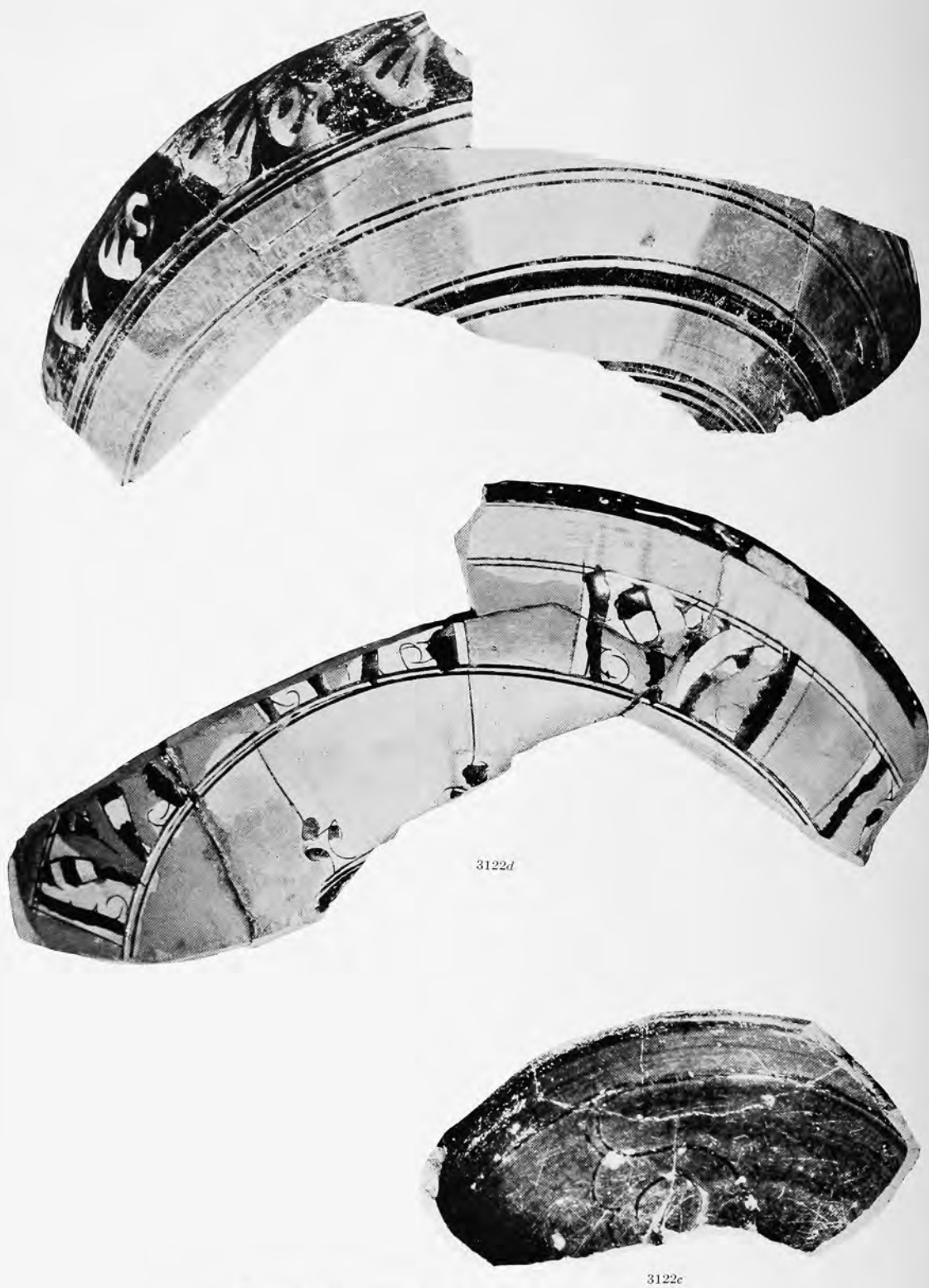


FIG. 229.—VESSELS OF THE TURKISH PERIOD. SCALE, 1:2

of higher quality (and price) were beyond the reach of the inhabitants of Alişar during the Osmanli period.

Thus the fragments examined cover perhaps the end of the Byzantine period and the time up to the Seljuk conquest, certainly the Seljuk and early Osmanli periods (12th–15th century), and probably even the 16th and 17th centuries. Their character shows clearly their provincial origin and permits conclusions as to the modest means of the inhabitants.

RUDOLF M. RIEFSTAHL

### NOTES ON INDIVIDUAL GLAZED BOWLS AND SHERDS<sup>11</sup>

Five relatively complete bowls were found in a pit in Z 12.<sup>12</sup> All are of fine buff to reddish buff paste covered with a white slip on which the decoration was painted or in which it was scratched (sgraffito); finally the entire vessel (except perhaps the base) was covered with a thick, yellowish, translucent glaze. The forms of the bowls are shown in Figure 230.

- 3122 (Fig. 228). Bowl .115 h., .210 d.; painted slip decoration in creamy white and bottle green on exterior; interior bottle green with sgraffito decoration on rim.
- 3122a (Fig. 228; *OIP* XXVII, No. 99). Fragmentary bowl .070\* h., .177 d.; exterior light green below, brown above; interior light green with sgraffito decoration.
- 3122b (Fig. 228). Bowl .051 h., .122 d.; on exterior, painted slip decoration in creamy white and brown; interior light green with sgraffito decoration.
- 3122c (Fig. 229). Fragmentary bowl .065\* h., .195 d.; bottle green with sgraffito decoration on interior.
- 3122d (Fig. 229). Fragmentary bowl .101\* h., .319 d.; painted slip decoration in creamy white and dark green on outside of rim; rest of exterior light green with darker green stains, encircled by lines and bands in sgraffito technique; interior light green with darker green stains and sgraffito decoration; at some places within the pattern the white slip shows.

Bowl sherds of the Seljuk and Osmanli periods are shown in Figure 227. Descriptions of sherds shown in color also (Nos. 4–5, 7–9, 11–13, 18, and 23) face Plate VIII. Nos. 6–22 resemble the bowls just described.

- 1. Turquoise blue glaze on both sides.
- 2. On exterior (shown here), turquoise blue glaze with black painted decoration, covered by translucent glaze; on interior (Pl. VIII 1), turquoise blue glaze.
- 3. On interior, painted pattern in blue and black on a white ground, covered by translucent glaze.
- 4–5. See Pl. VIII 2 and 4.
- 6. Bottle green with sgraffito decoration.
- 7. See Plate VIII 9.
- 8. See Plate VIII 3.
- 9. See Plate VIII 5.
- 10. Light green with sgraffito decoration.
- 11. See Plate VIII 6.
- 12. See Plate VIII 8.
- 13. See Plate VIII 7.
- 14. Light green with sgraffito decoration.
- 15. Pale yellow with green stains; sgraffito decoration.
- 16. Light green with dark green stains; sgraffito decoration.
- 17. Light green with sgraffito decoration.
- 18. See Plate VIII 10.
- 19. Painted slip decoration in brown and light green.
- 20. Painted slip decoration in brown and light green.
- 21. Green with sgraffito decoration.
- 22. Painted slip decoration in brown and creamy white.
- 23.<sup>13</sup> See Plate VIII 11.

<sup>11</sup> Typical rim pieces are shown in Fig. 231.

<sup>12</sup> *OIP* VI 141.

<sup>13</sup> *OIP* XXVII, No. 100.

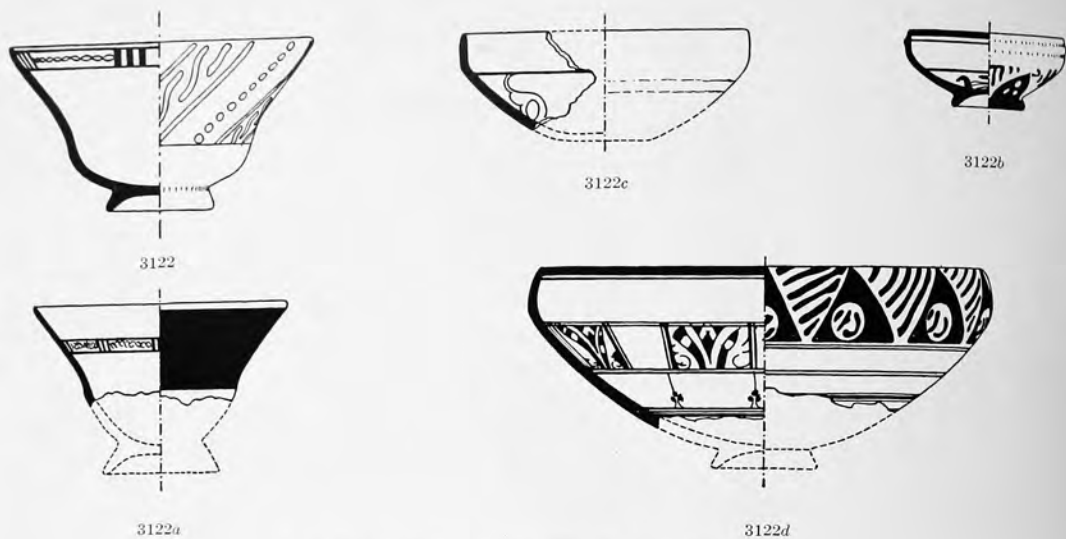


FIG. 230.—FORMS OF TURKISH BOWLS. SCALE, 1:5

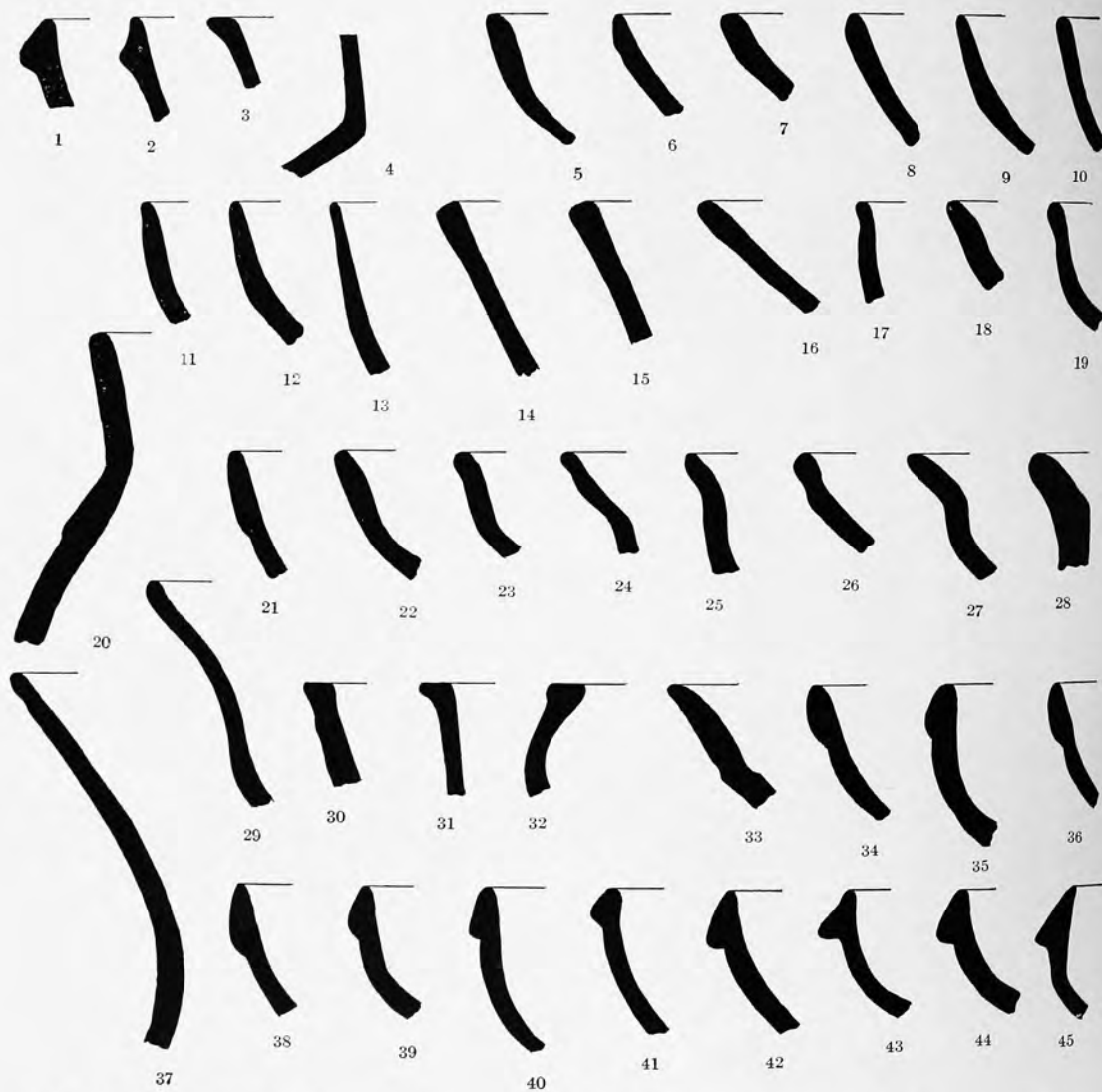


FIG. 231.—PROFILES OF RIM PIECES. NOS. 1-4, WARES OF THE SELJUK PERIOD; NOS. 5-45, WARES OF THE OSMANLI PERIOD. SCALE, 1:2



FIG. 232.—THE SITE OF MANSUROĞLU



FIG. 233.—CARAVAN EASTWARD BOUND. IN RIGHT FOREGROUND, BURIAL GROUND SOUTHEAST OF THE ALIŞAR MOUND

## THE LAST SETTLEMENT AT THE SITE

The next and last settlement at the site is the small farm of Mansuroğlu just west of the creek. It was founded in 1847 by Mansur Bey of Sungur, but has long since been abandoned (Fig. 232). A few tombs just southwest and southeast of the mound may belong to this settlement. On the other hand, they may be the last resting-places of camel- or donkey-drivers from the caravans which even today pass the south slope of the mound in spring and fall (Fig. 233). The caravans follow the old trade route, but from year to year their number and size diminish. The site of Alişar is now completely deserted, with the exception of a water mill on its south slope. Each year in June the women from the villages of Alişar and Hosman come there to harvest the *Peganum harmala* L.<sup>14</sup> necessary for the preparation of their soap. Broken water bottles, blue beads, and fragments of brass ornaments from the headdresses of these women are slowly forming a new culture deposit.

<sup>14</sup> This plant grows here in abundance, as on most ancient sites in central Anatolia (cf. p. 402).







MAP I.—SITES OF ANTHROPOLOGICAL INTEREST. SCALE, 1:16,000,000



## IV

# CRANIAL TYPES FROM ALIŞAR HÜYÜK AND THEIR RELATIONS TO OTHER RACIAL TYPES, ANCIENT AND MODERN, OF EUROPE AND WESTERN ASIA<sup>1</sup>

BY WILTON MARION KROGMAN

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## 1. THE COMPARATIVE ANTHROPOMETRY OF THE ALIŞAR CRANIA

Since the publication of the first report on the Alişar skeletal material (91, pp. 122-38) the excavation of the site has been provisionally terminated and material dating back to the Chalcolithic period made available. We are now in a position to undertake a final analysis of possible racial components and to attempt to fit the Alişar physical types—especially the cranial types—into a broader picture of space and time. This task has been made much easier by Kappers' very thorough study of the anthropology of the Near East (79), which affords a wealth of detail and offers also several fascinating hypotheses of race movements.

Two hundred and two burials altogether have been recorded at Alişar. These are listed in Table I according to age and period. For details of each burial reference must be made to the reports by Drs. H. H. von der Osten and E. F. Schmidt in *OIP* VII, XIX-XX, and XXVIII-XXX (see 91, 149a, 115a-d). Not all of these burials were in a condition to permit study; in many instances only traces of skeletal remains were observable. For the most part those crania which could be measured were studied in the field. The data thus made available, together with photographs, form the basis of this report. The periods to which the usable crania are now assigned are: Chalcolithic: c X18, e X16; Copper Age: 3203, 3204, 3209, 3212, 3213, 3224, b X8, c X20, d X26, e X3; Early Bronze Age: b X15, c X6, c X16; Hittite Empires: b X20, b X32, b X35, b X37, b X43, b X44, b X45, c X13, c X23, d X32, d X36, d X38; Post-Hittite-Phrygian:<sup>2</sup> 3217, 3218, 3220, c X2, c X7; Medo-Persian-Hellenistic: b X4, c X15, d X20; Roman-Byzantine: b X1,\* b X38, c X17,\* d X1,\* d X4,\* d X6,\* d X12,

<sup>1</sup> A word of explanation is in place with regard to the ground covered in the report on the Alişar cranial material. To the professional anthropologist Sections 2-6 may be little more than a recapitulation of facts and theories already fairly well established. They summarize the present knowledge of racial origins and interrelationships in Europe. This summary is based on a personal study of the prehistoric material housed in the Hunterian Museum of the Royal College of Surgeons of England and the several museums of the University of London, as well as on an intensive and extensive survey of the literature, and is included because I have been urged repeatedly by archeologists and other students of the prehistory and protohistory of the Near East to supply a report complete for specialist and nonspecialist alike. This report, then, has two major aims: (1) to contribute toward a better understanding of the reliability which studies of ancient cranial material possess; (2) to make possible a fuller appreciation of the importance of a series of cranial material from a single site when studied in its larger context. The anthropological literature utilized is cited by boldface numbers which refer to the entries in the bibliography appended to this report.

To Dr. Adolph A. Brux, assistant editorial secretary of the Oriental Institute, I record sincere appreciation of his penetrating criticism of the manuscript submitted for publication as well as of his help in compiling Tables VI and VIII. His energy, interest, and knowledge have been stimulating. If the report be correct in fact, much of the credit belongs to Dr. Brux; if there be errors in interpretation, blame must rest with me. I take this opportunity to express my thanks also to Dr. von der Osten, Dr. R. M. Engberg, Mr. F. O. Allen, and Mr. R. J. Braidwood for help and advice on Table VI, and to Mr. Walter W. Romig for drawing the map and for participating in the preparation of the various tables and graphs.

<sup>2</sup> This and the next two periods will be referred to in the text hereafter simply as Phrygian, Hellenistic, and Roman respectively.

d X13,\* d X21,\* d X25; Turkish: b X47, b X50, b X51, b X52, b X56, b X59, b X61, b X65.<sup>3</sup> These crania may be classified by age and sex as follows:

Period	Adult Male	Adult Female	Child	Total
Chalcolithic		1	1 female	2
Copper Age	6	1	3 {1 male 2 female	10
Early Bronze Age	2		1 male	3
Hittite Empires	8	3	1 male	12
Phrygian	4		1 female	5
Hellenistic	2		1 unclassified	3
Roman	4	3	3 {1 male? 2 female	10
Turkish	4		4 unclassified	8
Total	30	8	15	53

Six of the crania used for the present report were not available for the previous one (91). Seven others (starred in the list above) are now differently dated, and a recheck of the in-

TABLE I  
AGE AND PERIOD DISTRIBUTION OF BURIALS AT ALIŞAR HÜYÜK

	Birth to Seven Years	Seven to Fourteen Years	Fourteen to Twenty-one Years	Adult Male	Adult Female	Unclassified Adult
Chalcolithic	e X10, e X18a, e X11, e X12, e X13, e X14, e X15, e X19		e X16		e X9, e X18, e X18	
Copper Age (Alişar I)	3206a, 3208, 3211a, b X6, b X9, b X13, b X14, c X19, d X49		3203, 3204, d X26	3200, 3202, 3206, 3209, 3212, 3224, b X8, c X11, e X12, c X20, d X10, d X48, e X3, e X8	3207, 3213	b X7, b X10, b X11, b X12, b X46, b X69, d X11, d X14, d X15, d X16, d X27, d X28, d X29, d X45, d X46, d X47, e X4, e X9.
Early Bronze Age (Alişar III)			e X6	b X15, b X68, c X16		b X17
Hittite Empires (Alişar II)	3214, 3215, 3216, b X18, b X19, b X21, b X26, b X29, b X30, b X34, b X36, b X40, b X42, b X70, c X5, d X40, d X44, d X50	3211, 3225a, b X25, b X33, b X41, c X22, c X26, c X27, d X51, e X5, e X6	b X43, c X21, d X33, d X39, d X54	3225, b X23, b X28, b X32, b X37, b X44, c X13, c X23, d X32, d X36, d X38, e X2	b X20, b X35, b X45, e X1	3201, 3211b, b X2, b X22, b X24, b X27, b X31, b X39, c X3, c X24, c X25, d X30, d X34, d X35, d X37, d X41, d X42, d X43, d X52, d X53, d X55, e X7
Post-Hittite-Phrygian (Alişar IV)		3217a, 3220, e X10		3217, 3218, c X2, c X7	3219	
Medo-Persian-Hellenistic (Alişar V and beg. of VI)	e X8, d X17	e X14, d X20		a X1, b X4, c X15		3222, b X5, d X18, d X19
Roman-Byzantine (Alişar VI)	3210, 3210a, c X1, d X9, d X24	3223, d X13	3221, d X21, d X25, e X17	c X17, d X2, d X4, d X6, d X12	b X1, b X38, d X1	c X4, d X3, d X5, d X7, d X8, d X22, d X23, d X31
Turkish (Alişar VII)	b X48, b X49, b X53, b X54, b X55, b X57, b X58, b X60, b X62, b X63, b X64, b X66, b X67	b X51, b X52, b X61	b X50	b X47, b X56, b X59, b X65		

<sup>3</sup> Numbers without prefix are from 1927, *a* numbers from 1928, *b* from 1929, *c* from 1930, *d* from 1931, *e* from 1932. The Roman numbers I-VII added in Table I are the period designations used in the previous report (91); cf. p. 225. The numbers of those burials which are here dated differently than in former publications are starred.



TABLE II  
MEASUREMENTS OF ALIŞAR CRANIA

MEASUREMENT	CHALCOLITHIC												COPPER AGE												EARLY BRONZE AGE						HITTITE EMPIRES												MEASUREMENT	POST-HITTITE-PHYRGIAN					HELLENISTIC			ROMAN										TURKISH							MEASUREMENT
	c X18 Ad. ♀	e X16 ♀ ca. 14	3209 Ad. ♂	3212 Ad. ♂	3224 Ad. ♂	b X8 Ad. ♂	e X20 Ad. ♂	e X3 Ad. ♂	3213 Subad. ♀	d X26 ♂ 12-15	3203 ♀ 12-14	3204 ♀ ca. 15	b X15 Ad. ♂	c X16 Ad. ♂	c X6 Juv. ♂	b X32 Ad. ♂	b X37 Ad. ♂	b X44 Ad. ♂	c X13 Ad. ♂	c X23 Ad. ♂	d X32 Ad. ♂	d X36 Ad. ♂	d X38 Ad. ♂	b X20 Ad. ♀	b X35 Ad. ♀	b X45 Ad. ♀	b X43 Juv. ♂	3217 Ad. ♂	3218 Ad. ♂	e X2 Ad. ♂	c X7 Ad. ♂	3220 ♀ 8-10	b X4 Ad. ♂	c X15 Ad. ♂	d X20 8-10	e X17 Ad. ♂	d X4 Ad. ♂	d X6 Ad. ♂	d X12 Ad. ♂	b X1 Ad. ♀	b X38 Ad. ♀	d X1 Ad. ♀		d X13 ♂? 11-12	d X21 ♀ 14-15	d X25 ♀ 12-15	b X47 Ad. ♂	b X56 Ad. ♂	b X59 Ad. ♂	b X65 Ad. ♂	b X50 15?	b X51 10?	b X52 8-10?	b X61 12-14															
(1)* Gl-op ( <i>L</i> )†	179	179	174	179	175.5	192?	183	189	177	194.5	171	170	186	175	174	176?	178	187	182	193	170	187	190	177	168	178	145	(1)* Gl-op ( <i>L</i> )†	182	196	185	183	171.5	175	183	176	168	183	188	185	186	184	186	169	.....	167	158	160	163	187	161	165	146	166	.....	(1)* Gl-op ( <i>L</i> )†													
(8) Eu-eu ( <i>B</i> )	130	131	130	136	133	136?	143	132	137	143	135	135	139	146	135	146?	139	150?	134	147	145	145	151?	140	137	146	145	(8) Eu-eu ( <i>B</i> )	129	133.5	134	133	134	137	135	126	142	140	123	156	131	135?	143	135	137	120	134	142	148	160	133	146	146†	144	.....	(8) Eu-eu ( <i>B</i> )													
(17) Ba-b ( <i>H'</i> )	122	141	140.5	131	133	136?	143	132	137	143	135	135	139	146	135	146?	139	150?	134	147	145	145	151?	140	137	146	145	(17) Ba-b ( <i>H'</i> )	112	113	118	111	119	98	113	117	110	127	113	127	109	136	121	123	122	104	111	114	122	118	113	112	112	.....	(17) Ba-b ( <i>H'</i> )														
(20) Po-b	107	104	113.5	112	110	114	117	110	107	125	119.5	113	119	113	115	99	110	123	105	117	117	125	111	99	113	116	116	(20) Po-b	112	113	118	111	119	98	113	117	110	127	113	127	109	136	121	123	122	104	111	114	122	118	113	112	112	.....	(20) Po-b														
(9) Min. frontal ( <i>B'</i> )	94	94	92	86	93	92?	93	92	93.5	92	97	96	101	100	91	101	97	109	90	99	100	100	102	98	93	99?	102	(9) Min. frontal ( <i>B'</i> )	102	101	96	98	97	89	102	99	84	111	96	95	101	91.5	101	84	94	95	93	100	87	94	89	98	.....	(9) Min. front															
(45) Zy-zy ( <i>J</i> )	124	108	121	125	116.5	128	128	128	113	123	122	123	134?	137	120	132	127?	143	124	135	122	123	132	132	125	125	(45) Zy-zy ( <i>J</i> )	128	130	125	98	138?	130	101.5	.....	111	134	127	98	109.5	105	113	131	142	155	122	117	109	117	.....	(45) Zy-zy																		
(5) Ba-na ( <i>LB</i> )	90	106	100.5	110	110	95	95	98	106?	102?	117	105	106	94	96	87	87	88	93?	98?	110	101	98	.....	99	91	.....	(5) Ba-na ( <i>LB</i> )	98	86	86	98	86	99	89	.....	106	107	95	97	92	101	109	91	90	78	98	.....	(5) Ba-na																				
(40) Ba-pr ( <i>GL</i> )	66	56	64.5	69	68	68	72	.....	74	63.2	62	.....	60	58	60	63	80	68	75	72	66	65	.....	62	21	.....	(40) Ba-pr ( <i>GL</i> )	61	73	60	95	92	61	58.5	.....	68	77.5	64	72	52	60	56	69	77	79	65	58	55	43	.....	(40) Ba-pr ( <i>GL</i> )																		
(48) Na-pr ( <i>G'H</i> )	21	22.5	20.6	24	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	(48) Na-pr ( <i>G'H</i> )	22.5	23.2	27	22	25?	25	21	.....	26	20	27	24	20?	20?	22	20	21	22	22	23	21	22	17	22	.....	(50) Bi-orb. min. ( <i>DC</i> )																
(50) Bi-orb. min. ( <i>DC</i> )	38	34	36	40	38.5	41	39	33	33	34	35	37	.....	36	35	39	39	42?	40	39	41	39	42	37	37	40	(51a) Orb. width ( <i>O<sub>2</sub>R</i> )	31	32	32?	33	33	34	31	33	.....	36	35	39	42?	40	39	42	37	37	40	38	37	38	44	36	35	38?	.....	(51a) Orb. width ( <i>O<sub>2</sub>R</i> )														
(51a) Orb. width ( <i>O<sub>2</sub>R</i> )	38	34	36	40	38.5	41	39	33	33	34	35	37	.....	36	35	39	39	42?	40	39	41	39	42	37	37	40	(51a) Orb. width ( <i>O<sub>2</sub>R</i> )	31	32	32?	33	33	34	31	33	.....	36	35	39	42?	40	39	42	37	37	40	38	37	38	44	36	35	38?	.....	(51a) Orb. width ( <i>O<sub>2</sub>R</i> )														
(52) Orb. height ( <i>O<sub>2</sub>R</i> )	35	30	34.5	36	31.6	34	33	33	31	34.5	51	49	46	49	45	46	52	57	49	56	53	53	52	48	47	.....	(52) Orb. height ( <i>O<sub>2</sub>R</i> )	31	32	32?	33	33	34	31	33	.....	35	36	37	33	32	31	33	30.5	32	32	36	35	30	31	31	32	.....	(52) Orb. height ( <i>O<sub>2</sub>R</i> )															
(55) Nasal height ( <i>NHR</i> )	46	41	48	49.5	42.2	51	52	50	22	24	20	21	26	20	26	25	29	26	23	27	26	27	24	24	26	.....	(55) Nasal height ( <i>NHR</i> )	27	25	25?	25	22.5	25	22.5	.....	23	23	27	18	23?	27	18	24	21	23	27	21	26	23	20	22?	.....	(55) Nasal height ( <i>NHR</i> )																
(54) Nasal width ( <i>NB</i> )	22	19	26	24	26.1	24	27	22	.....	64	59	64	65	66	64	64	65	66	64	65	66	64	64	43	.....	(61) Max. al. width ( <i>EB</i> )	62	67	57	58.5	55	58.5	55	58.5	.....	58	56	64	65	67	52	62	57	52	63	62	70	63	60	53	62?	.....	(54) Nasal width ( <i>NB</i> )																
(61) Max. al. width ( <i>EB</i> )	58	56	.....	57	64	60	.....	53	61	55	58?	64	59	64	65	66	64	64	43	.....	51	.....	.....	.....	.....	.....	.....	(61) Max. al. width ( <i>EB</i> )	62	67	57	58.5	55	58.5	55	58.5	.....	58	56	64	65	67	52	62	57	52	63	62	70	63	60	53	62?	.....	(61) Max. al. width ( <i>EB</i> )														
(60) Max. al. length ( <i>G<sub>1</sub>'</i> )	58	56	.....	57	64	60	.....	53	61	55	58?	64	59	64	65	66	64	64	43	.....	51	.....	.....	.....	.....	.....	.....	(60) Max. al. length ( <i>G<sub>1</sub>'</i> )	62	67	57	58.5	55	58.5	55	58.5	.....	58	56	64	65	67	52	62	57	52	63	62	70	63	60	53	62?	.....	(60) Max. al. length ( <i>G<sub>1</sub>'</i> )														

\* Numbers in parentheses refer to definitions in R. Martin, *Lehrbuch der Anthropologie* (2. Aufl.; Jena, 1928) II 625-62.  
† Letters in parentheses refer to definitions used in the Galton Laboratory; see *Biometrika* XIV (1922/23) 196-200.

? with numbers means "approximately."

† Increased breadth possibly due to hydrocephaly.

TABLE III  
INDICES OF ALIŞAR CRANIA

INDEX	ABBREVIATION	FORMULA	CHALCOLITHIC		COPPER AGE										EARLY BRONZE AGE			HITTITE EMPIRES														INDEX	ABBREVIATION	FORMULA	POST-HITTITE-PHYRGIAN					HELLENISTIC			ROMAN										TURKISH								INDEX	ABBREVIATION	FORMULA
			e X18 Ad. ♀	e X16 ♀ ca. 14	3209 Ad. ♂	3212 Ad. ♂	3224 Ad. ♂	b X8 Ad. ♂	e X20 Ad. ♂	e X3 Ad. ♂	3213 Subad. ♀	d X26 ♂ 12-15	3203 ♀ 12-14	3204 ♀ ca. 15	b X15 Ad. ♂	e X16 Ad. ♂	e X6 Juv. ♂	b X32 Ad. ♂	b X37 Ad. ♂	b X44 Ad. ♂	e X13 Ad. ♂	e X23 Ad. ♂	d X32 Ad. ♂	d X36 Ad. ♂	d X38 Ad. ♂	b X20 Ad. ♀	b X35 Ad. ♀	b X45 Ad. ♀	b X43 Juv. ♂	3217 Ad. ♂	3218 Ad. ♂				e X2 Ad. ♂	e X7 Ad. ♂	3220 ♀ 8-10	b X4 Ad. ♂	e X15 Ad. ♂	d X20 8-10	e X17 Ad. ♂	d X4 Ad. ♂	d X6 Ad. ♂	d X12 Ad. ♂	b X1 Ad. ♀	b X38 Ad. ♀	d X1 Ad. ♀	d X13 ♂? 11-12	d X21 ♀ 14-15	d X25 ♀ 12-15	b X47 Ad. ♀ ♂	b X56 Ad. ♂	b X59 Ad. ♂	b X65 Ad. ♂	b X50 15?	b X51 10?	b X52 8-10?	b X61 12-14					
Cranial.....	CI or L-B	$\frac{B \times 100}{L}$	72.6	73.2	74.7	75.9	75.8	70.8	78.1	69.8	77.4	73.5	78.9	79.4	74.7	83.4	77.6	83.0	78.1	80.2	73.6	76.2	85.3	77.5	79.5	79.1	81.5	82.0	81.9	Cranial.....	CI or L-B	$\frac{B \times 100}{L}$	70.9	68.1	72.4	72.7	78.1	78.3	73.8	71.6	84.5	76.5	65.4	84.3	70.4	73.4	76.9	79.9	.....	71.9	84.8	88.8	90.8	85.6	82.6	88.5	100.0	86.7	.....	Cranial.....	CI or L-B	$\frac{B \times 100}{L}$	
Height-length.....	H-L	$\frac{H' \times 100}{L}$	.....	68.2	81.0	78.5	.....	68.2	72.7	.....	.....	80.1	.....	.....	77.7	73.6	68.2	63.5	73.3	69.8	67.4	.....	69.5	65.3	.....	75.6	65.2	74.6	Height-length.....	H-L	$\frac{H' \times 100}{L}$	.....	.....	.....	67.8	72.3	.....	71.0	71.0	.....	.....	69.7	.....	71.2	.....	74.9	75.9	78.1	82.8	74.9	77.6	76.4	84.2	77.1	.....	Height-length.....	H-L	$\frac{H' \times 100}{L}$					
Height-breadth.....	H-B	$\frac{H' \times 100}{B}$	.....	93.1	108.5	103.3	.....	96.3	93.0	.....	.....	101.5	.....	.....	93.2	94.8	82.2	81.3	91.3	94.8	88.4	.....	89.7	82.1	.....	92.7	79.5	91.0	Height-breadth.....	H-B	$\frac{H' \times 100}{B}$	.....	.....	.....	93.2	92.5	.....	96.3	99.2	.....	.....	82.7	.....	97.0	.....	90.5	104.2	89.6	88.0	91.2	87.5	94.0	86.3	84.2	88.9	.....	Height-breadth.....	H-B	$\frac{H' \times 100}{B}$				
Po-b-length.....	Po-b-L	$\frac{Po-b \times 100}{L}$	59.8	58.1	65.2	62.6	62.7	59.4	63.9	58.2	60.5	64.3	69.9	66.5	64.0	64.6	66.1	56.3	61.8	65.8	57.7	60.6	68.8	66.8	58.4	55.9	67.3	.....	65.5	Po-b-length.....	Po-b-L	$\frac{Po-b \times 100}{L}$	61.5	57.7	63.8	60.7	69.4	56.0	61.7	66.5	65.5	69.4	60.1	68.6	58.6	.....	73.1	71.6	.....	73.1	65.8	69.4	69.9	65.2	73.3	68.5	76.7	67.5	.....	Po-b-length.....	Po-b-L	$\frac{Po-b \times 100}{L}$	
Po-b-breadth.....	Po-b-B	$\frac{Po-b \times 100}{B}$	82.3	79.4	87.3	82.4	82.7	83.8	81.8	83.3	78.1	87.4	88.5	83.7	85.6	77.4	85.2	67.8	79.1	82.0	78.4	79.6	80.7	86.2	73.5	70.7	82.5	.....	80.0	Po-b-breadth.....	Po-b-B	$\frac{Po-b \times 100}{B}$	86.8	84.6	88.1	83.5	88.8	71.5	83.7	92.9	77.5	90.7	91.9	81.4	83.2	.....	95.1	89.6	89.8	101.7	77.6	78.2	77.0	76.3	88.7	77.4	76.7	77.8	.....	Po-b-breadth.....	Po-b-B	$\frac{Po-b \times 100}{B}$	
Orbital.....	OI	$\frac{O_2R \times 100}{O_1R}$	92.1	88.2	95.8	90.0	82.1	82.9	84.6	.....	83.8	90.8	92.1	91.9	.....	94.4	82.9	84.6	82.1	76.2	82.5	84.6	82.9	79.5	78.6	.....	89.2	77.5	Orbital.....	OI	$\frac{O_2R \times 100}{O_1R}$	.....	81.3	87.5	81.6	74.3	.....	83.3	97.0	.....	.....	92.1	87.8	84.1	80.5	84.2	91.2	.....	87.1	84.2	86.5	94.7	79.5	83.3	86.1	88.6	84.2	.....	Orbital.....	OI	$\frac{O_2R \times 100}{O_1R}$		
Nasal.....	NI	$\frac{NB \times 100}{NHR}$	47.8	46.3	54.2	48.5	61.8	47.1	51.9	44.0	.....	47.1	40.8	45.7	.....	53.1	44.4	56.5	48.1	50.9	53.1	41.1	50.9	49.1	51.9	.....	50.0	55.3	Nasal.....	NI	$\frac{NB \times 100}{NHR}$	.....	.....	.....	53.2	.....	.....	55.6	50.0	.....	47.9	48.2	.....	45.1	52.9	50.0	.....	50.0	46.7	43.4	44.3	37.5	54.2	52.3	50.0	50.0	.....	Nasal.....	NI	$\frac{NB \times 100}{NHR}$			
Transverse cranial face.....		$\frac{J \times 100}{B}$	95.4	82.4	93.1	91.9	87.6	94.1	89.5	97.0	.....	82.5	86.0	90.4	91.1	96.4	93.8	88.9	90.4	91.4	95.3	92.5	91.8	84.1	84.8	87.4	.....	91.2	84.8	Transverse cranial face.....		$\frac{J \times 100}{B}$	.....	95.9	97.0	94.0	.....	100.7	96.3	80.6	.....	90.2	85.9	.....	88.8	72.6	79.9	87.5	84.3	92.3	95.9	96.9	91.7	80.1	74.7	81.3	.....	Transverse cranial face.....		$\frac{J \times 100}{B}$			
Upper morphological face.....		$\frac{G'H \times 100}{J}$	53.2	51.9	53.3	55.2	58.4	53.1	59.4	56.3	.....	60.2	51.8	50.4	.....	43.8	48.3	45.5	49.6	55.9	54.8	55.6	59.0	53.7	49.2	.....	49.6	49.6	Upper morphological face.....		$\frac{G'H \times 100}{J}$	.....	.....	56.2	48.0	.....	.....	46.9	57.6	.....	61.3	57.8	.....	56.7	53.1	.....	57.1	49.6	52.7	54.2	51.0	53.3	49.6	50.5	36.8	.....	Upper morphological face.....		$\frac{G'H \times 100}{J}$				
Zygo-frontal.....		$\frac{B' \times 100}{J}$	75.8	87.0	76.0	68.8	79.8	71.9	72.7	71.9	82.7	74.8	79.5	78.0	75.4	73.0	75.8	76.5	76.4	76.2	79.8	73.3	82.0	81.3	77.3	.....	74.4	82.9	Zygo-frontal.....		$\frac{B' \times 100}{J}$	.....	79.7	77.7	76.8	.....	71.0	74.6	87.7	.....	75.7	82.8	.....	79.5	93.4	92.2	80.0	83.2	72.5	65.5	64.5	71.3	80.3	81.7	83.8	.....	Zygo-frontal.....		$\frac{B' \times 100}{J}$				





dices has made further changes necessary. Hence final data on all fifty-three crania are assembled in Tables II and III. Those not previously listed are c X18 and e X16 (Chalcolithic), 3204, 3213,<sup>4</sup> and e X3 (Copper Age), and d X38 (Hittite Empires).

Skull c X18 is typically female—small, gracile, smooth-contoured, with very weak supra-orbital ridges and small mastoids. Seen from above, the head shape is an elongated oval, tapering to the back; from the side, the forehead rises in a full curve, and the occiput is protuberant (*occiput en chignon*). The skull is dolichocephalic (L-B index 72.6) and orthocephalic (Po-b-L index 59.8). The face is moderately high and moderately wide (upper morphological face index is middle [mesen], 53.2). The subnasal height is considerable, but there is no prognathism. The orbits are rounded, horizontal, and hypsiconchic (OI 92.1). The nasal aperture is narrow, moderately high, and mesorrhine (NI 47.8). The dentition is completely adult and shows second-degree wear; the bite is edge-to-edge; the upper incisors (I 1-2) are slightly shovel-shaped; the palate is parabolic, narrowed in front. It is impossible to state anything about suture closure except that the basilar is united. It is likely that the individual was about thirty years of age.

Skull e X16 is that of a young female approximately fourteen years of age. The second permanent molar is newly erupted, and the basilar suture is un-united. Seen from above, the skull is a long, even oval, as broad in front as behind; from the side, the forehead is well arched and the occiput only slightly projecting. The skull is dolichocephalic (L-B index 73.2), chamaecephalic (H-L index 68.2, Po-b-L index 58.1), and metricephalic (H-B index 93.1). The subnasal height is small; there is no prognathism. The orbits tend to be rectangular, sloping laterally and downward, and are hypsiconchic (OI 88.2). The nasal aperture is narrow, of medium height, and leptorrhine (NI 46.3). The teeth are small, little worn, and the upper second permanent molar is tricuspid (two buccal, one lingual). The palate is small and evenly parabolic. This skull has a metopic suture.

Skull 3204 is that of a young female of about fifteen years of age. All sutures are open. The second molar is the last permanent tooth erupted, and it shows first-degree wear. The head shape, seen from above, is a short, regular oval. Seen from the side, the forehead is arched, and the occiput, though of the curvocciput type, is not prominent but tends more toward vertical flattening than any of the other crania in the present series. The skull is subbrachycephalic (L-B index 79.4) and hypsicephalic (Po-b-L index 66.5). The face is moderately high and moderately wide (upper morphological face index is middle [mesen], 50.4). The orbits are round and are strongly hypsiconchic (OI 91.9). The nasal aperture is leptorrhine (NI 45.7). The palate is a short, wide parabola.

Skull 3213 is that of a young female, probably subadult. All sutures are un-united. The entire lower face and skull base are missing, so that age cannot be estimated by the teeth and basilar suture. Seen from above, the head shape is almost an elongated hexagon: narrow in front, expanded at the parietals, narrow in back; from the side, the forehead is well filled, the occiput markedly *en chignon*. The skull is mesocephalic (L-B index 77.4) and orthocephalic (Po-b-L index 60.5). The orbits are rectangular, slope laterally and downward, and are mesoconchic (OI 83.8).

Skull e X3 is typically male, with strong muscular ridges, large mastoids, heavy supra-orbital ridges, and general massive appearance. Seen from above, the head shape is a regular oval, expanded slightly at the parietals; from the side, the forehead goes back in an even curve, and the occiput is only slightly projecting. The skull is markedly dolichocephalic (L-B index 69.8) and chamaecephalic (Po-b-L index 58.2). The face is moderately high, imparting

<sup>4</sup> In 115a, p. 23, skeleton 3213 was stated to be of the "Turkish period(?)." The find was on the edge of the mound; the type is certainly not modern. In 115b, p. 137, that skeleton was reclassified as belonging to the Copper Age.

an appearance of shortness because of the large supraorbital ridges, and tends to be narrow (upper morphological face index is narrow [lepten], 56.3). There is no prognathism. The orbits are rectangular, inclined downward and laterally; they are damaged, so that an index cannot be derived, but they are almost certainly mesoconchic. The nasal aperture is leptorrhine (NI 44.0). The teeth are small, all erupted, and show second-degree wear; they illustrate very well the essentially human plus-shape pattern; the upper incisors are slightly shovel-shaped; the palate is parabolic, slightly narrowed in front. Age cannot be ascertained by the sutures, since they are extensively damaged; an age of thirty years is probably not far from right. There is a metopic suture.

Skull d X38 is large, being that of an adult male of about thirty years of age. The basilar suture is united; the vault sutures show signs of beginning union. The molar teeth show second-degree wear. The head shape, seen from above, is a short oval: broad in front, expanded at the parietals, tapering in back; from the side, the forehead rises vertically and sweeps back in an even curve with the occiput markedly protuberant. The skull is subbrachycranic (L-B index 79.5) and chamaecranic (H-L index 65.3, Po-b-L index 58.4). The face is short and broad with an unusually short subnasal height (upper morphological face index is broad [euryn], 49.2). The orbits are rectangular, slope laterally and downward, and are mesoconchic (OI 78.6). The nasal aperture is wide and rather low, hence chamaerrhine (NI 51.9). The teeth are very small, with marked diastemata between the upper incisors and canines (I1-I2-C); the upper third permanent molars are almost bicuspid; the lower third permanent molars have either been lost *ante mortem* or are impacted. The palate is a very short, wide-open arch.

It is worthy of note that in none of the skulls was there a trace of dental disease.

The present material reaffirms our earlier conclusion that Alishar Copper Age and Phrygian present a longheaded type, Alishar Early Bronze Age and Hittite Empires a roundheaded type. We have now the additional evidence that also the earliest population, the Chalcolithic, was longheaded. In Tables IV and V are summarized the average measurements and average indices of all of the adult Alishar crania.

According to our present knowledge of longheadedness and roundheadedness, these types are not absolutely restricted in their range. In a longheaded population the cranial index may range from very long heads to middle or subround heads; in a roundheaded population the range may be from very round heads to middle or moderately long heads. The fact of significance is the predominance of a given type in any one population, or at any one time in the history of that population. The distribution of types on either side of the predominant form need not be a measure of mixture; it may be an expression of an expected variation. It is only when the sum total of cranio-facial features differs that we may look for introduced elements.

In Figure 234 A the horizontal circumference of Chalcolithic adult female c X18 (L-B index 72.6) and that of Copper Age subadult female 3213 (L-B index 77.4) are superimposed. The slightly greater breadth of 3213 may be due in part to the difficulties of reconstruction, especially over the right parietal. In Figure 234 B the transverse contours are compared; here again the slightly greater breadth of 3213 is to be noted. In Figure 234 C the lateral contours are superimposed; they are virtually identical, and in both the occiput is fully rounded.

In Figure 235 A the horizontal circumferences of Copper Age adult male e X3 (L-B index 69.8), Hittite Empires adult male d X38 (L-B index 79.5), and Phrygian adult male 3218<sup>6</sup> (L-B index 68.1) are superimposed. The lengths of all three do not differ greatly, but d X38 is obviously broader. Of interest is the marked postorbital constriction in 3218; this was the

<sup>6</sup> Measurements of this skull were first published in Table I opposite p. 136 in *OIP* XX.

CRANIAL TYPES FROM ALIŞAR HÜYÜK

TABLE IV  
MEAN MEASUREMENTS OF ALIŞAR CRANIA (ADULTS)

MEASUREMENT	CHALCO- LITHIC	COPPER AGE		EARLY BRONZE AGE	HITTITE EMPIRES		POST- HITTITE- PHRYG- IAN	HEL- LENIS- TIC	ROMAN		TURK- ISH
	♀ (1)	♂ (6)	♀ (1)	♂ (2)	♂ (8)	♀ (3)	♂ (4)	♂ (2)	♂ (4)	♀ (3)	♂ (4)
(1) Gl-op ( <i>L</i> )*	179	182.1	177	180.5	182.9	174.3	186.5	179.0	181.0	185.3	167.0
(8) Eu-cu ( <i>B</i> )	130	135.0	137	142.5	144.6	141.0	132.4	136.0	140.3	136.3	146.0
(17) Ba-b ( <i>H'</i> )		136.4		136.0	125.9	121.5	124.0	130.0	129.0	131.0	130.0
(20) Po-b.	107	112.8	107	116.0	113.4	106.0	113.5	105.5	119.3	122.5	112.8
(9) Min. frontal ( <i>B'</i> )	94	91.3	93.5	100.5	99.8	96.7	99.7	97.5	99.0	97.3	95.5
(45) Zy-zy ( <i>J</i> )	124	124.4	113	135.5	129.8	125.0	127.7	134.0	122.5	127.0	135.3
(5) Ba-na ( <i>LB</i> )		102.9		95.0	103.7	87.0	98.0	99.0	106.0	107.0	99.8
(40) Ba-pr ( <i>GL</i> )		91.0		84.0	98.6	77.0	95.0	92.0	105.0	98.0	93.3
(48) Na-pr ( <i>G'H</i> )	66	69.6		60.0	68.6	62.0	66.5	61.0	72.8	68.0	70.3
(50) Bi-orb. min. ( <i>DC</i> )		22.3		25.5	24.7	21.5	23.7	25.0	24.3	21.3	22.0
(51a) Orb. width ( <i>O<sub>1</sub>R</i> )	38	38.9	37	36.0	40.1	37.0	39.3	40.5	39.5	41.0	39.3
(52) Orb. height ( <i>O<sub>2</sub>R</i> )	35	33.7	31	34.0	32.6	33.0	32.8	30.0	35.5	34.0	33.8
(55) Nasal height ( <i>NHR</i> )	46	48.8		49.0	52.3	48.0	50.5	45.0	52.0	51.0	53.8
(54) Nasal width ( <i>NB</i> )	22	24.9		26.0	26.1	24.0	26.0	25.0	24.3	25.0	23.0
(61) Max. al. width ( <i>EB</i> )	58	60.3		53.0	61.9	64.0	62.0	55.0	59.3	66.0	61.8
(60) Max. al. length ( <i>G<sub>1</sub>'</i> )		51.5		46.0	50.8	43.0	53.0	50.0	55.7	54.5	49.0

\* For explanation of symbols see Table II.

TABLE V  
MEAN INDICES\* OF ALIŞAR CRANIA (ADULTS)

INDEX	ABBREVI- ATION	FORMULA	CHALCO- LITHIC	COPPER AGE		EARLY BRONZE AGE	HITTITE EMPIRES		POST- HITTITE- PHRYG- IAN	HEL- LENIS- TIC	ROMAN		TURK- ISH
			♀ (1)	♂ (6)	♀ (1)	♂ (2)	♂ (8)	♀ (3)	♂ (4)	♂ (2)	♂ (4)	♀ (3)	♂ (4)
Cranial	CI or L-B	$\frac{B \times 100}{L}$	72.6	74.2	77.4	79.1	79.2	80.9	71.0	76.1	77.7	73.6	87.5
Height-length	H-L	$\frac{H' \times 100}{L}$		75.1		77.7	68.1	70.4	67.8	71.0	69.7	71.2	77.9
Height-breadth	H-B	$\frac{H' \times 100}{B}$		100.3		93.2	87.1	86.1	93.2	96.3	82.7	97.0	89.1
Po-b-length	Po-b-L	$\frac{Po-b \times 100}{L}$	59.8	62.0	60.5	64.3	62.0	61.6	60.9	58.9	65.9	65.9	67.6
Po-b-breadth	Po-b-B	$\frac{Po-b \times 100}{B}$	82.3	83.6	78.1	81.5	78.4	76.6	85.8	77.6	85.4	89.2	77.3
Orbital	OI	$\frac{O_2R \times 100}{O_1R}$	92.1	87.1	83.8	94.4	81.4	89.2	83.5	83.3	90.0	82.9	86.2
Nasal	NI	$\frac{NB \times 100}{NHR}$	47.8	51.3		53.1	50.2	50.0	53.2	55.6	48.1	49.0	43.0
Transverse cra- nial face		$\frac{J \times 100}{B}$	95.4	92.2	82.5	95.1	89.7	91.2	95.6	98.5	88.1	88.8	92.4
Upper morpho- logical face		$\frac{G'H \times 100}{J}$	53.2	56.0		43.8	52.9	49.6	52.1	46.9	59.6	56.7	51.9
Zygo-frontal		$\frac{B' \times 100}{J}$	75.8	73.5	82.7	74.2	77.9	74.4	78.1	72.8	79.3	79.5	71.4

\* Calculated from the individual indices.

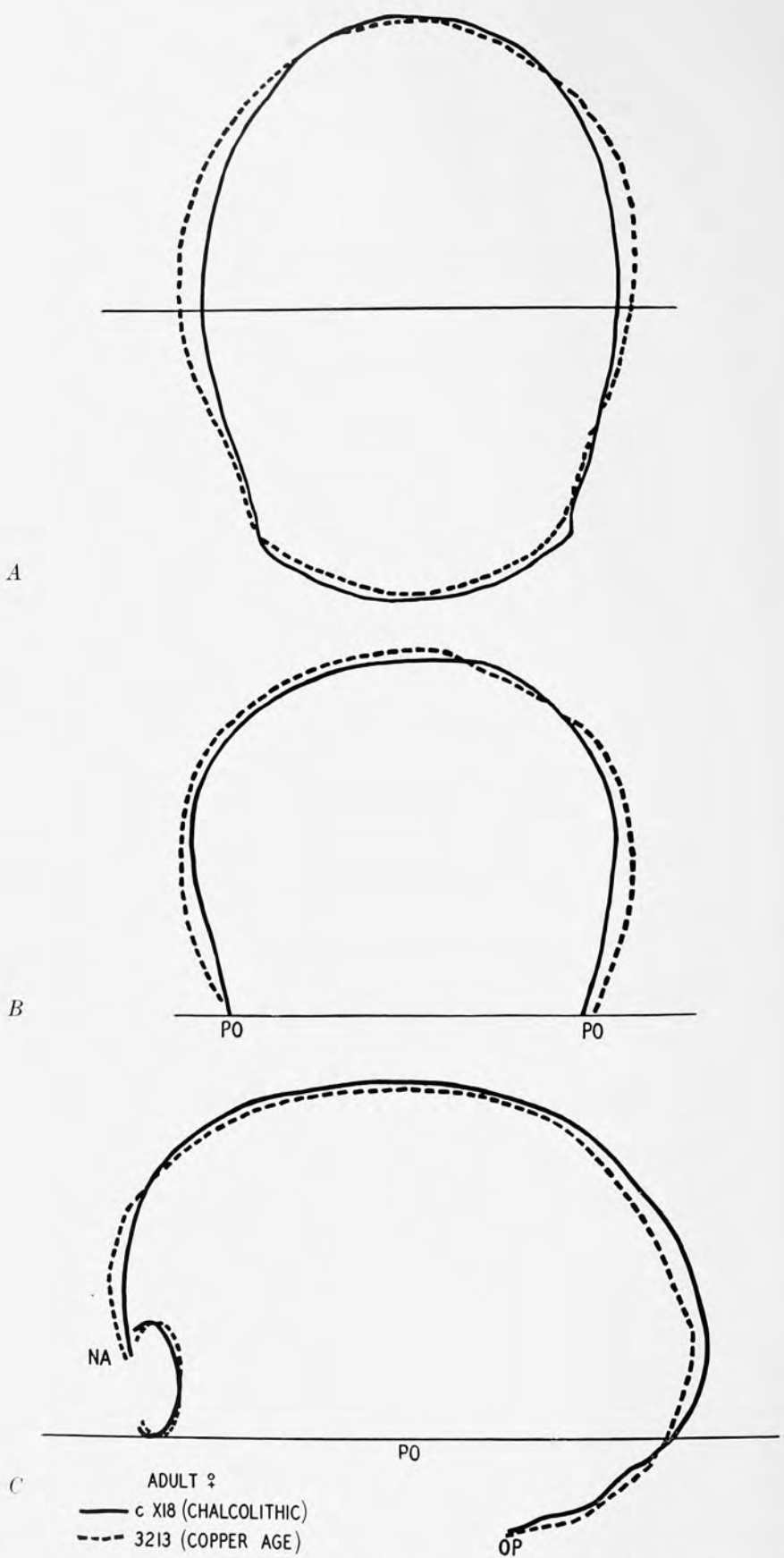


FIG. 234.—SUPERPOSITIONS OF CONTOURS OF SKULLS c X18 AND 3213. A. HORIZONTAL. B. TRANSVERSE. C. LATERAL



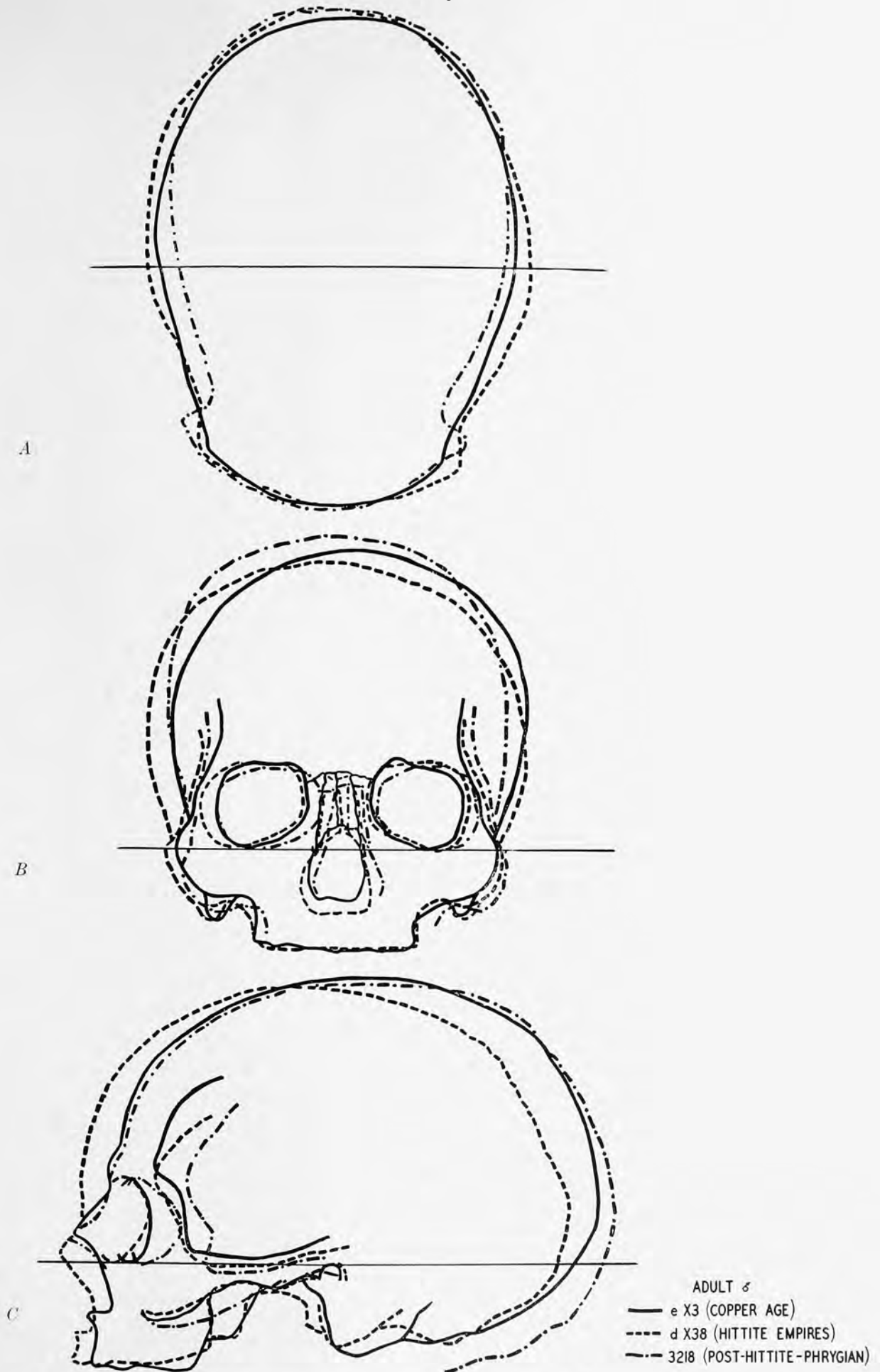


FIG. 235.—SUPERPOSITIONS OF CONTOURS OF SKULLS e X3, d X38, AND 3218. A. HORIZONTAL. B. FRONTAL. C. LATERAL

only skull that approached Elliot Smith's definition of the "Brown Race" as possessing ill-filled temporal regions (157, p. 66; cf. p. 69). In Figure 235 *B* the frontal contours are compared, including the faces (face incomplete in 3218). The broad, low face of d X38 is in contrast to the narrower, higher faces of e X3 and 3218; the unusually short subnasal length of d X38 is striking. In Figure 235 *C* the lateral contours, again including the faces, are superimposed. Here d X38 is clearly separated from e X3 and 3218 by a decreased postporionic length, compensated, as it were, by an increased preporionic length. The shortening of the occipital area does not, however, involve a planoccipital condition.

In Figures 236-37 skulls c X18 and 3213 and skulls e X3, d X38, and 3218 respectively are shown photographically for comparison with Figures 234-35. The fragmentary condition of skulls c X18 and e X3 when received is illustrated in Figure 238.<sup>6</sup>

In Figure 239 the individual skulls of Alishar Chalcolithic, Copper Age, Early Bronze Age, Hittite Empires, and Phrygian are graphically depicted on a length-breadth grid. Each skull is located according to its gl-op length and its eu-eu breadth. The diagonal lines demarcate the cranial index: 70 or less, very longheaded; 70-75, longheaded; 75-80, middleheaded; 80-85, roundheaded; 85 and over, very roundheaded. Chalcolithic, Copper Age, and Phrygian fall into the long- and middleheaded zones; Early Bronze Age and Hittite Empires fall into the middle- and roundheaded zones. There is, of course, an expected slight overlap.

In Figure 240 a similar diagram has been utilized to contrast the average cranial lengths and cranial breadths of adult skulls in each of the periods, with equal weight given to the male and female averages when both are available. Again we note a consistent grouping, shown by the dotted lines: Chalcolithic, Copper Age, Phrygian, Hellenistic, Roman; Early Bronze, Hittite Empires. The isolation of the Turkish period is a significant feature to which we shall return later.

In Figure 241 a different method of comparison is employed. Because of the fragmentary nature of several of the skulls and the scattered nature of the available comparative data, four indices were chosen because of their practicability. Three are indices of cranial proportion: L-B, H-L, H-B; one is an index of upper facial proportions: upper morphological face index. Adult male averages only are given:

Period	L-B	H-L	H-B	Upper Face
Copper Age	74.2	75.1	100.3	56.0
Early Bronze Age	79.1	77.7	93.2	43.8
Hittite Empires	79.2	68.1	87.1	52.9
Phrygian	71.0	67.8	93.2	52.1
Turkish	87.5	77.9	89.1	51.9

For the L-B index the grouping is Copper Age and Phrygian; Early Bronze Age and Hittite Empires; and Turkish. For the H-L index the grouping is Hittite Empires and Phrygian; Copper Age, Early Bronze Age, and Turkish. The H-B index distinguishes Copper Age from Early Bronze Age and Phrygian, while Hittite Empires and Turkish show similarity. In upper morphological face index Early Bronze Age stands by itself at one extreme, as does Copper Age at the other. The low H-L index of Hittite Empires and Phrygian, the high H-B index

<sup>6</sup> The restorations which made these skulls usable were achieved by Mr. W. H. Sassaman after nearly a year's patient labor, for not only were the skulls broken, but they were warped as well. His work brings added evidence that no material is so fragmentary that it may be overlooked by the archeologist. Dr. von der Osten and his staff are to be congratulated upon their care in excavating the material; Mr. Sassaman is to be congratulated for the finest craniological reconstruction ever achieved. The photographs of the restored skulls were prepared by Miss W. M. Kuenzel of the Laboratory of Anatomy, Western Reserve University, Cleveland, Ohio; all figures were drawn by Miss Elizabeth Groves. To both of these artists I am grateful for their efficient assistance.

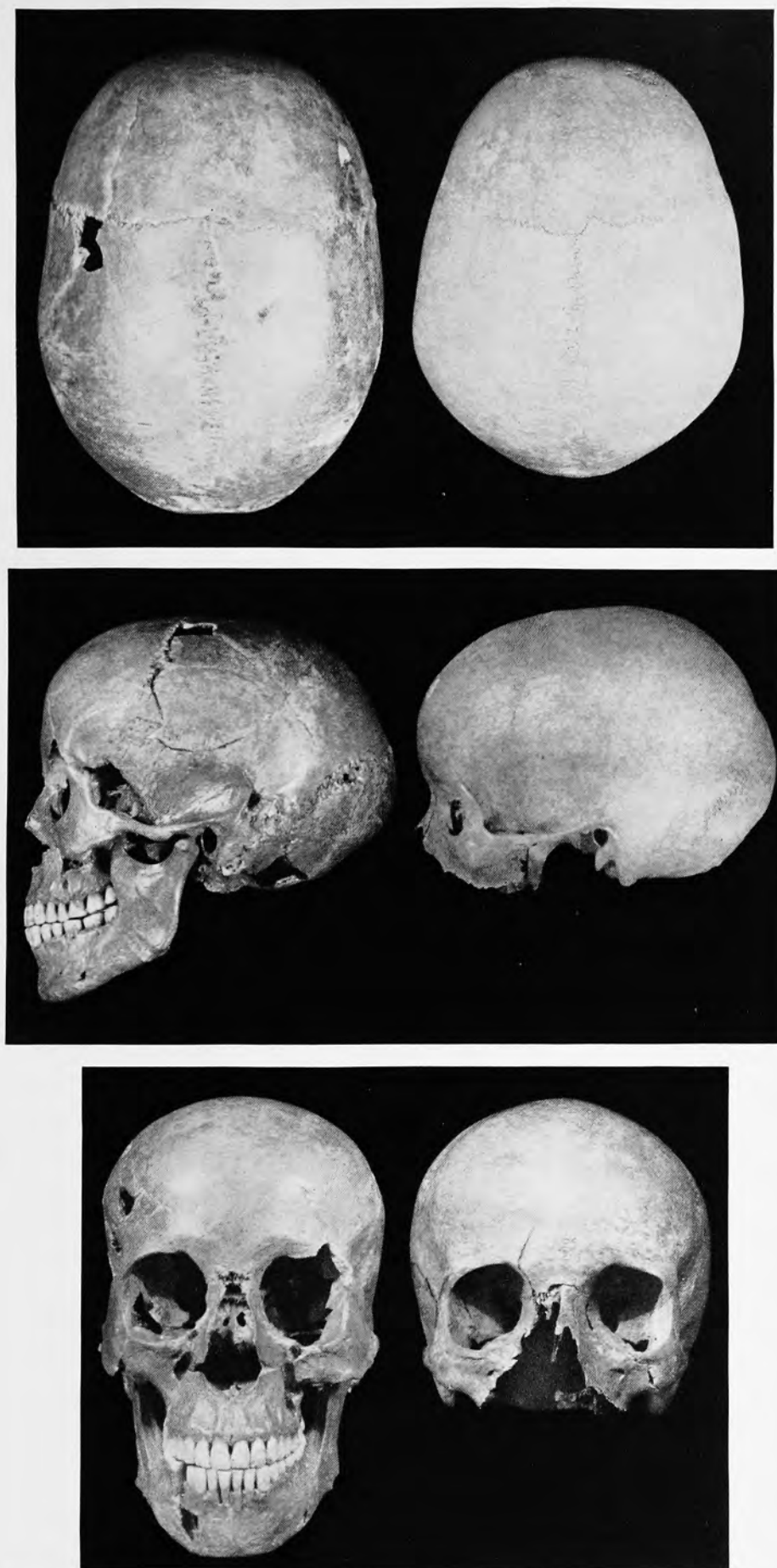


FIG. 236.—NORMAE OF SKULLS c X18 AND 3213. A. VERTICALIS. B. LATERALIS. C. FACIALIS

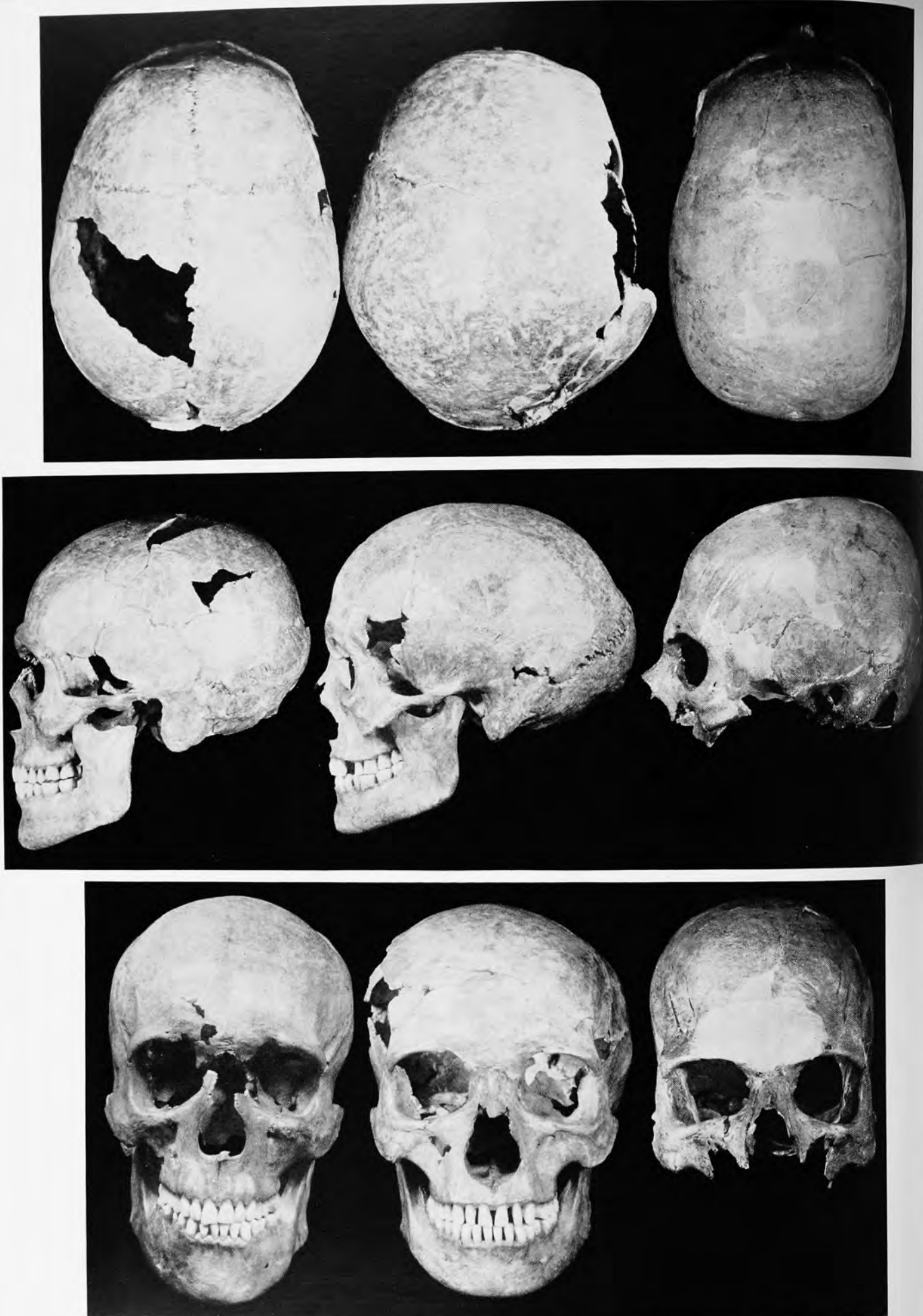


FIG. 237.—NORMAE OF SKULLS c X3, d X38, AND 3218. A. VERTICALIS. B. LATERALIS. C. FACIALIS



FIG. 238.—FRAGMENTARY CONDITION OF SKULLS c X18 AND e X3 WHEN RECEIVED

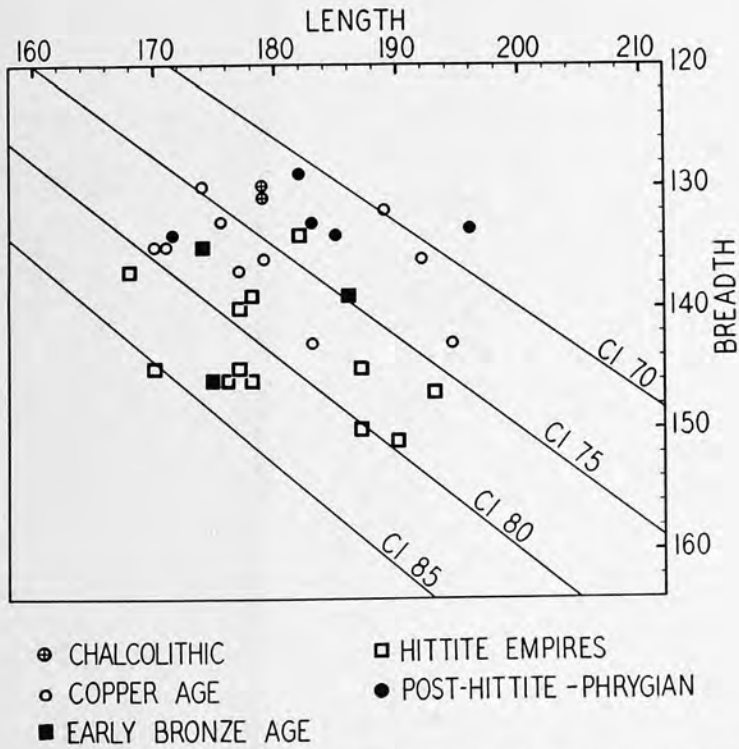


FIG. 239.—GRAPHIC SUMMARY OF THE LENGTH-BREADTH RATIOS OF INDIVIDUAL CRANIA OF ALIŞAR CHALCOLITHIC, COPPER AGE, EARLY BRONZE AGE, HITTITE EMPIRES, AND POST-HITTITE-PHYGIAN



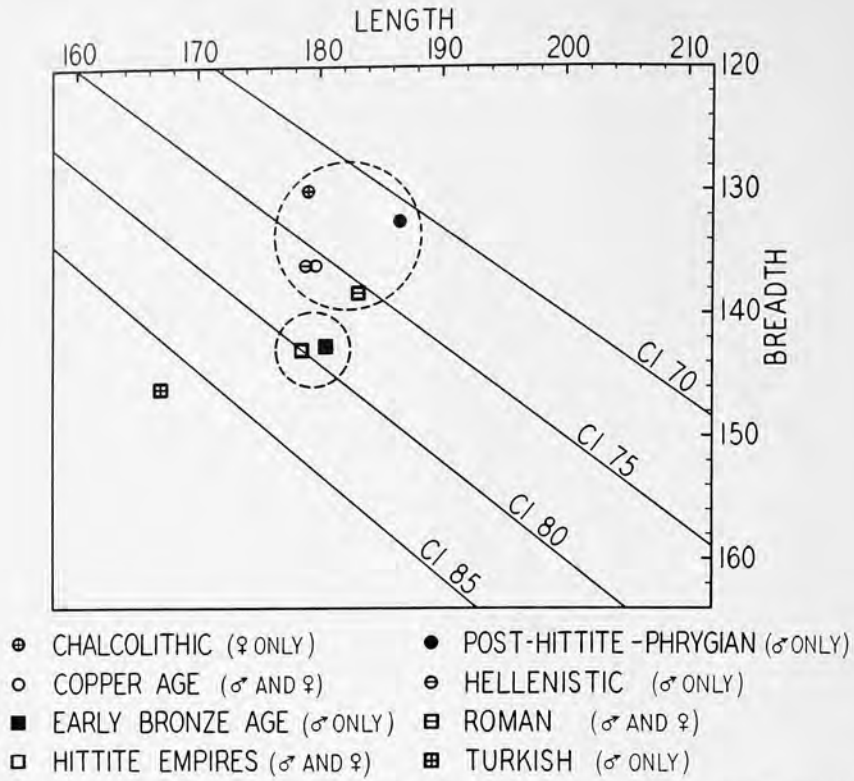


FIG. 240.—GRAPHIC SUMMARY OF THE AVERAGE LENGTH-BREADTH RATIOS OF ALIŞAR ADULT CRANIA OF EACH PERIOD

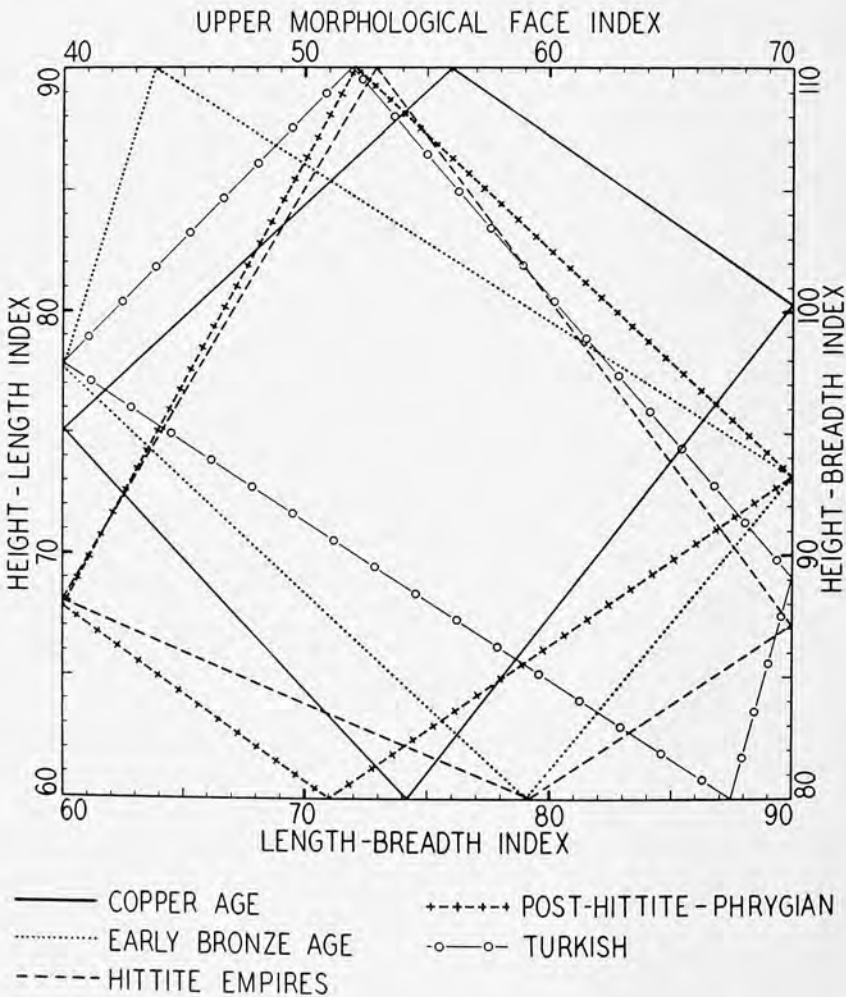


FIG. 241.—GRAPHIC SUMMARY OF THE AVERAGE CRANIAL AND FACIAL INDICES OF ALIŞAR COPPER AGE, EARLY BRONZE AGE, HITTITE EMPIRES, POST-HITTITE-PHYGIAN, AND TURKISH ADULT MALE SKULLS

TABLE VI  
SEQUENCE AND CHRONOLOGY IN EGYPT, ASIA MINOR, AND WESTERN ASIA

EGYPT<sup>1</sup>

MESOPOTAMIA AND ELAM<sup>4</sup>

SYRIA AND PALESTINE<sup>7</sup>

ASIA MINOR (WEST)

ASIA MINOR (EAST)

ARAL-CAS-  
PIAN AREA<sup>14</sup>

NORTH INDIA<sup>16</sup>

Date	Egypt	Cranial type resembles early dynastic	Mesopotamia and Elam	Syria and Palestine	Asia Minor (West)	Cyprus	Asia Minor (East)	Aral-Caspian Area	North India
?	Neolithic Tasian		Neolithic	Mesolithic? Natufian <sup>8</sup> Jericho <sup>9</sup>	Neolithic Kumtepe? <sup>11</sup>		Neolithic	Neolithic Anau I Chashmah-i'Ali (Rayy)	?
4500 B.C.?			Nineveh I <sup>5</sup> Shāghir Bāzār <sup>6</sup>	Ra's al-Shamrah V <sup>10</sup> Tell al-Judaidah XIV			Sakçagözü?	Persepolis Village A	4500 B.C.?
	Chalcolithic Badarian		Tell al-Halaf Period (Arpachiyah Sāmarra <sup>1</sup> Tell al-Halaf Nineveh II)	Chalcolithic Semitic invasion? Byblos Ra's al-Shamrah III-IV <sup>10</sup> Tell al-Judaidah XII-XIII Jericho Tulailāt Ghassūl Baisān: Level XVIII and pits Baisān: Levels XIV-XVII Megiddo: Stages IV-VII	Chalcolithic	Chalcolithic Erimi <sup>13</sup>	Chalcolithic Sakçagözü (Black incised ware) Sakçagözü (Painted ware)	Chalcolithic Chashmah-i'Ali (Rayy) Tepe Hisār I D Murtazāgird (near Tehran) Tepe Giyān Tepe Siyalk Tūrang Tepe Shāh Tepe III? <sup>15</sup> D	Chalcolithic D?
4000?			Al-'Ubaid Period (Assur Uruk XIV-XVIII Tepe Gaurā XIII ff. Nineveh)	Invasion of Sumerians Invasion of Akkad by Semites				Tepe Hisār I D Murtazāgird (near Tehran) Tepe Giyān Tepe Siyalk Tūrang Tepe Shāh Tepe III? <sup>15</sup> D	4000?
3500?	Predynastic		Uruk Period (Uruk IV-XIII Khafājāh Nineveh)					Tepe Giyān Tepe Siyalk Tūrang Tepe Shāh Tepe III? <sup>15</sup> D	3500?
	Dynasties I-II		Jamdat Naṣr Period (Assur Fārah Khafājāh Kish Nineveh)	Susa II Tell Asmar Tell Billaḥ VI-VII Tepe Gaurā VII-VIII <sup>4</sup> Uruk II-III				Copper-Bronze Age Tepe Hisār II D Tepe Siyalk Tūrang Tepe Shāh Tepe II? <sup>15</sup> D	
3000?	Dynasties III-IV	Appearance of Roundheads	Early Dynastic Period I (Al-'Ubaid Kish "Y" Ur Khafājāh Tell Asmar Uruk)	Early Bronze Megiddo: Stages I-IV Baisān: Levels XII-XIII Jericho Tell Bait Mirsim Byblos Ra's al-Shamrah III <sup>10</sup>	Hisarlık I, Thermi: Towns I-II D Karaağaçtepe (Dardanelles)?			Tepe Hisār II D Tepe Siyalk Tūrang Tepe Shāh Tepe II? <sup>15</sup> D	3000?
2500?	Dynasties V-VI		Dynasty of Sargon of Akkad	ASSYRIA D(B) Ushpia	Yortan? Bronze Age Hisarlık II Bozüyük	Early Bronze Lapithos B	Copper Age	Tepe Hisār III D(B)	2500?
2000	Dynasties VII-X		Dynasty I of Babylon	Babylon sacked by Hittites ca. 1925	Hanaytepe B Hisarlık III-VI	Middle Bronze Lapithos Melia B	Bronze Age		
	Dynasties XI-XII						Cappadocian tablets (Assyrian merchants in Anatolia)		{Jhukar (Chanhu Daro)
1500	Dynasties XIII-XVII Hyksos		Kassite Dynasty (Indo-Aryan) in Babylon	Hurrians (Aryans?) in Mitanni Iron <sup>3</sup> Tiglathpileser I	Late Bronze Al-Amārnah-Mitanni Period Byblos, Jericho, Megiddo: Strata VII-VIII, Ra's al-Shamrah I Hebrew invasion	Late Bronze Melia Enkomi B(D)	Hittite Empires B	Inscriptions of Yazılıkaya	1500
	Dynasty XVIII				Iron Age Hanaytepe A Hisarlık VII a-b			Inscriptions of Zincirli? Inscriptions of Tyana	1000
1000	Dynasty XIX				Ionian Phrygian	Iron Age Geometric	Phrygian D		
	Dynasty XX				Lydian Persian	Archaic Classic	Medo-Persian D		500
500	Dynasties XXI-XXX Persian conquest 525		Nebuchadnezzar Persian conquest 539		Hellenistic	Hellenistic	Hellenistic		
	Ptolemaic		Seleucid		Roman	Roman	Roman		
0	Roman		Parthian (Arsacid)		Byzantine	Byzantine	Byzantine		
A.D. 500	Coptic		Sasanian						A.D. 500

1 The date of the beginning of the dynastic period is still uncertain (see p. 254, n. 24). Here Dr. Breasted's chronology (18a) has been followed, though it is recognized that scholars now incline to place the beginning of Dynasty I nearer 3000 than 3400 B.C.; cf., e.g., Frankfort in Royal Asiatic Society, *Journal*, 1937, p. 339. On the Badarians and Tasians see Guy Brunton (18b, pp. 60 f.) and Flinders Petrie (124b, pp. 78-80).

2 These symbols are explained on page 256.

3 On the introduction of iron in the Near East see CAH I 109.

4 On the Early Dynastic, Jamdat Naṣr, Uruk, and al-'Ubaid periods see Frankfort (49a, pp. 1-23, 48-51, and 65-72, also Table I; 49b, pp. 79-87; 49c, pp. 35-73 and chronological table) and Speiser (158c, pp. 145 and 177-83). On the sequence Proto-Mediterraneans, Sumerians, Semites see Henry Field (42, p. 79).

5 See *Annals of Archaeology and Anthropology* (AAA) XX (1933) 127-34 and 159-75.

6 See *Iraq* III (1936) 9-11.

7 For a summary of recent discoveries see *American Journal of Archaeology* XLI (1937) 146-53.

8 According to Miss Garrod (51a).

9 See AAA XXII (1935) 143-84 and Pl. XLVI, also Syria XVI (1935) 353-57 and Albright (1a, pp. 199-201).

10 See Syria XV (1934) 110 f., XVI (1935) 167 f., and XVII (1936) 132-37.

11 According to Blegen (9a, pp. 33 f.).

12 The dates assigned to Hisarlık strata are those hitherto generally accepted. The results of the recent excavations by Blegen may lead to important modifications.

13 See *American Journal of Semitic Languages and Literatures* LI (1934/35) 268 f.

14 Chronological data in this column are based on information kindly supplied in 1937 by Dr. Erich F. Schmidt for use in this table. Instead of retaining the preliminary dates given in 149b, pp. 341, 366,

390, and 452 f., Dr. Schmidt now places the end of Tepe Hisār I at ca. 3500 B.C.; the other dates shown here are calculated on the basis of his new table of comparative stratification.

15 On Shāh Tepe see T. J. Arne in *Acta Archaeologica* VI (1935) 1-48.

16 See Archaeological Survey of India, *Mohenjo-daro and the Indus Civilization*, ed. Sir John Marshall (3 vols.; London, 1931), esp. I 100 and 102-8; H. Hargreaves, *Excavations in Baluchistan, 1925, Samsur Mound, Mastung, and Sohr Damb, Nāl* (Archaeological Survey of India, "Memoirs" No. 35 [Calcutta, 1929]), esp. pp. 38 and 56 f.; and Ernest Mackay in [Boston] Museum of Fine Arts, *Bulletin* XXXIV (1936) 83-92.





of Copper Age, and the extreme roundheadedness of the Turkish period are noticeable in Figure 241.

On the basis of the foregoing measurements and graphic contrasts there can be no doubt that the earliest population at Alişar was longheaded; then came in a roundheaded element, to be superseded by another wave of longheads not markedly different from the earliest; after this there is a progressive trend toward roundheadedness until the appearance of a very round-headed type not at all comparable with the earlier roundheads. In other words, the Chalcolithic, Copper Age, and Phrygian elements represent related longheaded types; those of Early Bronze Age and Hittite Empires represent an identical roundheaded type; Hellenistic and Roman elements are a transitional carry-on of the Phrygian type; in the Turkish period a roundheaded type not seen in Early Bronze and Hittite Empires makes its appearance, viz. the Armenoid type.

In attempting to identify the several types referred to above we must consider both chronological sequence and possible geographical relationships. According to Dr. von der Osten (115*b*, pp. 30 and 269) the following provisional dates may be assigned to the cultures found at Alişar:

		A.D.
(VII)	{ Osmanli.....	14th-18th century
	{ Seljuk.....	11th-13th century
(most of VI)	Roman-Byzantine.....	1st-11th century
		B.C.
(V and beg. of VI)	Medo-Persian, Hellenistic, Galatian....	7th-1st century
(IV)	Post-Hittite-Phrygian.....	12th-7th century
(II)	Hittite Empires.....	20th-12th century
(III)	Early Bronze Age.....	24th-20th century; overlaps first Hittite Empire
(I)	Copper Age.....	ends in 24th century
	Chalcolithic.....	ends about 3000 B.C.

The Roman numerals represent the period designations employed in the earlier report (91). In this report we follow the chronology just given. It is to be noted that in this revised sequence Period III (Early Bronze) precedes Period II (Hittite Empires).

In Table VI is presented an outline of chronology and cultural sequence in Egypt, Mesopotamia, Syria, Palestine, Asia Minor, and the Aegean area. The chart is based upon Frankfort (49*a*), Scharff (140*a*), Ungnad (181), CAH I (including the chronological tables on pp. 656-75), and Menghin (104), though the chronology for each cultural period or site has been harmonized with the most recent scholarly opinions.

The human remains probably most directly comparable in time with those of Alişar Chalcolithic and Copper Age are those of two Mesopotamian sites, al-‘Ubaid, reported by Keith (85), and Kish, reported by Buxton and Rice (22). Since these have been considered in our earlier report (91, p. 138), detailed measurements need not be repeated here. At al-‘Ubaid Keith found a longheaded population (average L-B index for seven males, 72.6, though that for four females was 77.6) which he placed nearest the modern Arabs, who are a "Semitic" people. He found "no trace . . . of any roundheaded element of the Hittite type nor of the Mongolian type" (85, p. 240).<sup>7</sup>

<sup>7</sup> The problem of Mongoloid elements is a doubtful one. Keane (81, pp. 301 f.) holds that "some of the figures brought to light by M. de Sarzec at . . . Lagash show distinctly Mongolic traits in the prominent cheek-bones, oblique eyes and generally flat features." Pinches (125) notes Mongoloid traits in the Akkadians. Worrell (190, p. 101) states: "The Sumerians were of Mongolian or Mongoloid (Finno-Ugrian?) origin. The Akkadians were Semites." Peake (120, p. 172) quotes Douglas to the effect that several Chinese groups had a legend that their ancestors "had migrated eastward from a

In questing for the possible relatives of the al-Ubaid population Keith (85, pp. 222 f. and 225 f.) suggests that the latter was akin to the predynastic Kawāmil type in Egypt described by Fouquet; more distant affinities, says Keith (85, p. 222), are to be found with the Neolithic longheads of France and the Long-Barrow type of England; an ultimate source may possibly be found in the Combe-Capelle type of Aurignacian age (85, p. 240). In Section 5 we consider European Upper Paleolithic and Neolithic types.

At Kish Buxton (22, pp. 67-71, including table opposite p. 108) found a population which was essentially longheaded.<sup>8</sup> For twenty-two males the L-B index ranged from 63.3 to 89.1; for four females the range was 70.5 to 76.3; the calculated mean L-B index for twenty-four males was "71.54 ± 0.68." Two major types were recognized, the "Eurafrican" and the "Mediterranean." The former was long- and highheaded with a tendency to scaphocephaly; the forehead was retreating, the supraorbitals strong, and the calvarium, though small, resembled the Combe-Capelle type; all craniofacial contours were "angular," an impression enhanced by a broad face. The Mediterranean type was long- to middleheaded, with rounded, gracile contours, well filled cranium, and prominent occiput.

The roundheads at Kish, on the other hand, were identified by Buxton (22, p. 74) as Armenoid; if so, they are certainly not comparable with the roundheads at Alishar.

In answer to the question how Alishar Chalcolithic and Copper Age are related to al-Ubaid and Kish, we would state that the same basic longheaded stock, the Mediterranean, represented today by the South European type, is present in all of them.

We cannot neglect the presence of the roundheads. Günther (57a, pp. 47-50) states that the Sumerians may have been ruled by Nordics. Buxton (22, p. 82) feels that it is not improbable that the Sumerians belonged to the Armenoid race, but he recognizes the possibility that the original inhabitants of all Mesopotamia were of the longheaded proto-Egyptian type. In this Elliot Smith (157, pp. 153-61) concurs—at least by implication—when he says that the Sumerians were of the "Brown Race," by which term he designates (157, p. 69) the closely related peoples of the entire Mediterranean basin, the coast of Asia Minor, Southwestern Asia, and India. Hall (61, p. 173) feels that the Sumerians were of Indian origin, akin to the Dravidians.

Since our earlier report was written, information concerning the important Megiddo material has become available through a brief discussion by R. M. Engberg (39a, pp. 45-47). Engberg (39a, pp. 45 f.) notes that "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. 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." According to him, the average cranial index of three Early Bronze males (ca. 2000 B.C.) was 74.97, of two females 74.25; the average cranial index of sixteen Chalcolithic males (?-ca. 3000 B.C.) was 72.88, of eleven females 75.96. Later information from Mr. Engberg is to the effect that the skulls of the Hyksos period (1800-1600 B.C.) are of a rather roundheaded type.<sup>9</sup>

W. F. Albright (1b, p. 3) calls attention to Dunand's report on skeletal remains from the

region south of the Caspian Sea in about the twenty-third century B.C.<sup>10</sup> The Bak are the people traced by Peake from the Caspian area northeast to China via Central Asia. The presence of so-called Mongoloid traits in early Mesopotamia may hint at admixture, but it does not certify as to origin. The earliest people are longheads, hence non-Mongoloid.

<sup>8</sup> At Carchemish, Early Bronze Age, a similar longheaded skull was found by C. L. Woolley (Buxton, 20, p. 102).

<sup>9</sup> The Megiddo skulls were turned over for study to Dr. Aleš Hrdlička, whose report will appear in *OIP* XXXIII.



Chalcolithic cemetery of Byblos dating not "later than the third quarter of the fourth millennium." The pottery is similar to the Ghassulian, generally accepted as Chalcolithic. The cranial type is prevailingly longheaded. Dunand relates the type to the Mesolithic Natufians of Carmel, recovered by Miss Garrod, and to the Badarians of Upper Egypt.

As we move down a millennium or so, the vista of comparison widens tremendously: Alişar Early Bronze Age, Hittite Empires, and Phrygian may be compared with Ur in Mesopotamia, Mohenjo Daro in the Indus Valley, Tepe Hisar in northern Iran, Hanaytepe and Hisarlık III on the west coast of Asia Minor, and with a number of less important sites.

At Ur Keith (85, pp. 220-22) notes an intensification of the longheadedness seen at al-Ubaid, due, he contends, to a Semitic influence. Three male skulls had an L-B index range of 66.7 to 71.6, with average of 69.8; four females ranged from 68.4 to 74.3; no round- or middleheads were observed. Keith (85, p. 214) holds that basically the Ur newcomers "were of a race closely allied in origin with the older [al-Ubaid] inhabitants"; he concludes further that "the ancient inhabitants of Ur and Kish were of the same racial composition." The date of the Ur material studied by Keith is set by him (85, p. 214) at 1900-1700 B.C. It is an extremely important fact, therefore, that the physical type of this date can be identified with that of some two thousand years earlier; for this bespeaks a continuity of type that argues for the dominance of an indigenous form.

About 2500-2000 B.C. an Indo-Aryan (Indo-European, Indo-German) linguistic wave appears to have emanated from Western Asia and swept on to India, to Europe, and to Asia Minor. The question arises: Was this linguistic complex carried by a specific "Indo-Aryan" physical type? Kappers (79, pp. 94-125, esp. p. 116) has identified the "Indo-Aryan" race with the possessors of extreme longheadedness; in his curves of the L-B index a peak of 71 denotes an "Indo-Aryan" type. We can trace this type in various prehistoric sites.

Menghin (104, p. 442) points to the evidence of contact between Sumer and Mohenjo Daro during the first half of the 3d millennium B.C. Sewell and Guha (102) report on the cranial material from Mohenjo Daro and make comparisons (102, p. 643) with a more or less contemporary skull from Nāl in Baluchistan. The following measurements are taken from Kappers (79, p. 119; L-B index of MD 8 corrected):

Skull	L	B	L-B Index	Min. Frontal	Zy-zy	Nasal Index	Orbital Index
MD 1 (♀)	175.5	123.0	70.08	91.5	117.5	42.49	90.25
MD 6 (♂)	178.5	128.0	71.71	93.0		48.94	84.70
MD 7 (♀)	173.5	120.5?	69.45?			50.85	84.78
MD 8 (♂)	172.0	131.0	76.16	93.0	124.0	57.78	71.95
MD 11 (♂)	195.0	134.0?	68.72?	95.0	127.0	51.06?	84.46
MD M (♂)	199.0	126.0	63.32	97.0			
Nāl	188.5	132.0	70.02	93.0?		46.9	82.5

Most of the above crania are extremely longheaded. They are generally mesoconchic and mesorrhine, except that MD 8 is markedly chamaeconchic and chamaerrhine. The Mohenjo Daro L-B index is very close to the Punjabi average (71). It is therefore possible that the Mohenjo Daro skulls may represent an earlier group of the same people who swept into Mesopotamia from the northeast about 2000 B.C.

The cranial material excavated at Tepe Hisar by Dr. Erich F. Schmidt has received a preliminary study by Kappers (79, pp. 94-98). The time of existence of Tepe Hisar is divided by Dr. Schmidt (letter of 1937; see Table VI, n. 14) into three periods, as follows: I, before 4000-ca. 3500; II, ca. 3500-3000; III, ca. 3000-2000(?) B.C. The male average L-B index was 70.8, the female average 72.8. The population was predominantly longheaded. Of this population

Kappers (79, pp. 97 f.) concluded that they were "closely related to the Neolithic longheads of Central Europe, the Kurgan people of central Russia, as well as to the Punjab people of the present time."

In Layer B of Hanaytepe (Kappers, 79, pp. 103 f.) one female skull was found with L-B index of 71.5. This layer is probably contemporaneous with Hisarlık III. Of thirteen skulls found in Layer A, of the Iron Age, seven were longheaded, six middleheaded.

At Anau in Turkestan Pumpelly (128, II 445 f.) found in the North Kurgan one adult skull with L-B index of 76.2(?). Kappers (79, pp. 98-101) accepts this skull as of the same type as at Tepe Hisar. There is considerable doubt as to the exact date of Anau I. Myres (111, p. 86; cf. table opposite p. 660) takes it back to *ca.* 9000 B.C., Peake and Fleure (122, p. 133) to *ca.* 3900 B.C., while Kappers (79, p. 99) takes it back only to *ca.* 2000 B.C. We would accept *ca.* 5000-4500 B.C. as a probable date.

In Hisarlık III Schliemann (142, pp. 270-72 and 507-12) found three skulls, two male and one female; one female skull was found in Hisarlık II. These skulls were measured by R. Virchow, as follows:

	HISARLIK II	HISARLIK III		
	♀	♂ 1	♂ 2	♀ 1
Length	180.5	193.0	191.0	188.0
Breadth	149.0	132.5?	141.0	134.0
Auricular height	116.0	110.0	110.0	111.0
Facial height	104.0	104.5	106.0	
Facial breadth	90.0		89.0	
Orbital height	29.0		30.0	
Orbital width	38.0		38.0	
Nasal height	48.0?	47.0?	49.0	
Nasal width	23.3	23.0	26.0	
Length-breadth index	82.5	68.6?	73.8	71.3
Auricular index	64.2	56.9	57.5	57.0
Nasal index	48.5	48.9?	53.0	
Orbital index	76.3		78.9	

The female skull from Hisarlık II is roundheaded and is assigned to the Alpine (Central European) race by Peake (120, p. 165). Its facial breadth of only 90.0 mm. is not, however, in keeping with this type. Both males of Hisarlık III are, according to Peake (120, p. 165), of the rugged, muscular Nordic (North European) type and probably belonged to the invaders who sacked Hisarlık II about 2225 B.C.<sup>10</sup> Childe (24, p. 62) also argues for the presence of Nordics in Hisarlık III. Though he calls attention to the fact that the megaron house, generally accepted as Nordic, may be Danubian or Ukrainian or even Anatolian, he points out that the type of battle-ax found in Hisarlık II is certainly Nordic (Kuban?) in origin.

If this "Nordic" thesis be accepted, then we must recognize the possibility of the introduction of a new longheaded type, i.e., North European. We take up the problem of the Neolithic Steppe people and their probable relation to the present Nordic type in Section 4 of this report; but at the moment we shall accept the fact that they are related. About 2250 B.C., then, a wave of Caspian Steppe folk surged into southern Russia and the Ukraine and on into the lower Danubian area, destroying the Tripolje culture en route; another wave passed on to Iran and Mesopotamia, to become known as the Kassites. The earlier group left the lower Danubian area, some going to Hungary, some to Thrace. The latter divided into two groups, of which one continued to Thessaly, while the other crossed the Hellespont, destroyed

<sup>10</sup> Kappers (79, p. 102) feels that these longheads "may be of Hatti origin."

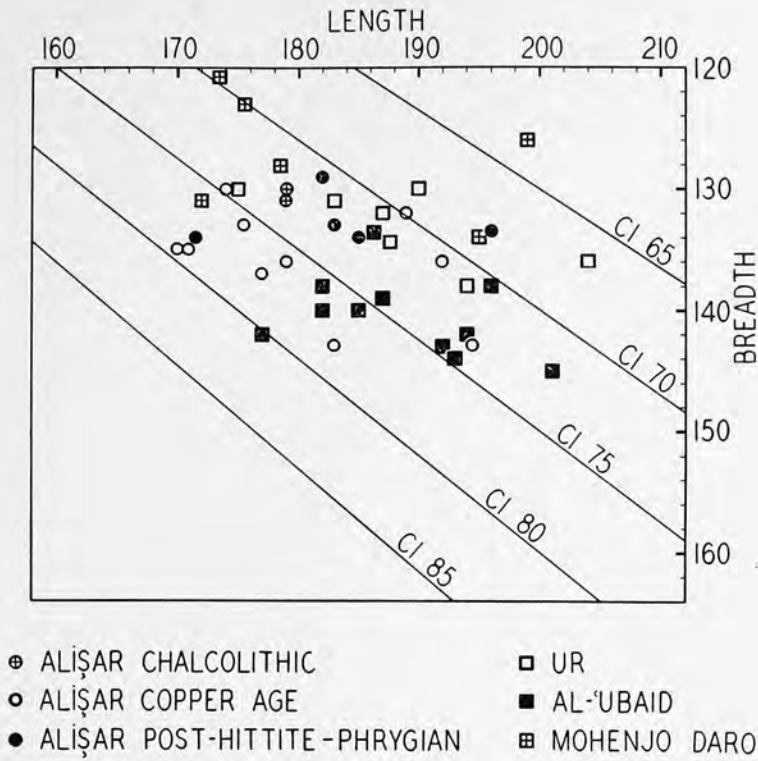


FIG. 242.—GRAPHIC SUMMARY OF THE LENGTH-BREADTH RATIOS OF INDIVIDUAL CRANIA OF ALIŞAR CHALCOLITHIC, COPPER AGE, AND POST-HITTITE-PHRYGIAN; UR; AL-'UBAID; AND MOHENJO DARO

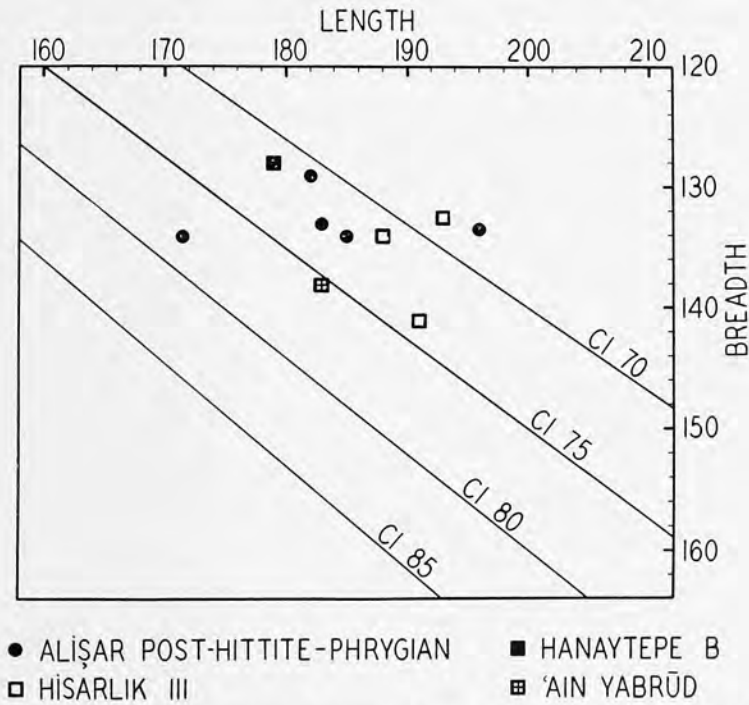


FIG. 243.—GRAPHIC SUMMARY OF THE LENGTH-BREADTH RATIOS OF INDIVIDUAL CRANIA OF ALIŞAR POST-HITTITE-PHRYGIAN, HISARLIK III, HANAYTEPE B, AND 'AIN YABRŪD

Hisarlık II, and proceeded thence to Anatolia (Peake, 120, p. 167). Peake (120, p. 172) raises the question as to whether this group comprised the people that appeared shortly afterward farther south and were known as Amorites, or the people that survive to the present day as Kurds.

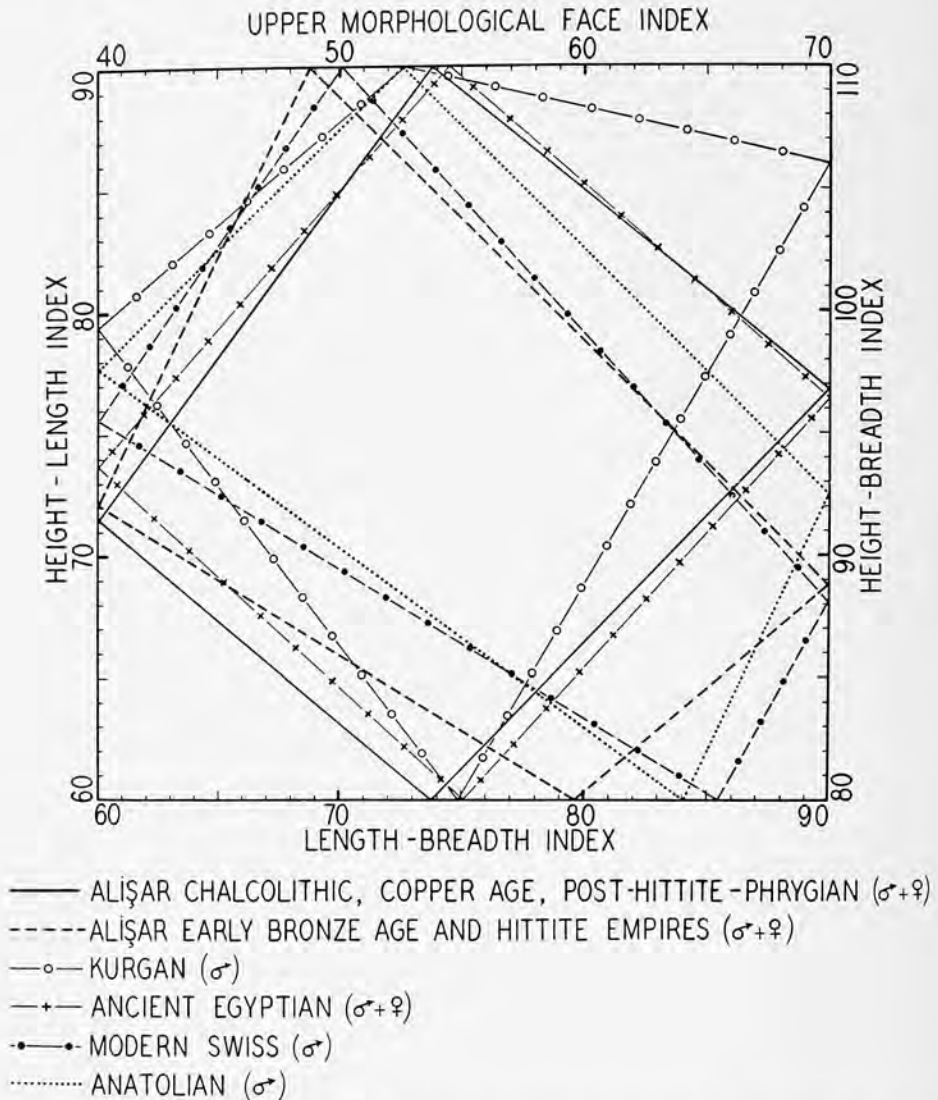


FIG. 244.—GRAPHIC SUMMARY OF THE AVERAGE CRANIAL AND FACIAL INDICES OF GROUPED ALIŞAR ADULT CHALCOLITHIC, COPPER AGE, AND POST-HITTITE-PHRYGIAN; ALIŞAR ADULT EARLY BRONZE AGE AND HITTITE EMPIRES; KURGAN; ANCIENT EGYPTIAN; MODERN SWISS; AND ANATOLIAN SKULLS

In Figure 242 is presented a graphic tabulation of the length-breadth relationship of each of the skulls from Alishar Chalcolithic, Copper Age, and Phrygian and of the skulls from al-Ubaid, Ur, and Mohenjo Daro (the Nāl skull is not considered in the grid). The general tendency of all of the skulls is toward longheadedness; Alishar Copper Age and al-Ubaid have some middleheaded individuals. On the basis of this alignment there seems to be some sort of fundamental similarity.



Figure 243 tabulates the skulls from Alişar Phrygian, Hisarlık III, Hanaytepe B, and Ain Yabrūd<sup>11</sup> (Copper–Bronze Age of Palestine). Again, as in Figure 242, we have an impression of essential longheadedness.

In Figure 244, which should be compared with Figure 241, Alişar adult crania are contrasted with certain other groups: Neolithic Kurgan (Steppe folk), early dynastic Egyptian, modern Swiss (Central European or Alpine), and modern Anatolian. The data for Figure 244 are:

Group	L-B Index	H-L Index	H-B Index	Upper Morphological Face Index
Alişar Chalcolithic, Copper Age, Post-Hittite–Phrygian (♂ + ♀)	73.8	71.5	96.8	53.8
Alişar Early Bronze Age and Hittite Empires (♂ + ♀)	79.7	72.1	88.8	48.8
Kurgan (♂)*	74.9	79.4	106.0	52.7
Ancient Egyptian (♂ + ♀)†	75.1	73.7	96.4	54.5
Modern Swiss (♂)‡	85.5	75.6	88.1	50.1
Anatolian (♂)§	84.1	77.7	92.5	52.6

\* Bogdanow; cf. Martin, **101**, pp. 772, 798, 803, and Bunak, **18c**, p. 293.

† Oetteking, **114**, pp. 87 f.

‡ Reicher, **133**, XV 429, 432, 434, and 450.

§ Aziz, **3**, pp. 106 f.

As concerns the L–B index, Alişar Chalcolithic etc., Kurgan, and Egyptian are grouped closely together; the Alişar Early Bronze Age and Hittite Empires group stands alone; Swiss and Anatolian are similar. On this basis Alişar Early Bronze Age and Hittite Empires cannot be assigned to either an Armenoid or a Dinaric type. When the H–L indices are contrasted, Alişar Chalcolithic, Copper Age, and Post-Hittite–Phrygian are seen to be weakly orthocranic; Early Bronze Age, Hittite Empires, and ancient Egyptian more strongly orthocranic; and Swiss, Anatolian, and Kurgan hypsocranic, the last type markedly so. There is very little difference in the upper morphological face index, with the possible exception of the Alişar roundheads, who are broad-faced, with an index of 48.8; all the others are middle-faced.

The foregoing measurements, both of the Alişar and of the comparative material, raise certain pertinent questions as to the origin of the basic population of Asia Minor, the provenience of the Alişar roundheads and their relationship to, or identity with, other roundheads (Alpine, Dinaric, Armenoid, “Hittite”), and the interrelationship of the Alişar longheads as well as their relationship to “Indo-Aryans” and “Nordics.”

We cannot attempt to solve these problems until we shall have investigated the possible relationship of the population of earliest Alişar to that of contemporary Neolithic Europe. We shall, therefore, in later sections, enter upon a consideration of the movements of peoples in Upper Paleolithic and Neolithic Europe. After that we shall attempt to answer some of the above questions.

<sup>11</sup> Kappers (**79**, p. 67) gives for this skull length 183, breadth 138, L–B index 75.4.



## 2. THE STABILITY OF HUMAN PHYSICAL TYPES AS REFLECTED IN THE CRANIAL OR THE CEPHALIC INDEX

In undertaking any comparative study of different cranial types it is necessary to have some idea of the reliability of such comparisons in terms of bodily stability. Skin color, hair form, or similar reliable criteria of relationship cannot, as a rule, be studied in ancient human remains. At best, the skeleton is all that is at our disposal. But certain considerations limit the usefulness of skeletal material for purposes of racial comparison. Stature is known to be variable, and calculations from surviving long bones are not wholly dependable. Unfortunately, moreover, the long bones, which are at best extremely friable, are all too often missing, or they fail to attract the attention of the average archeologist. Then, too, we know relatively little about racial differences in the long bones. Our chief recourse, therefore, must be to the skull.

In our study of the Alishar material we have referred to dolichocephalic and brachycephalic skulls (longheads and roundheads) as contrasting types. We have placed considerable emphasis upon cranial size and proportions as criteria of racial similarity.<sup>1</sup> It may be well, therefore, for the benefit of those of our readers who are not anthropologists, to devote some attention to showing the reliability of the chief index of skull proportions (cephalic index on the living, cranial index for skeletal material).<sup>2</sup>

To anyone who has worked with a long series of excavated skulls one of the most obvious facts is the usefulness of the cranial index in cases of incomplete material. The vault of the skull survives long after the facial skeleton has been destroyed. In many instances, therefore, the head length and breadth are about all that can be obtained. Then, too, there are many living people of whom only head measurements have been taken, e.g. by explorers or travelers who were untrained in anthropometric technique, but who yet realized the necessity of at least the minimum knowledge of physical type as the basis of comparative study. Pragmatically, therefore, the length-breadth index commends itself. These reasons alone will not, however, justify our placing reliance on the length-breadth index. To do that we need to have evidence of the racial permanence and physical transmissibility of the index.

Ripley (135, p. 27) quotes Rhys to the effect that "skulls are harder than consonants, and races lurk behind when languages slip away." This observation is of moment when race is discussed in terms of linguistic and cultural affinities. We shall return to it later. Here we shall investigate the impact that is necessary to leave a traceable imprint of physical type. Ripley develops the thesis that invasion must be 100 per cent complete: "Colonization or infiltration, as the case may be, to be physically effective must take place by wholesale, and it must include men, women, and children" (135, p. 30). This would be tantamount to replacement. Keith (88, p. 143), on the other hand, recognizes the effectiveness of the penetration of smaller units: "We should remember that the introduction of a small leaven of a 'dominant' character, such as is represented by roundheadedness, may lead to this feature becoming disseminated throughout a longheaded community, and yet the blood of the original community be diluted to only a slight extent." We shall see that the principles of heredity support Keith's view.

<sup>1</sup> Reche (131, p. 85) recognizes two basic types of the human skull: *short*, characterized by the relative shortness of the parietal and occipital bones; *long*, characterized by the lengthening of the parietal and, to a less extent, of the occipital bone.

<sup>2</sup> The international agreement for the cephalic index  $\left( \frac{\text{maximum breadth} \times 100}{\text{glabella-opisthoeranium length}} \right)$  is reported by Garson (52, p. 19) as follows:

Ultradolichocephalic	60-64.99	Brachycephalic	80-84.99
Hyperdolichocephalic	65-69.99	Hyperbrachycephalic	85-89.99
Dolichocephalic	70-74.99	Ultrabrachycephalic	90-94.99
Mesaticephalic	75-79.99		

The difference between head and skull index values is discussed below.

Before we take up a detailed analysis of factors influencing head size and proportions it will be well to discuss also the importance of the facial skeleton. Briefly, there are two opposing views concerning the value of racial criteria in the face: the one is that of the morphologist, the other that of the craniometrist. Keith (85, p. 215) recognizes the head shape—absolute dimensions rather than proportion—as of value in gross differentiation; but in imperfectly differentiated races he holds that “the forms of nose, forehead, cheeks, chin, and orbits have to be given the higher value.” Kappers (80, p. 604) recognizes in substance the validity of this argument when he says that “facial characteristics, however important for establishing relations in a narrower sense, have not nearly the same value for the racial relations in a wider sense.” Morant (108, pp. 301–75, esp. p. 338) undertook a statistical analysis of thirty-one cranial characters and found that six had greater diagnostic value than the other twenty-five combined; the six, in order, were length-breadth index, absolute breadth, height-breadth index, absolute length, orbital breadth, palatal length. Of these six the length-breadth index was nearly twice as valuable as any other.<sup>3</sup> Morant (108, p. 355) concluded that “it seems to be unlikely that any facial measurements will be of much service in aiding the classification of European races.”<sup>4</sup> The coefficient of racial likeness, developed by the Biometric School in London and ably employed by Morant in his study, has done much to emphasize major racial relationships, but we cannot escape the feeling that the coefficient is unable to traverse the narrow bypaths of race evolution and the subtle deviations of race mixture.<sup>5</sup> We have found in the study of the American Negro (cf. Todd and Tracy, 173, pp. 53–110) that cranial contour as seen from norma lateralis is important in racial analysis; that the skull no less than the head has a definite “cast of character”; that we must, moreover, pay attention to face as well as to vault, to nonmetrical as well as to metrical criteria.

Our next task is to consider the reasons for dolichocephaly and brachycephaly in order to ascertain whether the change in skull type is evolutionary or due to intermixture.

One of the earliest and most obvious explanations of skull form is its apparent correlation with stature: tall peoples are dolichocephalic, short peoples are brachycephalic. Thomson (168, pp. 162–66) explained this by pointing out a correlation between the length of the vertebral column and the length of the cranial base (basion to nasion), the cranial base length being in turn correlated with the head length, so that, brain volume being equal, it will be found that dolichocephaly is achieved by a long cranial base, brachycephaly by a short cranial base. In this connection, however, we must note a study by Maly (186, p. 77), who observed the following frequency of head types in three stature groups:

Head Type	Short Stature (Per Cent)	Middle Stature (Per Cent)	Tall Stature (Per Cent)
Dolichocephalic.....		0.40	1.13
Mesocephalic.....	9.00	17.00	15.09
Brachycephalic.....	45.45	51.78	49.06
Ultrabrachycephalic.....	45.45	30.83	34.72

<sup>3</sup> Sergi (154, p. 104) places faith upon the head form as seen from norma verticalis rather than upon the size of the proportional index: “I have shown that the same cranial form may vary in measurements and in index without losing its characters.” Reche (131, pp. 74–90) has shown that an occipital index derived from a perpendicular from  $\lambda$  to a line bregma-opisthion distinguishes between dolichocephaly and brachycephaly apart from the breadth measurement of the skull, and that for such distinction this index is of greater accuracy and value than the length-breadth index alone.

<sup>4</sup> Reicher (133) compared Mongolian and Alpine skulls and found no appreciable difference in head form, but marked differences in facial architecture (see esp. ZMA XVI 56–59).

<sup>5</sup> If we follow the cephalic index alone, we may put into one group the natives of New Britain, the Kanarese of Mysore in S. India, the Bashilanges of the Kasai River in the Belgian Congo, the Eskimos of Greenland, the Botocudos of South America, and the Spaniards of Valencia—all of whom have cephalic indices differing by only 0.1%.

Maly (186, pp. 77 f.) concluded that length of head and tallness were not correlated ("dass in diesem Material langer Kopf und hohe Körpergestalt in keinerlei Zusammenhange stehen"), and that he was dealing with basic stature variation in three roundheaded peoples: Alpine, Dinaric, Baltic.

It is necessary, therefore, to consider another factor—the brain. Thomson himself (168, p. 162) recognized brain volume as a determinant when he observed that the transition from dolichocephaly to brachycephaly "accompanies increased cranial expansion."<sup>6</sup> He points out (168, p. 165) that in two groups with equal cranial capacity, the one tall and with long cranial base, the other short and with short cranial base, compensation for brain mass must be made in skull breadth in the short group. Hence, by implication, both brain mass and stature bear upon skull shape: the skull is round if the brain is large or the cranial base is short; the skull is long if the brain is small or the cranial base long. Symington (162, pp. 650 f.) considers the brain the most important factor in determining skull size and shape; for him the skull reflects, within certain limits, directly progressive cerebral expansion. Boas (10, pp. 459-61) states that the diameters of the skull are primarily determined by its capacity, height being the most definitely correlated, length the least; when cranial capacity is increased, there is a compensatory increase in head breadth on the one hand and head height and head length on the other. In fine, head length and head breadth are not related directly to each other, but only indirectly, since both are related to cranial capacity, i.e. to the size of the brain.

Still another factor to be considered is the force of muscle action, especially of the masticatory muscles. Symington (162, p. 653) observes that "the evolution of man from microcephaly to macrocephaly has been associated with the passage from a macrodontic to a microdontic condition." Parsons (117, p. 74) recognizes two factors in faciocranial types: masticatory (e.g. Eskimo and Long-Barrow skulls) and respiratory (Nordic and Eskimo). Myres (111, p. 22) explains the evolution of brachycephaly among the Mongoloids as due to the muscle pull involved in sucking milk from mares. Buxton (20, pp. 58 f.) finds the masseter muscle to be more bulky in yellow man, i.e. in brachycephalic peoples.<sup>7</sup> Neubauer (cf. 112, pp. 411-42, esp. p. 440) severed the neck muscles of guinea pigs: partial separation gave changes in contour; complete separation gave changes in form. These random observations are sufficient to indicate that muscle pull may influence skull shape to a certain extent. At present, however, it is impossible to evaluate the trend of influence in terms of a definitive shift from one skull shape to another.

There can be no doubt but that age also is a factor in skull shape (Hrdlička, 28, p. 162). The problem of moment is to ascertain just when the age change ceases to be a factor which might vitiate comparative data.<sup>8</sup> Martin (101, p. 708) states that the cephalic index in the same race decreases (becomes more dolichocephalic) two units between six and twenty years, and one and one-half units between ten and twenty years. Pearson and Tippett (cf. 123, pp. 118-38, esp. p. 137) tested this assertion upon a large number of cases and found no significant change in the cephalic index from five to twenty years, and no appreciable change from eight to twenty. They concluded from a study of Galton's material, ranging from ages six to eighty, that there was "no evidence of continuous change."

<sup>6</sup> Increased brain size has, in turn, been attributed to progressive culture complexity, as in the statement: "Die Kultur schlägt die Schädel breit." Cf. Kappers (79, p. 176), Oettking (114, pp. 54 f.), and Symington (162, p. 651).

<sup>7</sup> Buxton recognizes "temporal" and "masseter" types. The Mediterranean is a temporal type; the Asiatic is a masseter type; the Eskimo is a combination of the two. In the temporal type the muscle pull is "more or less directly upwards"; in the masseter type the muscle pull is "distributed over the face." The first conduces to longheadedness, the second to broadheadedness.

<sup>8</sup> The head is 95% adult size at six years of age.



Keith (84), Bolk (15, pp. 465-75, esp. pp. 471-74), and Drennan (37) adduce certain endocrine factors as the essential determiners of skull shape. Keith points out that there are startling similarities between the skull of an acromegalic and a Neanderthaler. Bolk advances his "fetalization theory" and "retardation hypothesis of anthropogenesis" to account for certain Caucasian (white) features. Drennan discusses pedomorphism, or the retention of infantile characters, in the South African pre-Bushman (Plettenberg Bay) skull. In this connection it will be well to record here the impression that cranial *expansion* stages (phylogenetic) may be reproduced in cranial *growth* stages (ontogenetic). To cite a specific instance, the contour of the Predmost skull is very similar to that of the four and one-half year old male white child. We must know more about cranial growth, normal and pathological, before we can explain skull shape on the basis of the interaction of the several hormones.

Finally, we must give attention to a factor, or a set of factors, that is as difficult to evaluate as it is to describe: the environment, whatever connotations this term may have. Both Ripley (135, pp. 80-85) and Buxton (20, pp. 23 f.) agree that local shortness of stature among a people generally tall may be due to so-called "misery spots." The combined effects of disease and undernourishment may result in a stunting of the presumably "racial" growth pattern.<sup>9</sup>

In 1911 Boas (11, pp. 5-7) pointed out that American-born children of immigrants to the United States differed in their cephalic indices from foreign-born children according to the following summary:

	Born in Sicily	Born in the United States
Sicilian (average CI of males and females).....	77.8	80.9 (at 20 years)
	Born in Eastern Europe	Born in the United States
Hebrew (average CI of males and females).....	83.3	81.9 (at 20 years)

The most remarkable feature is the apparent convergence of the two groups, the one from mesocephaly to subbrachycephaly, the other from brachycephaly to subbrachycephaly. The tendency for the cephalic index to change has since been confirmed by Guthe (58, pp. 222 f.), who found the Jewish average to shift from 83 to 81; by Hirsch (67, p. 87), who found a similar shift in Jews and Italians, but none in Swedes; and by Spier (159, pp. 1-29, esp. p. 8), who found the Japanese average at thirteen years of age to vary from 80.7 to 85.6.<sup>10</sup>

Numerous attempts have been made to explain these phenomena. Hooton (71, pp. 406 f.), in a tacit acceptance of Thomson's theory, points out that the Eastern European Jews born in America are taller, the Sicilians shorter: in the former the cranial base gets longer; in the latter it gets shorter, the skull becoming broader to accommodate the brain. Hirsch (67, pp. 89 f.) invokes a psychic change in the offspring of immigrants, with a resulting change in endocrine balance. Günther (56, p. 106, n. 2) holds that the Jews and Sicilians are not races, but are racially mixed *peoples*, and that the change is therefore only segregation or recombination—in other words phenotypic, not genotypic. Kappers (79, p. 176), in seeking the cause of the dominance of the higher indices over the lower ones, gives as one possible explanation that "the increase of brachycephaly would be due to a greater vitality of the higher index race compared to the perhaps somewhat asthenic lower index people, prevailing lengthgrowth being an asthenic feature." He cites (79, p. 47) as definite examples of environmental effect the small-headed low-caste Chuhra of North India as compared with the large-headed high-caste Rajput. With respect to the small-headed South Arabians he puts the question (79, p. 47): "May

<sup>9</sup> It is interesting to note that the decreased stature of the Cro-Magnon race in Magdalenian times is attributed to the rigors of a glacial climate (cf. Keith, 88, p. 396).

<sup>10</sup> Pearson and Tippet (123, p. 137), in a study of the cephalic index in England, found it stable as from one social class of the community to another. Presumably the change must be marked before the cephalic index is affected.



this be a degenerative form due to poorer social circumstances?" Fischer (6, pp. 121 f.) has the same idea when he mentions the finer and narrower face of socially higher, and the coarser and wider face of socially lower, strata of the same race, as seen for example among Germans and Japanese.

One of the most interesting interpretations of the results of Boas' and Guthe's studies of Jews is the observation by Kappers, given in a personal communication, that the "new" average cephalic index of 81 is the average of the Paleo-Asiatic basic constituent of the Jewish type. For him, therefore, the answer is reversion to type, or reselection and recombination. The question of *why* the reversion, *why* the reselection and recombination in an environment totally different from that of the basic stock, remains unanswered.

The latest study of this phenomenon was made by Morant and Samson, who find (109a) that the differences in the cephalic indices of American-born children and their foreign-born parents are not significant statistically; that is, the differences are not greater than would be found between children and their parents in any population chosen at random.

In a very definite sense food and health are part of the environment. There are several suggestive studies to demonstrate the effect of these two factors. Neubauer (112, pp. 432-39) fed rats an inadequate diet and found that avitaminosis, prenatal or postnatal, resulted in a definite tendency to brachycephaly. Bakwin and Bakwin (5, pp. 395-403) found in children who had suffered from intestinal intoxication during the first year of life a marked diminution in the transverse diameters of face and thorax. Iwanowsky (75, pp. 1-12) studied a number of Russian peasants before and after a period of starvation. He found an average diminution in head length of 3.28 mm., in head breadth of 5.89 mm., with a shift of the cephalic index from 83.06 to 81.47—a loss of 1.59 units. It must be pointed out that this change is probably occasioned by muscular atrophy and is most certainly not transmitted to the skull.

Summarizing the above discussion, we may state that the cephalic index is a very useful means for race classification, and that it has been found to be, practically and statistically, extremely important in the elucidation of major groupings. Its use must not, of course, be arbitrary, for not all longheads are closely related; nor may we disregard the facial skeleton or so-called morphological features. It is impossible to assess the exact rôle of the several more or less mechanical factors presumed to act upon the skull, such as brain expansion, relation to stature (vertebral length), and muscular pull (masticatory and nuchal muscles). The age factor is negligible after six years of age. Constitutional factors (endocrine balance, health, food, and the sum total of the "environment") are of considerable, though as yet unmeasured, importance. It is probably through a clearer understanding of the unfolding of the growth pattern that we shall come to a better knowledge of the relative permanence or modifiability of the skull shape.

Despite the elements of doubt still inherent in the foregoing statements, we feel strongly that length, breadth, and height measurements of the skull and their derived indices are the best dimensional criteria available for determining the racial affinities of cranial material.

Our next problem concerns the heredity of the head shape, both in size and in proportions. One fact seems to be certain: brachycephaly is dominant over dolichocephaly (Frets, 50, pp. 512-17). This does not mean that roundheadedness is directly transmitted, but merely implies that over a long period of time brachycephaly will emerge as dominant in a cross.

Some idea of the complexity of the problem may be gained from the investigation by Alette Schreiner (150, pp. 385-454, esp. pp. 385 f. and 443-53), who takes issue with the general tendency of writers on heredity of head form to regard dolichocephaly and brachycephaly as unit characters, and argues for separate genes for the form of the chondrocranium and for the formation and later growth of the cranial vault, assigning primary importance to the former

and secondary importance to the latter. Godin (54) states, upon the basis of the study of thirty matings where father and mother were either brachy- or dolichocephalic, that maternal dominance was independent of skull type.<sup>11</sup> Hauschild (64, p. 521) maintains that in a cross of differing head forms the longheaded parent will contribute length, the broadheaded parent will contribute breadth.<sup>12</sup>

So much for heredity of the cephalic index. It is far more complex than anthropologists generally realize. The important consideration is its rôle in the perpetuation of type and in the rise of new types.

Von Reitzenstein (133a, p. 107) states as his conclusions: dolichocephalic parents have, as a rule, dolichocephalic children; brachycephalic parents, brachycephalic children; "mixed" parents, both dolichocephalic and brachycephalic children, with a tendency to exaggeration in both forms. With this Hooton (71, p. 580) is not quite in agreement, for to him size is important: it is conceivable that a large-headed dolichocephalic male may cross with a small-headed dolichocephalic female; then, if the offspring has the paternal head breadth and the maternal head length, meso- or brachycephaly may result.

Kappers (80, p. 611) supports von Reitzenstein in effect in his statement of the latent possibility of the occurrence of hyperdolichocephaly and hyperbrachycephaly. Among the "Indo-Aryans" of Central Europe, the Punjabis, the ancient Minoans, and the modern Sardinians he finds a peak in the cephalic index curve at 71, and another at 67.<sup>13</sup> Among the Kirghiz, Turks, Telengetes, Armenians, and Waldais (East Baltic race) he finds peaks at 83-84, 86-87, and 89-90 (cf. 80, pp. 605 f. and Tables I-III). Apparently longheaded peoples have transmissible hyperlengths, roundheaded peoples transmissible hyperbreadths, each of which may by inbreeding become expressed.

As far as the ultimate persistence of skull shape is concerned, we have the assurance of Boas (14, pp. 163-88, esp. pp. 164 and 185) and of von Luschan (97, p. 239) that the basic type emerges. Von Luschan declares: "Old types, once fixed by long inbreeding, do not necessarily get lost by intermarriage, but often return with astonishing energy." It is this factor, according to Boas (14, pp. 165 and 182), which explains the great variability of a mixed population, because over a long period of time Mendelian segregation asserts itself, so that the variability of a mixed population is greater than that of any of the elements entering into the mixture.<sup>14</sup>

The problem of the rate of change—really the rate of recombination and possible ultimate reversion—is one we cannot answer. Fischer (46, p. 179) offers the statement that in about six thousand years the human skull index and its unit characters have not changed, and comments that during this time the horse has had twelve hundred, the dog five thousand, and the

<sup>11</sup> Frets (50, p. 516) finds brachycephaly more likely to be dominant if carried by the female.

<sup>12</sup> For example, with length and breadth respectively 201 and 148 mm. for father, 188 and 159 mm. for mother, offspring will have 201 and 159 mm. Hauschild (65, pp. 39 f.) very neatly dodges the question of *limit* by explaining that the tendency to large-headedness will ultimately result in stillbirths; the boundary is set by natural selection.

<sup>13</sup> Of the cephalic index peak of 67 Kappers (80, p. 611) writes thus: "I do not consider this peak as an indication of an admixture with another race, but rather as a mutation based perhaps on a sort of leptosome constitution that may be caused by unfavorable conditions. It fails with the Caspian Indo-Aryans examined by myself." It is not possible in our present state of knowledge of human heredity to judge whether any single unit(?) character (as length or breadth) or combination of characters (as the cephalic index) is due to mutation, segregation, or reselection.

<sup>14</sup> A problem which cannot as yet be answered is that of the mesocephalic skull. Sergi (154, p. 192) and Keith (personal communication while studying under him) hold it to be a true type, as basic as dolicho- and brachycephaly. Hooton (70, pp. 268-76) believes that the mesocephalic skull—in Tenerife at least—is derived from the intermixture of small dolichocephali, large dolichocephali, and brachycephali.

mouse twenty-four thousand generations, while man has had only two hundred—a rather short time in which to evolve.<sup>15</sup>

The transmission of cranial dimensions by heredity gives us assurance of a fair degree of stability in racial cranial types. The selective action of heredity in race mixture enables us to estimate the probability of resulting types and to assess the essential components of a mixed group. We are on firm ground when we recognize the rôle of heredity in the composition of any given racial group or of any collection of cranial material.

When cranial measurements and indices are brought together with cephalic measurements and indices of living persons, a correction needs to be made which will render the two kinds of measurements and indices comparable; for the unequal thickness of the frontal, the occipital, and the temporal muscles renders the cephalic index slightly higher than the cranial index. The following table of corrections is taken from Deniker (**33**, p. 73), Kappers (**79**, p. 8), Ripley (**135**, pp. 593 f.), Günther (**57**, p. 33), and Hrdlička (**72**, p. 151).

Author	Amount of Correction
Topinard, Virchow	No correction
Myres	1.6 units
Broca, Chantre, Deniker, Derry, Eugen Fischer, Haddon, Houzé, Hrdlička, Ripley, Stieda	2 units
Mantegazza, Weisbach	3 units

Kappers (**79**, p. 8) says brachycephalic skulls should be corrected 1 unit or less, mesocephalic 1 unit or more, and dolichocephalic 2 units. Beddoe (cf. Ripley, **135**, pp. 593 f.) suggests 1 or less, 1.5, and 2 units for brachy-, meso-, and dolichocephalic types respectively. Czekanowski (**30a**, pp. 73 and 81) has a sliding scale of correction which varies with each point of the cephalic index curve up to a maximum of 3 units.

Several investigators make instead corrections for length, breadth, and height based on direct estimates of tissue thickness. The differences between cranial and cephalic dimensions have been calculated as follows:

Author	Length (mm.)	Breadth (mm.)	Height (mm.)
Elliot Smith ( <b>158</b> , p. 25)	7.0	8.5	.....
Parsons ( <b>118</b> , pp. 427-29)	9.7	11.4	8.0
Gladstone ( <b>53</b> , pp. 360 and 365)	8.27	8.47	15.0
Tildesley ( <b>171</b> , p. 205)	7.3*	7.1*	11.5*
	10.0†	10.0†	13.0†
Todd and Kuenzel ( <b>172</b> , p. 242)	5.07	7.02	5.8

\* Dead. † Living.

The corrections of Todd and Kuenzel are the most authoritative, having been done on a much longer series and under carefully controlled conditions. Their data have been computed for the length-breadth index of dolicho-, meso-, and brachycephalic skulls, and the differences have been found to be +1.67, +1.57, and +1.47 units respectively. The general correction is nearer 1.5 than 2, yet the latter is so widely used that we shall adhere to it. Certainly, a difference of 0.5 unit will not obscure essential cranio-cephalic affinities.

In view of the practicability and the relative reliability of the cranial or the cephalic index as set forth above, we need not hesitate to use it, together with pertinent observations of size and proportions of head and face, as a criterion for determining racial affinities.

<sup>15</sup> But domestication, artificial selection, and selective mating may affect profoundly the changes transmitted from generation to generation.



## 3. PRESENT-DAY RACIAL GROUPINGS IN EUROPE

Before discussing possible racial affinities of the Alişar crania with Neolithic and Paleolithic groups in neighboring Europe it will be helpful first to consider the latter by themselves. Such a study, we feel, is best begun by a survey of the modern racial groupings in Europe. Obviously, the survey must limit itself to the major groupings only. The problem of the ultimate origin of each racial type will be reserved for later consideration.

Out of the welter of racial types in modern Europe we may recognize three major groups and two subsidiary groups, the exact interrelationships of which can only be hinted. The major groups, named geographically, are North European, Central European, South European; the subsidiary groups are the Northeast European and the Southeast European. The Northeast type is probably related to the North type, the Southeast to the Central.<sup>1</sup>

The North European type (*H. nordicus*, Reihengräber, Germanic, Teutonic, Cymric, Megalith type, *H. europeus*, Dolicholepto) is characterized by a subdolicho- to mesocephalic head, the cephalic index ranging from 75 to 82, with an average of 76–78. The face is narrow and long, with flattened temples and cheekbones; the jaws are narrow, compressed at the gonial angle, and the chin is prominent. The stature is tall, with an average for males of 5'8" or more; the body build is slender, with relatively short trunk and long legs, especially long lower legs; the arms are of moderate length. In all essential features the North European is a linear type. As the term implies, the North European is concentrated in Scandinavia and northern Germany. The type is also found in England, Scotland, Normandy, and the Netherlands, and is of sporadic occurrence throughout the rest of Europe and in Northwest Africa, and in historic times in Asia Minor.<sup>2</sup>

In passing we shall here briefly touch upon the relation of the North European race to the Indo-Aryan linguistic group—a point to which we shall return later. Far too often the term "Indo-Aryan" is used in a racial sense; even more frequently is this the case with one of its equivalents, "Indo-Germanic." According to Uhlenbeck (178, p. 146), Ungnad (181, p. 10), and Menghin (104, p. 552), the Indo-Germanic language family is to be divided into two groups, the *centum* and the *satem*.<sup>3</sup> The important factor here is that the North Europeans—the Nordics, with a cephalic index peak at 76–78—belong to the *centum* division, which has Ural-Altaic elements, which in turn hark back to Paleo-Asiatic connections. This being the case, the true or basic Indo-Aryans (see Kappers, 79, p. 119) would be those of the *satem* division, represented, for example, by the Punjabi, who has a cephalic index peak at 71. This differentiation, made linguistically, will be seen later on (pp. 245 and 275 f.) to have for some anthropologists an important bearing in the tracing of early racial movements.

The Northeast European type (East Baltic, East European, Tavastland race, Eastern or Weichsel [Vistulan] race, pre-Slavic or "β" type race, *H. fanotrichus glaucops brachycephalus*, *H. arcticus fennicus*, Waldai type, Baltic type, Light-colored East race) has North European,

<sup>1</sup> This discussion of European races is based principally upon Ripley (136, pp. 103–435), Deniker (33, pp. 325–58), Hooton (71, pp. 503–40), Haddon (60, pp. 25–32 and 59–90), von Eickstedt (38, pp. 335–403), Sergi (154), and Günther (56, pp. 14–73, and 57, pp. 38–173). The discussion of European races in terms of geographical location avoids the nationalistic and political overtones associated with the more common names Nordic, Alpine, Mediterranean, Baltic, and Dinaric. In this report we shall, after having introduced geographical equivalents, defer to usage and employ the usual race names.

<sup>2</sup> Von Eickstedt (38, pp. 354–57) regards the Nordics as of three major types: Dalo-Nordic (called by Günther [56, p. 63, and 57, pp. 144 and 336 f.] Phalo-Nordic because of its frequency in Westphalia), Fenno-Nordic, and Teuto-Nordic. For him the last is the real Nordic type; the Dalo-Nordic, with broad face, is believed to hark back to Cro-Magnon; the Fenno-Nordic, with a tendency to brachycephaly, is held to be proto-Nordic.

<sup>3</sup> "Zu den ersteren gehören die Germanen, Kelten, Italiker, Griechen, Hettiter, Tocharer und Veneter, zu den letzteren die Slawen, Balten, Illyrer, Thraker, Iranier und Inder" (Menghin [104, p. 552]).



Central European, and Mongoloid traits, but is probably nearest the North European. The head is more brachycephalic, "squared," with a cephalic index hovering around 81-84. The face is wide, "bony," somewhat flat, with prominent, slightly projecting cheekbones; the forehead is wide, the jaw massive, the chin not prominent, and the nasal aperture small, with the root of the nose depressed. The stature is short, averaging 5'4" for males; the body build is heavy and thickset, with broad shoulders. The Northeast European is a lateral type, concentrated in Finland, Russia, and the Baltic countries, but found also in Scandinavia and North Germany.

Of uncertain relationship to the Northeast Europeans are the neighboring Lapps. They are probably fairly close to the Fenno-Nordics, but have undeniable Mongoloid (Siberic) and Central European affinities. Von Eickstedt (38, p. 391) prefers to regard them as proto-Alpine, and on this basis explains the Lapponoid elements found in the several countries of Central Europe. The head is brachycephalic, with a cephalic index averaging 86; it is round and of medium height. The face is low and very broad, squared in males, rounded in females; the chin is weak. The stature averages 5'2" for males; the body is heavy, thickset, broad-shouldered, with short legs and long arms.

The Central European type (*H. alpinus*, Occidental, Sarmatian, Dissentis, Cevenole, Arvernian, Alpo-Carpathian, Rhaetian, Celto-Slavic, Lapponoid) is almost certainly related to the Asiatic brachycephali, although differing in many features, especially in the facial skeleton. The head is brachycephalic, having a cephalic index ranging from 83 to 88, the average being 85; the head is rounded, with curvocciput, and is hypsicephalic. The face is wide and of medium height; the jaw is wide and "square"; the nasal aperture is of average height and width to give a mesorrhine index. The stature is short, males averaging 5'5"; the body build is heavy and thickset, with broad shoulders and deep chest; the extremities are thick and short. Again we have a lateral type, found chiefly in Central and East Central Europe and the Balkans, and to a less extent in Western Europe.

The Southeast European type (Dinaric, Adriatic, Illyrian) is literally a connecting link between the Central Europeans and the Western Asiatics or Armenoids, with perhaps a leavening of North European to give linearity. Von Eickstedt (38, p. 384) says: "Alles was beim Dinarier hoch und lang ist, ist beim Alpinen niedrig und breit." The head is brachycephalic, with an average cephalic index hovering around 85-87. Because of occipital flattening (planocciput), which is not, however, as marked as in the Western Asiatics, the head is not as rounded as in the Central European type; but it too is hypsicephalic. The face is very long, of moderate width, and with cheekbones more prominent than in the North Europeans, less than in the Central Europeans; the jaw is wide and strong; the nasal aperture is high and narrow, to give a leptorrhine index. The stature is tall, males averaging 5'8"; the body build tends to slenderness, with long legs, but arms of moderate length. Some sort of North-Central blend is indicated when it is observed that the limbs have the length and slenderness of the North type, with the bulkiness (big-jointedness) of the Central type. The Southeast Europeans are found in the Austrian Alps and in the Balkans, and to a less extent in Little Russia.<sup>4</sup>

The South European type (*H. mediterraneus*, Iberian, Ligurian, Ibero-Insular, Littoral, Atlanto-Mediterranean, Libyan, Pelasgian) is dolichocephalic and weakly mesocephalic, with an average cephalic index range of 72-75. The head is low or of medium height, flattened laterally, but with protruding occiput (*occiput en chignon*); the forehead is full, of moderate width, and is vertical; the supraorbital ridges are slight. The face is a regular oval of medium height and submedium width, with a slight tendency to pointedness ("hatchet shape"). The

<sup>4</sup> Von Eickstedt (38, pp. 381-84) regards the Basques as a mixture of Southeast and South Europeans. The French Basques (Dinaroid) have a cephalic index of 83, the Spanish Basques (Dinaro-Mediterranean) an index of 79.3.

stature is short, averaging 5'4" for males; the body build is slight rather than essentially slender; the bones are small and delicate. The South European type is basically linear without being thin. It is found on the shores of the Mediterranean Sea: in North Africa, southern

TABLE VII  
ESSENTIAL CRANIO-FACIAL CHARACTERS OF MODERN EUROPEAN RACES

Character	North European (Nordic)	Central European (Alpine)	South European (Mediterranean)	Northeast European (Baltic)	Southeast European (Dinaric)
SKULL:					
Form	Subdolichocephalic or mesocephalic	Brachycephalic	Dolichocephalic	Brachycephalic	Brachycephalic
Capacity	Large	Large	Medium to small	Large to medium	Large
Contour	Flat on sides; sagittal curve a high even arc	Rounded; high with steep curve; parietals expanded	Sagittal curve full; height medium	"Squared"; height medium; parietals medium	Sagittal curve a high arc; parietals full
Occiput	Full, but not pronounced; medium broad	Rounded, full, broad	Bulging ( <i>occiput en chignon</i> )	Rounded, full, broad	Flattened, broad
Nuchal plane	Muscle ridges heavy	Muscle ridges medium to heavy	Muscle ridges slight	Muscle ridges medium	Muscle ridges strong
Forehead	Narrow, well arched	Wide, vertical	Narrow, smooth, prominent, rounded	Wide	Moderately wide
FACE:					
Contour	Narrow, long, "pointed"	Wide, medium to short in height	Oval, medium in height	Wide, short, somewhat flat	Medium in width, long
Supraorbital ridges	Pronounced	Moderate	Slight	Moderate to slight	Moderate
Orbit	Medium, straight, rounded	Medium, slanting, angular	Large, straight, angular	Medium, straight	Medium to large, straight
Nose	Leptorrhine to mesorrhine	Mesorrhine	Leptorrhine to mesorrhine	Mesorrhine, small; root depressed	Leptorrhine
Zygomatic arches	Narrow, compressed	Wide, slightly projecting	Narrow, evenly arched	Wide, slightly projecting	Moderately wide, slightly projecting
JAWS:	Narrow, compressed at gonial angle; chin prominent	Large; ascending ramus long, narrow; mandibular notch deep	Small; ascending ramus broad; notch shallow	Massive, wide; chin not prominent	Wide, strong; chin prominent
SKELETON:	Stature tall; large-boned; leg bones long, especially tibia	Stature short; heavy-boned; leg bones short	Stature short; fine-boned; leg bones medium to long	Stature short; heavy-boned; leg bones short	Stature tall; large- but slender-boned; leg bones long

Italy, southern France, and the Iberian Peninsula; ramifications extend into the British Isles and into Arabia.<sup>5</sup>

In Table VII the principal features of skull and face, together with a general estimate of the skeleton, have been listed for each of the five principal types of Europe. Basically, as regards similarity of cranial type, we find the following threefold grouping: North and South European;<sup>6</sup> Northeast and Central European; Southeast European.

<sup>5</sup> In Section 7 we discuss the relation of the so-called "Semitic" type to the South European.

<sup>6</sup> Taylor (166, pp. 55 and 62) points out that the North and South Europeans are very close on the basis of blood grouping.

The cranial kinship of the North and South Europeans is aptly stated by von Eickstedt (38, p. 351), who speaks of them as of lion-tiger affinity. Hooton (71, p. 526) doubts the possibility of distinguishing these two skull forms unless they are typical, but Peake (120, p. 157) quotes Rolleston that he and his students could differentiate between British Neolithic and Scandinavian skulls. The basic difference between the two skull forms is the relative massiveness of the North European, the relative gracility of the South European—a sort of contrast between masculinity and femininity. Obviously, therefore, borderline skulls of each group will be well-nigh identical. The important consideration, however, is that in typical crania there is the possibility of discrimination.

As between the Northeast and Central Europeans, the chief difference will be found in the broad, low, slightly flattened face of the former. The Southeast European type is distinct by virtue of its flattened occiput, a character in which it closely approximates the Western Asiatic (Armenoid) type.

With the five major types thus fairly well distinguished, we may now proceed to consider their probable relations to Neolithic and Paleolithic types.

#### 4. THE RACES OF NEOLITHIC EUROPE AND THEIR RELATIONS TO PRESENT-DAY RACIAL GROUPS

The problem of the origins of the present-day racial groups of Europe is one of time and space, involving the relative chronology of races and cultures, the avenues of migration, and the areas of specialization. The plan of discussion will be to give a rapid survey of the prehistoric anthropology of each country, starting in the northwest and proceeding in general by successive west-east bands to the Mediterranean-Aegean area and Egypt.

Since the present-day national and racial boundaries were, of course, nonexistent in prehistoric times, we must endeavor to trace the locations and the movements of the various European peoples by their remains, both skeletal and cultural. When dealing with the cultural remains we are immediately faced with the question: Were Neolithic peoples and cultures correlated? That is, can we trace the spread of physical type by the evidence of cultural diffusion? In 1909 Schliz (**143**, p. 266) was able to conclude with respect to Neolithic cultures "dass diese bestimmten Kulturkreise wirklich getragen waren von wohlcharakterisierten Volksstämmen von bestimmtem, somatisch-anthropologischem Habitus." A more thorough knowledge of diffusion phenomena, however, led Rivers (**136**, p. 477) to conclude that if the invading culture is superior, the recipients will adopt it regardless of the number of carriers; in other words, the spread of cultures need not be accompanied by a marked infiltration of physical type. We may, therefore, conclude with Scheidt (**141**, p. 73): "Sehr selten fallen rassenmässige und kulturelle Abgrenzung zusammen."<sup>1</sup> The possession, by two groups of people, of common cultural elements does not a priori mean racial kinship, unless the cultures are wholly identical. If the contacts are only few or random we must be 100 per cent skeptical!

Also when dealing with cranial remains we must be careful in asserting racial similarity or identity. Let us say we are comparing two groups, A and B. In A we may find cranial elements 1, 2, 3; in B, elements 1, 4, 5. Are the crania basically of the same type, variants of the same type, or random combinations of a limited number of variable characters? To a certain extent we cannot answer this question fully. It is, however, important for us that trait 1 is common to both; for this connotes, according to our present knowledge of heredity, a definite degree of kinship.<sup>2</sup>

With the foregoing limiting factors in mind we may now proceed to discuss the prehistoric racial groups of Europe (cf. Table VIII).

##### SCANDINAVIA

According to Daly (**31**, pp. 58-61) the Yoldia Sea lasted *ca.* 8300-7800 B.C.; this was succeeded by Ancylus Lake, *ca.* 7800-5000 B.C.; this changed *ca.* 4000 B.C. to the Littorina Sea, which, in turn, gave rise to the present Baltic.<sup>3</sup>

One of the oldest known cultures in this region is the Maglemose (Mullerup) culture of Denmark, which is of late Ancylus Lake time (*ca.* 6000-5000 B.C.). This culture is equivalent to the Azilian period of the European mainland. Certain of its features, notably the bonework, seem to be a carry-over from the Magdalenian period (Nordmann, **113**, pp. 27 and 29).<sup>4</sup> Its

<sup>1</sup> As we shall see later, the Bell-Beaker (Glockenbecher) culture and that of the "Schnurkeramik" appear to have belonged to the rare cases where racial and cultural limits coincided (cf. Scheidt, **141**, p. 73).

<sup>2</sup> Obviously, it is necessary to consider a far greater number of traits before racial kinship may be stated definitely; only five elements were here chosen in order to offer a simple illustration.

<sup>3</sup> Myres in his chronological outline (**111**, opp. p. 660) puts Ancylus Lake at 10000 B.C. and Littorina Sea near 5000 B.C.

<sup>4</sup> Peake, however, in a brief review (**121**, pp. 44 f.) of Nordmann's article, holds that "the close resemblance between the Baltic harpoons and those of East Russia, and the complete identity of style between the naturalistic engravings of Scandinavia and the painted and engraved figures from Western and Central Siberia, point to an Asiatic and Siberian origin."



general distribution, according to Keith (87, p. 113), was along the northwest shores of Europe from the Baltic to the Hebrides.

The physical types at Maglemose present a mixture of longheads and roundheads.<sup>5</sup> Keith (87, p. 111) views the latter as a continuation of the Obercassel type, while Nordmann (113, p. 35) generalizes concerning the longheads that they "were presumably the successors of the West European Ice Age people." Myres (111, p. 54) conjectures that the roundheads are from the steppes of northern Eurasia, perhaps of ultimate Mongoloid origin, and are possibly represented by the earlier Chancelade skull. Childe (24, pp. 10-13) hesitates to trace the roundheads to Asia and leaves the question of their provenience open.

Culturally, Maglemose seems to have been a focus from which various elements spread out and to which others came. The Ertebølle culture of about 4000 B.C. in South Scandinavia seems to be a direct descendant, although it has rather definite affinities with French Campignian. At Ertebølle, interestingly enough, longheads are in the majority; at Maglemose the types were more evenly balanced. In East Sweden, a bit later, arose the Lihult-Nøstvet culture, which was a blend of Maglemose and Ertebølle, and which Nordmann (113, p. 29) suggests might have been pre-Finnish. In Esthonia the Kunda culture arose as a recombination of elements traceable to Maglemose. The Kunda culture, in turn, contributed to the South Finnish Suomusjärvi culture, which appears to be somewhat later than the Ertebølle and Lihult-Nøstvet cultures. According to Nordmann (113, pp. 29-31), the people of the Suomusjärvi culture were the forerunners of the Finno-Ugrians (admittedly a linguistic term, but implying a definitely Mongoloid element which reached its strongest expression in the Lapps). Furthermore, the Maglemose culture was connected with that of Lake Ladoga and of the coast land east of the Baltic.<sup>6</sup>

The relative chronology of Scandinavian and Western European cultures is given below as ably summarized by Schwantes (152, p. 39). Its alignment emphasizes the relatively earlier development of the Neolithic in Scandinavia.

North Germany and Denmark	France, Iberian Peninsula, Part of South Germany
Late Paleolithic:	Late Paleolithic:
Magdalenian in the region of the Havel, in Hannover, in Schleswig-Holstein (and the rest of North Germany?)	Magdalenian
Early Neolithic [= Menghin's Miolithic]:	Late Magdalenian; end of Upper Capsian in large parts of Spain
Lyngby culture from Silesia to Jutland (and Scandinavia?)	
Maglemose and Havel cultures along the Baltic	Close of Capsian; Azilian; Early Tardenoisian
Lyngby culture at height in Jutland	Assumed Post-Capsian; Asturian in northern Spain; Late Tardenoisian and Asturian in France
Ertebølle culture	Early Neolithic: Campignian
Late Neolithic [= Menghin's Epimiolithic]	Late Neolithic

In the Late Neolithic we find definite evidence of cultural and racial infiltration from the European mainland in the intrusion of the stone-grave (megalithic) culture and, somewhat later, of the single-grave (earth-burial) culture. For the former Nordmann (113, pp. 36-40) hints at longheads from Western Europe as the carriers, while he links the latter with people from Central Europe. Peake (121, p. 45) and Keith (83, pp. 13-22) also link the "single-grave

<sup>5</sup> "Round-," "middle-," and "longhead" are used throughout the ensuing discussion instead of the more cumbersome "brachy-," "meso-," and "dolichocephalic." There is one exception: the term "shorthead" will be used to refer to the Dinarian and Armenoid types.

<sup>6</sup> Kossinna (cf. 113, pp. 35 f. and 45; also 24, pp. 15 f.) sees in the Maglemose roundheads the forerunners of the Sumerians; in the longheads he sees the ancestors of the Indo-Germans.

people" with Central Europe and equate them with the Bell-Beaker type of the Round Barrows of England, who were a roundheaded folk. The longheaded type prevailed, though in North Sweden and Finland the roundheaded Finno-Ugrians and Lapponoids found a definite home. Montelius' Neolithic periods II–III for Scandinavia are chronologically contemporaneous with Danubian II and IV and culturally show evidences of possible contacts with the Chalcolithic cultures of Spain and Sardinia and with the Aunjetitz culture of Bohemia (Childe, **24**, pp. 203–12; cf. Menghin, **104**, p. 78).

The basic physical type of Neolithic Scandinavia was the North European longhead; however, already at Maglemose Central European roundheads were found. The following ratios for Sweden are taken from Trost (**176**, p. 102):<sup>7</sup>

Period	Dolichocephalic (Per Cent)	Mesocephalic (Per Cent)	Brachycephalic (Per Cent)
Neolithic	54.8	38.1	7.1
Bronze Age	65.0	20.0	15.0
Iron Age	68.3	24.4	7.3

#### RUSSIA

The basic physical type of Neolithic Russia (according to Menghin, **104**, pp. 79 and 452, ca. 2500 B.C.) was the longheaded Kurgan or Steppe type<sup>8</sup> found principally north of the Caucasus in the Kuban, Taman, and Terek regions, and on the steppes between the Volga and Dnieper rivers. These longheads were of tall stature, had long, narrow skulls, low foreheads, heavy supraorbital ridges, and were orthognathous and leptorrhine.

The longheaded type of the Russian steppes is of great importance in the tracing of early race movements, for it is almost certainly related to the North European (Nordic) type. Kossinna (cf. Childe, **24**, p. 148) holds that its representatives were "Indo-Germans" who came from Scandinavia; the great majority of theorists, however, hold that the movement was the other way, i.e. from east to west. Myres (**111**, pp. 84 f.) and Peake (**120**, pp. 163–67) both maintain that the type is "proto-Aryan," represented in central Germany by the Reihengräber and in England by the Long-Barrow type.<sup>9</sup> Keith (**83**, p. 19) calls the type basic to the Scandinavian type now found in the Baltic provinces to the south of the Gulf of Finland.

Kappers (**79**, pp. 125–28) quite vigorously defends the thesis that the Neolithic longheads of Central Europe, the Early Bronze Aral-Caspians, and the Neolithic Central Russian Kurgan people—all with an average cranial index of 70–71—are to be derived from a common racial type which occupied Eastern Europe and the Northwest Asiatic plains: the "Indo-European" or "Indo-Aryan" race. These people are the true *salem*-speaking Indo-Europeans, represented in the kurgans by the Sakian group with cranial index 71 (that with a cranial index of 77–78 representing a later, Scytho-Iranian invasion). On the basis of this distinction the Kurgan type cannot, according to Kappers, be ancestral to the modern Nordics, who belong to the *centum*-speaking division of the Indo-European language group. Though it is true that there is also a slight difference in cephalic type (Kappers, **79**, pp. 127 f.), one feels that the distinction made by Kappers is linguistic rather than physical.

On the cultural side must be noted Childe's assertion (**24**, p. 146) that the Kurgan people

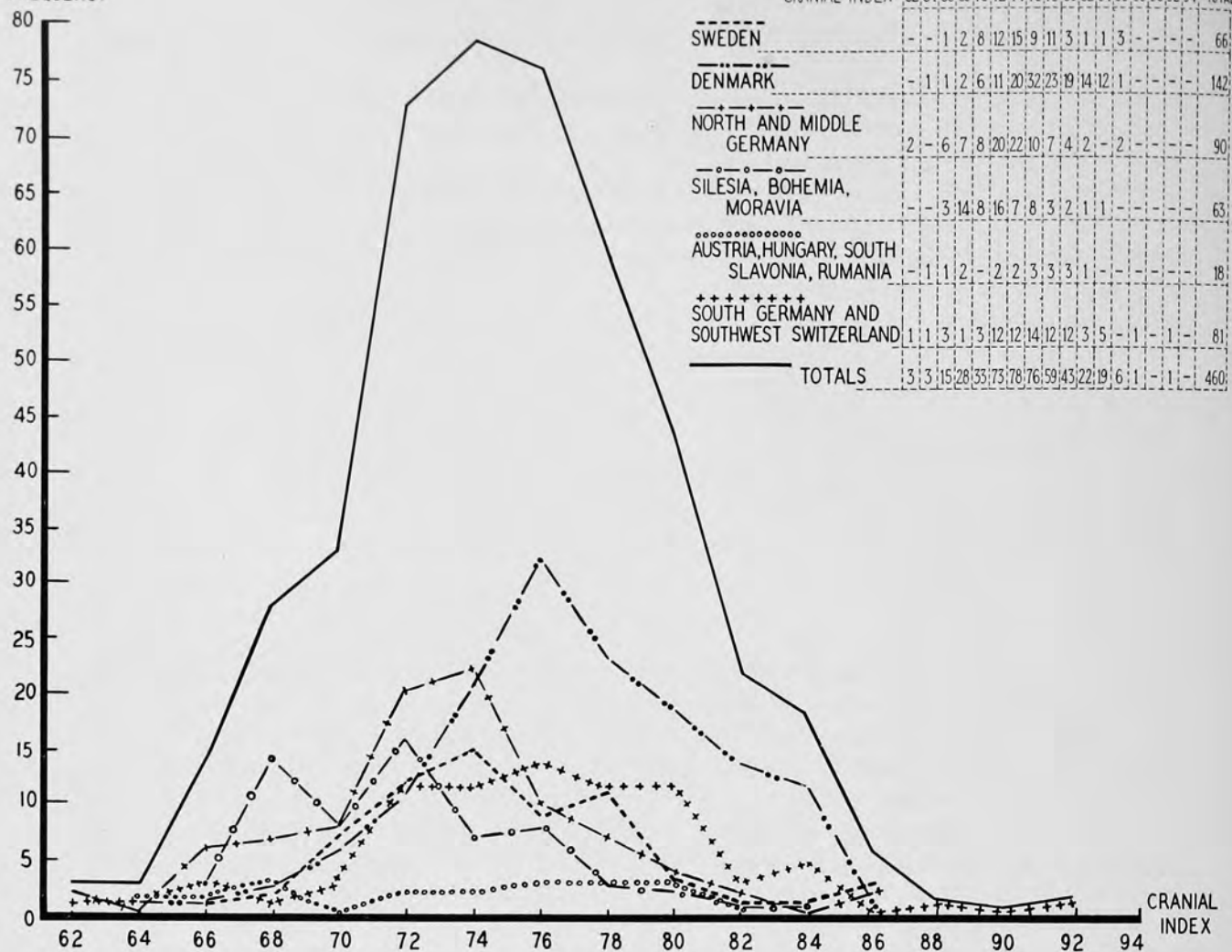
<sup>7</sup> See also Fig. 245 A, constructed after Scheidt (**141**, p. 75).

<sup>8</sup> Called "Kurgan" from the type of mound burial, "Steppe" from the locality. Since the bodies were covered with red ocher, the type is sometimes called "Red Ocher type" or "Red Skeleton type." The burial with red ocher may be a hold-over from the Paleolithic period (cf. Childe, **24**, p. 147).

<sup>9</sup> Myres would trace the type from Anau, while Peake would trace it back to Solutrean races (cf. Childe, **24**, p. 148).

FREQUENCY

CRANIAL INDEX 62 64 66 68 70 72 74 76 78 80 82 84 86 88 90 92 94 TOTALS



FREQUENCY

CRANIAL INDEX 62 64 66 68 70 72 74 76 78 80 82 84 86 88 90 92 94 TOTALS

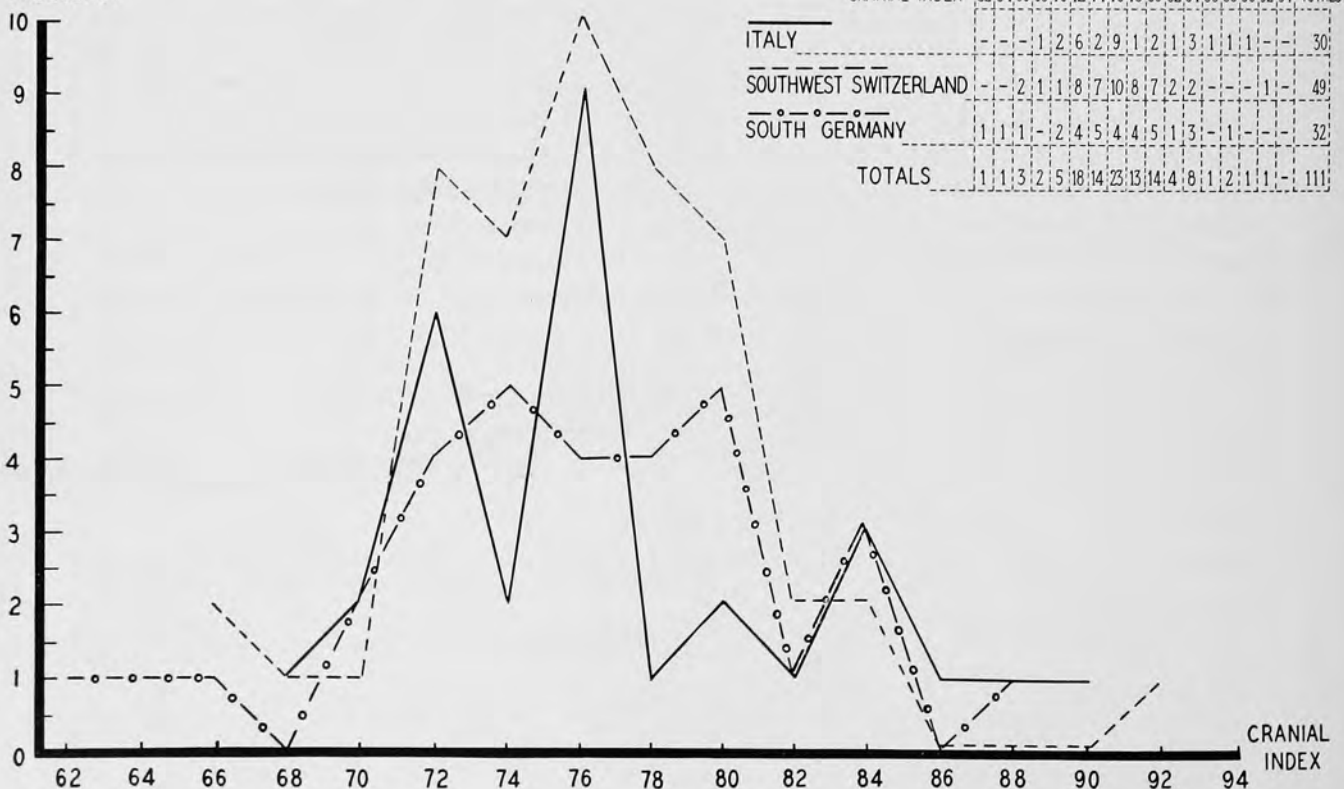


FIG. 245.—GRAPHS OF EUROPEAN NEOLITHIC CRANIAL TYPES (AFTER SCHEIDT)

show evidence of contact with Sumerian civilization, also that certain copper "nails" found at Tzarevskaya and Ulski are comparable "with the eyelet pins from Early and Middle Hittite graves in North Syria."

Related to the Kurgan culture were the Tripolje (or Tripolye), Cucuteni, and Erösd cultures. The Tripolje culture flamed high in Neolithic times and then burned out in the Early Copper Age. According to Peake and Fleure (122, p. 173) Tripolje I is to be dated about 3100–2600 B.C., Tripolje II about 2600–2400 B.C. It was found on the western steppes of Russia, west of the Dnieper, and through Galicia west to Breslau.<sup>10</sup> The physical type seems to be a blend of the Kurgan type with the Alpine, the latter predominating; the stature was greater than among the Central European roundheads, the skull was mesocephalic, and the supraorbital ridges were marked. Keith (83, p. 19) is of the opinion that the English Round-Barrow type of the Bronze Age may have come from the Tripolje area. Childe (24, p. 159) states the possibility that the Tripolje people may have been an extension of Upper Asiatic types and the forerunners of Turks, Tatars, and Scythians, but himself regards this as very dubious and concludes (pp. 168 f.) that the Erösd, Cucuteni, and Tripolje cultures are still an unsolved problem.

In passing it may be mentioned that in the Bronze and Early Iron ages the Finns occupied Finland and Esthonia.<sup>11</sup> In Neolithic times an early Paleo-Asiatic wave brought in the Lapps, who by the time of the Bronze Age had penetrated northern Norway, Sweden, Finland, and the Kola Peninsula of Russia.

#### GERMANY

Germany was a sounding board for the beat of cultures and peoples from the outside. During the Neolithic period the longheaded Scandinavian type—which may also be traced to the Russian steppe Kurgans—predominated on the coastal area, while in Bavaria and on the upper Rhine, and also in Prussia, the Central European roundheaded type was basic.

The longheads of Germany may hark back, as we have indicated (cf. p. 245), to a type found in the steppe area of Russia and known as the Kurgan type. In Germany this people is represented by the Reihengräber type, which, according to Schliz (148, p. 955), is identical with the "pre-Slavic" longheads that mixed with early Slavic roundheads (see also Toldt, 174, pp. 110–15).

At Neolithic Rössen there were found, according to Scheidt (141, pp. 40 and 46), three major types: a transitional longheaded form, a transitional roundheaded form, and a basic longheaded form which had mixed with another group and given rise to the transitional forms. The basic components of the transitional forms were essentially Nordic and Alpine; in the one the Nordic, in the other the Alpine type predominated. This mixture and countermixture is of importance for two reasons: first, because it illustrates that at that early date the possibility of "purity" of type was already nonexistent; secondly, because it indicates that North Germany was linked physically with Scandinavia,<sup>12</sup> and East Central Germany with Eastern Europe.

<sup>10</sup> Childe (24, p. 156) sees evidence of cultural contact with Early Minoan III, Troy, Cappadocia, Bulgaria, and the Moravian aspect of Danubian II.

<sup>11</sup> Tavastians in the south, Karelians in the east, Qvène in the north. The Esths are related to the Tavastians (cf. Haddon, 60, p. 71).

<sup>12</sup> Mention must be made of the Ostorf type described by Schliz (144, pp. 280–85) and by Scheidt (141, pp. 31–35). The type is basically a Northern longhead, but is markedly prognathous and may approach Sergi's Eurafian type or be related to Grimaldi (Scheidt, 141, p. 35).



## BRITISH ISLES

Though our discussion of the possible persistence of Paleolithic racial elements must be deferred until we shall have completed our survey of Neolithic Europe, yet some mention of Paleolithic-Neolithic relationships must be made here, since it appears that certain Paleolithic types found in England may be basic to the Neolithic races of Europe.

In the British Isles a longheaded type reigned supreme until the Bronze Age.<sup>13</sup> It has been variously termed the River-Bed type (Huxley), the Long-Barrow type, and the People of the Submerged Forest, and was probably rather closely related to the longheads of North Europe. This type had a very long skull, a vault moderately arched, a prominent occiput, a receding forehead, a prominent glabella, a broad nasal aperture, and a tendency to prognathism. The Coldrum skulls of Kent (average CI 74) and the Trent or Muskham skull are stated by Keith (87, pp. 14 f.) to be typical of the River-Bed type.<sup>14</sup> Haddon (60, pp. 24 f., 60 f., and 84) classifies the type as of the Aurignacian Eurafrian race, represented in England by the Galley Hill skull and on the continent by the Combe-Capelle group. Of these more later.

A roundheaded element made its appearance quite early. Aveline's Hole, near Bristol, an Azilian-Tardenoisian site of about 10000-8000 B.C., yielded five crania, three of which were longheads, two roundheads (cf. Keith, 88, pp. 407-10). At Kent's Cave, near Torquay, a site of the same period yielded a female roundhead (CI 81.7) which was akin to the Furfooz type, an Alpine variant (cf. Keith, 88, pp. 414-20).

In the Neolithic period we meet the Long-Barrow type, short of stature and longheaded. Some have called the type Mediterranean (Childe, 24, p. 289); Fleure (48, pp. 23, 34, and 37-40) states it to be a descendant of indigenous Paleolithic types of West Europe; Parsons (117, p. 68) sees a similarity to the Egyptian type. Kappers (79, pp. 127 f. and 162) points out that the cranial index peak of the Long-Barrow type is 72, which is characteristic of the *ancient* South Europeans (Mediterraneans). Morant (108, p. 348), utilizing the coefficient of racial likeness, classifies the Neolithic longheads as nearest the Reihengräber and Anglo-Saxon types. It is probable that the earlier longheads are of the Aurignacian-Eurafrian-Mediterranean complex, while the later ones are of the Nordic type.

About 2000 B.C. came the Round-Barrow or Bell-Beaker roundheads.<sup>15</sup> The skull was short, broad, high, with a tendency to occipital flatness; the face was broad, of medium height, massive, with strong supraorbital ridges. The type probably came in from the east (possibly from the North Sea area). Keith (83, p. 21) traces its ultimate home to "the plains along the northern flanks of the central mountainous region of Europe." The race is almost certainly Alpine,<sup>16</sup> with more than a little hint that we may be dealing with Pre-Dinaries. Childe (24, pp. 183-87) and Scheidt (141, p. 58; cf. pp. 46 f.) see some traces of the Nordic brachycranial race, but

<sup>13</sup> According to Childe (24, p. 286) the basic cultural elements in Britain are traceable to continental Tardenoisian and Campignian influence, with some evidence of contact with Maglemose.

<sup>14</sup> Keith (87, pp. 15 f.) states that the River-Bed type is akin to the skull from the hypogeum at Hal Saflieni in Malta and to the skulls of the ancient Egyptians.

<sup>15</sup> Keith (83, pp. 13 and 21), following European anthropologists, calls them "Celtic" roundheads and finds them in Neolithic Denmark, South Sweden, southwestern Norway, near the mouths of the Ems, Elbe, and Weser rivers, along the Rhine to Holland, and in Normandy. Haddon (60, p. 85) relates one of the earlier groups of English roundheads to the Furfooz-Grenelle type in particular and to the Alpo-Carpathians in general. The later roundheads, the Beaker folk, he equates (60, pp. 31 and 86) with the Borreby type of Neolithic Denmark. Elliot Smith (157, pp. 117-22 and 166 f.) points out the likeness between the Round-Barrow type and his Gizah race. The Gizah people had "alien" (Armenoid) elements; the spread of these people is accounted for by the migration of the "maritime Armenoids" or "Prospectatores," who in the Bronze Age linked West Britain and East Ireland with the Mediterranean area (cf. our p. 272).

<sup>16</sup> On the basis of the coefficient of racial likeness Morant (108, p. 348) classes the English Bronze Age skulls with the typical Central European ones.

the evidence is extremely slight, and Scheidt (141, p. 71) is inclined to see in the Bell-Beaker type a separate racial group.

The essential measurements of the succession of British physical types, summarized from Cameron (23, pp. 60, 63, 65, 83, and 86, with the indices recalculated), are:

Group	Length (mm.)	Breadth (mm.)	Height (mm.)	L-B Index	H-L Index
English and Scottish Neolithic	193 7	138 9	135 5	71 7	69 95
English Bronze Age	184 5	149 9	134 9	81 2	73 1
Scottish Bronze Age	180 7	150 1	137 2	83 1	75 9
English and Scottish Iron Age	187 4	141 4	132 9	75 5	70 9
Anglo-Saxon (A.D. 500-1000)	190 6	141 7	136 0	74 3	71 4

#### FRANCE AND SWITZERLAND

France and Switzerland were apparently the areas of entry and expansion of the first waves of Neolithic roundheads. In a study of 688 Neolithic skulls from France, Salmon (see Sergi, 154, pp. 237 f.) found 57.7 per cent longheads, 21.1 per cent middleheads, and 21.2 per cent roundheads. According to Sergi's method of reckoning, the longheaded types comprised 78.8 per cent of the population, the roundheaded 21.2 per cent. Sergi holds that these roundheads had filtered in from Asia before the great invasions of roundheads occurred. Salmon recognized three major types of Neolithic skulls in France: (1) the Grenelle type—short, brisoid to spheroid, orthognathous, with great orbital height and moderate midfacial width; (2) the Furfooz type—short, broad, egg-shaped, with higher vault and longer face than the Grenelle type, and with great orbital height; (3) the long and narrow type found in the Neolithic longheads of Scandinavia.<sup>17</sup> The mutual relationship of the Furfooz and Grenelle types will be considered later. Haddon (60, pp. 81 f.) recognizes two roundheaded and four middleheaded types. The roundheads are: (1) the short, dark Cevenole (Alpo-Carpathian) race in southern France; (2) the tall, fair roundheads resulting from a mixture of Cevenole and North European types, by some equated with the Hallstatt people. The middleheads are: (1) the tall, fair descendants of Nordics from North Germany; (2) a platycephalic, broad-faced Cro-Magnon type; (3) a mixed type with high head and narrow face; (4) the Eurafican (Aurignacian) type with long head and narrow face.

At Montardit (Ariège) in France Sawtell (139a, p. 250) recovered weakly mesocephalic crania the racial affiliations of which "seem to lie . . . in the Azilo-Tardenoisian types of France, Portugal, and Bavaria." Specific relationships with Mas d'Azil, Mugem, and Type III Ofnet-Kaufertsberg crania were noted.

The key position of France (and mid-Europe in general) in the emergence of racial types is demonstrated in the foregoing references. The gradual transition from longheaded to roundheaded types is nowhere else so completely evident.

In the Neolithic period of Switzerland we find roundheads so completely in the ascendancy that upon this basis many earlier writers postulated an autochthonous origin for European roundheads. The Lake-Dweller type shows a skull with a smooth, gracile contour, an arched forehead, and a sagittal curve in which the three component arcs are of equal length; the root of the nose is slightly shallow and depressed; the occiput is curved, not flattened; seen from above, the skull is pear-shaped. Schliz (147, p. 95) sees in this type a similarity to the roundheads found at Ofnet.

<sup>17</sup> Bowen (18, p. 353) recognizes a type in southern France with cephalic index of 74-78 and identifies it with the Mediterranean type. Cf. also Worrell (190, p. 49), who says: "It is not impossible . . . that Libyans, Berbers, Iberians, and the pre-Aryan peoples of western France and Britain were one people and made the dolmens, cromlechs, and menhirs."

On the basis of a statistical analysis of average cranial type differences, Czekanowski (30, p. 76) recognizes two main physical types of Lake Dwellers: the Lake-Dweller type *per se* and the Grenelle type. The former is equated with Deniker's "race orientale," Czekanowski's "pre-Slavic" or " $\beta$ " type, Schenk's "Negroid" type, Reche's "Type I" (carrier of the Bandkeramik), Verneau's "Negroid Grimaldi race," and Sergi's "Eurafricans"; the latter is near to, or identical with, Czekanowski's "Sarmatic" or " $\gamma$ " type, which Deniker has named "race subnordique." Further, Czekanowski finds Finnic elements in his " $\beta$ " type and Lapponoid traits in the Grenelle type. The Furfooz roundheads are stated to be very close to the Lake-Dweller type; hence Czekanowski denies the existence of a Furfooz-Grenelle race. Culturally the Lake-Dweller type has southern affinities, the Grenelle northern affinities.

At Chamblandes there were found crania which showed considerable diversity. Scheidt (141, p. 63) refers to Schenk's recognition of three types (a Cro-Magnon type, a Grimaldi-like type, and a North European long-skull type) and points out the precariousness of the threefold distinction. Schliz (143, p. 253) recognizes only two types: a Cro-Magnon basic type and a Furfooz-Wahlwies basic type.

The North European longheads mentioned by Schliz (147, p. 97) appear in large numbers in Switzerland in Late Neolithic and Early Bronze times, when North European types went to Upper Italy and western Switzerland, carrying with them the Schnurkeramik, which blended with the Chalcolithic Mediterranean culture to produce a new culture area.

#### AUSTRIA, HUNGARY, RUMANIA

In the Danube area we find what Childe (24, p. 173) calls the oldest Neolithic culture in Central Europe. He gives (p. 203) the date of Danubian I as before 2500 B.C. and that of Danubian II as 2500-2200 B.C., while Peake and Fleure (122, p. 173) give Danubian I as 3100-2600 B.C. and Danubian II as 2600-2400 B.C. Childe has a further period, Danubian III, 2200-1750 B.C.

The racial type of Danubian I has given rise to considerable conjecture with respect to its origin. Kossinna traces Ertebølle influences, Schliz claims Cro-Magnon and Nordic elements, and Childe suggests Mediterranean influence (cf. Childe, 24, pp. 175 f.). Certain it is that longheadedness is basic.<sup>18</sup> In Danubian II and III an unmistakably Nordic type enters, and in Danubian III Alpine roundheads come in (cf. Childe, 24, pp. 183 f.).

Culturally the Danube area seems to have had wide contacts. We have noted the possibility of Ertebølle influence in Danubian I; in the same period there is contact with Thessaly. According to Peake and Fleure (122, p. 147) the factors which ended Danubian I led to the building of Hisarlık II (contemporaneous with Thessalian II), for in Danubian II there is evidence of contact with Hisarlık II. Danubian II had contact with the Rhine Valley also, for at Hinkelstein there are Danubian elements (cf. Childe, 24, p. 181).

An important cultural site in Hungary belonging to the period of Danubian II is Lengyel. Of five skulls found there (cf. Scheidt, 141, p. 53) three were longheaded (CI 67.5, 68.8, 74.3) and one middleheaded (CI 78.2). According to Scheidt (141, p. 54) Lengyel ties up with the Silesian Schnurkeramik.

The Aunjetitz culture (according to Childe, 24, p. 203, 1750-1200 B.C.) marks the Early and Middle Bronze ages. It is found in Silesia, Saxony, Moravia, Bohemia, Bavaria, Lower Austria, and northern Hungary, and has a cultural tie-up with northern Italy and with Cyprus (Childe, 24, pp. 191-95). The physical type is basically longheaded, with evidence of mixture with the Bell-Beaker roundheads (Childe, 24, p. 191).

<sup>18</sup> The absence of roundheads may be due to cremation; Myres (111, p. 101) suggests that the roundheads are invaders. Keith (87, p. 111) points to a pre-Neolithic roundhead found at Nagy-Sáp in Hungary.



In Rumania the "Black Earth" culture is represented by Cucuteni A and B. According to Peake and Fleure (**122**, p. 173) the dates of Cucuteni A are about 3100-2650 B.C., of Cucuteni B about 2550-2400 B.C. Cucuteni A (B?) gave evidence of two cranial types. Of four skulls (cf. Scheidt, **141**, p. 53) one was roundheaded (CI 82.1), two middleheaded (CI 78.3 and 79.3), and one longheaded (CI 73.5). Scheidt (**141**, pp. 54 f.) places the round- and middleheads close to the Rössen type, the longhead close to the Nordic.

## POLAND, SILESIA, BOHEMIA, MORAVIA

In the area comprising these territories we meet with three important cultures—Bandkeramik, Schnurkeramik, Glockenbecher (Bell-Beaker)—which apparently arose in the order given (cf. Reche, **130**, pp. 220 and 227). A combination of these gave rise to the Bronze Age Aunjetitz culture, which developed most highly in Poland.

In the period of the Schnurkeramik Reche (**130**, pp. 220-37) finds longheads predominating: of forty-two skulls, thirty-five were longheaded, six middleheaded, one roundheaded. These he grouped roughly into roundheaded (Type I) and longheaded (Type II). The roundheaded group (Type I), with an average cranial index of 77.2 (range 75.0-81.2), fits in fairly well with the general Nordic type, with a suggestion of Alpine contact, though Reche (**130**, p. 229) would connect it with the south and southeast of Europe. The longheaded group (Type II), with an average cranial index of 69.2 (range 65.2-73.2), appears, according to Reche (**130**, pp. 228 f.), to have some relation to the Galley Hill-Brünn-Cro-Magnon complex, but is identified by him with the North European race.<sup>19</sup> Scheidt (**141**, p. 51) also recognizes in Type II a basic Nordic element, while Kappers (**79**, pp. 126 f.) and Kossinna (cf. Childe, **24**, p. 239) both incline to see in it an "Indo-German" or "Indo-European" type. Childe (**24**, p. 242) hints at Mediterranean influence.

With the transition from the Neolithic to the Bronze Age came an influx of distinctive roundheads, who in their extreme shortheadedness (flattened occiput) suggest the Dinaric type. They were the carriers of the Bell-Beaker culture, which reached England about 2000 B.C. The following table from Scheidt (**141**, p. 48) indicates the distribution of cranial types prevailing in the three cultural periods.

CULTURE	CRANIAL INDEX									
	66	68	70	72	74	76	78	80	82	84
Bandkeramik			3	5	3	3	2			
Schnurkeramik	3	14	5	11	4	5	1			
Bell-Beaker								2	1	1

## PORTUGAL, SPAIN, ITALY

To a certain extent these countries may be grouped together, because physically the Mediterranean type was basic, and the cultural complex was fairly uniform.

Of great importance in the consideration of the diversity of physical types in Portugal are the finds at Mugem and in the grottoes of Casa da Moura (cf. Sergi, **154**, pp. 159-62). At Mugem, in the far southwestern corner of Europe, were found roundheads of an age virtually contemporaneous with the appearance of such a type in Eastern Europe (cf. p. 265), for to the best of our knowledge Mugem is of the Tardenoisian period. The longheads found there have a narrow skull, a long, narrow face, and exhibit slight subnasal prognathism. Mendes-Corrêa (cf. Boule, **17**, pp. 474-76) terms the longheaded type *H. afer*, var. *tananus*; Boule (**17**,

<sup>19</sup> Of import is Reche's assertion (**130**, pp. 229-31) that Type I carried the earlier Bandkeramik, Type II the later Schnurkeramik.



p. 476) says it is an ancient representative of the Mediterranean race with Ethiopian traits; Sergi (154, p. 160) identifies it with his Pelasgic (ovoid, ellipsoid) South Europeans; Scheidt (141, p. 90) sees a resemblance to the Ostorf type. It is probable that we are dealing with a basic Mediterranean type possessing some Negroid elements.

The roundheads are apparently of two different types: the one, ultrabrachycephalic and moderately broad-faced, is akin to the more northern Furfooz type (Sergi, 154, p. 161, and Scheidt, 141, p. 90); the other, more broad-faced, has definitely Mongoloid features (Scheidt, 141, p. 90, and Boule, 17, p. 334).

In Spain, at Almería, the Neolithic population, including also the early Chalcolithic, was of the longheaded Mediterranean type (Childe, 24, p. 115). During the full Chalcolithic period the Almería culture evidenced contact with the eastern Mediterranean area and spread to Upper Italy and southern France (Menghin, 104, p. 71). In this period roundheads were found at a site near Madrid, and, indeed, roundheads became quite common in the Pyrenean megaliths. At El Argar (see Scheidt, 141, pp. 87-92), an Early Bronze site in Spain probably somewhat earlier than the Early Bronze period in Britain, was found a mixed population of long- and roundheads. The longheads, with long, low skull, projecting occiput, deeply depressed root of nose, strong glabella, slight alveolar prognathism, wide, low, square orbits, and broad midface, are so Cro-Magnon-like in appearance that Scheidt (141, p. 88) says "es dürfe darin einer der besten Beweise für das Fortbestehen der Cro-Magnon-Rasse im Neolith und darüber hinaus mindestens in den frühen Metallzeiten gesehen werden." The middle- to roundheads are compared by V. Jacques (cf. Scheidt, 141, p. 89) to the Grenelle type; and the roundheads are compared by Scheidt (141, p. 90) to the Lake Dwellers, by Jacques to the Furfooz race.

We may accept in general the view that Neolithic Italy, Sicily, and Sardinia were originally peopled by the longheaded Mediterranean type.<sup>20</sup> In Figure 245 B (taken from Scheidt, 141, p. 92) the cranial index frequencies of the Neolithic skulls from Italy, southwest Switzerland, and South Germany are represented. As might be expected, the Italian Neolithic skulls are closest to those of Switzerland. Some of the longheads show an unexpected resemblance to North European longheads, presumably because of basic Cro-Magnon elements common to both.<sup>21</sup> At all events, Scheidt (141, p. 94) holds that a longheaded element had entered and spread in Italy already in Paleolithic times, and that Neolithic immigration comprised not only roundheads but also longheads.

In Upper Italy the Remedello site (according to Menghin, 104, p. 76, *ca.* 2100-1900 B.C.) presented a long- and a roundheaded population. The former is basically South European, but both Schliz (147, pp. 95 and 97) and Menghin (104, p. 71) detect a North European longheaded element such as was found also at Aunjetitz; the latter is stated by Scheidt (141, p. 93) to be most closely related to the Swiss Lake-Dweller type. On the cultural side Childe (24, pp. 264 f.) reports Early Minoan II (*ca.* 2500 B.C.) dagger types which must have drifted westward.

In the Chalcolithic period, at Monte Bradoni, lived a roundheaded type which Childe (24, p. 264) traces to the Minoan roundheaded type. In the Middle Bronze period (*ca.* 1400 B.C.) flourished the terramara culture, the prototype of which may possibly be found at Michelsberg and Aichbühl in Central Europe (Childe, 24, pp. 267-70). At this time, according to Keith (83, pp. 17 f.), Central European and "Celtic" types invaded Lombardy; Sergi (154, pp. 176 and 178 f.) states that in the Chalcolithic period part of the Po Valley became predominantly roundheaded.

<sup>20</sup> However, in this connection it is worthy of note that Livi's measurements of modern Italians show a cephalic index range of 77.2 to 87.7 (Boas and Boas, 14, pp. 166-70).

<sup>21</sup> Giuffrida-Ruggeri (see Scheidt, 141, pp. 93 f.) holds his *Dolichomorphus mediterraneus* to be a blend of the Cro-Magnon and Galley Hill types.

In Lower Italy the people of the Molfetta culture (Early, *ca.* 3000–2700 B.C.; Late, *ca.* 2700–1900 B.C.) were longheads of the South European type, a roundheaded element coming in later. At Villafraati (*ca.* 2100–1900 B.C.) roundheads were found associated with a bell beaker that had probably come from Spain; for Almerian contact in the Chalcolithic period is well established. The Stentinello culture of Sicily (*ca.* 2700[?]-1900 B.C.; Myres, **111**, table opp. p. 660, places it at 5000 B.C.) had much the same history (cf. Childe, **24**, pp. 87–100, and Menghin, **104**, pp. 70–74 and [for the chronology] esp. p. 76).

In Sardinia, at Anghelu-Ruju (according to Menghin, **104**, p. 76, *ca.* 2100–1900 B.C.), we find a site which is literally the way station between the eastern and western Mediterranean areas. The Mediterranean type was basic; of sixty-three skulls found, fifty-three were longheads, ten roundheads. The latter type is traced by Giuffrida-Ruggeri to Early Minoan III, while Childe (**24**, pp. 105 f.) sees the additional possibility of an invasion of a roundheaded western element from Spain.

#### THE AEGEAN AREA

We include under this term Greece, the Cyclades, Cyprus, and Crete.

For Greece and the Cyclades Peake and Fleure (**122**, p. 115) give the following chronology:

Years B.C.	Cyclades	Hellas	Thessaly
3400–3100	} Early Cycladic I Early Cycladic II Early Cycladic III	} Early Helladic I	} Thessalian I
3100–2800			
2800–2600		} Early Helladic II	} Thessalian II
2600–2400			

Keith (**83**, p. 18) states that the early population of Greece was of the Mediterranean type, the Alpines coming in during the Bronze Age. On Antiparos, however, a single roundheaded skull (CI 80.9) of Early Cycladic I was found, indicating the possibility of the very early entrance of a roundheaded element (cf. Childe, **24**, p. 42). Childe believes this skull to be of a type more reminiscent of Anatolia than of Crete or North Africa.<sup>22</sup> During Thessalian II a roundheaded type (either Alpine or possibly Dinaric) entered eastern Thessaly from Transylvania via the valleys of eastern Bulgaria and Thrace. According to Kappers (**79**, p. 156) Greece was first influenced by the longheads of predynastic and dynastic Egypt, especially the latter; in the Late Helladic period a Scythian element entered, in Hellenic times a Nordic element, and after that a roundheaded (Slavic) type.

For Cyprus Fürst (**51**, p. 8) notes an Early Bronze period (3000–2100 B.C.), a Middle Bronze period (2100–1600 B.C.), and a Late Bronze period (1600–1000 B.C.). Of one hundred and two crania (some quite fragmentary) submitted to Fürst for study by the Swedish Cyprus Expedition, three were of the Early Bronze, four of the Middle Bronze, seventy-nine of the Late Bronze period, fifteen of the Iron Age, and one from the 4th century B.C. (*ibid.* pp. 52–63). Of the three Early Bronze crania from Lapithos two were roundheaded and one middleheaded (*ibid.* p. 64). The Middle Bronze crania are declared to be Armenoid, as is the case with most of the Late Bronze crania from Melia and to a great extent also with those from Enkomi (*ibid.* pp. 82–91). Of thirty-one Late Bronze crania from Melia, twenty-four were roundheaded, six middleheaded, one longheaded; similarly, of twenty Late Bronze crania from Enkomi, thirteen were roundheaded, five middleheaded, and two longheaded. Of the fifteen Iron Age crania, four were roundheaded, eight were middleheaded, three were longheaded; the 4th century cranium was middleheaded (*ibid.* pp. 52–63). Of twenty Early and Middle Bronze crania from Lapithos (fifteen in Buxton's collection, five in Fürst's), eight were roundheaded, seven middle-

<sup>22</sup> Haddon (**60**, pp. 67 f.) traces a Danubian (Achaean) element into Greece *ca.* 1600 B.C., and defines the Achaeans as a blend of the "proto-Nordic" Steppe race, influenced by Eurasiatic blood and by Alpine culture.

headed, five longheaded (*ibid.* p. 64). If these finds may be taken as fairly representative of Cyprus, the population throughout all periods would seem to have been very mixed, with a marked predominance of Armenoid shortheads toward the end of the Middle Bronze period and in the Late Bronze period, and a resurgence of middle- and longheads in the Iron Age. Finds from other sites in Cyprus may, however, modify this picture considerably.

For Crete we have a relatively exact chronology (cf. Childe, **24**, p. 28). The Neolithic period ends in 3400 B.C., and the following periods supervene:

	Early Minoan	Middle Minoan	Late Minoan
I	3400-2800 B.C.	I 2100-1900 B.C.	I 1580-1450 B.C.
II	2800-2400	II 1900-1700	II 1450-1400
III	2400-2100	III 1700-1580	III 1400-1200

The Cretan civilization is ascribed by H. Schmidt (cf. Childe, **24**, pp. 68-71) to the Thesalian roundheads; but Childe (**24**, p. 26), following Evans, states that Neolithic Crete may be "regarded as an insular offshoot of an extensive Anatolian province." At the end of the Neolithic period predynastic and dynastic Egyptian cultural elements entered, with a possibility of Sumerian influence also (cf. Childe, **24**, p. 26).<sup>23</sup>

The Neolithic population of Crete was probably of a South European type; but roundheads soon entered, presumably from the east rather than from the north. About 3200 B.C. roundheads were found in eastern Crete (Peake and Fleure, **122**, p. 37). That the infiltration must have been slow is attested by the fact that of the sixty-four Middle Minoan skulls found by Duckworth (cf. Kappers, **79**, p. 133) 65 per cent were longheaded and only 8 per cent roundheaded. Hawes found seven Late Minoan skulls to have an average cranial index of 79.1; i.e., all were either middle- or roundheaded. If all the Minoan skulls are grouped together, the resultant cranial index curve has peaks at 68, 71-74, and 77-79, the latter two being, according to Kappers (**79**, p. 135), duplicated in Helladic Greece.

In the entire Aegean area Bronze Age Cyprus alone shows any real physical effect of contact with Asia Minor; here the Western Asiatic, or Armenoid, type seems to have left its imprint. Elsewhere the Mediterranean type predominates. It is not until about 2000 B.C. that a Eurasiatic, or Alpine, roundheaded type begins to filter in from the north (Peake and Fleure, **122**, pp. 37 ff.).

#### EGYPT

The dynasties of Egypt probably began somewhere between 3400 and 3000 B.C., though a few scholars urge much earlier dates. Before the so-called "Predynastic" period the "Badarian" and the still earlier "Tasian" have been distinguished.<sup>24</sup> The Tasian physical type is imperfectly known, but according to Keith (**88**, p. 229) it resembles the early dynastic type. At all events it is more roundheaded than the Badarian type, which had an average length of 182 mm., a breadth of 131 mm., and a cranial index of 72, and which is classified by Menghin (**104**, p. 586) as belonging to the "Indid" race. Miss Stoessiger also (**160**, p. 147), employing the coefficient of racial likeness, finds that the Badarian type has its closest affinities not with the Mediterranean type but with primitive East Indian groups.

The Predynastic skull, according to Elliot Smith (**157**, p. 66), is long and narrow, with a

<sup>23</sup> Keith (**87**, p. 28) sees Neolithic-Early Minoan cultural contacts with Egypt, Asia Minor, Babylonia, and Turkestan.

<sup>24</sup> Dates proposed for the end of the Predynastic period are as follows: Breasted (**18a**, pp. 14 and 597) 3400; Meyer (**105a**, p. 68) 3315, revised date 3197; Scharff (**140a**, pp. 89 f.) ca. 3000; Hall (**61**, p. 27) 3600-3500; Borchardt (cf. Meyer, **105a**, p. 45) 4186; Petrie (**124a**, pp. 12 f.) 4326 B.C. On the antecedent periods and the anthropological finds assigned to them see Keith (**88**, pp. 225-31), who tentatively dates the Badarian to 5000-4500 and the Tasian to 5500-5000 B.C. Scharff (**140a**, pp. 89 f.) puts the Badarian around 4000 and begins the Predynastic period about 3800 B.C. Keith (**88**, p. 229) makes the interesting observation that the Tasian pottery beakers are almost the prototypes of the vessels of the English Beaker people of 2000 B.C. One may speculate as to the increased width of the Tasian skull type, for the Bell-Beaker type is very shortheaded.



"narrow, vertical, smooth, and often slightly bulging" forehead; the temporal region is "ill-filled," and, by contrast, the parietal eminences are broad; the occiput is projecting and "bulging." Seen from above, the skull is described as "coffin-shaped" by Macalister, as "pentagonoid" by Sergi. Peet (124, p. 244) adds that the general build is small and slender; the face is oval, narrow, and "pointed" below because of a narrow, "sharp" jaw; the nose is mesorhine with a tendency to platyrrhinity.

If we compare the essential cranial features of the Mediterranean type with those of the Predynastic Egyptians, we see that the two are virtually identical—with the possible exception of the "compressed" temporal region and the latent tendency to a wide nasal aperture in the Predynastic type. In other words, there seems to be no valid reason why the Predynastic Egyptians cannot be regarded as certainly of the Mediterranean type, or possibly even its prototype. Elliot Smith (157, pp. 67–69) calls attention to the fact that the Predynastic Egyptians, the Semites of Arabia, the Sumerians, and even the Early Neolithic English Long-Barrow type, are all closely related, and for the sake of convenience he would call this widespread group of peoples the "Brown Race." As we shall see later (p. 270), the Mediterranean type and the "Semitic" type are practically alike.<sup>25</sup>

In this connection the relation of the Predynastic type to Negroid types must be considered. Sergi derives his Mediterranean type from an almost pure Negroid ancestry. Elliot Smith (157, pp. 79 f.) denies that the Egyptians had a Negroid origin. According to him (157, pp. 91 f.; cf. p. 80), whatever Negro blood flowed in Egyptian veins did so only by intermixture, not by basic, ultimate heredity; of the Predynastic Egyptians examined only about 2 per cent were definitely Negroid, perhaps 3 or 4 per cent showed Negro admixture, and about 94 per cent were "pure," i.e. pure Hamites. Peet also (124, p. 253) states that the early Egyptians were derived from a Hamitic stock. Oettking (114, p. 65) recognizes in early Egyptians the following elements: Bushman, Negro, Libyan, and Hamito-Semitic, the last being closest to the Egyptian type. Fischer (46, pp. 176–78) states that approximately one-sixth of all Neolithic Egyptian skulls are definitely Negroid and that there are innumerable transitional forms, but that the basic type is Mediterranean.

Taking the skulls themselves—both the Negroid and the Mediterranean are longheaded, with a cranial index of 72–73—and classifying them according to general appearance, we shall find the two groups possessing the following characters: (1) the Negroid type skull has a narrow, straight forehead which is slightly arched, moderate parietal eminences, strong zygomatic arches, broad and low face, low orbital height, small and flat nasal bones, round nasal aperture, low, broad, or "guttered," and strong alveolar prognathism;<sup>26</sup> (2) the Mediterranean type has a well arched forehead of moderate breadth, a long face with midfacial width moderate to narrow, slender zygomatic arches, high and narrow nasal aperture, arched nasal bones, and no prognathism.

It is impossible to deny that there is a Negroid element in the early Egyptian type. The real point at issue, however, is the question whether the Negroid element is original or acquired. According to our present knowledge it is probably correct to assume that the Mediterranean type was basic in Lower Egypt, with Negroid influence early and rather marked in Upper Egypt.<sup>27</sup>

<sup>25</sup> Thus also Fischer (46, p. 177): "Am Schädelmaterial sind mediterrane und orientalische Schädel nicht zu unterscheiden." (Fischer's "Oriental" race is the "Semitic" race.)

<sup>26</sup> It is worthy of note that tibiae of the Predynastic Egyptians (Proto-Egyptians, to use Elliot Smith's term) were strongly platycnemic and that femora were platymetric, with strong pilastery. These traits are usually most marked in Negroids, but individually they are not diagnostic.

<sup>27</sup> Morant, in an excellent biometric study (106, pp. 4–5 and 22), recognizes two distinct racial types in Predynastic Upper Egypt, both of which "had low cephalic indices which distinguish them from the type of all later Egyptians." He does not identify the "two distinct types."



When Elliot Smith (cf. **157**, pp. 113-45, also **158**, pp. 25-34) studied the remains of Coptic burials of the 6th century after Christ, he noted an "alien" element that was presumably attributable to an Armenoid infiltration. This material confirmed his earlier impression that the transition from the Predynastic to the dynastic peoples had also been accompanied by a similar "alien" invasion.<sup>28</sup> Especially did this element appear at the Gizah pyramids in Lower Egypt in remains from Dynasties IV-VII, where the head was broadened in both sexes. The following cranial data from Elliot Smith (**158**, p. 27) present a comparison with the skulls from Dynasties I-IV found at the Naḳādah site in Upper Egypt:

	MALES		FEMALES	
	Gizah	Naḳādah	Gizah	Naḳādah
Number of skulls . . . .	128	139	79	185
Average length . . . .	184.02	185.13	176.1	177.47
Average breadth . . . .	139.02	134.87	135.99	131.5
L-B index . . . . .	75.55	72.85	77.22	74.09

The average cranial index is increased two and one-half units in Gizah males and three units in Gizah females; but the skull is still far from being roundheaded. The Armenoid skull involves far more than length and breadth or the length-breadth index; it is a type that is high-headed, shortheaded (planoccipital), broad-faced, of medium facial height, and high-nosed. This type does not appear in early dynastic times, unless it is assumed that its impact was so slight that it was much thinned out, adding only a few millimeters to head breadth, or that "Armenoid" then differed markedly from present-day Armenoid. The logical conclusion seems to be that we recognize the entrance of an element which contributed a greater head breadth, but that we attribute this element to a more general Eurasiatic type rather than to the highly specialized Armenoid type.

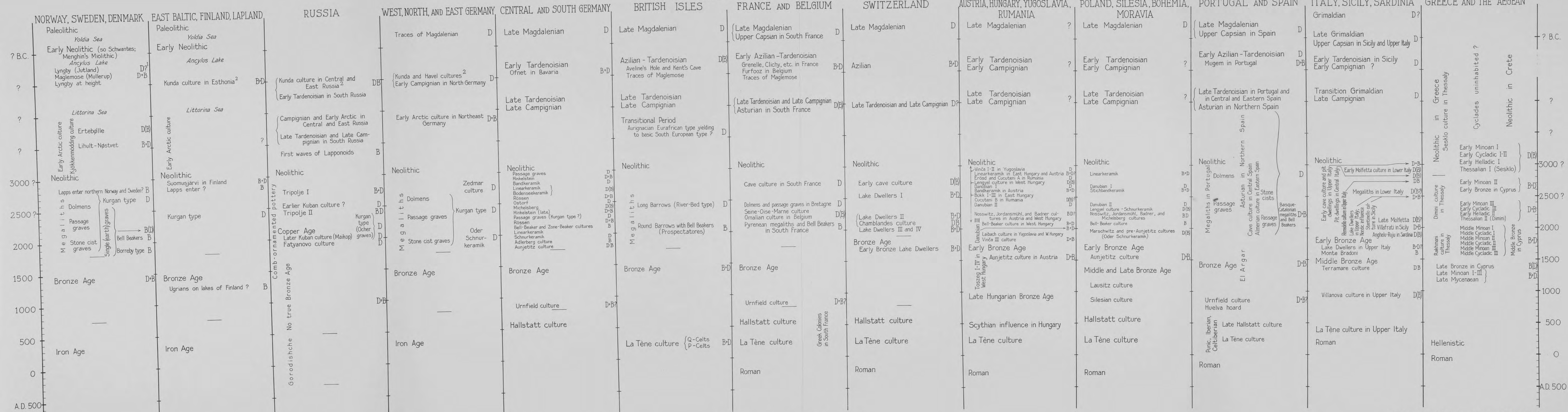
In the so-called "Ramses nose" we recognize a Mediterranean type which has become "Semiticized," i.e. has acquired an Armenoid nose.

This completes our survey of Neolithic Europe. Before we knit the loose ends into a more comprehensive pattern, we must consider Paleolithic-Neolithic relationships, some of which have already been hinted. In Table VIII there is presented, largely on the basis of Menghin (**104**), Hoernes (**68**), Childe (**24**), and Burkitt and Childe (**18d**), a tabular conspectus of the major Neolithic and early metal cultures and sites of Europe and the Aegean area, with an attempted outline of the relative chronology of the several major areas. The areas are grouped rather arbitrarily from north to south and east, the Aegean area forming a link between Egypt on the one hand and Asia Minor on the other. As nearly as possible the relative time scale is made directly comparable as shown on the chart. An attempt has been made—admittedly an approximation at best—to indicate the general physical type associated with each period or culture. Thus D = dolichocephalic and B = brachycephalic. If both types are present in fairly equal proportions, the two symbols are directly combined, as DB; if one type predominates, it is followed by +, as D + B or B + D; if one type is markedly dominant, the other only occasional, the minority type is named within parentheses, as D(B) or B(D). The same symbols have been used in Table VI also.

<sup>28</sup> At Abydos Petrie found an ivory carving of an "Armenoid type" belonging to Dynasty I (cf. Elliot Smith, **157**, pp. 99 f.).



TABLE VIII  
SEQUENCE AND CHRONOLOGY IN EUROPE<sup>3</sup>



<sup>3</sup> The uncertainties involved in dating before 3000 B.C. make it seem best to dispense with earlier dates altogether and to indicate only sequence and contemporaneity. The dating after 3000 B.C. is, of course, only approximate.

<sup>4</sup> The beginning of Early Minoan I is placed at about 3400 B.C. in accordance with the chronology adopted in Table VI; cf. p. 254, n. 24.

<sup>1</sup> These symbols are explained on p. 256.  
<sup>2</sup> Placed at this point in the sequence by Tallgren and Menghin, but after the Littorina Sea by Ebert; cf. Ebert, *Reallexikon der Vorgeschichte* VII 133 and XIII 2, likewise Menghin (104, p. 32).





# 5. PALEOLITHIC TYPES AND THEIR RELATIONS TO THOSE OF NEOLITHIC EUROPE

There are two possible explanations for the origin and distribution of the European Neolithic physical types which we have been discussing: (1) that they were more or less indigenous and represent a modification or intermixture of earlier Paleolithic types present in Europe; (2) that they represent the intrusion of new types presumably from somewhere to the east, e.g. from the vast steppe area of Eastern Europe or from some as yet unidentified area in Western or Central Asia. Whichever view we may adopt, it seems impossible to avoid the conclusion that somehow there is a basic relationship between the Paleolithic and Neolithic types. In the first alternative we state a direct continuum, in the second we imply an indirect, more remote, kinship; for it is assumed that even the Paleolithic types in Europe are immigrants. As a matter of fact, it is probable that we shall have to adopt a compromise. While some types of Neolithic longheads are probably directly related to Paleolithic types, others, e.g. some groups of "Indo-Europeans," appear to have entered Europe in Late Neolithic times from the east; similarly some of the Neolithic roundheads are probably direct descendants of Upper Paleolithic subtypes, while the great majority of them invaded Europe from the east.

In our discussion of the cephalic index we have seen that there are certain conditions which may predispose to longheadedness on the one hand and to roundheadedness on the other. Whether middleheadedness is the result of a blend or is a unique type need not concern us at the moment. We have, however, noted that a change in the balance of conditions supposedly specific for a certain skull type may result in a less clear-cut definition of that type and in a possible ultimate approximation to a new type. Admittedly we are on uncertain ground here, for we do not know enough about the impact of environment and of the translation of that impact into terms of heredity. But for the present we must survey such evidence as seems to present itself.<sup>1</sup>

The Paleolithic period may conveniently be divided into Lower and Upper periods, though Hrdlička (73, pp. 328-39) has ably demonstrated that the Mousterian-Aurignacian hiatus is not nearly so marked as is generally believed. The type race of the Lower Paleolithic is the Neanderthal, of the Upper Paleolithic the Cro-Magnon. How much has each contributed to Neolithic and to modern man in Europe?

The range of cranial length, cranial breadth, and cranial index in these two types, with the Rhodesian group taken in as related to the Neanderthal type, is given in the following table (cf. Moszkowski, 110, pp. 234 f. and 237 f., also Morant, 108a):

	Neanderthal	Rhodesian	Upper Paleolithic
Length . . . . .	184 0-208 0	195 5-221 0	182 0-206 0
Breadth . . . . .	140 0-156 0 (Krapina 169 0?)	141 0-148 0	130 5-151 0
Cranial index . . . . .	67 7-81 0? (Gibraltar II) (Krapina 85 5?)	65 2- 72 3	64 4- 76 0

The most amazing fact brought out by this table is that there is a pronounced tendency to roundheadedness in the Neanderthal group, whereas this tendency is virtually absent in the Upper Paleolithic. Little as we may venture on such slight evidence, we may at least make note of the variability of the Neanderthal cranial type.

There is a surprising lack of conjecture concerning the fate of the Neanderthal type. Sergi (154, pp. 202 f.) quotes Spengel, de Quatrefages, and Davis as noting Neanderthaloid sur-

<sup>1</sup> For a critical study of Upper Paleolithic types the reader is referred to Morant (109) and to von Bonin (16a).



vivals in the Baltic, especially in Friesland; and Sergi himself sees the Neanderthaloid type "in other regions of central Europe." Kappers (79, pp. 120 f.) refers to Stolyhwo's description of a Kurgan skull from Novosiolka in the Ukraine as showing Neanderthaloid affinities. A few authorities (cf. Menghin, 104, p. 577)—R. Pösch, F. Sarasin, M. Gusinde, V. Lebzelter—see in the Australians, New Caledonians, and Patagonians (Yamanas) a bridging of the Neanderthal-*Homo sapiens* gap; and Menghin himself (104, pp. 577 f. and 582-84) seeks to provide in his Yamanoid and Yuinoid protomorphic groups a continuity with the Europaid and Melanid archimorphic groups respectively. At Wauwilsersee (Late Magdalenian and Early Neolithic) O. Schlaginhaufen reports a short-stature type with Neanderthaloid and Australoid characters (Menghin, 104, p. 574).

Apart from these observations it seems that the early verdict which made *H. neanderthalensis* a unique type still prevents the recognition of the possibility of transitional forms,<sup>2</sup> such as we seem to have in Spy II and Krapina C and D(?), possibly also in the Palestinian material (*Paleanthropus palestinus*, from Mugharet es-Sukhul and et-Tabun in the Carmel Ridge) now being studied by McCown (cf. 100a), which seems to combine paleanthropic and neanthropic characters.<sup>3</sup> Certain it is that the probability of a relatively close linking up of Lower and Upper Paleolithic forms deserves serious consideration.

We have already mentioned in Section 4 that the Cro-Magnon type possibly persisted in Neolithic Europe and was traceable in the types found at El Argar and Chamblandes, also in the Long-Barrow and River-Bed types and in the North European longheads, including the carriers of the Schnurkeramik. It is the North European longheads, the Neolithic longheads par excellence, that seem to be related more directly to the Cro-Magnon race. We may quote Scheidt (141, p. 97): "Die zahlreichen Merkmale, welche immer wieder bei fast allen Funden eine Ähnlichkeit der dolichokränen Neolithiker mit der paläolithischen Cro-Magnon-Rasse hervortreten lassen, begründen m. E. hinlänglich die Annahme, dass die Cro-Magnon-Rasse genetisch den Grundstock der neolithischen Langschädelrasse bildet." Scheidt (141, p. 10) finds the Cro-Magnon type in many Swedish Neolithic skulls, also (p. 88) in certain of the Neolithic skulls of Spain. Hervé (66, p. 120) relates the longheaded types at Mugem to his "race troglodytique de Baumes-Chaudes-Cromagnon." Menghin (104, p. 580) sees the Cro-Magnons as an important constituent of the megalith-builders of Northern Europe.

The Upper Paleolithic types—basically Cro-Magnon, but with the variants of Solutré, Brunn, Předmost, Combe-Capelle (*H. aurignacensis*), Obercassel, Chancelade—have been carefully studied by Morant (109), who (pp. 157 f.) finds them no more heterogeneous than the modern populations used as a basis of comparison. Notwithstanding this, the several variants have been directly compared with diverse elements of the Neolithic population.

The Galley Hill type is important in that, according to Keith (87, pp. 250-61) and Hooton (71, pp. 352-54), it is of Chellean age and is essentially a modern skull type (Leakey [94] takes true *Homo* back to the Upper Pliocene [his Lower Pleistocene], and *H. sapiens* to early mid-Pleistocene times).<sup>4</sup> The Galley Hill type is one of a cluster of related types—Engis, River-

<sup>2</sup> Morant (109, p. 158) says on this point: "A generalised measure of resemblance based on 24 more or less independent characters indicates that the Upper Paleolithic type is widely removed from the Rhodesian and Neanderthaloid types. Nevertheless it resembles them almost as closely as any modern racial types do, and, by this criterion, it is placed in the same category as the dolichocephalic modern races of Western Europe."

<sup>3</sup> The recent discoveries by Leakey (94), which take *H. sapiens* back to even before the generally accepted date of *H. neanderthalensis*, apparently bespeak a contemporaneous and independent development of the two forms; or an alternative explanation may be that there have been successive divergences from a parent stock. Obviously, all this hinges upon the correctness of the stated chronology.

<sup>4</sup> At Olmo, Italy, in 1863, was found a type varying from pre-Mousterian to Bronze Age; at Castenedolo, Italy, in 1860 and 1880, two skulls were found stated by Sergi to be Pliocene! At both sites the skull type was essentially modern (cf. Hooton, 71, pp. 356 f.).

Bed(?),<sup>5</sup> Combe-Capelle—all of which have the following general characters: skull narrow and long with low vault; forehead moderate to narrow; supraorbital ridges heavy; face moderately long to short; facial width moderate compared with the so-called “disharmonic” Cro-Magnon face; brain case large.

Since Keith (88, pp. 385 f.) holds that the Combe-Capelle type shows Negroid traces, and since Hooton (71, p. 380) states that “distinct traces of Negroid admixture are discernible in many European crania from the Western Mediterranean area, right through the Azilian and Neolithic periods down to modern times” (cf. Sergi, 154, pp. 233–37 and 247–61), we must take up here a brief discussion of the Grimaldi type. In the Grimaldi type the stature was fairly tall; the head was long and of moderate height; the face was large and low; the nasal aperture was broad, the root depressed, and the lower nasal margin “guttered”; there was considerable subnasal prognathism; the chin was not prominent; the teeth were large; tibia and radius were relatively long; the pelvis was narrow. Certain of these characters, e.g. the long-bone proportions and the pelvic form, are extremely variable; others, such as the degree of prognathism and the lateral compression of the vault, may have been caused by earth pressure. All in all, however, we cannot entirely disregard these features. Keith (87, pp. 98 f.; cf. also 88, pp. 385 f.) says that while the Grimaldi type does show certain Negroid features, it must be considered as “of the Cro-Magnon race, or of a people nearly allied to that race.”

The Chancelade skull, longheaded, with high-keeled vault and broad face, has by many writers been equated with the modern Eskimo or with some earlier Mongoloid element. In general this Chancelade type seems to be nearer to the Galley Hill than to the Cro-Magnon type (Hooton, 71, pp. 369 f.).<sup>6</sup> The importance of the Chancelade skull lies in the fact that it shows a tendency to roundheadedness, the breadth remaining the same as in other Upper Paleolithic forms, but the length being reduced. Keith (87, pp. 91–93 and 142 f.) sees in the Solutrean roundheads the forerunners of the Chancelade type, and also ties the latter up with skulls B and C from Aveline's Hole, which are of Azilian-Tardenoisian age.

It is not until toward the end of the Upper Paleolithic age that roundheads begin to appear in any number. At Solutré, Ofnet, Furfooz, Grenelle, La Truchère, and Clichy appear skull types with a cranial index range of 79–85. The Capsian culture (ca. 6000 B.C.) in southern and central Spain and in Upper Italy had a pronounced roundheaded element, while Cole (25, p. 189) reports a roundheaded element in a Capsian site in Algeria, contemporaneous with the European Aurignacian.

We conclude our discussion of Paleolithic racial types by stating that in our opinion it is highly probable that the type of the Lower Paleolithic, *H. neanderthalensis*, is represented, however modified, in the Upper Paleolithic by the Cro-Magnon race, and that the latter type, represented by a number of variants, contributed directly to the longheaded Neolithic types. The introduction of a new element, the Negroid, is too marked to be ignored. The arrival of a roundheaded type is almost certainly due to a wave of Eurasiatic immigrants. We therefore reaffirm our earlier thesis: the European Neolithic longheads are largely indigenous; we must look elsewhere for the Negroid longheads; the European Neolithic roundheads are intruders.

We are now ready to take up the problem of the ultimate origins of the main racial groups of modern Europe.

<sup>5</sup> The Langwith skull in Derbyshire, of reputed Aurignacian age, and the Magdalenian Cheddar skull are both of the River-Bed type and are stated by Keith (87, pp. 132 f., 136–38, and 69 f.) to be related to the Engis skull.

<sup>6</sup> Menghin (104, p. 581) sees in the Chancelade race the carriers of the single-grave culture of the north, and points out that there is also a degree of kinship with the makers of the Schnurkeramik and with the Kurgan and Reihengräber types.

## 6. THE ORIGINS OF THE MAIN RACIAL GROUPS OF MODERN EUROPE

A study of the origins of the various European types of one major racial stock—white—does not necessitate an answer to the question of what led that stock, or parts of it, to come to Europe—whether it was intermittent periods of drought, an essential overpopulation in some focal center outside of Europe, or the quest after metals; and we shall therefore not attempt to give it. Our sole concern here is to discover, as nearly as possible, how that racial stock became diversified into the basic groups which we recognize today in Europe; in other words, how, in the area we have been studying, during a period of approximately one hundred thousand years certain definite types have slowly crystallized into those basic groups which we classify today as Nordic (North European), Alpine (Central European), Mediterranean (South European)—each with certain variants.

In some respects the following quotation from Black (9, p. 112) throws a ray of light on our problem:

If one considers the characters of a cube, a cylinder, and a sphere, each of one inch diameter, then within this series the cube may reasonably be considered as the most generalized form, for theoretically from it may be turned a cylinder of one inch diameter and height, and from the latter again a one inch sphere may be fashioned; but the process is not reversible. The cylinder may be considered as more generalized than the sphere, while the latter is the most specialized of the three solids; also the sphere may legitimately be considered as the most progressive of the series if the evolutionary movement be in its direction.

Obviously any one of the three forms may be considered *archaic* if the term be applied from the evolutionary direction of a series of smaller and similar solids, an infinite number of which may be derived from parents of larger dimension. If *progress* be defined as in the direction of the sphere, then any deviation away from a preceding generalized type in the series will represent *archaic specialization*. *Conservatism* may be defined in such connection, as the reverse of progress, or the crystallization of intermediate type. [Italics ours.]

The theory implied by Black is essentially one of an initial plasticity which may be directed along several diverse channels. Once a channel is followed, backflow is difficult, if not impossible. But we are not interested in backflow; we are primarily concerned with progress which leads to modern surviving types.

It is unnecessary here to argue the trend of evolution, except to point out that it has rarely followed a straight line. *Dryopithecus*, quite generally accepted as basic to the anthropoid-man stem, was represented by at least ten species (cf. Abel, 1, p. 1)—which, if grouped statistically, might be found startlingly homogeneous!—several of which specialized in the direction of the gorilla-chimpanzee-man complex. We are forced to the conclusion that man, as man, had a common starting point, having presumably the latent qualities of the three major stocks into which he radiated: black, yellow, white. It follows, then, that we must focus our attention on discerning the possible presence of these basic elements, or of a combination of these elements, in any single type. The nearer we approach the point of divergence, the greater will be the likelihood of discovering general traits that are resident in the parent form and are later to be specialized in the emergent types. Hence it need not surprise us if in the earliest white forms we find Negroid traits.

Evolution becomes far more understandable if we think of it in terms of heredity—heredity spun out over thousands of generations, to be sure—as the accumulative summation of characters achieved in transmission. And when we realize, as we did in discussing the heredity of the cephalic index (see pp. 236-38), that there is not only recombination but also a possible reselection, we comprehend the more readily that forms homogeneous in phenotype may be essentially heterogeneous in genotype.

The machinery at work in all this is almost as varied as the elements with which we are



dealing. We have to consider the basic physio-morphological pattern, which is the prime mover as it were. Here we might invoke, as does Keith (84; cf. 87, pp. 385 and 728 f.), the little-understood endocrine complex. We must consider the ecological factor of relative isolation and resultant inbreeding. The American Indian, whose head form runs from excessively long to excessively round, and whose stature almost encompasses the normal human range, is a case in point. We cannot omit the as yet unmeasured selective action of the environmental complex—the “misery spots” of the world, the varying nutritional balance. And, finally, we must confront the fact that man is not a laboratory animal. We cannot speak of “pure” strains, we cannot “cross the F1 generation,” for man has himself hastened differentiation by disregarding the laws of random mating.

Race types thus have their origin in two fundamental factors: the trend of evolution and the mixing of variants derived from parent forms.

In our study of the origins of the main racial components of the modern population of Europe the first problem to be considered is the rôle of the Negroid type in the differentiation of the various races. We have already noted the Grimaldi type as the outstanding example of an early Negroid form. There are others. Kollmann (cf. Boule, 17, p. 340, and Sergi, 154, pp. 233–37) observed Negroid Pygmy types in Neolithic Switzerland. Stolyhwo and I. Ulbrich-Kudelska (quoted by Klimek, 90, p. 103) see “Negroid” and “Pygmoid” elements in the Neolithic Swiss Lake Dwellers. Keith (88, p. 385) observes Negroid traces in Combe-Capelle and in the female Brünn skull. Dixon (34, pp. 28 f. and 32) finds proto-Australoid elements in Neolithic Switzerland, England, Belgium, and Sardinia, and Proto-Negroids as an “important factor” in Neolithic Mecklenburg, Denmark, and South Sweden, and to a less extent in Silesia and Bohemia. Menghin (104, pp. 573 f.) claims Pygmy types at Mugem and holds *H. sudeticus* of Bohemia and Moravia to have been a Negroid Pygmy. Sergi (154, pp. 257–61) derives his Mediterranean race from Eurafian stock and states, in addition (p. 236), that “in very ancient times there was an invasion of Pygmies from Africa into the Mediterranean, also invading Russia and probably other European regions.” Taylor (165, pp. 59 f.) states that “Neanderthal man [whom he designates as ‘Negroid Neanderthal’ in the table on p. 60] lived in West Europe during the last great interglacial (Riss-Würm) and also during the following Würm Ice Age,” and that “Negro and Negrito man appeared in Europe possibly a little later, if the Grimaldi skeletons (of Monte Carlo) are of post-Würm date.” Verneau (182, esp. pp. 213, 221–23, and 227–29) recognizes basic Negroid elements in Neanderthal.

There is no need to multiply such references. The “Pygmy” element is very probably non-Negroid, for it appears that the diminutive stature of modern Negroid Pygmies has been the main reason for assumption of a Negroid small type. It seems more logical, however, to attribute the small-statured types, especially those in Switzerland and in Poland, to an early Siberic influence which, for example, produced also the Miyator race of the Mid-Neolithic of Japan (Menghin, 104, pp. 584 f.). Fischer (46, p. 161) does not regard the small-statured people of Neolithic Switzerland as members of a Pygmy race, but thinks they were merely individuals whose adult stature lies within the normal stature range of Europe. He would account for them, no doubt, as representing familial dwarfness which became accentuated in a more or less restricted locality by inbreeding. Such a theory does not, however, explain the sporadic occurrence of types of small stature and small crania elsewhere in Neolithic Europe.

The Negroid characters of the Grimaldi type should, it seems, be acknowledged; for it is almost certain that the early Proto-Negroids and Proto-Australoids are variants of a single, basically Negroid, form. Keith (87, pp. 98–100; 88, p. 385) holds the Grimaldi type to be a variant of Cro-Magnon, or, better, an intermediate form between true Negroids and Cro-



Magnon. Hooton (71, p. 380) suggests a blend of the Galley Hill type with some as yet unidentified Negroid stock as having produced the Grimaldi type.

We can find no valid reason for denying Negroid intrusion into Southern Europe in Aurignacian times. The Negro may be assumed to have arisen in Africa.<sup>1</sup> Cole's report on a Capsian site (of Aurignacian age) in Algeria (25, p. 189) mentions a Negroid element there. In view of the fact that there is no ecological boundary separating Africa from Europe, we may well

	CRO-MAGNON			BRÜNN	BARMA GRANDE	OBERCASSEL	CHANCELADE	GRIMALDI
	Group 1	Group 2	Group 3					
Skull length (gl-op).....	Very long (199-202.5)	Long (186-97)	Medium (177-98.5)	Very long (181-205)	Very long (205-6)	Long (194)	Long (193-95)	Long (191-92?)
Skull breadth (eu-eu).....	Very broad (143-51)	Broad (134-43.5?)	Medium (133-42)	Narrow (129-34)	Broad? (142?)	Broad (144)	Broad (137.5-46)	Narrow (130.5-33)
Skull height (ba-br).....	Medium (132-39)	Medium? (132?-36.5)	Medium (132-40)	Medium (134-39)	Very high (158?)	Medium (138)	High (148.5-50)	Low(?) to medium (129?-35.5?)
Min. forehead breadth (ft-ft).....	Broad (96-104.4)	Medium (95-100)	Broad (94?-102)	Broad (93-104)	Very broad (111?-12)	Medium (100)	Medium (98-101)	Narrow to medium (93.9-96.2)
Biasteric breadth (ast-ast).....	Medium to broad? (104-17?)	Medium (105-9)	Medium (100-108.5)	Medium (112-15?)	Very broad (122?-23)	Broad (118)	Medium (109-13)	Narrow? (103?-3.5)
Upper facial height (na-pr).....	Medium to high? (68.1?-77.4?)	Medium (63.2-68?)	Medium (65?-70)	Medium to high (67-82)	High (72.3)	High (72)	High (77.2)	Low (59.1-62.3)
Facial breadth (zy-zy).....	Broad (140.5-56)	Medium? (130)	Medium to broad (128-35)	Narrow? (124-30?)	Very broad (143.5-52?)	Very broad (153)	Broad (140)	Narrow (128.5)
Orbital height.....	Low to medium (27.5-31)	Medium (28?-29)	Medium (29)	Medium (28-30)	Medium (30-30.7?)	Medium (30)	High (32-34)	Low to medium (25-29?)
Nasal width.....	Narrow to medium (23-28.3)	Medium (27-28?)	Narrow (25)	Narrow to medium (24-30.2?)	Medium (25-26)	Narrow (23)	Medium (26)	Narrow to medium (22-27.5?)

accept the actuality of an early Negroid infiltration; but we may also conclude that it had little or no effect on European race types as these are at present constituted.

Our second problem centers about the Cro-Magnon race. We can probably rule out any direct connection between Grimaldi and Cro-Magnon. The characters which presumably link

<sup>1</sup> The Elmenteita and Gamble's Cave skulls found in East Africa by Leakey (94), dating to mid-Pleistocene times, may be proto-Negroid, if not early *true* Negroid. The Rhodesian skull, of uncertain geological age, combines, according to Todd (personal communication), Negroid and Neanderthaloid characters. Nor can we overlook the Cape Flats (S. Africa) skull, which Drennan (36) states to be Australoid.

them—membral and intermembral proportions—are extremely variable. Furthermore, such other “Negroid” characters as exist in Cro-Magnon are possibly those of a common heritage in a form somewhat near the parent stock; or the Cro-Magnon-Grimaldi relationship may be due to an ancestral common ingredient:  $X + Y = \text{Cro-Magnon}$ ;  $X + Z = \text{Grimaldi}$  (where a Combe-Capelle-Galley Hill type may possibly be  $X$ ).

The Cro-Magnon “race” embraces a large number of variants which, at one time or another, have been given specific or subspecific ranking. The summary on page 262, adapted from Moszkowski (110), Morant (109), Saller (139), and Szombathy (163), presents the more obvious differences in skull and face of these variants. Measurements are given in millimeters. The eight groups in this summary are made up as follows:

<i>Cro-Magnon Group 1:</i>	<i>Brünn:*</i>
Cro-Magnon No. 1 (♂)	Combe-Capelle (♂)
Cro-Magnon No. 3 (♂)	Brünn I (♂)
Cro-Magnon of Grotte des Enfants (♂)	Obercassel (♀)
Předmost III (♂)	Galley Hill (♂)
<i>Cro-Magnon Group 2:</i>	<i>Barma Grande:</i>
Solutré No. 5 (♂?)	Barma Grande No. 2 (♂)
Solutré No. 7 (♂)	<i>Obercassel:</i>
Solutré No. 8 (♂?)	Obercassel (♂)
Předmost IV (♀)	<i>Chancelade:</i>
<i>Cro-Magnon Group 3:</i>	Chancelade (♂)
Solutré No. 2 (♀)	Laugerie-Basse (♂)
Lautsch (♂)	<i>Grimaldi:</i>
	Grimaldi (♂)
	Grimaldi (♀)

\* In addition, Szombathy (163, pp. 216-19) recognizes a Brûx race comprising Brûx, Galley Hill, Podbaba, Podkumok, and Lautsch No. 5. The Brünn and Brûx groups are very closely related (cf. Osborn, 115, p. 334).

This summary emphasizes the variability of the Cro-Magnon and other Upper Paleolithic types, which we may resolve into three major groups: Cro-Magnon (including Brünn-Brûx, Barma Grande, Obercassel), Chancelade, and Grimaldi. As stated above, the Combe-Capelle-Galley Hill complex is probably basic to Cro-Magnon types.

Obviously there must be some limit to the recognition of “races” of the Upper Paleolithic. It is entirely possible that certain of the eight groups summarized above may differ very little more than is commonly the case in family lines or within the range of constitutional types (leptosome and euryosome) or even within the limits of von Eickstedt’s “Gautypus” (38, pp. 23 f. and 115). To a certain extent the differences may be merely taxonomic variants, or at most subspecific. And yet, if observable differences are properly weighted, it does seem that the three major groups referred to above precipitate out—in morphological fact, if not in statistical theory.

But how shall we explain the origin of the Cro-Magnon major group? It is obviously not directly Neanderthaloid, though it probably somehow contains Neanderthaloid elements (via Brünn-Brûx?). Its variability betokens diverse elements; for there is no typical stature, cranial index, face type, orbit, or nose. It is facial breadth that gives the best clue. If we postulate the early arrival of an Eastern Asiatic (Mongoloid or proto-Mongoloid) element, we introduce a low, broad orbit, a broad nose, a wide, relatively short, low head, and a broad face. If we assume further that this type crossed with a long, narrow head of medium height, a face of medium breadth, having a low orbit and a nose of medium width, it is possible to account for the “disharmonic face” of the Cro-Magnon type. The question arises: Do we have these ingredients at hand? The answer must be a qualified affirmative. The longheaded element is found early, in the Combe-Capelle-Galley Hill group; the roundheaded element we do not

clearly meet until the time of the Ofnet Azilians and the Grenelle Neolithics. We must, however, remember that the trend toward roundheadedness was already observed at Gibraltar, Krapina, and Solutré (cf. Keith, 87, pp. 198 and 91 f.).

Our conclusion that the variability of Cro-Magnon is probably due to hybridity is of the utmost importance; for the implied plasticity explains for us later steps in the evolution of Cro-Magnon. The selection and recombination of elements in succeeding generations goes far toward explaining progressive changes.

There is very little doubt that the Neolithic longheads of Europe (Dolmen, Long-Barrow [early influenced by Mediterranean], River-Bed, northern Megalith, Baumes-Chaudes, Kurgan or Steppe, and Reihengräber types) are largely direct descendants of the Cro-Magnon complex<sup>2</sup> and are the direct ancestors of the present-day North European (Nordic) type. Considerable change has occurred: the skull has lost its excessive size and length, the size and proportions of the foramen magnum have changed, the low slitlike orbit has disappeared, the face and nose have narrowed, while the height of the face has increased. We can only hint at the possible or probable causes of change by noting Thomson and Buxton's work (169) on the nasal index and Bakwin and Bakwin's studies (5, esp. p. 403) on facial growth. We do know that factors of climate and health play an important rôle in the unfolding of the bodily pattern; we can only conjecture how the pattern becomes set in heredity.

The Nordic and Mediterranean types are linked directly in Sergi's derivation of the former from the latter. The problem is not quite so simple. It is more likely that the Mediterranean type represents an offshoot of the Cro-Magnon stock—a recombination of the variable factors that we know existed in the Cro-Magnon group.<sup>3</sup> We may also invoke an incoming (Kurgan?) longheaded type that blended with and modified an existing Cro-Magnon form. The two alternatives are schematized thus:



Sergi is the foremost proponent of the identification of X in scheme B with a Negroid type. His Eurafrian type represents a basic element, or a combination of elements, from which he derives the African, the Mediterranean, and the Nordic types. It is probably on this basis of indirect relationship that Menghin (104, p. 588) includes the Mediterranean under his "Nordid" group, though Buxton (20, p. 50) insists that "the two races, or subraces, have little in common except their cephalic index." Giuffrida-Ruggeri (cf. Boule, 17, p. 347) derives the South Europeans from a cross of a northern type like that of Cro-Magnon and an equatorial or proto-Ethiopian type; but Boule, believing in the high antiquity of the Mediterranean type, would deny such derivation.

We may conclude that originally the Mediterranean type was a direct offshoot of the Cro-Magnon stock, and that South Europe and especially North Africa—the Mediterranean area

<sup>2</sup> Osborn (115, p. 336) singles out Brünn, Hooton (71, pp. 357, 361, and 372 f.) selects Předmost or Galley Hill, Keith (88, pp. 396, 403, and 405 f.) hints at Předmost, Fleure (48, p. 40) suggests Combe-Capelle or Solutré, while Menghin (104, p. 588) favors Chancelade. Regardless of which type—if any single one—was basic, it seems that the Steppe area was the scene of the initial characterization. Later the evolved type is found not only throughout Northern Europe but in the Danube basin, at Cucuteni, and at Mugem.

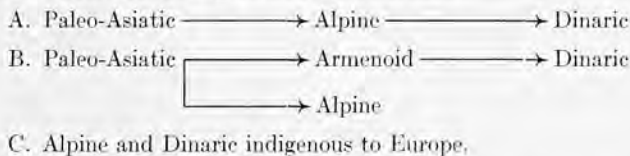
<sup>3</sup> Fleure (48, p. 40) suggests that skulls from Laugerie-Basse, Sorde, Placard, and Bruniquel are modified toward the South European (Mediterranean) type.

*in toto*—were the areas of characterization. It is not surprising, therefore, that the type very early intermixed with Negroids, so that at Mugem, at Mechta-el-Arbi, in the Canary Islands, in dynastic Egypt, and in other southern areas we find evidence of short, mesorrhine longheads with an obvious trace of Negroid admixture. It was this mixed type, to which had been added at an early period a slight leavening of roundheadedness, that was the originator and carrier of the Capsian culture (cf. Cole, **25**, p. 189).<sup>4</sup> By the end of the Upper Paleolithic its representatives had reached southern France, where they developed the Azilian-Tardenoisian culture. At the close of the Neolithic they had penetrated all of South and West Europe, had mixed with the North European Long-Barrow type in Britain (indeed, they may have been the dominant component of the Long-Barrow people), were spread throughout the Aegean area and much of western Asia Minor, and were found sporadically in mid-Europe, e.g. at Lengyel in Hungary. We may, in fact, go so far as to say that in Late Neolithic times the Mediterraneans were probably distributed much as they are today.

Our third problem concerns the racial wedge which today separates the North and South European longheads. The origin and the time of entry of the Central European (Alpine) roundheads have already been touched upon (p. 259). Briefly, we believe that the earliest roundheads entered Eastern Europe from Asia, and that the earliest groups were possibly of a Siberic or Paleo-Asiatic type. These people are found definitely in the Azilian period, and at some sites they appear as the dominant population. An earlier wave is postulated to explain certain facial characters of the Cro-Magnon group and perhaps to account for the roundheadedness seen at Krapina, Nagy-Sáp, and Solutré. Later waves of incoming roundheads are traceable to Central Asia, having come into Europe via the great central mountain chain which divides Eurasia from east to west (see p. 268).

Traces of roundheadedness have been noted at Capsian Mechta-el-Arbi (of Aurignacian age), at Mugem, and at Maglemose, the last two being the farthest outposts of Southwest and Northwest Europe respectively. It is not at these places, however, that we may expect to find the basic areas of expansion. We must rather turn to the chief sites of Central Europe: Furfooz, Grenelle, Ofnet, Clichy, La Truchère, and Wahlwies, which yield types with a cranial index range of 79–85. Basically the early roundheads are Alpine in type, perhaps seen best in the early Neolithic Lake Dwellers.<sup>5</sup> It is not until the Early Bronze Age (*ca.* 2000 B.C.) that the Southeast European (Dinaric) type enters. This type may be represented by the Borreby type; it is certainly present at Wahlwies (of Zone-Beaker time), and it is identical with the Bell-Beaker type.<sup>6</sup> In addition, it may have carried the Adlerberg and Tripolje cultures and, together with the North Europeans, the Aunjetitz culture.

The relationships of the Alpine and Dinaric types to a common Asiatic source and to one another may be schematized according to several theories:



<sup>4</sup> There are features of this culture, such as the use of ostrich-egg shell (Pond, **25**, p. 48) and the delineation of steatopygous types (Childe, **24**, p. 3), which are strongly reminiscent of the Bushman.

<sup>5</sup> This is Haddon's Alpo-Carpathian type (cf. **60**, p. 28). In later Lake Dwellers a Dinaric element is unmistakable (cf. **60**, p. 62).

<sup>6</sup> From a Neolithic site in Siberia Scheidt (**141**, p. 100) reports two crania (CI 80.35, 80.95) which may foreshadow the Bell-Beaker type. While the Bell-Beaker type very evidently has certain traits which evidence a longheaded admixture (Nordic), these are in the minority.



The first scheme is essentially chronological. The earliest roundheads are of the rounded-occiput (Alpine) type; the flattened-occiput (Dinaric) type does not appear until the Bronze Age. The second scheme is based upon a recognition of two major types of roundheadedness—round-occiput and flat-occiput—and assumes the two to be related to one another by ancestry rather than by progression. We shall return to the Western Asiatic type later. The third scheme, advocated tentatively chiefly by Schliz (143, pp. 266 f.; 149, p. 170) may be disregarded.

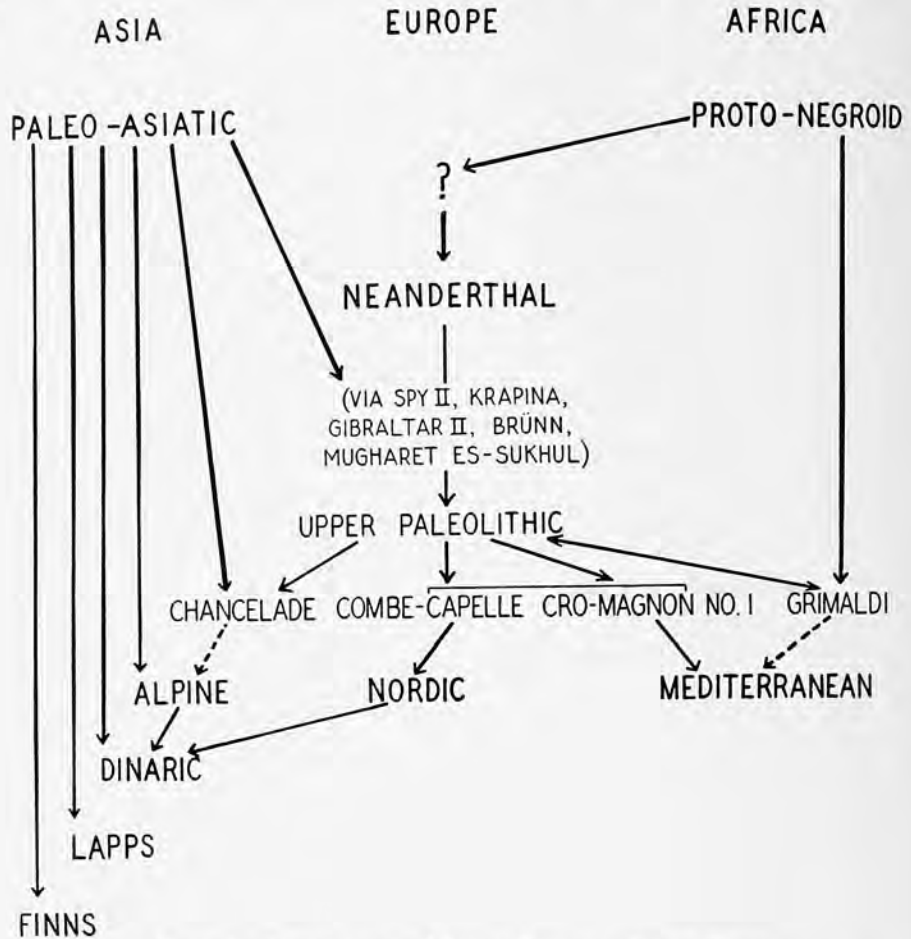


FIG. 246.—THE ORIGINS OF MODERN EUROPEAN RACIAL TYPES

Notwithstanding the fact that we have derived our European roundheads from Asiatic types, we do not, except in the Finns and the Lapps, find marked Asiatic traits. Reicher (133, esp. ZMA XVI 56-59) has shown that only in the skull are the Central European (Alpine) and Central Asiatic (Mongoloid) types to be compared; facial skeletons are markedly different.

Though it is not quite clear just when the Lapps and the Finns came into Europe, the Lapps probably came earlier than the Finns, and both probably came later than either the Central or the Southeast European type. I. Ulbrich-Kudelska (cf. Klimek, 90, p. 103) sees "laponöide" traits in the Neolithic Swiss Lake Dwellers, and Montelius (cf. Peake, 120, p. 156) reports from Neolithic Denmark several skulls which "resemble in form the skulls of Laplanders" (Boule, 17, p. 341). Peake (120, p. 156) feels that a type ancestral to the Lapps was to be found in Neolithic Sweden and along the eastern Baltic shore.

It is possible that the Alpine-Dinaric offshoot from the parent Asiatic stock occurred before the definitive Mongoloid traits were attained, and that the Lapp-Finn departure occurred after the attainment of such traits. Another, and more probable, alternative is that the Alpine-Dinaric groups mixed with a longheaded (chiefly Nordic) element, while the Lapp-Finn groups, being more marginal in position, retained more completely their basic traits.

To summarize: the sequence in which roundheaded elements appeared in Europe is: Paleo-Asiatic, Alpine, Dinaric, Lapp, Finn; the first, fourth, and fifth came into Northeast Europe, the second and third into East Central Europe.

In Figure 246 there is offered a tentative diagrammatic summary of the origin and the component elements of the several prehistoric and modern races we have been discussing. The ultimate origin of the Neanderthal race is not attempted; it is suggested that an early Negroid (proto-Negroid) element entered in. Essentially, the transition from Lower to Upper Paleolithic was achieved by the decline of the Neanderthal race and the rise of the Cro-Magnon complex. It is suggested that the transition to the latter was effected by certain forms which blended Paleanthropic and Neanthropic traits and which mixed with an early Paleo-Asiatic infiltration. The Upper Paleolithic Cro-Magnon complex is represented partly by the Chancelade element, in which strong Asiatic influences have survived or to which a new Asiatic wave has contributed, and partly by the Combe-Capelle-Galley Hill group, which may represent a basic Eurafrican element (cf. Hooton, 70, pp. 303 f.) upon which Asiatic influences have impacted. The type of Cro-Magnon No. 1 represents, as it were, a balance of these intrinsic elements. The introduction of a Negroid element by Grimaldi—essentially of African provenience—is definite, but the exact method of introduction is uncertain; hence a reciprocal Grimaldi-Cro-Magnon influence is indicated.

To represent the origin of modern races, the longheaded Nordics are depicted stemming off from a Combe-Capelle type, the Mediterraneans from the more typical Cro-Magnon No. 1 type. The slight Negroid element in the Mediterranean type is shown by a dotted line. The roundheaded races are essentially Eurasiatic in origin. It is possible that Chancelade contributed slightly to the Alpine type, but basically the latter type derived from an incoming Paleo-Asiatic migration. Another such migration, plus Nordic and Alpine influence (not forgetting the possible rôle of the Armenoid), produced the Dinarics. Later Asiatic waves produced, in order, the Lapps and the Finns, although in these peoples there are certainly white (Caucasic) elements involved.

## 7. RACIAL SUCCESSION IN ASIA MINOR AND CENTRAL ASIA

To complete the racial background for Alishar we must now turn our attention to racial groups and movements in Asia Minor and Central Asia. To a certain degree Asia and Europe should be considered as an ecological unit, for the Ural Mountains are not an impassable barrier; to the south they are absent entirely, while such natural barriers as exist run, generally speaking, in an east-west direction, so that the whole area is divided more markedly into northern and southern sections than into the western and eastern sections which we call Europe and Asia. We may thus very well speak of a Eurasiatic continent.

The Asiatic part of this continent has two series of highlands and plateaus, an eastern and a western, each radiating from the Pamirs as a dividing center. The eastern series includes the area of the Himalayas and the highland extensions east and northeast to the Pacific and south-east to the Malay Archipelago. The great central plateau lying east of the Pamirs, the Tien Shan, and the Altai and Sayan Mountains has a natural opening in the west, the so-called "Dzungarian Gate," through which the Mongol plateau dwellers streamed into the Ural region and on to Europe. In the Altai and the Yablonovoi Mountains, which inclose the Gobi Desert in the west and in the north, the great rivers of Siberia have their sources. Passages in these ranges permitted Mongolic-Siberic contact.

The western series comprises the highlands and plateaus of Iran and Asia Minor, with a southern ramification into Syria, Palestine, and Arabia, and a southwestern spur into Cyprus. The highlands of Iran and Asia Minor form a huge corridor extending in a northwest-southeast direction. The northern wall of this corridor is constituted by the Hindu Kush Mountains, the Kopet Dag, the Elburz, the Caucasus, and the mountains along the north coast of Asia Minor; the mountains of Baluchistan and southern Iran, the Zagros Range in southwestern Iran, the Armenian Taurus, the Anti-Taurus, the Taurus, and the mountains of Pisidia compose its southern wall. In Armenia the parallel ranges are compressed, though continuing in the general direction of the corridor. Arabia, at the southern end of the ramification extending through Syria and Palestine, is virtually a separate province, sloping downward from west to east. The geographical features of Western Asia have therefore shunted race movements in a general northwest-southeast direction, except along the Syrian coast.

The importance of these geographical relationships lies in the fact that the plateaus and the passes provide fundamental East-West contact; here the twain do meet! These areas constitute highways for peoples from the East surging into the West and vice versa.<sup>1</sup>

These geographical relationships need to be taken into account in our attempt to understand European-Asiatic racial contacts and movements, and above all in our interpretation of the human finds at Alishar. Eastern Asiatic types are basically roundheaded; yet the earliest types at Alishar are longheaded—an essentially Western, not Eastern, type. The inevitable conclusion seems to be that in the case of the earliest inhabitants of Alishar we are probably dealing with a type which was indigenous to the entire Mediterranean basin and western Asia Minor, but which penetrated eastward, extending, in the course of time, to Iran and even farther to the southeast. The center of dispersion may also, however, have been somewhere in the Near East itself, e.g. in Egypt or in Mesopotamia.

Mention has already been made of Elliot Smith's "Brown Race." Buxton (20, p. 52) recognizes the following subdivisions of this type: (1) the Mediterranean in the Mediterranean area and Southwestern Asia; (2) the Brown Race in West Central Asia; (3) the Dravidian in India.

<sup>1</sup> For a fuller discussion of the geographical relationships of Anatolia see Dr. von der Osten's statement on pp. 350-54.

(4) the Nesian or Indonesian in Southeastern Asia.<sup>2</sup> Though we do not know enough of comparative craniology to be dogmatic, we feel sure that the basic population of the entire Western Asiatic world was a longheaded type closely akin to the Mediterranean type, call it "Brown Race," "Eurafrican," or any other term.

The ultimate origin of this type is not clear. Buxton (22, p. 91) found in Mesopotamia a "type with heavy brow ridges and not infrequently a broad nose," of which he concludes: "It is possible that there may be in Western Asia an underlying stratum analogous possibly to the Palaeo-Amerinds in America, a primitive cymotrichous race related to the very definitely marked Proto-Indians [Pre-Dravidians] and Australians." Fleure, von Luschan (99, pp. 383 f.), and Giuffrida-Ruggeri find an extremely dolichocephalic hypsistenocephalic type as basic in the eastern Mediterranean area, in Mesopotamia, and possibly in India (cf. Buxton, 22, pp. 91 f.). Haddon (60, p. 103) concludes that "it seems reasonable to suppose that the coastal areas at least of Asia Minor and the southern lowlands primitively were occupied by Mediterraneans or a kindred stock." Menghin (104, p. 588) declares that the "älteste Bevölkerungsschicht des anatolisch-ägäischen Kulturgebiets" was Mediterranean.

The earliest longheads in Western Asia—indeed, the earliest inhabitants—were almost certainly of the Mediterranean type, perhaps even its prototype. The recognition by Buxton (22, p. 82) and by Peake (120, p. 158) of a Eurafrican element, with the possible inclusion of an early pre-Dravidic element, hints at a basic west-to-east movement, with a less marked pre-Dravidic countercurrent.

About 2000 B.C. began a westward movement which, in part, may have been a countercurrent or internal migration of a longheaded type by this time common to the vast area from England in the west to northern India in the east. This type, termed "Indo-Aryan" or "Indo-European" by Kappers (79, pp. 124 f.), Hall (61, p. 201), Ungnad (181, pp. 9–12), and Dixon (34, p. 248), is characterized by marked dolichocephaly (index peak of 70–71). Kappers (79, pp. 105–25 and 162 f.) relates it to the type found at Jamdat Nasr, Ur, and Mohenjo Daro and possibly even to the Badarians in Egypt. If our interpretation is correct, there is every reason to regard the principal element of the incoming type of about 2000 B.C. as a specialized variant of the basic and widespread longheads of Mediterranean or proto-Mediterranean provenience.<sup>3</sup> It is important to recognize that Kappers' "ancient Mediterraneans" of the Chalcolithic of southern France and the Mediterranean islands have index peaks at 72–73 and 75–76 (79, p. 162). The mesocephaly probably involves, as we shall see, the appearance of a roundheaded people.<sup>4</sup>

The longheaded element in the westward migration that roughly coincided with the opening of the 2d millennium B.C. was not confined to the Mediterranean type alone. The Damghan (Tepe Hisar) cranial material recovered by Dr. Erich F. Schmidt (149b, pp. 362–64, 385–89, and 438–52) is chronologically grouped into the following periods: I, before 4000 to about 3500 B.C.; II, about 3500–3000 B.C.; III, about 3000–2000(?) B.C. A preliminary study of this material reveals that the Mediterranean type is basic, extending uniformly throughout Periods I–III. Late in Period II and throughout Period III occurs a longheaded type which is similar to the

<sup>2</sup> In this connection it is important to note that Menghin (104, pp. 582 f.) holds Brunn III to be "Melanid" and identifies it, in some essential characters, with the "Indonesian" Lang Cuom IX skull from Tonkin province in French Indo-China.

<sup>3</sup> Dixon (34, pp. 486 f. and 509 f.) represents his basic Mediterranean type as going from Africa to Europe and to Asia Minor. With head length of 190 mm. and head breadth of 135 mm., the resultant cranial index of 71.1 places the type with Kappers' early ("Indo-Aryan"?) group of Mediterraneans.

<sup>4</sup> A cranial-index peak of 71–72 is seen in Neolithic longheads of Italy and southwestern Switzerland (see Fig. 245). Their date is far too early for the "Indo-Aryan" wave of ca. 2000 B.C., and their index peak is added evidence of the independent tendency of the Mediterraneans of South Europe to marked longheadedness.



"Nordic" type of Northern Europe. It is my belief, however, that the non-Mediterranean longheads found at Damghan were representatives of a distinct Aralo-Caspian or Steppe type which, together with elements derived from Cro-Magnon, may have entered into the racial composition of the present-day North Europeans.<sup>5</sup>

There is another longheaded people that we must consider at this time—the so-called "Semites" or "Oriental race" (not to be confused with Deniker's "race orientale," which is the Vistulan or Northeast European type). The term "Semite" is singularly inept, for it is used to refer sometimes to Jews, sometimes to Arabs, and sometimes to all peoples speaking Semitic languages.<sup>6</sup>

The Semites are actually Semitic-speaking groups of Mediterraneans who have evolved a slightly specialized physical type in northern Arabia. They are distinguished by a slightly greater average stature, the face is elliptical rather than oval, and the nasal aperture is slightly narrower. Notwithstanding the fact that the greatest difference is found in the soft parts—in the so-called "Semitic nose" (really an Armenoid nose)—Keith (85, p. 236) finds the nasal skeleton also to be specialized: "a prominent nose, standing high above the lower margins of the orbits and clearly demarcated from the cheeks." Keith explains this difference as due to differential facial growth which emphasizes the midfacial (naso-respiratory) area at the expense of the lower face (dental component). As far as skull form is concerned, Semite and Mediterranean are one.

Ungnad (181, p. 4) very interestingly connects the Semites with the Indo-Germans: "Die rassenreinen Semiten, wie wir sie noch unter den heutigen Beduinen der arabischen Wüste antreffen, unterscheiden sich körperlich nur wenig von den Indo-Germanen." This statement is not as surprising as it seems, for we hold the Semites and "Indo-Aryans" both to be variants of a basic longheaded people, the early Mediterranean type. Indeed, Ungnad's correlation of these two groups may aid in the explanation of a "Nordic" type among the Amorites.

There have been six major movements of Semitic peoples, which may be dated roughly as follows: (1) the Akkadian migration into Mesopotamia, around 4000 B.C., perhaps even earlier;<sup>7</sup> (2) the settlement of the Canaanites and the Phoenicians in Palestine and Syria, perhaps as early as 4000 B.C.; (3) the Amorite invasion, culminating in the establishment of the First Dynasty of Babylon about 2200 B.C.; (4) the Aramean migration, around 1500 B.C.; (5) the Nabatean infiltration, beginning about 600 B.C. and continuing down to the Christian era; (6) the Moslem expansion soon after the death of Muhammad in A.D. 632.

The early settlers of Kish in Mesopotamia are defined by Field (42, p. 79) as "part of the proto-Mediterranean group whose descendants are the modern Bedouins of North Arabia," and are placed chronologically before 4200 B.C. About 4200 B.C., according to Field, the brachycephalic Sumerians swept in, to be themselves subjugated later on, presumably by a longheaded type already truly Semitic. The earlier longheads must be identified as Proto-Mediterraneans, since we have no evidence that they spoke a Semitic language; we are, however, fairly certain that the invaders of about 4000 B.C. spoke Semitic. But *both* groups of longheads were probably identical racially, since "Semite" is merely a linguistic tag placed upon a Mediterranean people.

<sup>5</sup> This theme will be elaborated in a forthcoming report on the Damghan (Tepe Hisar) skeletal series.

<sup>6</sup> Cook (27, p. 182) states: "By the 'Semites' is generally understood the group of people known as the Aramaeans (Syrians, etc.) in the north, the Babylonians and Assyrians in the east, the Arabs in the south, and the Phoenicians, Hebrews, Moabites, etc., in the west. They are the inhabitants of the region bounded by the Taurus and the mountains of Armenia and Iran, the Persian Gulf, the Indian Ocean and the Red Sea, Egypt, and the Mediterranean."

<sup>7</sup> The linguistic argument for this early date of the Akkadian migration, as well as linguistic evidence of a Semitic migration into Egypt which appears to have taken place even earlier, is well given by Dr. D. D. Luckenbill (95a).

We come, finally, to the possibility of the influence of a Nordic longheaded element. Buxton (22, p. 77) categorically states that at Kish he found no skull "which showed in the remotest degree any resemblance to the Nordic type." It is not until much later that Steppe longheads are said to have crossed the Dnieper, destroyed the Tripolje culture about 2225 B.C., and spread out over East Central and Southeast Europe, one wave crossing the Hellespont and sacking Hisarlık II and proceeding thence to Anatolia (cf. Peake, 120, pp. 164-72). As the Sea Peoples, about 1300-1100 B.C. Northern longheads, with an Alpine admixture, destroyed the Minoan culture and adopted the Mycenaean culture (cf. Haddon, 60, p. 64).

A non-Mediterranean longheaded element is certainly not represented in Asia Minor until about 2500-2000 B.C. It seems to have entered from two directions, northeast and northwest, the newcomers being respectively Eastern Steppe longheads and North European longheads, who probably had a common origin. The Steppe longheads, entering Asia Minor from the northeast about 2000 B.C., probably represent a southwestern wave which had a (perhaps earlier) northwestern counterpart. While part of the northwestern wave moved down into Asia Minor, the rest moved up into Northern Europe, to become the true North Europeans. About 1200 B.C. representatives of the latter surged southeastward to invade Asia Minor as participants in the Aegean migration.

Our attention must now be given to the problem of brachycephaly in Asia Minor, specifically that of the Western Asiatic or Armenoid type (*vorderasiatische Rasse*; Anatolian, Alarodie, Cappadocic, Mesopotamian, proto-Armenic, or "Hittite" type). The Armenoid skull is hypsi-brachycephalic with a pronouncedly flattened occiput ("abgehackt"); it is large, so that cranial capacity may have been above the average; the supraorbital ridges are usually strongly developed; the orbits slope downward and outward and possess a heavy latero-superior margin; the face is long and moderately broad; the jaws are strong and have a high coronoid process. In contrast to the development of the European roundheads, that of the Armenoids appears to have been one of progressive post-auricular shortening, in the order Alpine, Dinaric, Armenoid.

The type is not pure; a Mediterranean element is obvious. Indeed, the Iron Age "Armenoids" from the Sevan district studied by Bunak (cf. Krogman, 91, pp. 133 and 138) were similar to the Kurgan type. Bunak explains the skull type as anteriorly dolichoid (Mediterranean), posteriorly brachoid (Central Asiatic).

While truly Armenoid skulls have been found at an early period in Mesopotamia (Kish, *ca.* 3000 B.C.), they have not appeared as yet in the earliest cranial material discovered in Asia Minor. The earliest Armenoid skulls found in Asia Minor appear to be those from Bozüyük, which A. Körte, the discoverer (90a, pp. 22 f.), would attribute to the age of Troy V, that is, to somewhat before 1500 B.C. Since iron slag, evidence of a knowledge of smelting iron ore, was found in the mound (*ibid.* pp. 19 f.), the date will be little if at all before 1500 B.C. Virchow's study of these skulls (183) seems to leave no doubt that these skulls are truly Armenoid. But these are the only fairly early Armenoid skulls from central Asia Minor known thus far. This lack of Armenoid cranial material may be due to the fact that up to the present time comparatively few excavations have been conducted there; but it may also indicate—as the Alişar finds appear to do—that the Armenoid type was not present as a *basic* population in western and central Asia Minor, as has been the prevailing opinion hitherto.

It is interesting to compare with this result what we know of the spread of the Armenoid type outside of Asia Minor and Mesopotamia and to note the chronological implications for the solution of the Armenoid problem in Asia Minor.

In Cyprus (cf. pp. 253 f.) true Armenoids seem not to have been present until the Middle Bronze period (*ca.* 2100-1600 B.C.). From this period Fürst (51, p. 82) classes two skulls from

Lapithos (4 FCL and 5 FCL) as definitely Armenoid. Most of the Armenoid skulls are from Melia and belong either to the late Middle Bronze period (*ca.* 1600 B.C.) or to the beginning of the Late Bronze period (*ca.* 1600-1400 B.C.). Fürst's study of twenty Early Bronze Age (3000-2100) and Middle Bronze Age (2100-1600) skulls from Lapithos (fifteen in Buxton's collection and five in his own) revealed that not one of these is Armenoid (**51**, pp. 64 f.). From this it appears that the Armenoids did not reach Cyprus until about 2000 B.C. at the earliest.

If the Hurrians, who came into Mesopotamia, Syria, and Palestine between 1900 and 1500 B.C., were Armenoids, as some scholars hold (see p. 276), their appearance too would fit well chronologically into the picture of the Armenoid migration elsewhere.

In Europe the Dinarics and the Bell-Beaker folk likewise made their appearance about 2000 B.C. (see pp. 248 f., 251, and 265). Armenoids intermixed with Mediterraneans may have been the "Prospectatores" (of Fleure) and the "maritime Armenoids" (of Elliot Smith) who about this time spread out along the northern shore of the Mediterranean and the west coast of Europe (cf. Haddon, **60**, pp. 30 and 62 f.).

It would therefore seem that migrations of peoples of the truly Armenoid type did not occur much if at all before 2000 B.C., and that they reached their height between 2000 and 1500 B.C. If this should prove to be true, their entrance into Asia Minor also would fall between 2000 and 1500 B.C. This enables us to throw some light, at least chronologically, on the problem of the evolution of the Armenoid type.<sup>8</sup> If Armenoids were present at Kish about 3000 B.C., it is obvious that the specialization of the type occurred long before that time, that is, long before Alishar Early Bronze Age and Hittite Empires. The non-presence, however, of Armenoids in central Asia Minor at those periods may be explained by either or both of the following hypotheses: (1) The basic population of central Asia Minor was not Armenoid. (2) The place of settlement and concentration of the Armenoids was outside of western and central Anatolia, perhaps in Central Asia and extending into the mountainous regions east of central Anatolia and north of Mesopotamia, whence some may have filtered down into Mesopotamia, central and western Asia Minor, and Syria—though the when and the how are not yet clear archeologically and historically. Others may have skirted the northern shores of the Caspian Sea and the Black Sea and entered Southeastern Europe, giving rise to the Dinarics and to the Bell-Beaker folk.

Even though we speak of Armenoid crania at Kish at about 3000 B.C., there seems to be the possibility that at that time the Alpine-Dinaric-Armenoid brachycephalic differentiation was still going on. In other words, the brachycephali at Kish were not uniformly of the flattened-occiput Armenoid type; there were gradations, apparently, to the curved-occiput type of Central Europe. Of twenty-eight crania from Kish, Rice classified three as Armenoid and three as having Armenoid affinities; of thirty-six crania from the same site, Buxton had a count of four Armenoids and four with Armenoid traits (cf. **22**, pp. 75 f.).

The possibility of the early spread of the Armenoid type from a Central Asiatic birthplace, whence it entered Southeastern Europe, eastern Asia Minor, and Mesopotamia, is indicated by the report of J. G. Andersson (**1c**, pp. 13-16 and 38), who found at a Chalcolithic site in Fengtien, Manchukuo, a type of pottery met with in the Near East also. Buxton (**21**, p. 159) says of this pottery that it "either accompanies him [the Armenoid] or perhaps more frequently

<sup>8</sup> Elliot Smith (**157**, p. 81) holds that the Armenoid type arose in Central Asia (Turkestan) in the later stages of the Glacial epoch, being separated from the contemporaneous Steppe Proto-Nordics by the Aralo-Caspian Sea and from the "Brown Race" by the ice sheet. He further refers to the early Armenoid as variable in type, ranging from meso- to subdolichocephalic. It would be this early form that would constitute his "alien" element in early dynastic Egypt.



heralds his coming." Further early evidence of the Armenoid type is found in Sumerian art.<sup>9</sup> Kappers (79, p. 42) links the Armenoids to Central Asiatic peoples of the Turko-Altaic language group. Weninger (189, pp. 13-37), in a comprehensive ethno-geographic survey, finds the Armenoid race, or one or more of its characteristic features (flattened occiput, prominent nose, high head), dominant in early Asia Minor and Syria, and on the basis of recognizable Armenoid features claims that it subsequently spread also to Switzerland and Bavaria in the west and to Tibet in the east. For him traces of the Armenoid head-and-face complex indicate a fairly thorough leavening of the vast Southern Eurasiatic area by Armenoids. While this view may be somewhat extreme and, with respect to the dominance of the Armenoids in early Asia Minor and Syria, apparently wrong, it seems obvious, nevertheless, that the Armenoid-Dinaric-Alpine complex is closely interwoven. If we accept an east-to-west movement, it would seem that the relationship is in the order given; that is, Armenoid is close to Dinaric, Dinaric to Alpine. Chronologically the Alpines are earliest, with the Dinarics and Armenoids approximately contemporaneous. The Alpines seem to be the least mixed of the Eurasiatic types; for Armenoids have a Mediterranean element, while the Dinarics may be the result of an Armenoid-Alpine-Nordic cross, with the first-named type dominant.<sup>10</sup>

<sup>9</sup> Frankfort (49a, p. 10, Fig. 1) pictures the Armenoid and Mediterranean types as found sculptured in the round in Mesopotamia at Khafājah in the Early Dynastic period. The types are unmistakable.

<sup>10</sup> Reche (132a) makes an interesting statement with regard to the Armenoids (whom he terms the "Tauric" race—*Homo tauricus*) and the Dinarics. He holds them to be secondary races, resulting from a mixture of shorthheaded-broad-faced and longheaded-narrow-faced types. This is on his assumption that short head and long face are usually dominant. As evidence he points out that the Armenoid and Dinaric races are found only where a considerable longheaded element has been absorbed in a roundheaded population. In this way he would explain also the appearance of Dinaroid types elsewhere, e.g. the Borreby type, making it the product of a local mixture rather than the result of the migration of Balkan or Danubian Dinarics.



# 8. CONCLUSIONS

In recognizing an early longheaded type and a later, intrusive, roundheaded type at Alishar we have raised certain problems, the solutions of which have been sought in our rather extensive survey of contemporaneous and contiguous groups. One of the first questions to be answered concerns the mutual relation, if any, of the Chalcolithic, Copper Age, and Post-Hittite-Phrygian longheads of Alishar. We have stated in Section 1 our belief that those of the Chalcolithic and the Copper Age belong to the Mediterranean or South European type, while those of the Post-Hittite-Phrygian period fall into two types, South European and Nordic or North European.

This statement has a far-reaching implication, namely, that by the 4th millennium B.C. a type found not only in the Mediterranean basin, but also as far west as England and as far east as North India, had evolved to the point where it possessed a fundamental uniformity over that vast area. It is in this sense that Keith recognized common elements in Neolithic England and at al-Ubaid, and that Buxton claimed to have found at Kish a "Eurafrican" type which appeared to have Combe-Capelle ancestry—an element noted by Keith at al-Ubaid also. In the same sense we maintain that the longheads of Alishar Chalcolithic and Copper Age and those of al-Ubaid and Kish are related. We are, in these early periods, nearer the point of emergence of the Mediterranean type, so that basic elements are more analyzable, even though unequally distributed. In none of the early Alishar longheads do we find the large-skulled Combe-Capelle form. The process of refinement leading toward the Mediterranean cranial type had already progressed markedly.

In Alishar Early Bronze (*ca.* 2500 B.C.) and Hittite Empires (*ca.* 2000-1200 B.C.) we encounter a roundheaded population which we should presume to be the "Hittites" par excellence; for the monuments of Zincirli, Medinet Habu, and Abydos (those of the last two sites dating from the time of Ramses II) show the Hittites as of a proud-nosed, shortheaded, highheaded, flattened-occiput type seen best today in our Armenoid group. But not *one* such Armenoid skull found at Alishar can be earlier than the Seljuk period.

This result is, of course, at variance with Fischer's assertion (46, p. 170) that until about 1500 B.C. the population in Asia Minor and Syria was definitely roundheaded (CI 85-86), highheaded, and with flattened occiput;<sup>1</sup> but it must be remembered that up to the present many writers have deduced the "Hittite" cranial type from sculptured delineations only. While from the Alishar material it is certain that roundheads appeared in Asia Minor by 2500 B.C., the assertion that this early type was ancestral to, or identical with, the modern Armenoid type does not appear justified by our study.<sup>2</sup>

Just as the early roundheads in Neolithic Europe were Alpine (Paleo-Alpine), so in Asia Minor we find an early group of Alpine roundheads who evidently preceded the flattened-occiput Dinaries and Armenoids. As used here, the term "Alpine" refers to the type of roundheadedness which is characteristic of Central Europe rather than of Eastern Asia. Indeed, the roundheads of Alishar Early Bronze and Hittite Empires probably represent a wave of Central Asiatics en route, as it were, to Eastern Europe. We may relate these Central Asiatics to the Iranians and Turko-Mongols studied by Ujfalvy (180) and later by Keith (86, pp. 149-80,

<sup>1</sup> This type is found today in the highlands of Armenia and Iran and among the sectaries of Syria and Asia Minor (Anšariyyah, Tahtaji, Bektashi, and Kızılbaz, also Druses and Maronites). Cf. von Luschan (97, pp. 230-33 and 241-44), von Erekert (40, XLX 346-56), Hasluck (63, pp. 310-42), Djawachischwili (35, pp. 77-89), and Weninger (189, pp. 13-37).

<sup>2</sup> Von Luschan (97, pp. 241-44) held that the hyperbrachycephalic sectaries studied by him were "pure" indigenous types who had escaped intermixture with subsequent waves of immigrants; Buxton (22, pp. 83 f.) holds these people to be latecomers from the east and northeast; Wagenseil (185, pp. 252-55), in a study of Anatolian Turks, suggests that Armenians and Turks are closely related; Kappers (79, p. 42) would group all Asia Minor hyperbrachycephali as "Central Asiatic." All available evidence points to the roundheads as later arrivals.

esp. pp. 154, 156, 159, 161 f., 165 f., 175 f.), Buxton (21, pp. 158-60), and Joyce (76, esp. pp. 467 f.; 77, esp. pp. 306 and 315-24; 78). These roundheads, best typified by the Galchas and the mountain Tajiks, are in a very real sense Proto-Alpines; and it is probably from their region, in the Pamirs, that the Alpines, the Dinarics, and the Armenoids came.

Since the Dinarics entered Europe in Early Bronze times (*ca.* 2000 B.C.), it is not likely that groups of this type entered Asia Minor much earlier. It may be that the European Dinaric infiltration represented the northern component of a movement of which the Hurrians (see p. 276) were a southern—possibly more shortheaded—unit. The two invasions appear to be largely contemporary. If this be accepted, then the Armenoids at Kish might represent merely an earlier infiltration. A question we cannot answer is whether Central Asia contributed brachycephaly to or derived it from Eastern Asia. Likewise we cannot discover the origin of the progressive occipital flattening which culminates in the Armenoid cranial type.

The next period, Alişar Post-Hittite-Phrygian (beginning *ca.* 1200 B.C.), defines itself. According to present theory the Phrygians were a European tribe which, having crossed the Hellespont about 1200 B.C., had by about 800-700 B.C. (in early Hallstatt times) spread over the Anatolian plateau and Asia Minor in general and even into the highland of Armenia. If this be true, the Phrygians may represent Nordics, a later wave related to the earlier longheads who had come from the northwest, wiped out the Tripolje culture, and surged on to destroy Hisarlık II.

The number of adult male crania that we possess from the Alişar Phrygian period is obviously too small to permit our making categorical statements; yet we must register the impression that the longheads of this period are nearer the Mediterranean type—and hence more closely related to those of Alişar Chalcolithic and Copper Age—than they are to the Nordic type. There is, however, one Phrygian male skull (3218) that has the rugged appearance of the Nordic type.

The ascription of the Phrygian cranial type to an "Indo-Aryan" (Kappers, 79, pp. 106 f.) or "Hindu-Persian" (Günther, 56, pp. 181 f.) people appears to be supported by certain cultural and linguistic evidence. If we hold the Mohenjo Daro type of before 2750 B.C. to have been related to the later (2000 B.C.) wave of people entering Asia Minor from the northeast, then it is possible that by 1200 B.C. the impact was definitive at Alişar. There is, however, a time element difficult to explain; for Kappers (79, pp. 105-12) correlates Alişar Phrygian with considerably earlier sites, including Ur, Damghan (Tepe Hisar),<sup>3</sup> and Hisarlık III. On the culturo-linguistic side we have evidence of Vedic gods and of Indian (Aryan) personal names and technical terms among the Mitannians. However, the fact that an Indo-European *centum* language became general throughout central Anatolia may point to an "Indo-European" invasion from the west.<sup>4</sup>

As far as racial type is concerned, it seems most likely that the majority of the longheads of Alişar Phrygian are to be related to those of the Chalcolithic and the Copper Age. If we accept the apparent fact that a single, more or less uniform, Neolithic longheaded type was spread from the west of Europe as far as India in the east, it is entirely probable that this people migrated within that area as a whole. The movement of peoples into the Near East about 2000 B.C. would then represent a reinvasion by a type found earlier in Europe and in Asia Minor. That this type was by that time specialized in the direction of extreme longheadedness need not invalidate our theory; for in Neolithic Italy a cranial index peak of 71 occurred quite independently of any movement from the east (Fig. 245). If this general conclusion be ac-

<sup>3</sup> It is interesting to note that Kappers (79, pp. 96-98) states that "the race to which the Damghan people belonged was closely related to the Neolithic longheads of Central Europe, the Kurgan people of Central Russia, as well as to the Punjab people of the present time." Here again we observe an early type common to a vast area.

<sup>4</sup> On this see Ungnad (181, pp. 10 f.).

cepted, there is then no reason for postulating an "Indo-Aryan" race—a complex which is culturo-linguistic, not physical.

At Alişar it is not until the Turkish period that a new and radically different cranial type introduces us to the *hypsibrachycephaly* characteristic of the Armenoid. In all of our measurements (cf. Fig. 241) the type of Alişar Turkish has been emphasized as unique; it is to be identified not with Turkomans but with Armenoids! This seems to indicate that the last settlement at Alişar was Armenian.

One of the major objects of this study has been the elucidation of the cranial type identified from the monuments at Zincirli and Medinet Habu as "Hittite": the short, high, flattened-occiput skull form. This type has been traced by Ungnad (181, p. 8) and Kappers (79, p. 34) not to the Hittites but to the inhabitants of Subartu.<sup>3</sup> Thus Ungnad: "Die Darstellungen, in denen man immer Hethiter sieht, sind Subaräer (genauer wohl Hurriter)." Similarly Kappers (79, p. 34): "The so-called Hittite pictures represent the older and numerically larger Subarean component of the Hittite empire of Ramses II's time." For the actual center or possible point of origin of the Subareans (and Urartaeans) we should probably have to go to the eastern Caucasus and to Central Asia west of the Tien Shan–Altai ranges—to the Lesghians of von Erckert, the Uzbeks of Ochanine, and the Kirghiz of Ujfalvy (cf. Kappers, 79, pp. 35–42).

This theory regarding the identity of the "Hittites" of the monuments, who were true Armenoids, is based on the view that the Subareans or Hurrians were Armenoids and that they were in eastern and northern Mesopotamia as well as in western Syria and in Palestine before 4500 B.C. (cf. Ungnad, 181, p. 17), so that they were in a position to enter central Asia Minor sufficiently early to become the "older and numerically larger Subarean component of the Hittite empire of Ramses II's time." But this is hardly tenable. To begin with, we have as yet no definite craniological evidence that the Hurrians were Armenoids, though certain factors would seem to indicate that they were such. Furthermore, Speiser, in his most recent publication on the Hurrians (158b), places the entrance of the Hurrians into eastern Asia Minor and northern Mesopotamia between 1900 and 1500 B.C. If this be correct, it makes impossible the view of Ungnad and Kappers regarding the basic population of the New Hittite Empire. We noted above that in the present cranial material from early Alişar the Armenoid type is completely lacking. Apparently this is merely negative evidence; but when correlated with our increasing knowledge of the time of migration and settlement of the Armenoid peoples, as indicated briefly in Section 7, it may well be taken as fairly positive evidence that the "Hittite" type, as commonly understood, was not only not present in early Alişar, but on the basis of our present knowledge should not be expected there. The Armenoids appear to have been but one of the racial elements found in the New Hittite Empire, and the fact that during this period in Alişar Armenoid skeletal remains are completely lacking is a fairly strong indication that the "Hittites" of the monuments are a rather highly specialized type which was present in Anatolia as a distinct minority only.

The Alişar cranial material is thus significant not only for what it reveals positively, but also for the questions it raises with respect to the vexing problem of the identity of the Armenoids. Certainly we must now forego the idea that the Armenoid type formed the basic population of Asia Minor. More precise information can come only as further evidence, craniological, archeological, and historical, is accumulated. We look forward, therefore, to the ultimate discovery of (1) the origin and time of migration of the early Armenoid type and (2) the identity of the basic population (or populations?) of early Asia Minor. The finds of the Alişar site have started us well on the path to the answers. May the good work done there be continued and extended to other sites.

<sup>3</sup> According to Ungnad (181, p. 5) Subartu (or Subir, as it is called in Sumerian) comprised the territory lying north and northwest of Babylonia. The language spoken in this territory is called Hurrian, whence the name Hurrians, which is preferable to Subareans.



## BIBLIOGRAPHY

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The following abbreviations are used:

- AA Archiv für Anthropologie (Braunschweig, 1866—).  
 AE Annals of eugenics (Cambridge, 1925—).  
 AJP.A American journal of physical anthropology (Washington, D.C., 1918—).  
 CAH The Cambridge ancient history, edited by J. B. Bury . . . , S. A. Cook . . . , [and] F. E. Adcock (Cambridge, 1923—). Vol. I, 2d ed., 1924; reprinted 1928.  
 ESR Essays and studies presented to William Ridgeway on his sixtieth birthday, ed. by E. C. Quiggin (Cambridge, 1913).  
 GR Geographical review (New York, 1916—).  
 JRAI Royal Anthropological Institute of Great Britain and Ireland [1872–1907: Anthropological Institute of Great Britain and Ireland], *London. Journal* (London, 1872—).  
 KDGA Deutsche Gesellschaft für Anthropologie, Ethnologie und Urgeschichte, *Braunschweig. Korrespondenzblatt* (Braunschweig etc., 1870—).  
 n.f. ny följd.  
 n.F. neue Folge.  
 n.s. new series.  
 OIP Chicago. University. The Oriental Institute. Oriental Institute publications (Chicago, 1924—).  
 ZE Zeitschrift für Ethnologie (Berlin, 1869—).  
 ZMA Zeitschrift für Morphologie und Anthropologie (Stuttgart, 1899—).

1. ABEL, O., "Das Verwandtschaftsverhältnis zwischen dem Menschen und den höheren fossilen Primaten," *ZMA XXXIV* (1934) 1–14.
- 1a. ALBRIGHT, W. F., "Palestine in the earliest historical period," in Palestine Oriental Society, *Journal XV* (1935) 193–234.
- 1b. ——— "The ancient Near East at the Congress of orientologists in Rome," in American Schools of Oriental Research, *Bulletin No. 60* (1935) pp. 2–9.
- 1c. ANDERSSON, J. G., "An early Chinese culture," in Geological survey of China, *Bulletin No. 5*, Pt. 1 (Peking, 1923) pp. 1–68.
- ARIËNS KAPPERS, C.U., see Nos. 79 and 80.
2. AZİZ, ŞEVKET, "Hittite'lerin kraniolojik tetkikatına methal," *Türk Antropoloji Mecmuası VI* (1930) N° 10, pp. 3–17, with summary in French on pp. 25–30.
3. ——— "Craniologie de l'Anatolie," *L'Anthropologie XLV* (1935) 105–7.
4. BAIKIE, JAMES, *The life of the ancient East* (New York, 1923) pp. 308–25: "Troy; the city of romance."
5. BAKWIN, HARRY, and BAKWIN, RUTH M., "Body build in infants. III. Body build in disease," *Journal of clinical investigation X* (1931) 395–403.
- 5a. EL-BATRAWI, AHMED M., *Report on the human remains* (Service des antiquités de l'Égypte, Mission archéologique de Nubie 1929–1934 [Cairo, 1935]).
6. BAUR, ERWIN, FISCHER, EUGEN, and LENZ, FRITZ, *Human heredity*, trans. by E. and C. Paul (New York, 1931).
7. BELTZ, R., "Das neolithische Grabfeld von Ostorf bei Schwerin," *AA XXXV* = n.F. VII (1909) 268–75.
8. ——— "Über Slawengräber," *KDGA XLIII* (1912) 80–83.
- 8a. BITTEL, KURT, *Prähistorische Forschung in Kleinasien* ("Istanbuler Forschungen" VII [İstanbul, 1934]).
9. BLACK, DAVIDSON, "On the discovery, morphology, and environment of *Sinanthropus pekinensis*," in Royal Society of London, *Philosophical transactions*, ser. B, CCXXIII (1934) 57–120.
- 9a. BLEGEN, CARL W., "Excavations at Troy 1934," *American journal of archaeology XXXIX* (1935) 6–34.
10. BOAS, FRANZ, "The cephalic index," *American anthropologist*, n.s. I (1899) 448–61.
11. ——— *Changes in bodily form of descendants of immigrants—final report* (Reports of the Immigration Commission, 61st Congress, 2d session, document No. 208, Senate documents Vol. 64 [Washington, D.C., 1911]).
12. ——— "Veränderungen der Körperform der Nachkommen von Einwanderern in Amerika," *ZE XLV* (1913) 1–22.
13. ——— "Einfluss von Erbliehkeit und Umwelt auf das Wachstum," *ZE XLV* (1913) 615–27.



14. BOAS, FRANZ, and BOAS, HELENE M., "The head-forms of the Italians as influenced by heredity and environment," *American anthropologist*, n.s. XV (1913) 163-88.
15. BOLK, L., "On the problem of anthropogenesis," in K. Akademie van Wetenschappen te Amsterdam, *Proceedings of the section of sciences* XXIX (1926) 465-75.
16. VON BONIN, GERHARDT, "The Magdalenian skeleton from Cap-Blanc in the Field Museum of Natural History," in University of Illinois, *Bulletin* XXXII, No. 34 (1935) pp. 1-76.
- 16a. ——— "European races of the Upper Paleolithic," *Human biology* VII (1935) 196-221.
17. BOULE, M., *Fossil men: elements of human palaeontology*, trans. by Jessie E. Ritchie and James Ritchie (Edinburgh, 1923).
18. BOWEN, E. G., "The racial geography of Europe at the dawn of the age of metal," *JRAI* LXI = n.s. XXXIV (for 1931) 349-56.
- 18a. BREASTED, JAMES HENRY, *A history of Egypt from the earliest times to the Persian conquest* (2d ed.; New York, 1924).
- BROAD, W. H., see No. 119.
- BROZEK, A., see No. 186.
- 18b. BRUNTON, GUY, "The beginnings of Egyptian civilization," *Antiquity* III (1929) 456-67.
- 18c. BUNAK, V., "The craniological types of the East Slavic kurgans," *Anthropologie* X (Praha, 1932) 273-309.
- 18d. BURKITT, MILES, and CHILDE, V. GORDON, "A chronological table of prehistory," *Antiquity* VI (1932) 185-205, table opp. p. 256.
19. BUXTON, L. H. DUDLEY, "The anthropology of Cyprus," *JRAI* L = n.s. XXIII (for 1920) 183-233.
20. ——— *The peoples of Asia* (New York, 1925).
21. ——— "The inhabitants of Inner Mongolia," *JRAI* LVI = n.s. XXIX (for 1926) 143-61.
22. ——— and RICE, D. T., "Report on the human remains found at Kish," *JRAI* LXI = n.s. XXXIV (for 1931) 57-120.
- with THOMSON, A., see No. 169.
- CAMBRIDGE ANCIENT HISTORY, see Nos. 27, 62, 93, 111, 124, 170, 184.
23. CAMERON, JOHN, *The skeleton of British Neolithic man, including a comparison with that of other prehistoric periods and more modern times* (London, 1934).
24. CHILDE, V. GORDON, *The dawn of European civilization* (New York, 1925).
- with BURKITT, MILES, "A chronological table of prehistory," see No. 18d.
- 24a. CHRISTIAN, V., "Altkleinasiatische Völker," *Reallexikon der Assyriologie*, hrsg. v. E. Ebeling und B. Meissner, I (Berlin und Leipzig, 1932) 76-88.
25. COLE, FAY-COOPER, "Skeletal material from Mechta-el-Arbi," in POND, ALONZO W., *A contribution to the study of prehistoric man in Algeria, North Africa* (Beloit College, *Logan Museum Bulletin* I, No. 2 [1928]) pp. 165-89.
26. CONDER, R. C., "Hittite ethnology," *JRAI* XVII (1888) 137-58.
27. COOK, STANLEY A., "The Semites," *CAH* I 181-237.
28. COWDRY, EDMUND V., ed., *Human biology and racial welfare* (New York, 1930) pp. 156-83: "Human races," by ALEŠ HRDLÍČKA; pp. 553-65: "The mingling of races," by CHARLES B. DAVENPORT.
29. CZAPLICKA, MARY ANTOINE, *The Turks of Central Asia in history and at the present day: an ethnological inquiry into the Pan-Turanian problem, and bibliographical material relating to the early Turks and the present Turks of Central Asia* (Oxford, 1918).
30. CZEKANOWSKI, J., "Zum Problem der Systematik der kurzköpfigen schweizerischen neolithischen Pfahlbau-bewohner," *AA* XLVIII = n.F. XX (1925) 65-76.
- 30a. ——— "Untersuchungen über das Verhältnis der Kopfmasse zu den Schädelmassen," *AA* XXXIV = n.F. VI (1907) 42-89.
31. DALY, R. A., *The changing world of the Ice Age* (New Haven, 1934).
- DAVENPORT, CHARLES B., see No. 28.
32. DAWKINS, W. B., "The settlement of Britain in the prehistoric age," *ESR*, pp. 427-34.
33. DENIKER, J., *The races of man: an outline of anthropology and ethnology* (New York, 1900).
34. DIXON, ROLAND B., *The racial history of man* (New York and London, 1923).
35. DJAWACHSCHWILI, A., "Die Rassenzusammensetzung der Kaukasusvölker," *AA* XLVIII = n.F. XX (1925) 77-89.
36. DRENNAN, M. R., "An Australoid skull from the Cape Flats," *JRAI* LIX = n.s. XXXII (for 1929) 417-26.
37. ——— "Pedomorphism in the pre-Bushman skull," *AJPA* XVI (1931/32) 203-10.
38. VON EICKSTEDT, EGON FREIHERR, *Rassenkunde und Rassengeschichte der Menschheit* (Stuttgart, 1934).

39. VON EICKSTEDT, EGON FREIHERR, "Die Mediterranen in Wales," *Zeitschrift für Rassenkunde und ihre Nachbargebiete* I (1935) 19-64.
- 39a. ENGBERG, R. M., and SHIPTON, G. M., *Notes on the Chalcolithic and Early Bronze Age pottery of Megiddo* ("Studies in ancient oriental civilization," No. 10 [Chicago, 1934]).
40. VON ERCKERT, R., "Kopfmessungen kaukasischer Völker," *AA XVIII* (1889) 263-81 and 297-336; *XIX* (1891) 55-84, 211-49, and 331-56.
41. FAWCETT, C. D., "A second study of the variation and correlation of the human skull with special reference to the Naqada crania," *Biometrika* I (1901/2) 408-67.
42. FIELD, HENRY, *Arabs of Central Iraq: their history, ethnology, and physical characters . . .* with introduction by SIR ARTHUR KEITH (Field Museum of Natural History, Anthropology, *Memoirs* IV [Chicago, 1935]).
43. FISCHER, EMIL, "Welchem Volk haben die minoischen Kreter angehört?" *KDGA XLIII* (1912) 25-28.
44. ——— "Wer sind die Albanesen und Rumänen?" *KDGA XLV* (1914) 13-19.
45. ——— "Sind die heutigen Albanesen die Nachkommen der alten Illyrier?" *ZE XLV* (1913) 103-7.
46. FISCHER, EUGEN, "Spezielle Anthropologie: Rassenlehre," *Anthropologie*, unter Leitung von G. Schwalbe und E. Fischer ("Die Kultur der Gegenwart," hrsg. von P. Hinneberg, 3. Teil, 5. Abt. [Leipzig und Berlin, 1923]) pp. 122-222.  
——— *Human heredity*, see No. 6.
47. FLEURE, H. J., "The racial history of the British people," *GR V* (1918) 216-31.
48. ——— "Some early neanthropic types in Europe and their modern representatives," *JRAI L* = n.s. XXIII (for 1920) 12-40.
49. ——— and JAMES, T. C., "Geographical distribution of anthropological types in Wales," *JRAI XLVI* = n.s. XIX (for 1916) 35-153.  
——— with PEAKE, H., see No. 122.
- 49a. FRANKFORT, HENRI, *Archeology and the Sumerian problem* ("Studies in ancient oriental civilization," No. 4 [Chicago, 1932]).
- 49b. ——— *Oriental Institute discoveries in Iraq, 1933/34. Fourth preliminary report of the Iraq Expedition . . .* with a chapter by THORKILD JACOBSEN ("Oriental Institute communications," No. 19 [Chicago, 1935]).
- 49c. ——— *Progress of the work of the Oriental Institute in Iraq, 1934/35. Fifth preliminary report of the Iraq Expedition* ("Oriental Institute communications," No. 20 [Chicago, 1936]).
50. FRETZ, G. P., "Über die Dominanz des brachycephalen Kopfindex," *ZMA XXIX* (1931) 512-17.
- 50a. FRIEDRICH, J., "Arier in Syrien und Mesopotamien," *Reallexikon der Assyriologie* I (Berlin und Leipzig, 1932) 144-48.
51. FÜRST, CARL M., "Zur Kenntnis der Anthropologie der prähistorischen Bevölkerung der Insel Cypern," *Lunds Universitets Arsskrift*, n.f., Avd. 2, Bd. XXIX, Nr. 6 (Lund, 1933) pp. 1-106, Pls. I-XLVIII.
- 51a. GARROD, D. A. E., "A new Mesolithic industry: the Natufian of Palestine," *JRAI LXII* = n.s. XXXV (for 1932) 257-69.
- 51b. ——— "A summary of seven seasons' work at the Wady el-Mughara," in American School of Prehistoric Research, *Bulletin* No. 12 (1936) pp. 125-29.
52. GARSON, J. G., "The cephalic index" and "The international agreement on the classification and nomenclature of the cephalic index," *JRAI XVI* (1887) 11-17 and 17-20.
53. GLADSTONE, R. J., "Description of a human cranium dredged from the bed of the river Trent, and a comparison of this with ancient and modern British skulls," *JRAI LI* = n.s. XXIV (for 1921) 343-69.
54. GODIN, P., "Hérédité de l'indice céphalique. L'indice céphalique du produit de première génération d'un croisement humain est 70 fois sur 100 celui de la mère" and "Variation de l'indice céphalique pendant l'année d'éclosion de la 'puberté' dans les deux sexes," in Société de pédiatrie de Paris, *Bulletins* XXX (1932) 271-73 and 274-77. Cf. review in *AJPA XIX* (1934/35) 334.
55. GÖTZE, A., *Kleinasion* ("Handbuch der Altertumswissenschaft," 3. Abt., 1. Teil, 3. Bd.: *Kulturgeschichte des alten Orients*, 3. Abschnitt, 1. Lfg. [München, 1933]) pp. 15-17.
56. GÜNTHER, HANS F. K., *Rassenkunde Europas mit besonderer Berücksichtigung der Rassengeschichte der Hauptvölker indogermanischer Sprache* (3. Aufl.; München, 1929).
57. ——— *Rassenkunde des deutschen Volkes* (15. Aufl.; München, 1930).
- 57a. ——— *Rassenkunde des jüdischen Volkes* (2. Aufl.; München, 1930).
- GUHA, B. S., see No. 102.
58. GUTHE, C. E., "Notes on the cephalic index of Russian Jews in Boston," *AJPA I* (1918) 213-23.
59. HADDON, A. C., *The wanderings of peoples* ("reprint of 1912, with corrections"; Cambridge, 1919).
60. ——— *The races of man and their distribution* (New York, 1925).

61. HALL, H. R., *The ancient history of the Near East from the earliest times to the Battle of Salamis* (7th ed.; London, 1927).
62. ——— "The Middle Kingdom and the Hyksos conquest," *CAH* I 299-325.  
——— and WOOLLEY, C. L., see No. 85.
63. HASLUCK, F. W., "Heterodox tribes of Asia Minor," *JRAI* LI = n.s. XXIV (for 1921) 310-42.
64. HAUSCHILD, M. W., "Die kleinasiatischen Völker und ihre Beziehungen zu den Juden," *ZE* LII/LIII (1920/21) 518-28.
65. ——— "Das Mendeln des Schädels," *ZE* XLVIII (1916) 35-40.
66. HERVÉ, GEORGES, "Distribution en France de la race néolithique de Baumes-Chaudes-Cromagnon," *Revue anthropologique* IV (1894) 105-22.
67. HIRSCH, N. D. M., "Cephalic index of American-born children of three foreign groups," *AJPA* X (1927) 79-90.
68. HOERNES, M., "Prähistorische Archäologie," *Anthropologie* ("Die Kultur der Gegenwart," 3. Teil, 5. Abt. [Leipzig und Berlin, 1923]) pp. 339-434.
69. HOGARTH, D. G., "Recent Hittite research," *JRAI* XXXIX = n.s. XII (for 1909) 408-15.
70. HOOTON, EARNEST A., *The ancient inhabitants of the Canary Islands* ("Harvard African studies" VII [Cambridge, Mass., 1925]).
71. ——— *Up from the ape* (New York, 1931).
72. HRDLÍČKA, ALEŠ, *Anthropometry* (Philadelphia, 1920).  
——— "Human races," see No. 28.
73. ——— *The skeletal remains of early man* ("Smithsonian miscellaneous collections," Vol. 83, publication No. 3033 [Washington, D.C., 1930]).
74. HUNTINGTON, ELLSWORTH, *The pulse of Asia: a journey in Central Asia illustrating the geographical basis of history* (Boston and New York, 1907).
75. IWANOWSKY, A., "Die anthropometrischen Veränderungen russischer Völker unter dem Einfluss der Hungersnot," *AA* XLVIII = n.F. XX (1925) 1-12.  
JAMES, T. C., see No. 49.  
JONES, F. W., see No. 158.
76. JOYCE, T. A., "Notes on the physical anthropology of Chinese Turkestan and the Pamirs," *JRAI* XLII = n.s. XV (for 1912) 450-84.
77. ——— "On the physical anthropology of the oases of Khotan and Keriye," *JRAI* XXXIII = n.s. VI (for 1903) 305-24.
78. ——— "Note on the physical anthropology of the Pamirs and Amu-Darya basin," *JRAI* LVI = n.s. XXIX (for 1926) 105-33.  
——— with LEYS, N. M., see No. 95.  
KANSU, ŞEVKET AZİZ, see Nos. 2 and 3.
79. KAPPERS, C. U. ARIËNS, *An introduction to the anthropology of the Near East in ancient and recent times*, with a chapter on Near Eastern blood groups by LELAND W. PARR (Amsterdam, 1934).
80. ——— "The Central Asiatic barrier and the distribution and associated occurrence of cephalic index peaks in Asiatic-European races," in K. Akademie van Wetenschappen te Amsterdam, *Proceedings of the section of sciences* XXXVII (1934) 602-14.
81. KEANE, A. H., *Ethnology* (Cambridge, 1916) pp. 221-420: Pt. II, "The primary ethnical groups."
82. KEITH, SIR ARTHUR, "Report on the human remains found by F. J. Bennett, Esq., F.G.S., in the central chamber of a megalithic monument at Coldrum, Kent," *JRAI* XLIII = n.s. XVI (for 1913) 86-100.
83. ——— "The Bronze Age invaders of Britain," *JRAI* XLV = n.s. XVIII (for 1915) 12-22.
84. ——— "The evolution of human races in the light of the hormone theory," in The Johns Hopkins Hospital, *Bulletin* XXXIII (1922) 155-59.
85. ——— "Report on the human remains," in HALL, H. R., and WOOLLEY, C. L., *Al-Ubaid* (Joint Expedition of the British Museum and of the Museum of the University of Pennsylvania to Mesopotamia, *Ur excavations* I [Oxford, 1927]) pp. 214-40.
86. ——— "Human skulls from ancient cemeteries in the Tarim basin," *JRAI* LIX = n.s. XXXII (for 1929) 149-80.
87. ——— *The antiquity of man* (2 vols., paged continuously; London, 1929).
88. ——— *New discoveries relating to the antiquity of man* (New York, [1931]).
89. ——— and KROGMAN, W. M., "The racial characters of the South Arabs," in THOMAS, BERTRAM, *Arabia Felix* (New York, 1932) pp. 301-33.  
——— "Introduction" in FIELD, HENRY, *Arabs of Central Iraq*, see No. 42.

90. KLIMEK, S., "Contribution à la systématique des crânes épipaléolithiques," *Anthropologie* VI (Praha, 1928) 99-109.
- 90a. KÖRTE, A., "Kleinasiatische Studien. IV. Ein altphrygischer Tumulus bei Bos-öyük (Lamunia)," in Archäologisches Institut des Deutschen Reichs, Athenische Zweiganstalt, *Mitteilungen* XXIV (1899) 1-45.
91. KROGMAN, W. M., "The cranial types," in SCHMIDT, ERICH F., *The Alishar Hüyük, seasons of 1928 and 1929*, Pt. II (*OIP* XX [1933]) pp. 122-38.  
—— with KEITH, SIR ARTHUR, see No. 89.
92. KROPOTKIN, P. A., "The orography of Asia," *Geographical journal* XXIII (1904) 176-207 and 331-61; "The desiccation of Eur-Asia," *ibid.* pp. 722-41.  
KUENZEL, W.M., see No. 172.
93. LANGDON, S. H., "Early Babylonia and its cities" and "The empire of Ur," *CAH* I 356-401 and 435-63.
94. LEAKEY, L. S. B., *The Stone Age races of Kenya* (Oxford, 1935).  
LENZ, FRITZ, see No. 6.
95. LEYS, N. M., and JOYCE, T. A., "Note on a series of physical measurements from East Africa," *JRAI* XLIII = n.s. XVI (for 1913) 195-267.
- 95a. LUCKENBILL, D. D., "Akkadian origins," *American journal of Semitic languages and literatures* XL (1923/24) 1-13.
96. VON LUSCHAN, FELIX, "Prähistorische Zusammenhänge zwischen Europa und dem tropischen Afrika," *KDGA* XLII (1911) 65-67.
97. ——— "The early inhabitants of Western Asia," *JRAI* XLI = n.s. XIV (for 1911) 221-44.
98. ——— "Zur Anthropologie von Kreta," *KDGA* XLIII (1912) 135 f.
99. ——— "Beiträge zur Anthropologie von Kreta," *ZE* XLV (1913) 307-93.
100. ——— "Über die Beziehungen zwischen der alpinen Bevölkerung und den Vorder-Asiaten," *KDGA* XLIV (1913) 118 f.
- 100a. McCOWN, THEODORE D., "Mount Carmel man," in American School of Prehistoric Research, *Bulletin* No. 12 (1936) pp. 131-40.  
MALY, J., see No. 186.
101. MARTIN, RUDOLF, *Lehrbuch der Anthropologie* (3 vols., paged continuously; 2d ed.; Jena, 1928).
102. MARSHALL, SIR JOHN, ed., *Mohenjo-Daro and the Indus civilization* II (London, 1931) 599-648: "Human remains," by R. B. SEYMOUR SEWELL and B. S. GUHA.
103. MATIEGKA, J., "Physische Anthropologie der Slawen im 9. bis 12. Jahrhundert," *KDGA* XLIII (1912) 84-88.  
—— "Der heutige Stand der Kenntnis von den europäischen Rassen," see No. 186.
104. MENGHIN, OSWALD, *Weltgeschichte der Steinzeit* (Wien, 1931).
105. MESSERSCHMIDT, LEOPOLD, "The ancient Hittites," in Smithsonian Institution, *Annual report . . . for the year ending June 30, 1903* (Washington, D.C., 1904) pp. 681-703.
- 105a. MEYER, EDUARD, *Die ältere Chronologie Babyloniens, Assyriens und Ägyptens* (Nachtrag zum ersten Bande der *Geschichte des Altertums*; Stuttgart und Berlin, 1925).
106. MORANT, G. M., "A study of Egyptian craniology from prehistoric to Roman times," *Biometrika* XVII (1925) 1-52.
107. ——— "Studies of Palaeolithic man. I. The Chancelade skull and its relation to the modern Eskimo skull," *AE* I (1925/26) 257-76.
108. ——— "A preliminary classification of European races based on cranial measurements," *Biometrika* XX B (supplementary volume, 1928) 301-75.
- 108a. ——— "Studies of Palaeolithic man. III. The Rhodesian skull and its relations to Neanderthaloid and modern types," *AE* III (1928) 337-60.
109. ——— "Studies of Palaeolithic man. IV. A biometric study of the Upper Palaeolithic skulls of Europe and of their relationships to earlier and later types," *AE* IV (1930/31) 109-214.
- 109a. ——— and SAMSON, O., "An examination of investigations by Dr. Maurice Fishberg and Prof. Franz Boas dealing with measurements of Jews in New York," *Biometrika* XXVIII (1936) 1-31.
110. MOSZKOWSKI, M., "Die Schädel der Altsteinzeit, ihre Fundstätten und ihre Masse," *Tabulae biologicae periodicae* IV = *Tabulae biologicae* X (Berlin-Den Haag, 1935) 217-63.
- 110a. MÜLLER, FRIEDRICH W., *Die anthropologischen Ergebnisse des vorgeschichtlichen Gräberfeldes von Abusir el-Meleq* (Leipzig, 1915), esp. pp. 296-303.
111. MYRES, J. L., "Primitive man, in geological time," and "Neolithic and Bronze Age cultures," *CAH* I 1-56 and 57-111 and table facing p. 660.
- 111a. NESTLER, J., *Das frühneolithische Skelett von Gross-Tinz in Schlesien* ("Veröffentlichungen des Staatlich-sächsischen Forschungsinstituts für Völkerkunde" III 1 [Leipzig, 1933]).



112. NEUBAUER, GABRIELE, "Experimentelle Untersuchungen über die Beeinflussung der Schädelform," *ZMA* XXIII (1923-25) 411-42.
113. NORDMANN, C. A., "Some Baltic problems," *JRAI* LII = n.s. XXV (for 1922) 26-43.
114. OETTEKING, BRUNO, *Kraniologische Studien an Altägyptern* (Inaug.-Diss.; Braunschweig, 1908).
115. OSBORN, H. F., *Men of the Old Stone Age: their environment, life, and art* (2d ed.; New York, 1916).
- 115a. VON DER OSTEN, HANS HENNING, and SCHMIDT, ERICH F., *The Alishar Hüyük, season of 1927*, Pt. II (*OIP* VII [1932]).
- 115b. VON DER OSTEN, HANS HENNING, *The Alishar Hüyük, seasons of 1930-32*, Pt. I (*OIP* XXVIII [1937]).
- 115c. ——— *The Alishar Hüyük, seasons of 1930-32*, Pt. II (*OIP* XXIX [1937]).
- 115d. ——— *The Alishar Hüyük, seasons of 1930-32*, Pt. III (*OIP* XXX [1937]).
- PARR, LELAND W., see No. 79.
116. PARSONS, F. G., "On some Bronze Age and Jutish bones from Broadstairs, with type contours of all the Bronze Age skulls in the Royal College of Surgeons Museum," *JRAI* XLIII = n.s. XVI (for 1913) 550-92.
117. ——— "On the Long Barrow race and its relationship to the modern inhabitants of London," *JRAI* LI = n.s. XXIV (for 1921) 55-81.
118. ——— "The thickness of the living scalp," *Journal of anatomy* LXIII (1928/29) 427-29.
119. PATERSON, A. M., and BROAD, W. H., "Human skulls from Asia Minor," *Annals of archaeology and anthropology* II (1909) 91-93.
120. PEAKE, HAROLD, "Racial elements concerned in the first siege of Troy," *JRAI* XLVI = n.s. XIX (for 1916) 154-73.
121. ——— "Some Baltic problems: a rejoinder," *JRAI* LII = n.s. XXV (for 1922) 44 f.
122. ——— and FLEURE, H. J., *Priests and kings* (Oxford, 1927).
123. PEARSON, KARL, and TIPPETT, L. H. C., "On stability of the cephalic indices within the race," *Biometrika* XVI (1924) 118-38.
124. PEET, T. ERIC, "Egypt: the predynastic period," *CAH* I 238-56.
- 124a. PETRIE, W. M. FLINDERS, "A revision of history," *Ancient Egypt* XVI (1931) 1-20.
- 124b. ——— "The peoples of Egypt," *Ancient Egypt* XVI (1931) 77-85.
125. PINCHES, T. G., "Upon the types of the early inhabitants of Mesopotamia," *JRAI* XXI (1892) 86-99.
126. PIROUTET, M., "Les races humaines du néolithique et de l'âge du Bronze en Franche-Comté," *L'Anthropologie* XXXVIII (1928) 51-60.
- POND, ALONZO W., see No. 25.
127. POOLE, R. S., "The Egyptian classification of the races of man," *JRAI* XVI (1887) 370-79.
128. PUMPELLY, RAPHAEL, ed., *Explorations in Turkestan, expedition of 1904. Prehistoric civilizations of Anau. Origins, growth, and influence of environment* (Carnegie Institution of Washington, Pub. No. 73 [2 vols., paged continuously; Washington, D.C., 1908]).
129. RADEMACHER, E., "Chronologie der niederrheinischen Hügelgräber" and "Germanische Gräber am Niederrhein," *KDGA* XLI (1910) 118-21 and 121 f.
130. RECHE, O., "Zur Anthropologie der jüngeren Steinzeit in Schlesien und Böhmen," *AA* XXXV = n.F. VII (1909) 220-37.
131. ——— "Längen-Breitenindex und Schädelänge," *AA* XXXVIII = n.F. X (1911) 74-90.
132. ——— "Ein frühneolithisches Skelett aus Schlesien," in Gesellschaft für physische Anthropologie, *Verhandlungen* VI (1931/32) 81-86.
- 132a. ——— "Homo tauricus," in EBERT, MAX, ed., *Reallexikon der Vorgeschichte* V (Berlin, 1926) 378-80.
133. REICHER, MICHAEL, "Untersuchungen über die Schädelform der alpenländischen und mongolischen Brachycephalen," *ZMA* XV (1913) 421-562 and XVI (1914) 1-64.
- 133a. VON REITZENSTEIN, FERD., "Zur Mischehenfrage," *KDGA* XLIV (1913) 103-10.
134. RETZIUS, G., "The so-called North European race of mankind," *JRAI* XXXIX = n.s. XII (for 1909) 277-313.
- RICE, D. T., see No. 22.
135. RIPLEY, W. Z., *The races of Europe: a sociological study* (New York, 1915).
136. RIVERS, W. H. R., "The contact of peoples," *ESR*, pp. 474-92.
137. SALLER, K., "Die 'Cromagnonrasse,'" *Anthropologischer Anzeiger* II (1925) 176-81.
138. ——— "Die Steinzeitschädel des ehemaligen Russland," *Anthropologischer Anzeiger* II (1925) 29-46.
139. ——— "Die Menschenrassen im oberen Paläolithikum. Eine Erwiderung an J. Szombathy," in Anthropologische Gesellschaft in Wien, *Mitteilungen* LVII (1927) 81-105.
- SAMSON, O., see No. 109a.

- 139a. SAWTELL, RUTH OTIS, "Azilian skeletal remains from Montardit (Ariège) France," in Harvard University, Peabody Museum of American Archaeology and Ethnology, *Papers* XI, No. 4 (Cambridge, Mass., 1931) pp. 213-53.
140. SCHAEFFER, C. F. A., "Crania cypria antiqua," *L'Anthropologie* XLV (1935) 218-21.
- 140a. SCHARFF, ALEXANDER, "Neues zur Frage der ältesten ägyptisch-babylonischen Kulturbeziehungen," *Zeitschrift für ägyptische Sprache und Altertumskunde* LXXI (1935) 89-106.
141. SCHEIDT, WALTER, *Die Rassen der jüngeren Steinzeit in Europa* ("Beiträge und Sammelarbeiten zur Rassenkunde Europas," hrsg. v. W. Scheidt, Bd. II [München, 1924]).
142. SCHLIEMANN, H., *Ilios, the city and country of the Trojans: the results of researches and discoveries on the site of Troy and throughout the Troad in the years 1871-72-73-78-79* (New York, 1881).
143. SCHLIZ, A., "Die vorgeschichtlichen Schädeltypen der deutschen Länder in ihrer Beziehung zu den einzelnen Kulturkreisen der Urgeschichte," *AA* XXXV = n.F. VII (1909) 239-67.
144. ——— "Die steinzeitlichen Schädel des grossherzoglichen Museums in Schwerin," *AA* XXXV = n.F. VII (1909) 276-86.
145. ——— "Schädeltypen der vorgeschichtlichen Metallzeiten," *KDGA* XLI (1910) 89-91.
146. ——— "Bemerkungen zur Rassebildung der slawischen Völker," *KDGA* XLIII (1912) 88-90.
147. ——— "Die ethnologische Unterlage der alpinen Pfahlbaukultur," *KDGA* XLIV (1913) 93-97.
148. ——— "Frühmittelalterliche Skelettgräberfelder ohne absichtliche Beigaben; ein Beitrag zur altslawischen Rassenkunde," *ZE* XLV (1913) 942-55.
149. ——— "Die Vorstufen der nordisch-europäischen Schädelbildung," *AA* XLI = n.F. XIII (1915) 169-201.
- 149a. SCHMIDT, ERICH F., *The Alishar Hüyük, seasons of 1928 and 1929*, Pt. 1 (*OIP* XIX [1932]). Cf. Nos. 91 and 115a.
- 149b. ——— "Tepe Hissar excavations 1931," *Museum journal* XXIII (1933) 313-483.
150. SCHREINER, ALETTE, "Zur Erblichkeit der Kopfform," *Genetica* V (1923) 385-454.
151. SCHUSTER, E. H. J., "The Long Barrow and Round Barrow skulls in the collection of the Department of Comparative Anatomy, The Museum, Oxford," *Biometrika* IV (1905/6) 351-62.
152. SCHWANTES, G., "Das Beil als Scheide zwischen Paläolithikum und Neolithikum," *AA* XLVIII = n.F. XX (1925) 13-41.
153. SELIGMAN, C. G., "The physical characters of the Arabs," *JRAI* XLVII = n.s. XX (for 1917) 214-37.
154. SERGI, G., *The Mediterranean race: a study of the origin of European peoples* (London and New York, 1901).
155. ——— "Die Etrusker und die alten Schädel des etruskischen Gebietes," *AA* XLI = n.F. XIII (1915) 309-16.
- "Description of some skulls from the North Kurgan, Anau," see No. 128, pp. 443-46.
- SEWELL, R. B. S., see No. 102.
- SHIPTON, G. M., see No. 39a.
156. SMITH, G. ELLIOT, "The evolution of the rock-cut tomb and the dolmen," *ESR*, pp. 493-546.
157. ——— *The ancient Egyptians and the origin of civilization* (rev. ed.; London and New York, 1923).
158. ——— and JONES, F. W., *Report on the human remains* (The Archaeological Survey of Nubia, *Report for 1907-1908*, Vol. II [Cairo, 1910]).
- 158a. SPEISER, E. A., *Mesopotamian origins. The basic population of the Near East* (Philadelphia and London, 1930).
- 158b. ——— "Ethnic movements in the Near East in the second millennium B.C. The Hurrians and their connections with the Habiru and the Hyksos," in American Schools of Oriental Research, *Annual* XIII (1931-32) 13-54.
- 158c. ——— *Excavations at Tepe Gawra I* (Philadelphia, 1935).
159. SPIER, LESLIE, "Growth of Japanese children born in America and in Japan," in University of Washington, *Publications in anthropology* III (1929/30 [Seattle, 1931]) 1-29.
160. STOESSIGER, BRENDA N., "A study of the Badarian crania recently excavated by the British School of Archaeology in Egypt," *Biometrika* XIX (1927) 110-50.
161. SULLIVAN, L. R., "Relationships of the Upper Paleolithic races of Europe," *Natural history* XXIV (1924) 682-96.
162. SYMINGTON, J., "Problems arising from variations in the development of skull and brains," in Smithsonian Institution, *Annual report . . . for the year ending June 30, 1903* (Washington, D.C., 1904) pp. 647-60.
163. SZOMBATHY, J., "Die Menschenrassen im oberen Paläolithikum, insbesondere die Brück-Rasse," in Anthropologische Gesellschaft in Wien, *Mitteilungen* LVI (1926) 202-19.
164. TAYLOR, GRIFFITH, "Climate cycles and evolution," *GR* VIII (1919) 289-328.
165. ——— "The evolution and distribution of race, culture, and language," *GR* XI (1921) 54-119.
166. ——— "Racial migration-zones and their significance," *Human biology* II (1930) 34-62.
167. ——— "The ecological basis of anthropology," *Ecology* XV (1934) 223-42.

- THOMAS, BERTRAM, *see* No. 89.
168. THOMSON, ARTHUR, "A consideration of some of the more important factors concerned in the production of man's cranial form," *JRAI* XXXIII = n.s. VI (for 1903) 135-66.
169. ——— and BUXTON, L. H. D., "Man's nasal index in relation to certain climatic conditions," *JRAI* LIII = n.s. XXVI (for 1923) 92-122.
170. THOMPSON, R. C., "The Kassite conquest," *CAH* I 552-69.
171. TILDESLEY, MIRIAM L., "Determination of the cranial capacity of the Negro from measurements on the skull or the living head," *Biometrika* XIX (1927) 200-206.
- TIPPETT, L. H. C., *see* No. 123.
172. TODD, T. W., and KUENZEL, W. M., "The thickness of the scalp," *Journal of anatomy* LVIII (1923/24) 231-49.
173. ——— and TRACY, B., "Racial features in the American Negro cranium," *AJPA* XV (1930/31) 53-110.
174. TOLDT, C., "Altslawengräber in Deutschland und Österreich," *KDGA* XLII (1911) 110-15.
175. ——— "Vortrag zur Einleitung der Diskussion über die Altslawen-Frage," *KDGA* XLIII (1912) 72-80.
- TRACY, B., *see* No. 173.
176. TROST, F., "Prüfung der relativen Masse von Szombathy an Hamburger Schädeln," *AA* XLVIII = n.F. XX (1925) 98-107.
177. TSCHÉPOURKOWSKY, E., "Anthropologische Bestandteile der ältesten und jüngsten slawischen Bevölkerung Russlands," *KDGA* XLIII (1912) 90-97.
178. UHLENBECK, C. C., "Oer-Indogermaans en Oer-Indogermanen," in *K. Akademie van Wetenschappen te Amsterdam, Afdeeling letterkunde, Mededeelingen*, Deel LXXVII, Serie A, No. 4 (1935) pp. 125-48.
179. UJFALVÝ, CHARLES E. DE [UJFALVÝ DE MEZŐ-KÖVESD, KÁROLY JENŐ], *Le Kohistan, le Ferghanah et Kouldja, avec un appendice sur la Kachgharie* (Paris, 1878).
180. ——— *Les Argens au nord et au sud de l'Hindou-Kouch* (Paris, 1896).
181. UNGNAD, ARTHUR, *Die ältesten Völkerwanderungen Vorderasiens. Ein Beitrag zur Geschichte und Kultur der Semiten, Arier, Hethiter und Subaräer* ("Kulturfragen," Heft 1 [Breslau, 1923]).
182. VERNEAU, R., "La race de Néanderthal et la race de Grimaldi; leur rôle dans l'humanité," *JRAI* LIV = n.s. XXVII (for 1924) 211-30.
183. VIRCHOW, R., "Funde aus dem nordwestlichen Phrygien und von Salonik," in *Berliner Gesellschaft für Anthropologie, Ethnologie und Urgeschichte, Verhandlungen*, 1896, pp. 123-26.
184. WACE, A. J. B., "Early Aegean civilization," *CAH* I 589-615.
185. WAGENSEIL, F., "Anthropologische Untersuchungen an anatolischen Türken," *ZMA* XXIX (1931) 193-260.
186. WEIGNER, K., *ed.*, *Die Gleichwertigkeit der europäischen Rassen und die Wege zu ihrer Vervollkommnung* (Prag, 1935) pp. 29-48: "Der biologische Begriff der Rasse," von A. BROZEK; pp. 49-67: "Der heutige Stand der Kenntnis von den europäischen Rassen," von J. MATIEGKA; pp. 68-86: "Die Gleichwertigkeit der menschlichen Rassen in körperlicher Hinsicht," von J. MALY.
187. WEISSENBERG, S., "Die mesopotamischen Juden in anthropologischer Beziehung," *AA* XXXVIII = n.F. X (1911) 233-39.
188. ——— "Zur Anthropologie der persischen Juden," *ZE* XLV (1913) 108-19.
189. WENINGER, JOSEF, "Die physisch-anthropologischen Merkmale der vorderasiatischen Rasse und ihre geographische Verbreitung," in *Geographische Gesellschaft in Wien, Mitteilungen* LXIII (1921) 13-37.
- WOOLLEY, C. L., *see* No. 85.
190. WORRELL, W. H., *A study of races in the ancient Near East* (Cambridge, 1927).

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## V

## ANIMAL REMAINS

BY BRYAN PATTERSON

Field Museum of Natural History, Chicago

The collection reported upon in the following pages represents four periods of the Alişar mound—the Chalcolithic (before 3000 B.C.), the Copper Age (about 3000–2400 B.C.), the Hittite (about 2000–1200 B.C.), and the Phrygian-Hellenistic<sup>1</sup> (post-1200 B.C.) stages. The remains from the Hittite and Copper Age levels were collected chiefly in 1927, those from the Chalcolithic and Phrygian-Hellenistic in 1932. The collection is important in that it is, so far as I am aware, the first to be made in this region and gives a definite, even though very incomplete, picture of a fauna hitherto known only from pottery, figurines, reliefs, and the like. It is to be regretted that so few of the large archeological expeditions working in the Near East have brought back remains of the animals that lived in and around the cities they have excavated. This omission on their part, however, is hardly surprising, since it has been stated that in some cases even human skeletal remains have been thrown over the dump.<sup>2</sup> Dr. von der Osten and his associates are therefore to be heartily congratulated on having set a precedent which it is to be hoped will be extensively followed in the future.

The specimens were apparently obtained from refuse heaps. Animals used for food—sheep, pigs, and cattle—are accordingly predominant; dogs and horses are sparsely represented. The wild animals of the region (with the exception of deer) are very rare in the collection, only one specimen each of fox, beaver, and hare being present. Fragments of deer antlers are found at all levels, but are particularly abundant in the Chalcolithic and Hittite stages. Birds seemingly were not in favor at Alişar as an article of diet, since they are represented only by one fragmentary breastbone of a duck from the Phrygian-Hellenistic stage. The remains from the Hittite levels constitute the only series large enough to permit percentages to be taken with any hope of accuracy. From a count of the bones of that period it may be stated that mutton (and probably goat) formed roughly 50 per cent of the meat diet of the Hittites, pork 30 per cent, and beef 20 per cent.

DISTRIBUTION OF THE REMAINS<sup>3</sup>

## CHALCOLITHIC

Deer, goat ("prisca" type?), sheep, ox, pig (*scrofa* type).

## COPPER AGE

Deer, dog, sheep ("Kupferschaf" type), ox (*brachyceros* type),<sup>4</sup> pig (*scrofa* type).

<sup>1</sup> [The term "Phrygian-Hellenistic" is used to cover the Post-Hittite-Phrygian period and the "second half of the first millennium B.C." (roughly, the 12th century B.C. to the beginning of the 1st century after Christ), as a strict separation of the bones found in these levels was impossible.—EDITOR.]

<sup>2</sup> James H. Breasted, *The Oriental Institute* ("The University of Chicago Survey" XII [Chicago, 1933]) p. 16.

<sup>3</sup> [Vertebrae of fishes which cannot be identified were found in nearly all levels.—H. H. v. D. O.]

<sup>4</sup> Among remains from the Copper Age and Hittite levels, collected before these stages were differentiated in the field, are remains of oxen belonging to the *brachyceros* type which may have come from either level.

HITTITE

Fox, beaver, deer, dog (*inostranzewi* type and others), goat ("prisca" type), sheep ("Kupferschaf" type?), ox (*brachyceros* type),<sup>4</sup> pig (*scrofa* type), horse.<sup>5</sup>

PHRYGIAN-HELLENISTIC

Hare, deer, dog (*palustris ladogensis* type and others), sheep, ox (*brachyceros* type), pig (*scrofa* type), horse.

The material is for the most part in such a poor state of preservation—the limb bones split for the marrow and the skulls broken to obtain the brains—that few exact determinations can be made. I have been greatly hampered in precisely identifying the few good specimens by the fact that there is practically no comparative material in available collections. I have had to rely almost exclusively on the literature, which is not always as complete in the matter of illustration as might be desired. It is conceivable, therefore, that errors of identification may have crept in. Accordingly all important pieces have been fully figured<sup>5a</sup> in order that investigators interested in the early history of domestication may be able, as far as possible, to draw their own conclusions.

A cat (*Felis* sp.),<sup>6</sup> a lion (*F. leo*),<sup>7</sup> and a buffalo (*Bubalus* sp.)<sup>8</sup> are represented respectively by rhytons and a vessel spout from Hittite levels. There are no skeletal remains of these animals in the collection.<sup>9</sup>

I wish to express my sincere thanks to Dr. Hans Henning von der Osten for the invitation to study the collection, to Mr. Eugene V. Prostov for his aid in reference work, and to Mrs. Claude Carlton for secretarial service. I am particularly indebted to Professor Dr. Max Hilzheimer, who has examined and commented on photographs of many of the specimens.

WILD ANIMALS

FOX (*Vulpes vulpes* Linn.)

An incomplete left mandible with no teeth, from a Hittite level, is the only representative of this animal in the collection.

Height of horizontal ramus behind M 1 . . . . .	17 <sup>10</sup>	Length M 1* . . . . .	16
Height of horizontal ramus between P 2 and P 3 . . . . .	13	Length M 2-M 3* . . . . .	10
Length P 1-M 3* . . . . .	59	Length P 4* . . . . .	10
Length P 1-P 4* . . . . .	34	Maximum thickness of ramus . . . . .	7.5
Length M 1-M 3* . . . . .	26		

\* Measured from alveoli.

<sup>5</sup> In mixed Copper Age-Hittite remains there is one astragalus of *Equus* which may have come from a Copper Age level, although more probably it is of the Hittite period.

<sup>5a</sup> [After this volume was in press Mr. Patterson kindly catalogued the animal bones for the Oriental Institute Museum. The museum numbers correspond as follows with the illustrations:

Fig.	Mus. No.	Fig.	Mus. No.	Fig.	Mus. No.
247 A	A 20321	250 A	A 20357	252 D	A 20380
247 B	A 20334	250 B	A 20358	253 A	A 20374
247 C	A 20326	250 C	A 20361	253 B	A 20377
248 A-B	A 20345	250 D	A 20362	253 C	A 20376
248 C	A 20348	251 A	A 20359	254 A	A 20382
248 D	A 20343	251 B	A 20365	254 B	A 20383
249 A-B	A 20347	251 C	A 20363	254 C	A 20375
249 C	A 20351	252 A	A 20381	254 D	A 20394
249 D	A 20344	252 B	A 20378	254 E	A 20395
249 E	A 20342	252 C	A 20379		

—EDITOR.]

<sup>6</sup> OIP XXIX, Fig. 208.

<sup>7</sup> OIP XXIX, Fig. 211.

<sup>8</sup> OIP XIX, Fig. 171.

<sup>9</sup> I am indebted to Dr. Ignace J. Gelb for the following list of domestic animals mentioned in the so-called "Cappadocian" tablets: oxen, cows, horses, donkeys, sheep, he-goats, and she-goats. He states that he finds no mention there of dogs, cats, or pigs.

<sup>10</sup> [All measurements are given in millimeters. The capital letters M, P, and I stand for molar, premolar, and incisor respectively. E.g., P 2 is an abbreviation for the second upper premolar, P 2 for the second lower premolar.—EDITOR.]

# THE ALISHAR HÜYÜK, 1930-32

## BEAVER (*Castor fiber* Linn.)

This form is represented in the Hittite deposits by a fragment of the right mandible with M 1-M 3 (Fig. 247 A). The walls of the flexids of the molars show secondary plications.

Length M 1.....	8	Length M 3.....	7
Breadth M 1.....	9	Breadth M 3.....	7
Length M 2.....	7.5	Length M 1-M 3.....	23
Breadth M 2.....	8.5		

## HARE (*Lepus europaeus* Linn.)<sup>11</sup>

Of this species an almost complete skull with mandibles occurs among the specimens from the Phrygian-Hellenistic deposits.

Basal length.....	84	Length from anterior border of symphysis to sub- condylar notch.....	65
Breadth across glenoid articulations.....	46	Length I 1-M 3*.....	45
Breadth of interorbital constriction.....	15	Length of mandibular tooth row.....	18
Length I 1-M 3*.....	48.5	Length P 3-P 4*.....	8.5
Length P 2-M 3*.....	17.5	Length M 1-M 3*.....	9.5
Length P 2-P 4*.....	9.5		
Length M 1-M 3*.....	8		

\* Measured from alveoli.

## DEER (*Cervus* sp.)

The fragments of antlers are too incomplete for satisfactory determination, although they indicate the presence of a race of large individuals. Measurements of a specimen from a Hittite level are as follows:

Maximum diameter at base of antler.....	84	Minimum diameter at base of antler.....	57
---	----	---	----

## DOMESTIC ANIMALS

### DOG (*Canis familiaris* Linn.)

Remains of dogs are not numerous, and all are fragmentary. Two incomplete skulls were found, one in a Hittite, the other in a definitely Phrygian level; their dimensions are given in the table below. The measurements were taken, wherever possible, from the various points given by Brinkmann.<sup>12</sup> Unfortunately, owing to loss of the occiputs, the length of the cranial cavity could not be measured in either skull.

	HITTITE (Fig. 247 B)	PHRYGIAN (Fig. 247 C)		HITTITE (Fig. 247 B)	PHRYGIAN (Fig. 247 C)
Basifacial axis.....	124.5		Minimum breadth behind supra- orbital processes of frontals....	34.5	
Facial length.....	96.5		Breadth across zygomatic arches.....	ca. 102	
Rostral length.....	80		Least palatal breadth.....	34	37
Palatal length.....	96.5		Length P 1-M 2.....	66.5*	64
Height of skull.....	55		Length M 1-M 2.....	17	18
Height of facial region.....	48		Length P 1-P 4.....		49
Height of rostrum.....	37		Length P 4.....		17
Breadth across porus acusticus externus.....	58		Length M 1.....	9.5	10
Breadth of skull.....	75	64	Length M 2.....	6	6
			Height of canine.....	19	18

\* Measured from alveolus of P 1.

<sup>11</sup> A rhyton in the form of a hare's (or rabbit's) head and a mold for a similar object (both shown in OIP XXIX, Fig. 212) were found in Hittite levels; a figurine of a similar animal (OIP XXVIII, Fig. 184) appeared in a Copper Age deposit.

<sup>12</sup> August Brinkmann in *Videnskabelige Meddelelser fra Dansk naturhistorisk Forening i København* LXXII (for 1920) 39-41.



FIG. 247.—A. INCOMPLETE MANDIBLE OF BEAVER. HITTITE. B. SKULL OF DOG, *inos'ranzevi* TYPE. HITTITE. C. SKULL OF DOG, *palustris lad'gensis* TYPE. PHRYGIAN. ACTUAL SIZE







FIG. 248.—A-B. HORN CORE OF SHEEP, "KUPFERSCHAF" TYPE. COPPER AGE. C. HORN CORE OF YOUNG SHEEP, PROBABLY OF "KUPFERSCHAF" TYPE. HITTITE. D. HORN CORE OF GOAT, POSSIBLY OF "*prisca*" TYPE. CHALCOLITHIC. ACTUAL SIZE



FIG. 249.—A-B. HORN CORE OF YOUNG SHEEP, PROBABLY OF "KUPFERSCHAF" TYPE. HITTITE. C. METATARSUS OF SHEEP. HITTITE. D. METACARPUS OF GOAT, CHALCOLITHIC. E. HORN CORE OF GOAT, "prisca" TYPE. HITTITE. ANTERO-INTERNAL ASPECT PHOTOGRAPHED IN ORDER TO SHOW THE HOMONYMOUS TWIST. ACTUAL SIZE

scribed and figured by Adametz and Niezabitowski under the name of "*Capra prisca*."<sup>20</sup> It has generally been assumed that the homonymous domestic goats have been derived from this type, whose age was considered to be Pleistocene. Recently, however, Ernst Schwarz has stated his belief that "*C. prisca*" is not from the Pleistocene at all but is a recent domestic form. He believes that the homonymous goats are derivable from *Capra aegagrus aegagrus*.<sup>21</sup>

The core from the Chalcolithic is small and straight, with a gently rounded lateral face and a flat mesial one. Dr. Hilzheimer (in a letter) considers that this specimen also may represent a goat of the "*C. prisca*" type.

# HORN CORES

	CHALCOLITHIC (Fig. 248 D)	HITTITE (Fig. 249 E)		CHALCOLITHIC (Fig. 248 D)	HITTITE (Fig. 249 E)
Longitudinal diameter at base . . . . .	28	46	Circumference at base . . . . .	71	120
Transverse diameter at base . . . . .	16.5	34			

# METACARPUS (FIG. 249 D)

Length . . . . .	102	Transverse diameter at distal end . . . . .	26
Transverse diameter at proximal end . . . . .	22	Transverse diameter of shaft . . . . .	14

# SHEEP (*Ovis aries* Linn.)

Sheep constitute the most abundant animal remains from all levels except those of the Copper Age. From Chalcolithic and Phrygian-Hellenistic levels we have only broken maxillaries and mandibles, but identifiable horn cores were obtained in Copper Age and Hittite levels.<sup>22</sup>

The most important specimen is a fairly large horn core, incomplete proximally, from a Copper Age level (Fig. 248 A-B). The mesial face of the core is flat, the lateral and posterior faces are rounded; lateral and mesial faces meet in a sharp edge anteriorly. Thus the cross-section is roughly three-sided, with a sharp anterior angle. The anterior portion of the base of the core is very rugose; the curvature is pronounced, and there is a moderate degree of twist. The specimen appears to be of the "Kupferschaf" type (*Ovis aries studeri* Duerst). It differs, however, from the specimen described and figured by Duerst<sup>23</sup> in that the anterior edge is sharper and continues down to the base of the horn core. The specimen agrees perfectly with the "third type" of Glur,<sup>24</sup> which Duerst considered to be a cross between the "Kupferschaf" and the "Torfschaf" or turbary sheep (*Ovis aries palustris* Rütimeyer).<sup>25</sup> An incomplete horn core among the mixed Copper Age-Hittite pieces, obviously of the same type as the Copper Age specimen just described, has a somewhat greater transverse width and a less pronounced anterior ridge. It is accordingly intermediate between the specimen from the Copper Age level and that described by Duerst.

The much smaller horn cores from the Hittite levels (e.g., Figs. 248 C and 249 A-B) are less rugose and more porous than that from the Copper Age deposits. They are probably from young animals of the "Kupferschaf" type.<sup>26</sup> Among the mixed Copper Age-Hittite pieces

<sup>20</sup> Académie des sciences de Cracovie, classe des sciences mathématiques et naturelles, *Bulletin international*. Série B: *Sciences naturelles*, année 1914 (Cracovie, 1915) pp. 766-74 and Pl. 53.

<sup>21</sup> *The Annals and Magazine of Natural History*, 10th ser., XVI (London, 1935) 436 f.

<sup>22</sup> No attempt has been made to separate the sheep from the goats in so far as maxillaries, mandibles, and isolated teeth are concerned.

<sup>23</sup> J. Ulrich Duerst, "Über ein neues, prähistorisches Hausschaf . . . . .," Naturforschende Gesellschaft in Zürich, *Vierteljahrsschrift*, 49. Jahrg. (for 1904) pp. 17-34.

<sup>24</sup> G. Glur in his "Beiträge zur Fauna der Pfahlbauten," Naturforschende Gesellschaft in Bern, *Mitteilungen* XXVI-XXVII (1894) 28, Pl. 2, Figs. 11-12.

<sup>25</sup> *Op. cit.* p. 25.

<sup>26</sup> Hilzheimer in a letter.



are two incomplete horn cores (from somewhat older animals) which are larger and have rather more rounded lateral faces than those definitely of Hittite levels.

	COPPER AGE (Fig. 248 A-B)	HITTITE (Fig. 249 A-B)	HITTITE (Fig. 248 C)		COPPER AGE (Fig. 248 A-B)	HITTITE (Fig. 249 A-B)	HITTITE (Fig. 248 C)
Length along outer curve . . .		160	116	Transverse diameter at			
Circumference at base . . .	146	89	76	base . . . . .	37	21	19
Longitudinal diameter at							
base . . . . .	52	34	29				

A sheep's metatarsus from the Hittite level (Fig. 249 C) has the following dimensions:

Length . . . . .	135	Transverse diameter at distal end . . . . .	26
Transverse diameter at proximal end . . . . .	22	Transverse diameter of shaft . . . . .	13

The characteristic bone awls of the Copper Age people are fashioned exclusively from the distal ends of metacarpals and metatarsals of sheep.

#### OX (*Bos taurus* Linn.)

Horn cores in the collection establish the presence of the *brachyceros* race. One type of core (e.g., Fig. 250 A) is short, stout, strongly fluted, and very rugose. A second type (Fig. 250 B) is slender and comparatively smooth; Dr. Hilzheimer (in a letter) is inclined to regard horn cores of this type as from cows of the race. A third type (Fig. 251 A) is larger than either of the others and is very light and porous, but it may represent the same race. Horn cores come from Copper Age, mixed Copper Age-Hittite, and Phrygian-Hellenistic levels.

	COPPER AGE (Fig. 250 A)	PHRYGIAN- HELLENISTIC*	COPPER AGE- HITTITE (Fig. 250 B)	COPPER AGE- HITTITE (Fig. 251 A)		COPPER AGE (Fig. 250 A)	PHRYGIAN- HELLENISTIC*	COPPER AGE- HITTITE (Fig. 250 B)	COPPER AGE- HITTITE (Fig. 251 A)
Length along outer curve	148	105.5	...	...	Diameter at base . . . . .	46	40	38	50
Circumference at base . . .	135	118	122	149					

\* Same type as Fig. 250 A.

Many maxillary and mandibular fragments and isolated teeth were found from all periods (e.g., Fig. 250 C-D). They are fairly uniform in size.

Of the bones of the extremities there are a metacarpus and a metatarsus from the mixed Copper Age-Hittite deposits and a metatarsus from the Hittite level.

	METACARPUS COPPER AGE- HITTITE (Fig. 251 C)	METATARSUS COPPER AGE- HITTITE (Fig. 251 B)	METATARSUS HITTITE		METACARPUS COPPER AGE- HITTITE (Fig. 251 C)	METATARSUS COPPER AGE- HITTITE (Fig. 251 B)	METATARSUS HITTITE
Total length . . . . .	210	236	248	Transverse diameter of			
Transverse diameter of				diapophysis . . . . .	39.5	27.5	32.5
proximal end . . . . .	72	53	54	Diapophysis $\times$ 100			
Transverse diameter of				Length . . . . .	18.8	11.6	13.1
distal end . . . . .	76	60	...				

#### PIG (*Sus scrofa* Linn.)

Pigs are present at all levels and are particularly numerous in the Hittite deposits. The specimens are very incomplete, but the skull fragments indicate that the Alishar swine belonged to the *scrofa* and not to the *vittatus* group. A specimen from a Copper Age level (Fig. 253 C) preserves the anterior portion of the maxillary-lachrymal suture. This is deep dorso-ventrally and nearly vertical; hence it is of the *scrofa* type. A well preserved but incomplete cranial region from a mixed Copper Age-Hittite deposit (Fig. 253 A) has a rather convex skull roof which resembles that of pigs of the *vittatus* group and the specimen from Anau figured by



FIG. 250.—A. HORN CORE OF OX, *brachyceros* TYPE. COPPER AGE. B. HORN CORE, POSSIBLY FROM A COW OF THE *brachyceros* RACE. MIXED COPPER AGE-HITTITE. C. INCOMPLETE MAXILLARY OF OX. CHALCOLITHIC. D. INCOMPLETE MANDIBLE OF OX. CHALCOLITHIC. ACTUAL SIZE



FIG. 251.—A. HORN CORE OF OX, *brachyceros* TYPE. MIXED COPPER AGE-HITTITE. B. METATARSUS OF OX. MIXED COPPER AGE-HITTITE. C. METACARPUS OF OX. MIXED COPPER AGE-HITTITE. SCALES: A, 1:1; B-C, 1:2

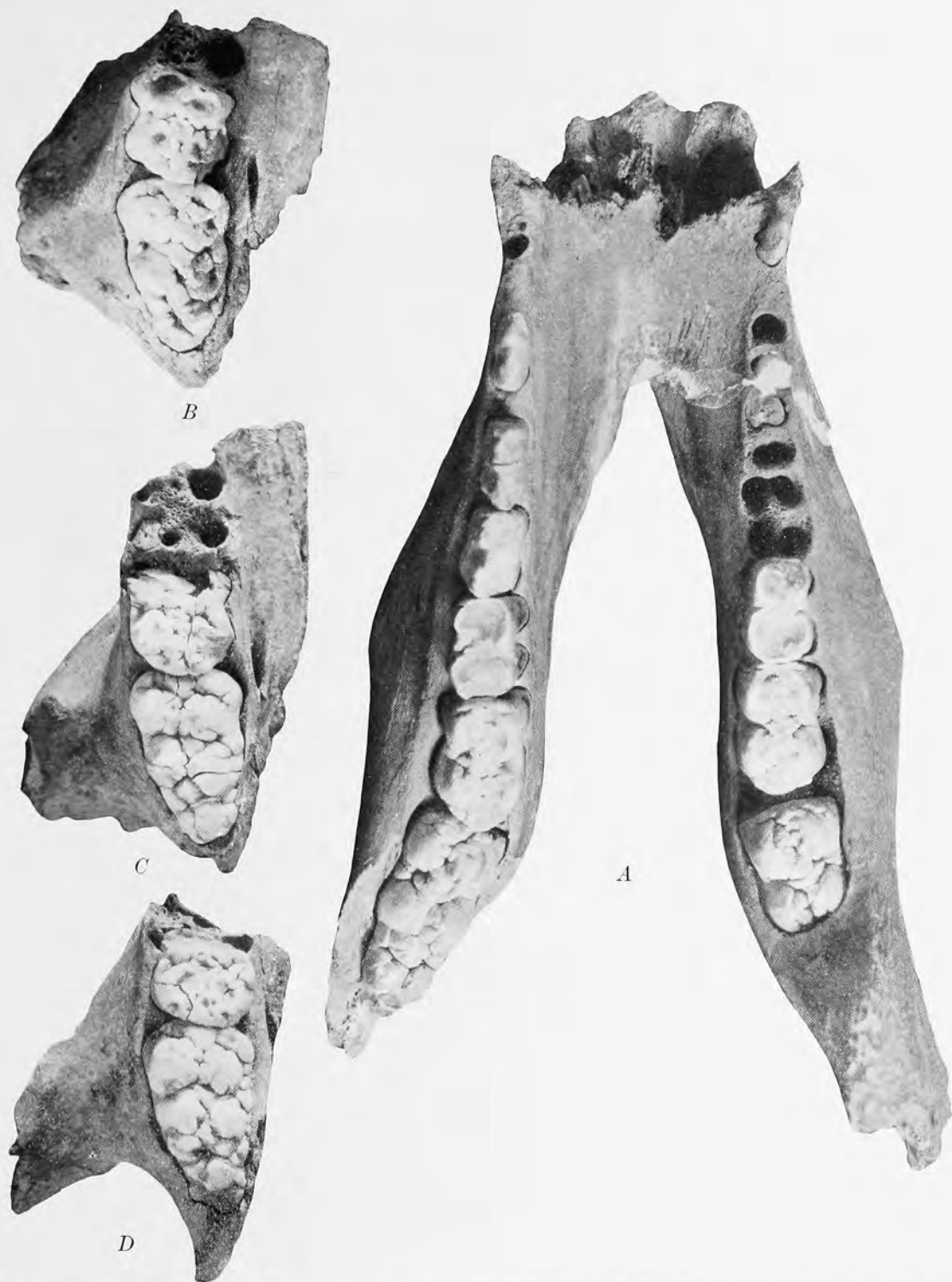


FIG. 252.—A. INCOMPLETE MANDIBLES OF PIG. CHALCOLITHIC. B-D. INCOMPLETE MAXILLARIES OF PIGS, EACH WITH SECOND AND THIRD MOLARS. HITTITE. ACTUAL SIZE



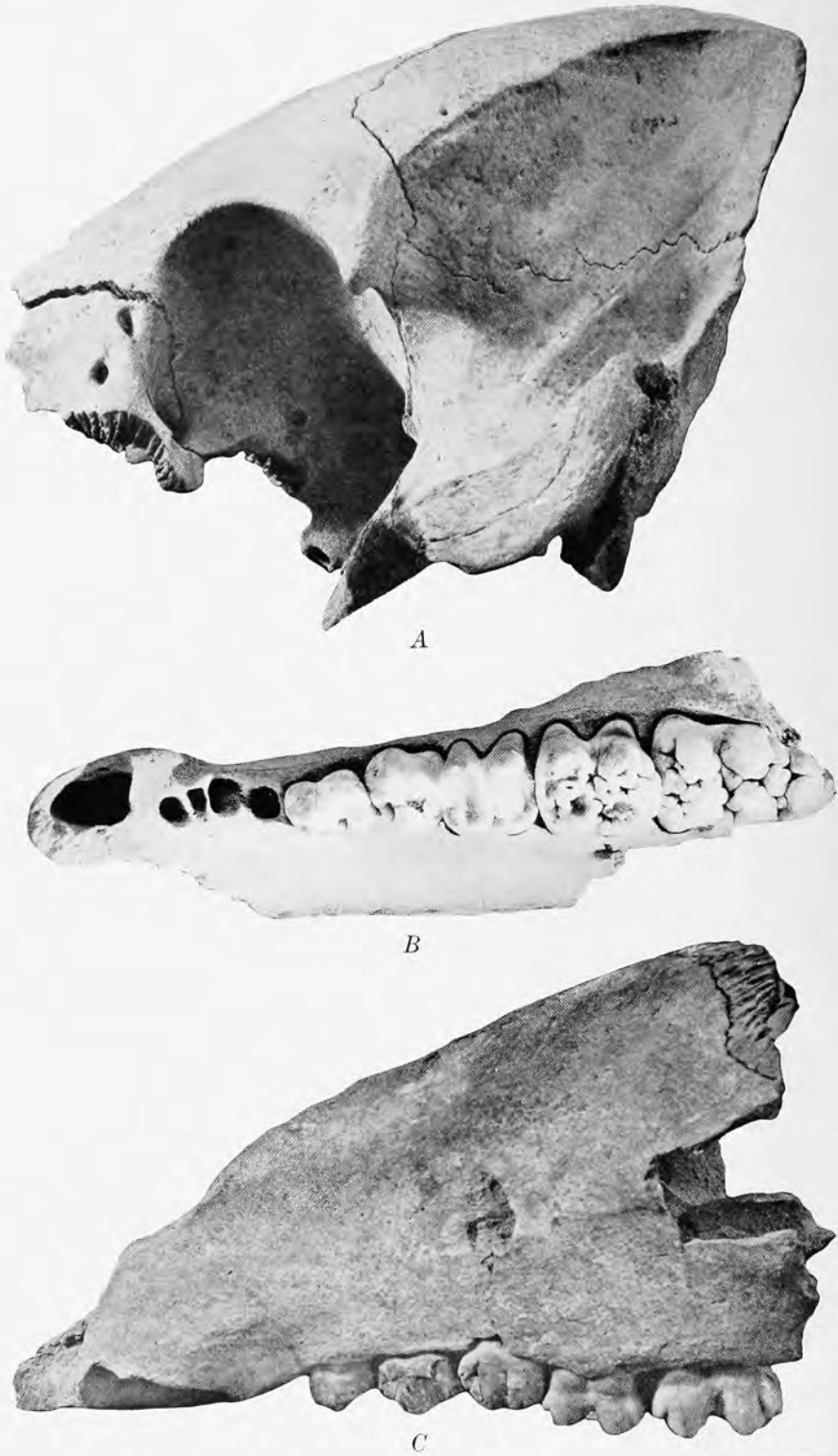


FIG. 253.—A. CRANIAL REGION OF PIG, LACHRYMAL BONE BROKEN OFF ANTERIORLY. MIXED COPPER AGE—HITTITE. B. INCOMPLETE MAXILLARY OF PIG. PHRYGIAN-HELLENISTIC. C. INCOMPLETE FACIAL REGION OF PIG WITH ANTERIOR BORDER OF MAXILLARY-LACHRYMAL SUTURE OUTLINED. COPPER AGE. ACTUAL SIZE



FIG. 254.—A. INCOMPLETE MANDIBLES OF PIG. HITTITE. B. INCOMPLETE MANDIBLE OF PIG. HITTITE. C. CRANIAL REGION OF PIG. HITTITE. D. FIRST UPPER MOLAR OF HORSE. HITTITE. E. SECOND UPPER MOLAR OF HORSE. PHRYGIAN-HELLENISTIC. ACTUAL SIZE

## MEASUREMENTS OF PIG SPECIMENS

	CHALCO- LITHIC (Fig. 252 A)	COPPER AGE (Fig. 253 C)	COPPER AGE- HITTITE (Fig. 253 A)	HITTITE							PHRYGIAN-HELLENISTIC			
				—	(Fig. 254 A)	—	(Fig. 254 B)	(Fig. 252 B)	(Fig. 252 C)	(Fig. 252 D)	(Fig. 254 C)	—	—	(Fig. 253 B)
Width across post-orbital processes of frontals.....			94	.....	.....	.....	.....	.....	.....	.....	87	.....	.....	.....
Length from anterior to posterior border of orbit.....			32	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Length P <sup>1</sup> -M <sup>3</sup> .....				.....	.....	.....	.....	.....	.....	.....	.....			99
Length M <sup>1</sup> -M <sup>3</sup> .....				.....	.....	.....	.....	.....	.....	.....	.....			59
Length M <sup>1</sup> .....		15		.....	.....	.....	.....	.....	.....	.....	.....			13
Length M <sup>2</sup> .....		18		.....	.....	.....	.....	18	.....	.....	.....			18
Length M <sup>3</sup> .....				.....	.....	.....	.....	28	28.5	32	.....			28
Length P <sup>1</sup> -M <sup>3</sup> .....	126			.....	.....	105	.....	.....	.....	.....	.....	119	.....	.....
Length M <sup>1</sup> -M <sup>3</sup> .....	70			.....	67	.....	.....	.....	.....	.....	.....	.....	.....	.....
Length M <sup>1</sup> .....	16			.....	15	14	13	15	.....	.....	.....	.....	14	.....
Length M <sup>2</sup> .....	21			.....	20	20.5	.....	19	.....	.....	.....	.....	19	.....
Length M <sup>3</sup> .....	33			.....	.....	32.5	.....	.....	.....	.....	.....	30	.....	.....
Height of ramus beneath M <sup>1</sup> .....	37			.....	41	38	37	.....	.....	.....	.....	.....	35	.....

Duerst.<sup>27</sup> Our specimen, however, is from a young individual, and Dr. Hilzheimer informs me (in a letter) that pigs of the *scrofa* group also have a convex cranial roof at this age. The lachrymal is broken anteriorly, but, to judge from the part preserved, was probably of the *scrofa* type.

# HORSE (*Equus* sp.)

Equine remains, apart from second and fourth metacarpals and metatarsals in the Hittite levels, are extremely rare at Alişar. There is one astragalus from the mixed Copper Age-Hittite deposits which is probably of the Hittite period, an ungual phalanx from a Hittite level, and another ungual phalanx from a Phrygian-Hellenistic level.<sup>28</sup> The material is insufficient to determine the type. The scanty stratigraphic evidence, excluding the doubtful astragalus from consideration, would suggest that the horse was not used at Alişar before the advent of the Hittites.

Only two teeth were found, a first molar from a Hittite level (Fig. 254 *D*) and a second molar from a Phrygian-Hellenistic level (Fig. 254 *E*). Neither specimen has the *pli caballin* developed to any appreciable extent.

All specimens show that the Alişar horses were small.

	HITTITE (Fig. 254 <i>D</i> )	PHRYGIAN- HELLENISTIC (Fig. 254 <i>E</i> )		HITTITE (Fig. 254 <i>D</i> )	PHRYGIAN- HELLENISTIC (Fig. 254 <i>E</i> )
Antero-posterior diameter . . . . .	26.5	21	Transverse diameter . . . . .	25.5	23.5

The relative scarcity of horse bones (apart from those made into awls) in the refuse deposits of Alişar renders it extremely improbable that these animals were used for food. The use by the Hittites of the second and fourth metacarpals and metatarsals for bone awls is as characteristic as the same use of the distal ends of sheep cannon bones by the people of the Copper Age.

<sup>27</sup> In R. Pumpelly, *Explorations in Turkestan, Expedition of 1904* (Carnegie Institution of Washington, Pub. No. 73) II (Washington, D.C., 1908) Pl. 72, Fig. 3.

<sup>28</sup> [Dr. Erich F. Schmidt has reported (*OIP* XX 8) that in 1928 the skeleton of a horse was found in a room (possibly a guardroom) of Level 2 M. This level is included in those grouped as "Phrygian-Hellenistic" in Mr. Patterson's report.—EDITOR.]



## VI COINS

BY EDWARD T. NEWELL  
President of the American Numismatic Society

### INTRODUCTION

The following catalogue comprises all of the coins which were found in the excavations carried on during the years 1930-32 under the supervision of Dr. H. H. von der Osten at the Alişar mound in Anatolia. They are illustrated in Figures 255-58.

Throughout the catalogue the first column contains the running numbers, while the second column furnishes the field catalogue number given to each specimen as it was found. The third column contains the name of the country, and sometimes the city, in which each coin was issued and/or that of the issuing ruler with the dates of his reign. The fourth column mentions the metal, the denomination (when known), and the weight in grams (in the case of gold or silver) or size in millimeters (in the case of bronze or billon). Finally, the fifth column describes obverse and reverse, with particular date of issue, references, or other notes. The references are to similar coins described in certain recognized and easily accessible handbooks or catalogues. The abbreviations employed for these works are as follows:

#### A. GREEK COINS

- |                       |   |
|-----------------------|---|
| Müller                | L. MÜLLER, <i>Numismatique d'Alexandre le grand, suivie d'un appendice contenant les monnaies de Philippe II et III</i> (Copenhagen, 1855). |
| B.M.C. <i>Galatia</i> | British Museum, <i>Catalogue of the Greek Coins of Galatia, Cappadocia, and Syria</i> , by WARWICK WROTH (London, 1899).                    |

#### B. ROMAN COINS

- |       |   |
|-------|---|
| Cohen | HENRY COHEN, <i>Description historique des monnaies frappées sous l'empire romain. V-VIII</i> (2. éd.; Paris, 1885-92). |
|-------|---|

#### C. BYZANTINE COINS

- |                 |  |
|-----------------|--|
| Sabatier        | J. SABATIER, <i>Description générale des monnaies byzantines. I</i> (Paris, 1862).   |
| B.M.C. <i>B</i> | British Museum, <i>Catalogue of the Imperial Byzantine Coins in the British Museum</i> , by WARWICK WROTH. I (London, 1908). |

#### D. SELJUK COINS

- |                 |   |
|-----------------|---|
| B.M.C. <i>O</i> | British Museum, <i>Catalogue of Oriental Coins in the British Museum</i> , by STANLEY LANE POOLE. III (London, 1877).                         |
| Tewhid          | Imperial [Ottoman] Museum, <i>Catalogue of the Ancient Money of Islam</i> , by AHMED TEWHID. Part IV (in Turkish; Constantinople, A.H. 1321). |

Coins from the 1931 and 1932 campaigns were delivered to the writer in an uncleaned state. Before cataloguing them he therefore cleaned them, employing the electrolytic process as worked out by Dr. Colin Fink of Columbia University. Unfortunately, the coins from the 1930 campaign were not brought to America, but fairly good photographs were forwarded instead. For the most part these proved quite sufficient for purposes of attribution; but certain



FIG. 255.—GREEK AND ROMAN COINS. ACTUAL SIZE



FIG. 256.—ROMAN COINS. ACTUAL SIZE



FIG. 257.—BYZANTINE COINS. ACTUAL SIZE





FIG. 258.—SELJUK COINS. ACTUAL SIZE

reservations must be made, as minor details do not always show up clearly in a photograph, however well taken. Weights of the silver coins in the 1930 group were not sent.

The sixty-five coins which came to light during the three campaigns of 1930–32 serve to amplify and verify, but add little to the scanty information which it had been possible to deduce from the thirty-nine coins found in the first year (1927) of the Expedition's work at Alişar.<sup>1</sup>

We have now secured a silver tetradrachma and a copper chalcos for the important period of Alexander the Great and his immediate successors—a period which had previously been represented at Alişar by only a single drachma bearing the name of Philip III Arrhidaeus.<sup>2</sup> The copper piece is a product of the important Alexander mint at Tarsus, the nearest such mint to the site of Alişar and the southern terminus of the great south-north highway which in ancient times passed near Alişar on its way to the Pontic seaports of Sinope and Amisus.<sup>3</sup> The tetradrachma, on the other hand, is a product of the distant Macedonian mint of Amphipolis, probably the most prolific of any of the mints of Alexander and his immediate successors because of its proximity to the well known and fabulously rich silver mines of Mount Pangaeus. These particular issues, marked by the racing torch (the *epiēmōn* of Amphipolis), must once have flooded Asia Minor and Syria. Specimens occur in every one of the nine Alexander hoards containing tetradrachmas buried in the first half of the 3d century B.C. The find-spots of these hoards are scattered throughout Asia Minor, Syria, Mesopotamia, and Babylonia.<sup>4</sup>

Our series from Alişar of the Cappadocian royal coinages is increased by a typical drachma of Ariobarzanes III (No. 3). The royal capital at Mazaca is now represented by an autonomous bronze coin (No. 4) bearing the name Eusebeia. This name is conjectured to have been conferred upon Mazaca by, or in honor of, Ariarathes V Eusebes Philopator,<sup>5</sup> who reigned 163–130 B.C. Our coin is dated in the thirteenth regnal year of the last independent Cappadocian king, Archelaus I (36 B.C.–A.D. 17). It bears as a type one of the earliest numismatic representations that we possess of the holy Mount Argaeus—the mountain which rises so imposingly over the city and which for two and a half centuries constituted the principal and characteristic type of this mint's prolific coinages. On our present coin the sun bird, the eagle, spreads its wings above the jagged mountain peak.

When in A.D. 17 Eusebeia—now named Caesarea<sup>6</sup> in honor of Augustus—became the administrative center of the newly constituted imperial province of Cappadocia, an important imperial mint was established there. Its issues, as represented at Alişar, are now increased by

<sup>1</sup> *OIP* VII 51 ff. For purposes of completeness mention should be made here of ten coins found in 1928 on the surface of the mound or in dump soil, and also of seven coins found in 1929. These coins were not brought to America for study and examination, but are briefly described by Dr. Erich F. Schmidt in *OIP* XX 105. The coins appear to have been for the most part Roman, with at least one example from Caesarea in Cappadocia, illustrated *ibid.* p. 106, Fig. 165.

<sup>2</sup> *OIP* VII 54 and 67, coin No. 1.

<sup>3</sup> Cf. the writer's *Küçük Köhne Hoard* ("Numismatic Notes and Monographs," No. 46 [New York, 1931]) pp. 26 ff. and map.

<sup>4</sup> Cf. Sydney P. Noe, *A Bibliography of Greek Coin Hoards* ("Numismatic Notes and Monographs," No. 25 [New York, 1925]). In this work eight of the hoards are listed: Aleppo 1892 (p. 18); Ankara (p. 24); Babylonia 189– (p. 34); Mesopotamia 191– (p. 130); Mosul 1865 (p. 137); Mosul 1916 (p. 137); Sardis (Basis Hoard) 1911 (p. 178); Sardis (Pot Hoard) 1913 (p. 179). Since the publication of Mr. Noe's work an unusually large hoard of tetradrachmas and drachmas of Alexander, Philip III, Seleucus I, and Lysimachus has turned up, said to have been found at Armenak in Asia Minor. This hoard contained over a hundred specimens of the "torch series" of Alexander.

<sup>5</sup> T. Reinach, *Numismatique ancienne: trois royaumes de l'Asie Mineure* (Paris, 1888) p. 37 n. and p. 67; B.M.C. *Galatia*, p. xxxiv.

<sup>6</sup> For a discussion of the date when this change in name was made see Friedrich Imhoof-Blumer in *Revue suisse de numismatique* VIII (Genève, 1898) 12 ff.; also B.M.C. *Galatia*, pp. xxxiv f.

specimens from the reigns of M. Aurelius and Gordian III, the latter coin (No. 6) bearing the interesting inscription  $\epsilon\pi\tau\epsilon\lambda\chi\iota\omicron\nu$  ( $\chi\omega\rho\iota\omicron\nu$ ) and inscribed upon many of the coins issued in the fourth year of Gordian's reign, was used to commemorate the erection at that time of powerful encircling walls to protect the city against threatening Persian invasion.<sup>7</sup>

When, shortly after this time, Caesarea finally ceased functioning as an imperial mint, the place of its issues in central Anatolia was at once taken by the regular imperial issues of Rome itself or of its auxiliary mints established in Asia Minor and Syria. From the Alishar campaigns as a whole we now possess silver or debased billon antoniniani of Volusian, Aurelian, Tacitus, Probus, and Carus, struck variously at Rome, Cyzicus, Antioch, and Tripolis of Phoenicia.

The increased monetary production under Diocletian's tetrarchy and under Constantine the Great and his sons (covering nearly eighty years, A.D. 284-361) is reflected at Alishar by the finding of no less than twenty-two legible specimens<sup>8</sup> variously struck at Rome, Heraclea, Constantinople, Nicomedia, Cyzicus, Antioch, and Alexandria. The later Roman emperors, after Constantius' death, are but feebly represented—unless we are to count in the numerous illegible pieces which, according to the faint indications furnished by their fabric, probably date from this period. For a time matters improve again under the earlier Byzantine emperors from Justin I to Heraclius, to which period fourteen of the coins from Alishar are to be assigned. Of these, seven were struck at Constantinople, one at Nicomedia, five at Antioch, and one at Carthage. Here also belongs a possible hoard (or "pocket") of three coins: Nos. 38, 40, and 41. In response to a query on this point Dr. von der Osten writes: "From the 1930 field catalogue it seems to be quite possible that the three coins were found together. They came from a small plot, 5×10 meters, and were all found on the floor level of one room." These coins are all folles of Justin I, two from the mint at Constantinople, one from that at Antioch.

Barring Leo VI's solitary follis found in 1927,<sup>9a</sup> there occurs a very curious gap of nearly six hundred years (from Heraclius I to Kaikubād I) in the coins unearthed at Alishar. Then, in striking contrast, come the numerous Seljuk copper pieces, some twenty-six specimens, together with two Ayyūbid issues, and finally a little copper coin of the great Osmanlı sultan Süleyman I (A.D. 1520-66).

Having thus briefly summarized the coins from the Alishar mound, we may proceed to consider what, if anything, they are able to tell us about the history of the mound from the introduction of coined money down to the coming of the Osmanlı Turks.

No coins were found dating from before the time of Alexander the Great. This fact must by no means be taken as certainly indicating that the site was uninhabited. Their lack may be due entirely to chance, though more probably to the comparatively primitive conditions which still obtained in central Anatolia.<sup>9</sup> Such coins as circulated were of silver only,<sup>10</sup> the intrinsic value of which in this region must have been comparatively high in those days. Copper coins were as yet unknown here. If any of the silver coins chanced to be in the possession of possible inhabitants of the mound, they were successfully preserved from loss by their careful owners.

<sup>7</sup> First suggested by Domenico Sestini, *Lettere e dissertazioni numismatiche* III (Milano, 1817) 125. Fully discussed by Imhoof-Blumer, *op. cit.* pp. 22 f.

<sup>8</sup> Altogether, 121 coins of all ages have been excavated at Alishar. Hence the coins from Diocletian to and including Constantius II represent almost 20 per cent of the total number found there.

<sup>9a</sup> *OIP* VII 58, No. 26.

<sup>9</sup> Cf. *OIP* VII 66.

<sup>10</sup> Royal Persian gold darics may well have been known here, but no finds of such coins in central Anatolia, either singly or in hoards, have ever been recorded. The silver coins which did circulate were Aeginetan drachmas of Sinope, Persian sigli of Amisus, Persian staters of Aspendus and Tarsus, and various satrapal issues in Cilicia—as shown by the Caesarea-Mazaca and Küçük Köhne hoards.

When coins suddenly do appear they bear the well known types of Alexander the Great. This fact certainly suggests that there *may* have been some military post established here by the Greeks, perhaps under the rule of Antigonos. We must beware, however, of straining our slight evidence to too great an extent. The presence of these coins may simply mean that, with the flooding of all Western Asia by immense quantities of the new coins under Alexander and his successors, coined money came into more general use among the inhabitants of this region. But the coins do serve to indicate clearly that the Alişar mound must have been inhabited—at least by a military post if not by an actual town—continuously from the time of Alexander down to the middle of the 7th century after Christ; every century except the 5th is represented by at least a few coins, as the following table shows.

	Century	Gold	Silver	Copper	Billon
3d	before Christ	.....	3	1	.....
2d	"	.....	1	1 (doubtful)	.....
1st	"	.....	1	1	.....
1st	after Christ	.....	.....	1	.....
2d	"	.....	1	1	.....
3d	"	.....	1	5	5
4th	"	.....	.....	40	.....
5th	"	.....	.....	.....	.....
6th	"	.....	.....	9	.....
7th	"	1	.....	4	.....
9/10th	"	.....	.....	1	.....
12/13th	"	.....	.....	26	.....
16th	"	.....	.....	1	.....

To judge solely by the actual number of coins found, the 4th century, with its forty coins, would appear to have been the most flourishing. But it must be remembered that these particular coins are, for the most part, small copper pieces, easily dropped and hardly worth an extended search on the part of their former owners. Hence the preceding centuries, with their silver coins, may have been no less flourishing at Alişar. The scanty list of copper coins from those centuries can hardly be used as a contrary argument, as the copper pieces of that time were inclined to be comparatively large and would not be so prone to get themselves lost. The 5th century, as stated above, is not represented by a single coin. This, however, actually means little, as the issue of imperial copper money in this period was on the whole not very extensive.<sup>11</sup> Doubtless the immense quantities of small copper pieces known to have been produced in the numerous mints of the empire throughout the entire 4th century still continued to circulate widely in the 5th and sufficed to meet all ordinary needs of the populace. Many of the late 4th century coins found at Alişar may therefore actually have been lost in the 5th century. The settlement appears to have been quite flourishing again in the 6th and the first half of the 7th centuries, to judge by the numerous large folles which were found.

We now come to that curious cessation in the numismatic finds from Alişar which was mentioned above on page 316. Following the two coins of Heraclius (Nos. 48 and 49) there is nothing for nearly six hundred years except the one lone coin of Leo VI. No example of the quite common little bronze coins of Constans II Constantine has appeared; nor—much stranger still—has even a single specimen of the exceedingly common so-called "anonymous bronze coinages" (10th and 11th centuries) or of that of Constantine X chanced to turn up in the mound of

<sup>11</sup> To supply the deficiency, miserable little copper pieces were manufactured, apparently unofficially, in many parts of the empire—the so-called "Vandalic coinage." None of these was found at Alişar.



Alişar. On the other hand, such pieces were purchased in very considerable quantities<sup>12</sup> in the regions all about Alişar. Their complete absence at the mound itself may therefore be considered as doubly significant, suggesting that our site may have been more or less deserted during the troublous times of the Persian invasions and for a long time afterward, possibly even down to the apogee of Seljuk power in the late 12th century. The mound has not yet been completely excavated, but enough has been accomplished to make the numismatic evidence of some weight. We might at least be allowed to surmise that the Byzantine town on the site of Alişar had perhaps been destroyed or abandoned during the numerous Persian invasions or in the ensuing campaigns and battles between the armies of Heraclius and of the Sasanians. We know<sup>13</sup> that in A.D. 617 the Persians invaded Asia Minor, advanced as far as the Bosphorus itself, and captured Chalcedon, where they remained for five years. In 620 another Persian army, coming westward to support the force at Chalcedon, captured Ankara and ravaged the surrounding lands. The years 622 and 623 were filled with marches, counter-marches, and battles in Cappadocia. In 626 the Persians again invaded Asia Minor, through which they swept as far as Chalcedon, where they again remained until early in 628. Our town, situated as it was on an important north-south highway, may well have been destroyed at some time in the course of these many years of terror for central Anatolia. Turning now to our two coins of Heraclius for possible confirmation, we find that the type of No. 49 (unfortunately its own regnal year is obliterated) was struck not later than the fifth year of Heraclius' reign.<sup>14</sup> The solidus No. 48 is assigned to the years 613/14-630. In style our particular piece is an early example of this issue, while its condition shows that it was practically uncirculated. Nothing on these coins indicates, therefore, that they might have been lost after the period of the Persian wars. The fact that No. 48 is actually the only gold coin to have been found at Alişar may be not without significance. Lost copper coins are soon forgotten because of their small value. A gold coin is not usually supinely abandoned<sup>15</sup> except for some very good reason! We might surmise that No. 48 had been lost beyond chance of recovery in the confusion of the Byzantine town's last days.

As shown in *Discoveries in Anatolia, 1930-31*,<sup>16</sup> Alişar with the surrounding district—in fact, nearly the whole of what is now known as the vilayet of Yozgat—was not actually under Seljuk power, but was inhabited and dominated by more or less independent Turkish nomad tribes. South, west, north, and east of the district, however, were located important Seljuk mints such as Kayseri, Ankara, Samsun, and Sivas—to mention only the nearest. These probably sufficed to furnish such circulating money as might be needed among the nomad bands of the 12th and 13th centuries. As established mints are not usually associated with wandering nomads, it is not surprising that so many humble Seljuk copper coins should be found at Alişar. Yet it is possible that the curious and irregular pieces Nos. 60-62, unrecorded among the published coins of Seljuk princes, may be issues brought out by the nomads themselves, perhaps toward the end or after the fall of the Seljuk kingdom. No. 62, indeed, has more the

<sup>12</sup> Combining the purchases of 1927 with those recorded for the years 1928-32, we find that the Expedition secured in the regions immediately contiguous to Alişar no less than thirteen coins of Constans II Constantine, sixty-three of the "anonymous bronze coinages," and ten of Constantine X.

<sup>13</sup> Following J. B. Bury, *A History of the Later Roman Empire from Arcadius to Irene (395 A.D. to 800 A.D.)* (London, 1889) II 223-44.

<sup>14</sup> According to B.M.C. B.

<sup>15</sup> An apt illustration of this point may be remembered in the passage Luke 15:8-9, wherein is related how the good woman lit her lamp and painstakingly swept her house in search for the lost drachma—a coin of far less value than that of our solidus. When it was finally recovered she called in all her friends and neighbors to rejoice with her in honor of the happy occasion.

<sup>16</sup> *OIC* No. 14, pp. 52-54 and 99 f.

appearance of an "imitation" than of a regular issue. Where the "mint" concerned was located, or whether by any chance it (like its owners) was a wandering one,<sup>17</sup> is unknown.

The latest coin (No. 39 of the 1927 excavation) dates from the reign of Süleyman I (A.D. 1520-66) and remains the sole numismatic representative of Osmanli domination found at Alişar. Furthermore, no coin other than this has turned up for the centuries from 1300 to the present day. This suggests that after the collapse of the Seljuk power the mound remained more or less deserted for long periods of time. Only an Osmanli burial ground and a few scattered remains of small farmhouses have been found.<sup>18</sup>

## CATALOGUE

### A. GREEK COINS

- |   |        |  |                                  |  |
|---|--------|--|----------------------------------|--|
| 1 | e 1999 | Macedonia: Alexander the Great, 336-323 B.C.               | Silver tetradrachma, 15.98 grams | Head of young Heracles to r., wearing lion's skin. <i>Reverse</i> : ΑΛΕΞΑΝΔΡΟΥ on r. Zeus seated to l. on <i>diphros</i> , holding an eagle in outstretched r. and resting l. upon a scepter. In l. field, Α above racing torch. Beneath throne, star. Test cut on obverse. Struck (posthumously) at Amphipolis about 300 B.C. Müller, No. 62. |
| 2 | e 1512 | Same   | Bronze, 20 mm.                   | Same type on obverse. In front of face, caduceus. <i>Reverse</i> : ΑΛΕΞΑΝΔΡΟΥ between club and bow-case. Above, caduceus. Struck at Tarsus about 324-319; cf. E. T. Newell, "Tarsos under Alexander," <i>American Journal of Numismatics</i> LII (for 1918) 104, No. 44. Müller, No. 215a (Pl. II 19-20).                                      |
| 3 | c 295  | Cappadocia: Ariobarzanes III, 52-42 B.C.                   | Silver drachma, not weighed      | Diademed head of Ariobarzanes III to r. <i>Reverse</i> : ΒΑΣΙΛΕΥΣ ΑΡΙΟΒΑΡΖΑΝΟΥ ΕΥΞΕΒΟΥΣ ΚΑΙ ΦΙΛΟΡΩΜΑΙΟΥ. Athene, armed with helmet, spear, and shield, standing to l., holding Nike in outstretched r. In the exergue, ΙΑ(?). Cf. B.M.C. <i>Galatia</i> , p. 42, Nos. 3-4.   |
| 4 | e 159  | Eusebeia in Cappadocia: under Archelaus I, 36 B.C.-A.D. 17 | Bronze, 20 mm.                   | Wreathed head of Dionysus to r. <i>Reverse</i> : Eagle, with wings spread, to r. upon Mount Argaeus. On r., ΕΥΞΕ; on l., ΒΕΙΑΣ. In the exergue, Π ΙΓ. Struck in the 13th regnal year of Archelaus I. <i>Revue suisse de numismatique</i> VIII (1898) 9, No. 33.  |
| 5 | d 495  | Caesarea in Cappadocia: M. Aurelius, A.D. 161-80           | Bronze, 19 mm.                   | Traces of ΑΥΤΟΚ ΑΝΤΩΝΕΙΝ[ΟC CΕΒΑC]ΤΟC. Laureate head of M. Aurelius to r. <i>Reverse</i> : [ΚΑΙCΑΡ]ΩΝ Τ Π ΑΡΓΕΙΩ. Mount Argaeus. In the exergue, ΕΤ Γ (regnal year 3). B.M.C. <i>Galatia</i> , p. 68, No. 182 (variety).   |
| 6 | c 2163 | Caesarea in Cappadocia: Gordian III, A.D. 238-44           | Bronze, 25 mm.                   | ΑΥ Κ Μ ΑΝΤ ΓΟΡΔΙΑΝΟC. Laureate, draped bust to r. <i>Reverse</i> : ΜΗΤΡΟ ΚΑΙC Β Ν. <i>Agalma</i> of Mount Argaeus placed upon an altar, upon the side of which is seen the inscription ΕΝΤΙ. In the exergue, ΕΤ Δ (regnal year 4). Variety of B.M.C. <i>Galatia</i> , p. 92, No. 342.  |
| 7 | e 729  | Antioch in Syria: Augustus?                                | Bronze, 22 mm.                   | Head to r., hardly distinguishable because of wear. Two countermarks: (a) standing figure of Athene(?) in a square; (b) three dots in an oblong rectangle. <i>Reverse</i> : Large S·C in a wreath. Cf. B.M.C. <i>Galatia</i> , p. 166, No. 130.  |

### B. ROMAN COINS

- |   |        |                       |                                  |  |
|---|--------|-----------------------|----------------------------------|--|
| 8 | c 2506 | Volusian, A.D. 251-54 | Silver antoninianus, not weighed | IMP CAE C VIB VOLVSIANO AVG. Radiate, draped bust to r. <i>Reverse</i> : SALVS AVGG. Draped figure of Salus standing facing, feeding serpent held in r. from patera held in l. Cohen V 277, No. 118. |
|---|--------|-----------------------|----------------------------------|--|

<sup>17</sup> The necessary tools, such as anvils, dies, trussells, and hammers, sufficient for such crude productions, could easily be transported from place to place and made use of only when the occasion demanded.

<sup>18</sup> Cf. chap. iii.

9	d 107	Aurelian, A.D. 270-75	Billon antoninia- nus, 23 mm.	IMP C AVRELIANVS AVG. Radiate, cuirassed bust to r. <i>Reverse</i> : RESTITVT ORBIS. Draped female figure to r. offering a wreath to Aurelian facing l. holding scepter. In field, star. In the exergue, KA. Struck at Tripolis in Phoenicia. Cohen VI 196, No. 194.
10	c 2365	Tacitus, A.D. 275-76	Billon antoninia- nus, 24 mm.	IMP C M CL TACITVS AVG. Radiate, draped bust to r. <i>Reverse</i> : CLEMENTIA TEMP. Emperor to r. receiving globe offered him by Jupiter standing to l. In the field, Z. In the exergue, XXI. Struck at Antioch. Cohen VI 223, No. 20.
11	c 1532	Probus, A.D. 276-82	Billon antoninia- nus, 23 mm.	IMP C M AVR PROBVS AVG. Radiate, draped bust to r. <i>Reverse</i> : CLEMENTIA TEMP. Same type as on the preceding coin. In field, E. In the exergue, XXI. Struck at Antioch. Cohen VI 264, No. 87.
12	d 174	Carus, A.D. 282-83	Billon antoninia- nus, 20.5 mm.	IMP C M AVR CARVS P F AVG. Radiate, draped bust to r. <i>Reverse</i> : CLEMENTIA TEMP. Emperor to r. receiving a statuette of victory from Jupiter standing to l. In the field, Δ. In the exergue, XXI. Struck at Cyzicus. Cohen VI 352, No. 13.
13	c 1296	Maximianus I, A.D. 286-310	Bronze, 29 mm.	IMP C M A MAXIMIANVS P F AVG. Laureate head to r. <i>Reverse</i> : GENIO POPVLI ROMANI. Genius standing facing holds patera in extended r. and cornucopiae in l. In the exergue, KA. Struck at Cyzicus. Cohen VI 511, No. 184.
14	c 1928	Constantine I, A.D. 306-37	Bronze, 19 mm.	CONSTANTINVS MAX AVG. Diademed, draped bust to r. <i>Reverse</i> : GLORIA ROMANORVM. Roma, helmeted, seated to l. on shield, holds small victory in her outstretched r. In field, Z. In the exergue, CONS. Struck at Constantinople. Cohen VII 259, No. 263.
15	c 240	Same	Bronze, 19 mm.	Same inscription. Diademed, draped bust to r. <i>Reverse</i> : GLORIA EXERCITVS. Two soldiers standing facing, with two military standards between them. In the exergue, SMANA. Struck at Antioch, A.D. 333-37. Cohen VII 258, No. 254.
16	d 1436	Same	Bronze, 17 mm.	Similar to preceding, except that there is only one standard. The mint mark is illegible. Cohen VII 257, No. 250.
17	d 492	Period of Constantine	Bronze, 16 mm.	VRBS ROMA. Helmeted bust of Roma to l. <i>Reverse</i> : Wolf and twins to l.; above, two stars. In the exergue, SMA.. Struck at Alexandria. The coin has been pierced. Cohen VII 330, No. 18.
18	c 2235	Constantine Jun., A.D. 317-40	Bronze, 15 mm.	CONSTANTINVS IVN NOB C. Laureate, cuirassed bust to r. <i>Reverse</i> : GLORIA EXERCITVS. Two soldiers standing facing, with two military standards between them. In the exergue, SMALE.. Struck at Alexandria, A.D. 333-37. Cohen VII 377, No. 114.
19	d 16	Period of the sons of Constantine	Bronze, 13.5 mm.	VRBS ROMA. Helmeted bust of Roma to l. <i>Reverse</i> : GLORIA EXERCITVS. Same type as on the preceding, except that there is only one standard. In the exergue, CONSG. Struck at Constantinople soon after A.D. 337. Cohen VII 327, No. 1.
20	c 2714	Constans I, A.D. 333-50	Bronze, 15 mm.	D N CONSTANS P F AVG. Diademed head to r. <i>Reverse</i> : GLORIA EXERCITVS. Same type as on the preceding. The mint mark is "off flan." Struck in A.D. 337-40. Cohen VII 413, No. 60.
21	c 1549	Same	Bronze, 16 mm.	Same types and inscriptions as on the preceding. In the exergue, CONSS. Struck at Constantinople.

## COINS

321

22	d 719	Constantius II, A.D. 323-61	Bronze, 15 mm.	D N CONSTANTIVS P F AVG. Diademed head to r. <i>Reverse</i> : VOT   XX   MVLT   XXX within a wreath. In the exergue, SMANA. Struck at Antioch about A.D. 340. Cohen VII 492, No. 335.
23	e 576	Same	Bronze, 14 mm.	Same as the preceding. The mint mark is partially "off flan," but style and fabric show this coin also to have been struck at Antioch. Same reference.
24	c 1260	Same	Bronze, 20 mm.	D N CONSTANTIVS P F AVG. Diademed, draped bust to r. <i>Reverse</i> : FEL TEMP REPARATIO. Emperor to l. spearing fallen horseman. The available photograph does not allow the mint mark to be read. Cohen VII 446, No. 44?
25	e 1509	Same	Bronze, 17 mm.	Same types and inscriptions as on the preceding. In the exergue, wreath between R and S. Struck at Rome about A.D. 351. Cohen VII 447, No. 48.
26	e 268	Same	Bronze, 17 mm.	Same types and inscriptions. The mint mark is "off flan." Same reference.
27	e 1428	Same	Bronze, 16 mm.	Same types and inscriptions. The mint mark is illegible. Same reference.
28	e 598	Same	Bronze, 14 mm.	Same types and inscriptions. In the field, M. The exergue is "off flan." Cohen VII 447, variety of No. 45.
29	d 195	Same	Bronze, 14 mm.	Same obverse type and inscription. <i>Reverse</i> : SPES REIPUBLICE. Emperor standing facing holds globe in r. and rests l. upon a spear. In the exergue, SMNZ. Struck at Nicomedia. Cohen VII 468, No. 188.
30	d 18	Gratian, A.D. 375-83	Bronze, 22 mm.	D N GRATIANVS P F AVG. Helmeted, cuirassed bust to r. with spear and shield. <i>Reverse</i> : GLORIA ROMANORVM. Emperor and victory in galley to l. In the field, wreath. The mint letters in the exergue are obliterated. Cohen VIII 129, No. 25.
31	c 122	Arcadius, A.D. 395-408	Bronze, 18.5 mm.	D N ARCADIVS P F AVG. Diademed, draped bust to r. <i>Reverse</i> : VIRTVS EXERCITI. Emperor, with spear and shield, standing facing and being crowned by victory advancing to l. The mint mark is illegible in the photograph. Sabatier, Pl. IV 17.
32	e 348		Bronze, 13 mm.	Similar piece, but inscriptions quite illegible.
33	d 184	Probably late 4th century	Bronze, 14 mm.	Completely illegible.
34	d 2306	Same	Bronze, 9 mm.	Completely illegible.
35	d 1033	Same	Bronze, 13 mm.	Completely illegible.
36	c 3	Same	Bronze, 14 mm.	..... S P F. . Rude, draped bust to r. <i>Reverse</i> : Copy of a coin similar to No. 31. In the exergue, CONS. Barbaric imitation of a coin of Arcadius?

## C. BYZANTINE COINS

37	e 137	Justin I, A.D. 518-27	Bronze	follis, 31 mm.	D N IVSTINVS PP AVG. Diademed, draped bust of Justin I to r. <i>Reverse</i> : Large M, surmounted by a cross. On each side, star. Beneath, A. In the exergue, CON. Struck at Constantinople. B.M.C. <i>B</i> , p. 14, No. 20.
38	c 1267	Same	Bronze	follis, 31 mm.	Types and inscriptions similar to preceding. Beneath the M, Γ. Struck at Constantinople. B.M.C. <i>B</i> , p. 14, Nos. 22-23.
39	c 48	Same	Bronze	follis, 30 mm.	Types and inscriptions similar to preceding. Beneath the M, Ε. Struck at Constantinople. B.M.C. <i>B</i> , p. 14, Nos. 27-28.



40	c 1268	Same	Bronze mm.	follis, 31	Similar, but with a cross above a globe on the r. (instead of a star). Beneath the M, A or Δ. B.M.C. <i>B</i> , p. 14, No. 20 or 25.
41	c 1266	Same	Bronze mm.	follis, 36	Similar obverse type and inscription. <i>Reverse</i> : Large M, surmounted by a cross. On l., star. On r., crescent. Beneath, Δ. In the exergue, ANTIX. Struck at Antioch. B.M.C. <i>B</i> , p. 19, No. 66.
42	c 136	Justinian I, A.D. 527-65	Bronze mm.	follis, 33.5	D N IVSTNIAVS(!) PP AVGS. Diademed, draped bust to r. <i>Reverse</i> : Large M, surmounted by a cross and between two stars. Beneath, A. In the exergue, ANTIX. Struck at Antioch, A.D. 527/28. B.M.C. <i>B</i> , p. 53, variety of No. 265.
43	d 1113	Same	Bronze 28 mm.	20 nummi,	D N IVSTINIANVS PP AVG. Helmeted, cuirassed bust facing, holding globe in r. and shield in l. In r. field, cross. <i>Reverse</i> : Large K. On l., ANNO. On r. XXϣ. Beneath, ΘΛ. Struck at Antioch, A.D. 551/52. B.M.C. <i>B</i> , p. 59, variety of Nos. 320-21.
44	d 245	Tiberius II Con- stantine, A.D. 578- 82	Bronze mm.	follis, 29	D N2 TI C...NSTA... Crowned, draped bust facing. <i>Reverse</i> : Large m, surmounted by a cross. On l., ANNO. On r., ϣ. In the exergue, ϣHϣP'. Struck at Antioch in the 5th year of his consulship, A.D. 578/79. B.M.C. <i>B</i> , p. 117, No. 93.
45	d 220	Maurice Tiberius, A.D. 582-602	Bronze 21 mm.	20 nummi,	D N MAVRIC TIBER PP. Crowned, draped bust facing, holding globe with cross in r. <i>Reverse</i> : Large K, surmounted by a cross. On l., ANNO. On r., ϣ. In the exergue, A. Struck at Constantinople, A.D. 587/88. B.M.C. <i>B</i> , p. 135, No. 78.
46	c 27	Phocas, A.D. 602- 10	Bronze mm.	follis, 35	d N FOCAS PϣRP AVG. Crowned bust of the emperor facing, in consular robes, holding <i>mappa</i> in r. and scepter in l. <i>Reverse</i> : ANNO above XXXX. In the exergue, NIKOB. Struck at Nicomedia. B.M.C. <i>B</i> , p. 171, No. 73 (variety).
47	d 176	Phocas and Leon- tia, A.D. 602-10	Bronze mm.	follis, 27	d N FOCA Nϣ Pϣ AV. Phocas and Leontia standing facing. They wear crowns and long robes. The emperor holds a globe with cross, the empress a long scepter. <i>Reverse</i> : Large m, surmounted by a cross. On l., ANNO. On r., II. In the exergue, ϣHϣP. Struck at Antioch, A.D. 603/4. B.M.C. <i>B</i> , p. 175, Nos. 103-4.
48	d 61	Heraclius I, A.D. 610-41	Gold solidus, not weighed	dd	NN hϣRACLIUS ϣT hϣRA CONST PP AVG. Crowned and draped busts facing of Heraclius I and Heraclius Constantine. <i>Reverse</i> : VICTORIA AVGu ϣ. Cross potent on four steps. In r. field, N. In the exergue, CONOB. Struck at Constantinople. B.M.C. <i>B</i> , p. 187, variety of No. 22.
49	e 1610	Same	Bronze mm.	follis, 32	Inscription obliterated. Heraclius I and Heraclius Constantine, in long robes, standing facing. <i>Reverse</i> : Large M, surmounted by a cross. On l., ANNO. The date and mint name are obliterated. Restruck on a follis of Justin II, of whose types portions remain visible: on <i>obverse</i> , ... NVS P... and the upper portions of Justin and Sophia; on <i>reverse</i> , ANNO, the date ϣ II, the mint CON. For Heraclius' type cf. B.M.C. <i>B</i> , p. 197, No. 116. For Justin's type cf. B.M.C. <i>B</i> , p. 81, No. 61.

## D. SELJUK COINS

- 50 d 378 Kaikubād I, A.H. 616-34 Bronze, 21 mm. المومنين | الامام الناصر | لدين الله امير in three lines. *Reverse*: | السلطان المعظم | بسيواس | كيقباد بن كي | خسرو in four lines. Struck at Sivas. B.M.C. *O*, p. 73, No. 177. Tewhid, p. 174, No. 283.
- 51 c 4 Same Bronze, 21.5 mm. Similar to preceding, but mint name is not clear in the photograph.
- 52 c 2378 Kaikhusrau II, A.H. 634-44 Bronze, 25 mm. لا اله الا الله | محمد رسول الله in two lines. Below: ضرب بانقره | السلطان [...] ثلثين وستمائة. *Reverse*: | كيقباد بن | كيخسرو | الاعظم in four lines. Struck at Ankara, A.H. 630(+x). Tewhid, p. 224, No. 449.
- 53 c 601 Same Bronze, 25 mm. Similar. Mint name "off flan."
- 54 c 1259 Same Bronze, 23 mm. Similar. Attribution probable.
- 55 c 1343 Same Bronze, 22 mm. Similar. Attribution probable, though photograph of obverse only was sent.
- 56 c 349 Same Bronze, 25 mm. Similar, but beneath the obverse, سنة م (!). *Reverse*: ضرب بانقره (?) is obscure in the photograph. Struck at Ankara(?), A.H. 640?
- 57 e 786 Kaikā'ūs II, A.H. 644-47 Bronze, 20 mm. السلطان الاعظم عز الدنيا والدين in three lines. *Reverse*: الامام | المستعصم بالله | امير المومنين in three lines, within a square. Tewhid, p. 246, No. 503. B.M.C. *O*, p. 92, No. 244.
- 58 d 1508 Same Bronze, 20 mm. Similar to preceding.
- 59 e 349 Bronze, 11×16.5 mm. Small oblong flan, badly struck and having scattered traces of an inscription of which only له is still legible. The fabric is certainly of the Seljuk period.
- 60 e 115 Bronze, 18 mm. Six-pointed star in a circle. Around: partially illegible inscription, apparently ناصر الدين بامر... with beginning and end "off flan." *Reverse*: ... السلطان | الاعظم | . Not described in B.M.C. *O* or in Tewhid. Unpublished? The fabric appears certainly to be of the Seljuk period. No. 422 of the 1928-32 purchases by the Anatolian Expedition (unpublished) is similar but more badly worn.
- 61 c 2167 Bronze, 25 mm. Similar to preceding except that the star has eight points. The inscriptions are completely illegible, at least in the photographs sent.
- 62 e 2125 Bronze, 18 mm. Six-pointed star in the center of a hexagram surrounded by a circle. *Reverse*: ... لمر... | اما... in two lines. The fabric is of the late Seljuk period, but the types are reminiscent of the Mameluke period in Syria. Not described in B.M.C. *O* or Tewhid. Unpublished?
- 63 c 254 Bronze, 22 mm. Illegible coin. Seljuk?
- 64 c 1031 Bronze, 20 mm. Worn smooth; a large segment is broken out.
- 65 c 2032 Bronze, 16 mm. Traces of inscriptions on both sides. *Reverse*: perhaps [الاعظم] | , with end off flan. Probably a Seljuk coin.

## VII OTHER SPECIAL GROUPS OF FINDS

### SHELLS

BY PAUL GRIES

Walker Museum, The University of Chicago

Careful examination of these forms reveals the heterogeneity of the collection.<sup>1</sup> Most of the forms are recent. A few examples, species of the genera *Turritella* and *Conus* (d 84, c 1985, and e 635 in Fig. 259), are older; their imperfect state of preservation and the similarity of the different species of these genera make definite dating of the older forms impossible. It can be said only that they are from the late Tertiary or Pleistocene.

The presence of such a terrestrial form as *Helix* (d 2081 and d 2899 in Fig. 259, d 126 in Fig. 260) is also significant. The intimate association of fossil and recent marine forms with the shells of land snails and fresh-water clams (*Unio*) indicates that the collection must have been brought together from several separate sources and is not a natural, homogeneous deposit.

<sup>1</sup> [The shells found in 1931 ("d" numbers) were brought to Chicago for examination and represent a typical collection from the various cultural deposits at the mound of Alişar. Many of the shells probably were used as planes to polish wood or bone objects, others as pendants or beads. No. d 2748 (see *OIP* XXIX, Fig. 275) is a fragment of a shell ring ("Muschelring") from the deposit of the Hittite period. All the types appeared with approximately the same relative frequency in all layers except the Turkish (cf. also *OIP* XIX 72, 180-81, and 275-76; *OIP* XX 86 and 112). Most frequent were the clams of the *Unio* family and the *Nassa*. Below are listed all the shells found in 1931 or recorded in the scientific catalogues of 1930 and 1932, arranged according to the strata in which they were found. In most cases an exact attribution to either the Post-Hittite-Phrygian period or the second half of the 1st millennium B.C. is impossible.

#### CHALCOLITHIC PERIOD

Besides two unidentified gastropod fragments, used as beads (e.g., e 2134), several specimens of *Unio* and *Ostraea* were found.

#### COPPER AGE

Nos. e 516(?), d 1556, d 1593-95, d 1613, d 1677, d 2105-6, d 2134, d 2184, d 2326-28, e 635.

#### EARLY BRONZE AGE

Only a few specimens of *Unio* and *Nassa* were found. The relatively small areas of this period excavated do not permit any generalization.

#### PERIOD OF THE HITTITE EMPIRES

Nos. e 1353, d 296, d 1351, d 1374, d 1391, d 1483-84, d 1688, d 1762-63, d 1777, d 1862-63, d 1892, d 1982, d 1989, d 1994, d 2024, d 2063, d 2081, d 2094-95, d 2274, d 2284, d 2303, d 2316, d 2322, d 2339, d 2368, d 2387, d 2405, d 2433, d 2444, d 2479, d 2512, d 2532, d 2546, d 2561, d 2580, d 2585, d 2594-95, d 2600, d 2658, d 2730, d 2760, d 2785, d 2809, d 2870, d 2899-2900, d 2913, d 2922, d 2932, e 443, e 633, e 1141, e 1212, e 1364.

#### POST-HITTITE-PHRYGIAN PERIOD

Nos. e 397, d 1226, d 1232, d 1244, d 1423, d 1431-33, d 1441, d 1452-53, d 1459, d 1513a, d 1653, d 1942-43, d 2010, d 2070, d 2079-80, d 2918, e 378, e 1327, e 1752.

#### SECOND HALF OF THE FIRST MILLENNIUM B.C.

Nos. e 435, e 1985, e 2077, e 2102, d 450, d 537, d 540, d 574, d 592, d 618, d 920, d 978-79, d 1029, d 1048, d 1089, d 1144, d 1150, d 1167, d 1418.

#### ROMAN-BYZANTINE PERIOD

Nos. d 54, d 68, d 84, d 102, d 125-26, d 130, d 196, d 204, d 393, e 399, e 605.

—H. H. v. D. O.]

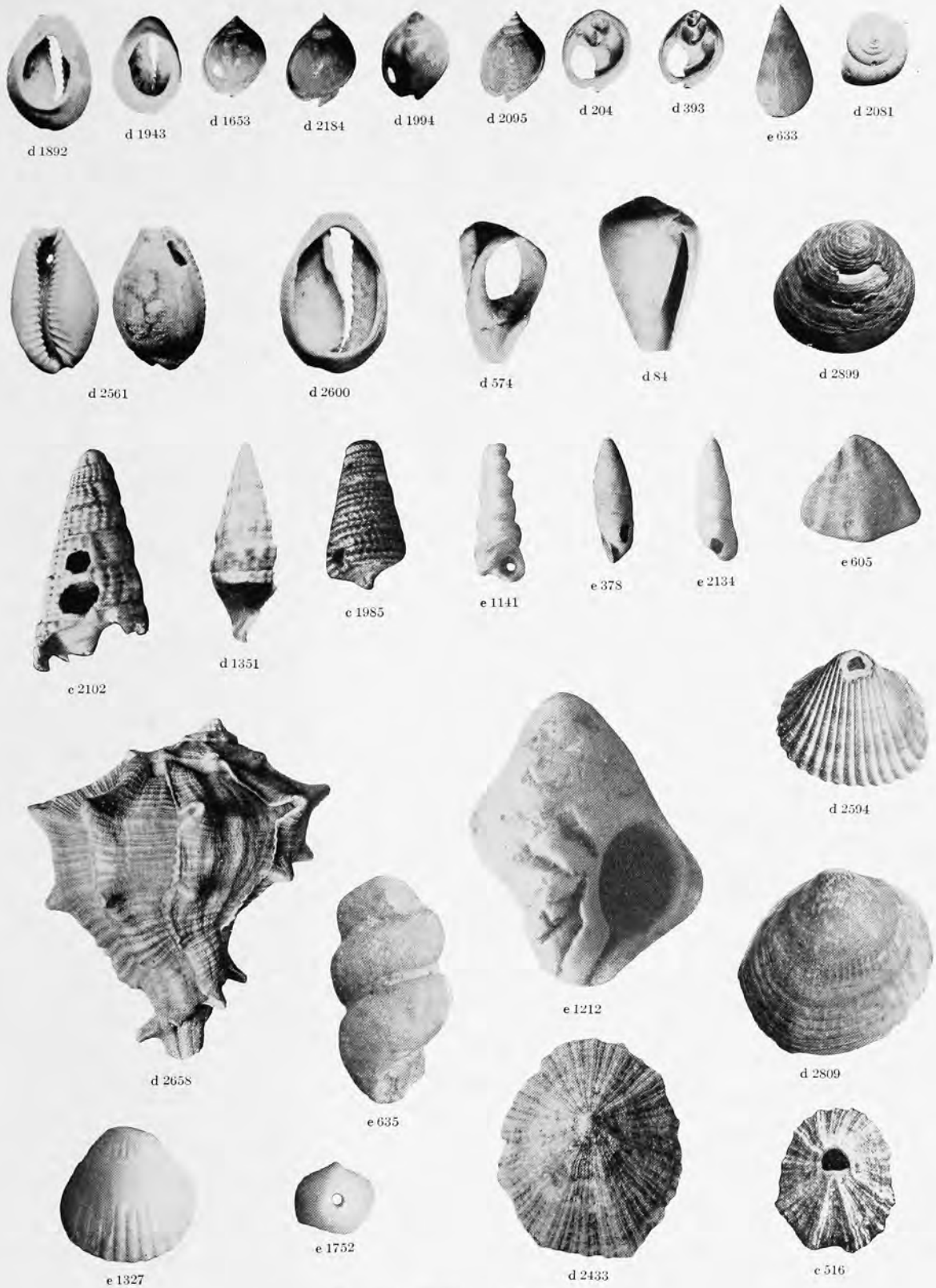


FIG. 259.—SHELLS. ACTUAL SIZE  
325





FIG. 260.—SHELLS. ACTUAL SIZE  
326

The following genera have been identified:<sup>2</sup>

- Cardium*(?): d 2594\*
- Cerithium*: d 1351\*, d 2284, d 2368
- Conus* (Tertiary): d 84\*, d 1150
- Cypraea*: d 1374, d 1892\*, d 1943\*, d 2387, d 2512, d 2561\*, d 2600\*
- Helix*, one species: d 1513a, d 1595, d 1677, d 1942, d 1982, d 2081\*, d 2585, d 2899\*; another species: d 102, d 126\*\*, d 2316, d 2580; a third species: d 1089
- Mitra*: d 2024
- Monodonta*(?): d 1391
- Monodonta tessellata*: d 2328
- Murex*: d 125, d 540, d 592, d 1484, d 2479, d 2658\*, d 2918
- Nassa*: d 204\*, d 393\*, d 537, d 920, d 979, d 1029, d 1144, d 1226, d 1232, d 1433, d 1613, d 1653\*, d 1994\*, d 2010, d 2070, d 2080, d 2095\*, d 2184\*, d 2303, d 2760, d 2932<sup>3</sup>
- Ostraea*: d 2730\*\*, d 2785\*\*
- Patella*: d 1594, d 2433\*, d 2532
- Pecten*: d 54, d 130\*\*
- Pectunculus*: d 978, d 1244, d 1763, d 1777, d 2134, d 2322, d 2327, d 2809\*, d 2922
- Spondylus*: d 2444\*\*
- Turritella* (Tertiary): d 68, d 1432, d 2900
- Unio* family, perhaps *Lampsilis*: d 196, d 296, d 450\*\*, d 618, d 1167, d 1418, d 1423, d 1431, d 1452-53, d 1459, d 1483, d 1556, d 1593, d 1688, d 1762, d 1862-63, d 2063, d 2079, d 2094\*\*, d 2105-6\*\*, d 2274, d 2326, d 2339\*\*, d 2405
- Fragments: d 574\*, d 1048, d 1441, d 1989, d 2546, d 2595, d 2870, d 2913\*\*

The following identifications have been made from photographs and must be considered as tentative only:

- Cardium* or *Glycimerus*(?): e 1327\*
- Cerithium* sp.: e 2102\*
- Cypraea* sp.: e 397, e 1364
- Glycimerus*(?): e 1752\*
- Possibly well worn *Murex*: e 605\*, e 1212\*
- Nassa* sp.: e 2077, e 399
- Nassa* or possibly *Oliva*: e 633\*
- Ostraea* sp.: e 443\*\*
- Patella* sp.: e 516\*
- Pectunculus* sp.: e 1353
- Shell of scaphopod, *Dentalium*(?): e 435
- Turritella* sp.: e 1985\*, e 635\*, e 1141\*
- Unidentified gastropods: e 378\*, e 2134\*

<sup>2</sup> Specimens marked \* appear in Fig. 259, specimens marked \*\* in Fig. 260.

<sup>3</sup> Nos. d 537, d 2070, and d 2303 have been identified by S. K. Roy of Field Museum of Natural History, Chicago.

## OBSIDIAN

BY ALBERT JOHANNSEN

Professor of Petrology, The University of Chicago

Numerous fragments of obsidian were discovered in all strata, beginning with the Chalcolithic period. After examination of a large group of such pieces two were selected as representative of the group and tested for specific gravity and refractive index. One piece was greenish and relatively opaque, the other grayish and almost transparent on its thin edges. The more opaque specimen, when examined under the microscope, was found to be full of small crystallites of iron oxide or possibly of an iron pyroxene. Apparently owing to these inclusions, its specific gravity was 2.44. The more transparent specimen, on the other hand, contained less crystallitic material and had a specific gravity of only 2.16. However, the refractive indices of both specimens were found to be exactly alike,  $1.4885 \pm .0025$ . Even the pronounced difference found in these two specimens would not prevent their occurring in the same flow, and these two pieces and presumably the others may well have come from a single source.

## WOOD

BY SAMUEL J. RECORD

Professor of Forest Products, Yale University

The material submitted for study consisted of six lots—four from the Chalcolithic period and two from the Phrygian period. Some of the samples were in a natural condition, though

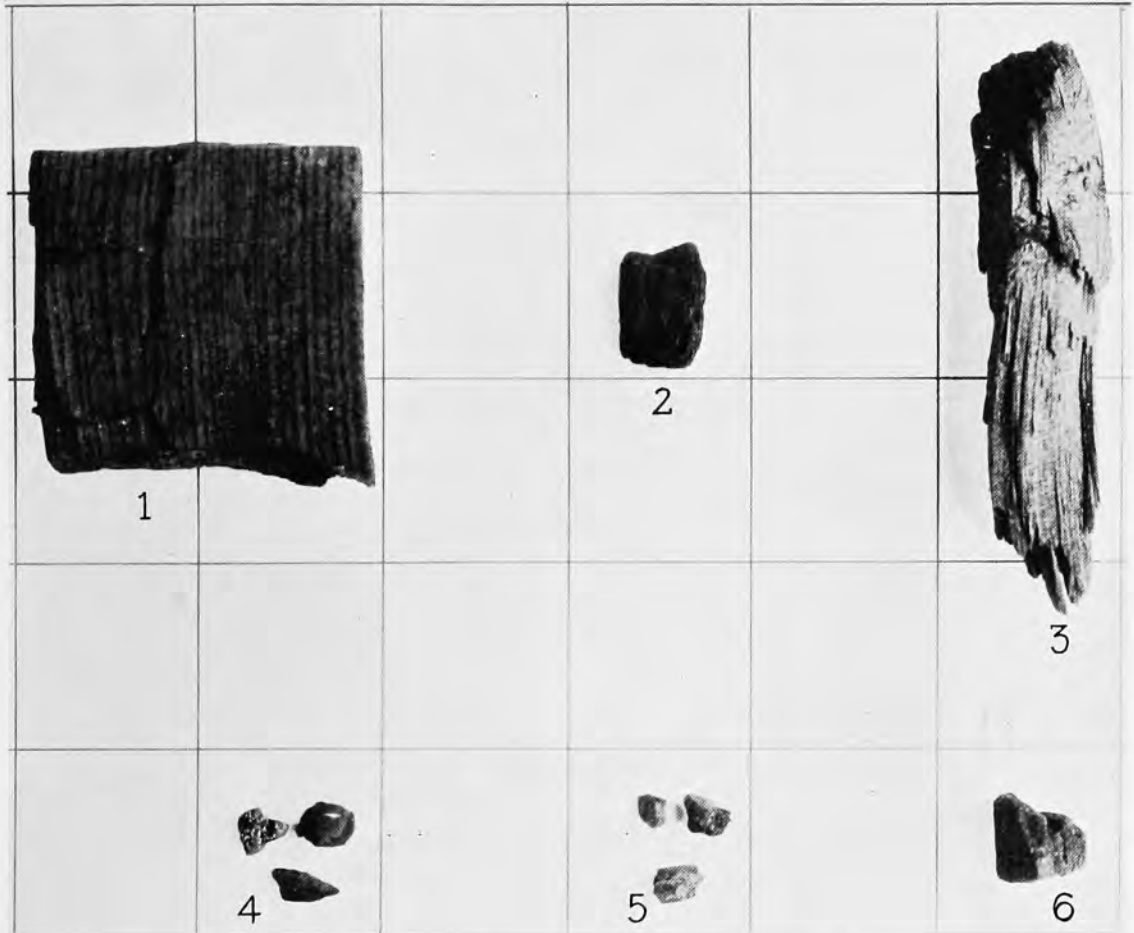


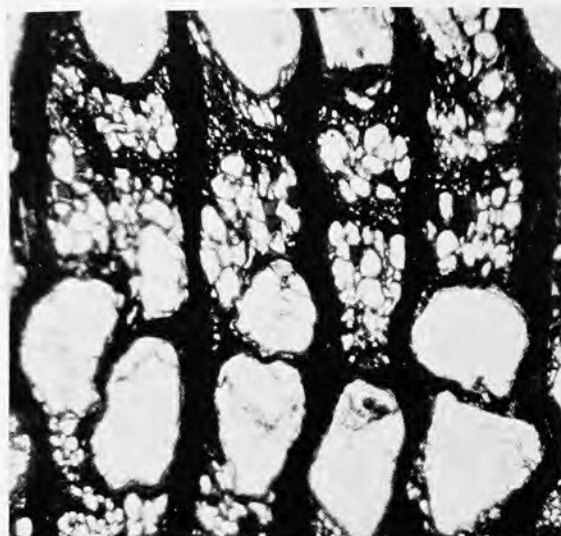
FIG. 261.—FRAGMENTS OF WOOD. 1. ELM. 2. BARK, PROBABLY OAK. 3. CYPRESS. 4. WILLOW. 5. OAK. 6. PINE. ACTUAL SIZE

affected by decay or insect attacks; the others were charcoal. All were friable and difficult to handle. Sections for microscopic study were made of several of them by Mr. Herbert F. Marco, a student in the Yale Graduate School.

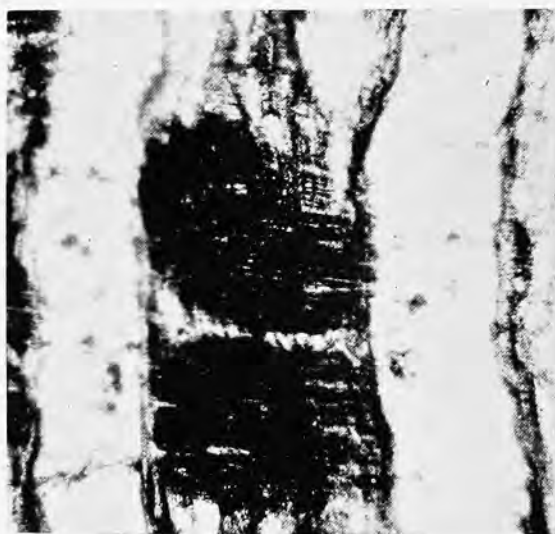
Samples marked Plot L 14, Level 16 M, from the Chalcolithic period, are 2–3 inches long and 0.5–1.5 inches thick (e.g. Fig. 261, No. 1, and Fig. 262). They are dark brown, show the gross structure fairly clearly, and are so badly decayed that pieces are easily broken off and reduced to powder between the fingers. The growth rings (about 20 per inch of radius) are distinct because of the contrast between the zone of larger pores in the early wood and the alternate layers of smaller pores and wood fibers in the late wood. The structure is typical of



elm (*Ulmus*), and the most likely species is *Ulmus campestris* L. There is also a very close resemblance to another member of the elm family, namely *Zelkova crenata* Spach., a fairly large tree of the Caucasus region and northern Persia. With fresh material it is usually not



A



B



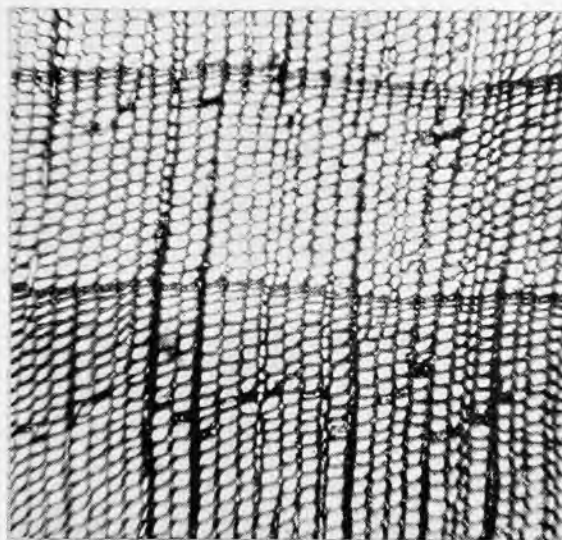
C

FIG. 262.—FRAGMENT OF ELM FROM L 14, LEVEL 14 M. A. CROSS-SECTION. B. RADIAL SECTION. C. TANGENTIAL SECTION. MAGNIFIED 115 DIAMETERS

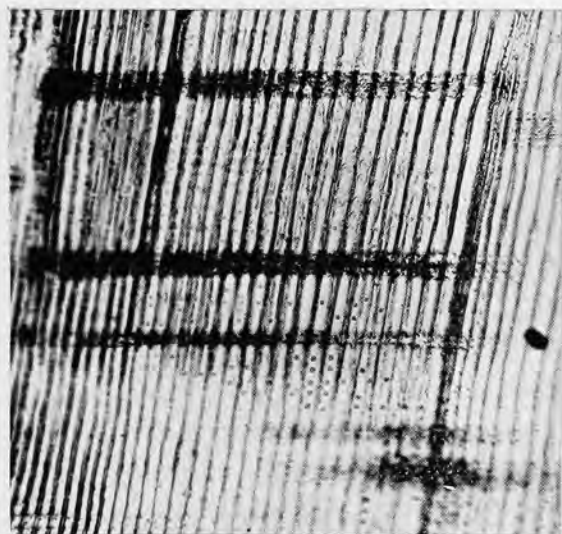
difficult to separate the woods of the two genera, but in the present instance the specimens are so badly decayed and the structure so collapsed and distorted that the distinguishing features are obscured. The fact, however, that the rays are homogeneous throughout, as in *Ulmus*, whereas in *Zelkova* they show a more or less decided tendency to heterogeneity, seems, along

with other less tangible evidence, to prove conclusively that the wood is elm. The timber of both genera is noted for its strength and toughness rather than for its durability.

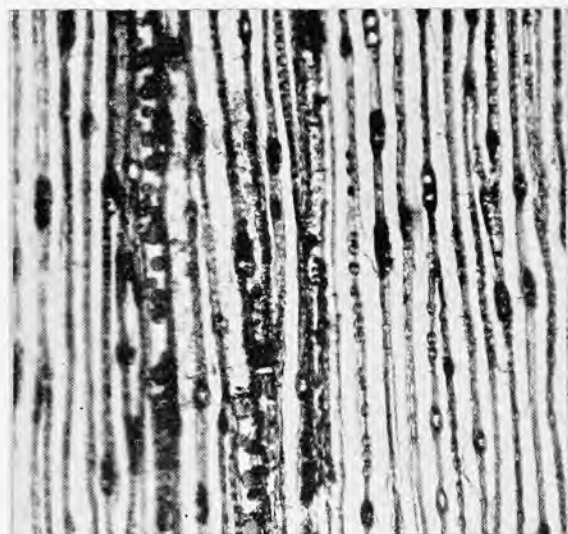
Specimens labeled Plot L 14, Level 13 M, from a wooden box burial of the Chalcolithic



A



B



C

FIG. 263.—FRAGMENT OF CYPRESS FROM L 12, LEVEL 4b M. A. CROSS-SECTION. B. RADIAL SECTION. C. TANGENTIAL SECTION. MAGNIFIED 115 DIAMETERS

period (c X10) are light and dark fragments of material in a bad state of preservation (e.g., Fig. 261, No. 2). The light-colored flakes are bark, probably the inner bark of an oak tree, as they appear to have large rays or ray gaps. The structure of the dark specimens cannot be made out distinctly enough for identification, but they may be from the outer bark of the same tree.

Samples from Plot N 13 (Phrygian) and from Plot L 15-16, Level 13 M (Chalcolithic), contained burnt grain and numerous small bits of charcoal from various kinds of woods. Among the Chalcolithic fragments were distinguished bits of pine (e.g., Fig. 261, No. 6), possibly the Aleppo pine (*Pinus halapensis* Mill., family Pinaceae), which according to Boulger was probably the *ōren* or "ash" of Isaiah 44:14 and also the *b'rōsh* or "fir" of Isaiah 37:24 etc. and "was used for flooring, ceiling, and doors in the Temple, for harps, and for ships' decks."<sup>1</sup> Among the Phrygian charcoal bits were fragments of some monocot stem, perhaps a reed, and of oak (*Quercus*, family Fagaceae) of an unrecognized species (e.g., Fig. 261, No. 5). Among the hardwoods of the north temperate zone the oaks have first rank in utility and are symbols of strength and durability.

Samples marked Plot L 12, Level 4b M, from the Phrygian period, are 2-5 inches long and upwards of an inch in diameter, obviously split off from a larger piece of mature timber.<sup>2</sup> The ends are charred and there is considerable damage by worms, but the remainder of the wood is in a good state of preservation (e.g., Fig. 261, No. 3). It separates readily into long, thin splinters, indicating a lack of cohesion between the cells—a condition confirmed by examination under the microscope (Fig. 263). The texture is fine and uniform, and the growth rings are narrow (25-35 per inch) and with only a few cells of late wood. The structure is sufficiently well preserved to permit the determination of the specimens as cypress (*Cupressus sempervirens* L., family Cupressaceae). Cypress is a well known tree of the Mediterranean region, Asia Minor, and Persia; occasional individuals attain a height of over 100 feet and a trunk diameter of 7 feet. It should not be confused with the so-called cypress (*Taxodium*) of the southern United States, which is closely related to the redwood (*Sequoia*), whereas the true cypress belongs to the general category of cedars. Its reddish, fragrant, easily worked, and highly durable timber has been highly esteemed from time immemorial. Boulger says that it was "used by the ancient Egyptians for mummy cases; for the coffins of the Popes; in Assyria and in Crete for shipbuilding; for the gates of Constantinople destroyed by the Turks in 1453, eleven hundred years after their construction; and for the doors of St. Peter's, which were quite sound when replaced, about the same time and after a similar duration, by brass," and was perhaps the *tirzah* of Isaiah 44:14.<sup>3</sup>

A fourth sample from the Chalcolithic period contained ashes and some sizable particles of charcoal. The structure of the charcoal is well preserved and makes it easy to recognize the original source as willow (*Salix*, family Salicaceae), all of the samples examined being the same (e.g., Fig. 261, No. 4). It is not possible, however, to name the species. Willow wood is similar to that of poplar (*Populus*), to which it is closely related, but the presence of upright or square cells along the margins of the rays in the former and their absence in the latter permits separation wherever the feature can be observed. Willow wood is of fine and uniform texture and is comparatively tough and strong for its weight, but perishable where conditions are favorable for decay. It makes an excellent grade of charcoal for domestic and smelting purposes and for use in the manufacture of black gunpowder.

<sup>1</sup> G. S. Boulger, *Wood* (London, 1908) p. 242.

<sup>2</sup> [Part of a roof support; cf. *OIP* XXIX, Fig. 343.—H. H. v. D. O.]

<sup>3</sup> Boulger, *op. cit.* p. 165.

## GRAINS

United States Department of Agriculture  
Bureau of Plant Industry, Washington

With reference to the barleys found in your samples [from the Alişar mound]<sup>1</sup> they seem to be confined entirely to the later [Post-Hittite-Phrygian] period, [about] 1200-700 B.C. I would say that they are mostly two-rowed but include some six-rowed types, both lax and dense. They are, so far as I could tell, all covered barleys. There were no kernels that one could be sure were naked. It is impossible to tell from the samples whether or not they were comparable to the varieties now grown. In Egyptian material where spikes have been available, they were often the counterparts of types still found in Egypt.

H. V. HARLAN  
*Principal Agronomist in Charge,  
Barley Investigations*

United States Department of Agriculture  
Bureau of Plant Industry, Washington

Dr. Harlan has asked me to look at a sample of wheat . . . of the Chalcolithic period [at the Alişar mound].<sup>2</sup> The kernels of this sample appear to belong to the common or bread wheat group and resemble closely those of the Indian dwarf wheat grown in India and Persia which has been designated by Percival as *Triticum sphaerococcum*.<sup>3</sup> This wheat is closely related to and crosses readily with *T. vulgare* Vill. and *T. compactum* Host. The kernels are also similar to Buschan's *T. compactum globiforme*, which was grown in various parts of Europe in Neolithic times. [P. M.] Zhukovsky states that *T. sphaerococcum* is not found in Anatolia at the present time.<sup>4</sup>

B. B. BAYLES  
*Associate Agronomist in  
Wheat Investigations*

United States Department of Agriculture  
Bureau of Plant Industry, Washington

With reference to the prehistoric seeds from the Alişar excavation, I will say that Dr. Rodenhiser examined the wheat specimen [Chalcolithic] and Dr. Tapke and I examined the barley specimen [Post-Hittite-Phrygian].

On both samples we found what seemed clearly to be the spores of a fungus. These spores resembled very closely smut spores, but it was not possible to make specific identification as the spores could not be germinated and their walls were rather badly corroded in most cases.

A. G. JOHNSON, *Principal Pathologist,  
Division of Cereal Crops & Diseases*

<sup>1</sup> [From L 12, Level 4b M, found in vessel c 1880; see OIP XXIX 389.—H. H. v. D. O.]

<sup>2</sup> [From L 15, Level 13 M; see OIP XXVIII 44.—H. H. v. D. O.]


<sup>3</sup> [John Percival, *The Wheat Plant* (London, 1921) pp. 157 and 321-24.]

<sup>4</sup> *La Turquie agricole (partie asiatique—Anatolie)* [(Moscou et Leningrad, 1933) p. 804].



## CHALCOLITHIC TEXTILE FRAGMENTS

Several textile fragments, some attached to leather and others to the jawbone, were photographed;<sup>1</sup> all were in very fragile condition. In fact, the only piece which I have had the opportunity to examine had decomposed and crumbled considerably since the photograph (*OIP* XXVIII Fig. 60 *B*) was taken. The diagonal stretching of the cloth makes weave analysis difficult, but I believe the following information to be accurate.

The threads were tightly spun from the left to the right  and vary in diameter from  $\frac{1}{3}$  to  $\frac{3}{4}$  of a millimeter. As no selvage has been saved, warp and weft cannot be differentiated. It is an amazing discovery to find that a plain simple twill weave,<sup>2</sup> over one thread and under two, was used rather than the plain weave; but this complicated method would correspond well with the rather sophisticated pottery found in the same plot and belonging to the same period. The textile is closely woven and well beaten together, giving a firm texture; and on account of the tightly spun thread it is not at all matted or felted.

JULIE MICHELET FOGELBERG

The specimen sent for examination<sup>3</sup> is uniformly dark and brownish in color and is of irregular shape. It measures approximately  $2.5 \times 1.75$  cm. in area and about 1 to 3 mm. in thickness. Two fairly distinct layers may be seen—one of less area, which under low magnification shows a pattern of interwoven threads crossing nearly at right angles, and a larger, somewhat thinner layer without obvious pattern or design. At irregular intervals upon this larger layer are small (0.1–0.5 mm.), whitish, spheroidal masses, reminiscent of exfoliations seen upon the walls of damp cellars. These are nearly insoluble in distilled water after one hour of immersion. They do not seem to have any essential relationship to the fabric. Some of this larger layer, teased out in water and examined under the microscope, reveals no detectable remains of diatoms or protozoa but merely dark, amorphous material in which are many small, colorless grains which do not exhibit structure or polarity with polarized light or by dark field illumination. It is quite probable that these are dust particles. The remainder of the material comprising this larger layer is also without structure but seems to be a continuum of indeterminate nature.

The smaller, fabric layer, examined with a magnification of 50 diameters and overhead illumination, shows a raised, interwoven pattern of dark, brownish threads, with amorphous matter in the interstices. The latter is probably dust, inasmuch as it lacks apparent structure, geometric shape, and optical activity when viewed by polarized light or by dark field illumination. Some of this fabric layer, teased out in a drop of water or, better, glycerin upon a glass slide and pressed out gently by a cover glass, is found to be extremely friable and fragile. It falls apart into small fragments, among which are a very few strands, 0.3–0.6 mm. in diameter, made up of a few twisted fibers; a much greater number of bits of fiber, some dark brown in color and some yellowish, each of quite uniform diameter; and the amorphous grains mentioned above. The colored fibers do not give up their color to distilled water or glycerin. The twisted strands are apparently made up of individual fibers which agree in their widths with the bits of single fiber. Most of these bits of fiber are rather less than 1 mm. in length, suggesting again the extremely friable condition of this particular specimen.

<sup>1</sup> [From the Chalcolithic burial c X14; cf. *OIP* XXVIII 44 and 51 and Figs. 58 and 60. With burials c X13 and c X16, also of the Chalcolithic period, traces of textile fabrics were found which deteriorated immediately when exposed; cf. *OIP* XXVIII 44. In burial d X31 of the Roman-Byzantine period an imprint of cloth was discernible when the skeleton was first cleaned, but disappeared before a photograph could be taken; cf. p. 152. That woven fabrics were known in all the cultural periods of Alishar is evident from the finding of large pins on the shoulders of skeletons, especially of the Copper Age and the Hittite period, and the presence of fibulae in the deposits of the Post-Hittite-Phrygian and later periods.—H. H. v. d. O.]

<sup>2</sup> Nancy Andrews Reath, *The Weaves of Hand-Loom Fabrics* (Philadelphia: The Pennsylvania Museum, 1927).

<sup>3</sup> [From same source as the piece furnished to Mrs. Fogelberg.]

The identification of these fibers constitutes the major problem of this investigation. The procedure used is simple. After the material is pressed out between cover glass and slide the outlines of individual fibers are drawn with a camera lucida, under a magnification of exactly 200 diameters, upon white paper with a sharp-pointed pencil. Then, without disturbing the optical system, the divisions of a Zeiss stage micrometer (each 0.01 mm.) are drawn upon the paper. The scale is therefore available for fairly precise measurement of the fibers. Use of dividers makes a comparison of the width of the fibers with the scale a very simple and direct matter.

The fibers, which seem to have no distinctive markings, are divisible into two categories: those which are dark and brownish in color and those which are yellowish. No fibers intermediate in color between these two were observed, but no conclusion was drawn as to the significance of this difference in appearance. Of the brownish fibers, eleven were carefully drawn and measured. Their diameters varied between 0.007 and 0.017 mm. Of the yellowish fibers, ten were measured. Their diameters varied from 0.009 to 0.014 mm. All of these fibers were practically isodiametric—that is, their sides were parallel throughout except at the tips, which were often somewhat irregularly broken, due probably to manipulation in the preparation of the specimens for examination. The average diameter of all the fibers was found to be 0.011 mm. For comparison, fibers taken from Egyptian mummy cloth of the 5th–6th dynasty, obtained through the courtesy of Dr. Watson Boyes of the Oriental Institute Museum, were measured under the same conditions, using the same technique. These fibers were flax. Twenty-six individual fibers were subjected to measurement. They varied in diameter from 0.009 mm. to 0.027 mm.; the average was found to be 0.012 mm. This is in close agreement with that of the Chalcolithic fibers from Alişar.

The question arises: Do these measurements furnish reasonable grounds for identification of the fragments of this Chalcolithic material as made up largely of plant fibers? It is freely admitted that small fragments, most of them rather less than 1 mm. in length, are less convincing in themselves than the very long fibers so readily obtainable from the mummy cloth. However, two twisted filaments were obtained from the Chalcolithic fabric which were clearly made up of fibers similar to those obtained from the mummy cloth. These would appear to be fairly convincing and, considering the extremely fragile state of the fabric, the best evidence possible through microscopic examination. Macroscopically the evidence is clearer, because the weave can be made out. Next arises the possibility of more than one kind of fiber being present. None other than those described was found. Finally, are these fibers flax? The evidence of history is that flax is indigenous in the region where this piece of textile was found. The evidence of the microscope—size, variation in diameter among individual fibers, and the uniform width of each individual fiber—would lead to the conclusion that there is nothing against, and much for, the belief that these fibers are indeed flax, and therefore that this fabric is linen, at least in those parts which show so clearly the structure of cloth.

To summarize: Macroscopic and microscopic examination of filaments and fibers teased out from a piece of textile fabric of the Chalcolithic period indicates that the material is linen, without admixture of plant fibers other than flax. In size these fibers agree closely with corresponding fibers teased out from mummy cloth of the 5th–6th dynasty of Egypt, examined under parallel conditions. Under the microscope some of the fibers of the Chalcolithic fabric are dark and brownish in color and others yellowish. They occur in about equal numbers. The origin and the significance of their difference in color are not revealed by these observations.

ARTHUR ISAAC KENDALL  
*Professor at Northwestern University*  
*Department of Research Bacteriology*

## THE ALISHAR HÜYÜK, 1930-32

## ANALYSES OF POTTERY

By SMITH, RUDY &amp; COMPANY

Philadelphia<sup>1</sup>

We are reporting in Table IX complete analyses of the base clay of the twenty-three samples of pottery recently submitted. We have noted the following physical characteristics of the

TABLE IX  
ANALYSES OF THE BASE CLAY OF ALIŞAR POTTERY FRAGMENTS\*

	CHALCOLITHIC AGE						
	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 7
Loss on ignition	12.83	15.17	16.66	8.27	15.67	13.27	9.58
Silica	48.86	46.12	41.88	51.88	44.08	46.74	50.60
Alumina	7.38	7.02	8.06	8.72	8.72	12.48	14.04
Iron oxide	5.96	8.05	5.55	9.68	5.57	4.53	6.71
Titanium dioxide	.80	.55	.65	.80	.65	.63	.85
Lime (CaO)	14.20	13.06	19.10	10.61	16.03	12.28	10.14
Magnesia (MgO)	1.75	3.31	1.78	2.09	2.79	2.66	1.77
Alkalies	7.72	6.35	6.15	7.73	6.20	7.20	6.17
Sulphur trioxide	.50	.37	.17	.22	.29	.21	.14
Fusing point	2170	2200	2200	2190	2170	2180	2190

	COPPER AGE			EARLY BRONZE AGE			
	No. 8	No. 9	No. 10	No. 11	No. 12	No. 13	No. 14
Loss on ignition	16.21	17.00	11.86	2.56	5.43	5.90	1.27
Silica	45.20	42.37	42.48	68.42	59.90	59.70	63.54
Alumina	8.31	4.22	13.84	5.70	14.84	9.71	15.77
Iron oxide	5.49	8.60	5.76	15.51	6.49	8.39	8.60
Titanium dioxide	.65	.50	.40	.72	.55	.73	.68
Lime (CaO)	19.26	20.13	16.05	.98	7.42	9.75	1.26
Magnesia (MgO)	1.43	1.36	1.98	.77	1.61	1.57	1.32
Alkalies	3.38	4.76	7.20	5.24	3.67	4.14	7.54
Sulphur trioxide	.07	.06	.43	.10	.09	.11	.02
Fusing point	2257	2284	2180	2518	2293	2257	2503

	PERIOD OF THE HITTITE EMPIRES		POST-HITTITE-PHYRGIAN PERIOD			SECOND HALF OF FIRST MILLENNIUM B.C.		ROMAN-BYZANTINE PERIOD	
	No. 15	No. 16	No. 17	No. 18	No. 19	No. 20	No. 21	No. 22	No. 23
Loss on ignition	17.85	16.40	3.63	5.99	2.94	17.59	2.08	2.42	2.86
Silica	41.80	41.80	57.73	55.68	46.80	39.36	67.26	59.06	47.62
Alumina	6.06	5.58	17.08	14.38	12.78	9.22	13.06	12.67	16.00
Iron oxide	6.86	9.32	4.33	4.29	9.75	5.40	6.35	11.23	13.31
Titanium dioxide	.58	.52	.59	.57	.72	.45	.63	.75	.75
Lime (CaO)	21.08	20.28	9.34	10.93	12.81	21.34	2.65	8.44	14.81
Magnesia (MgO)	.98	1.17	1.51	1.00	9.59	1.84	1.19	1.93	1.96
Alkalies	4.58	4.69	5.58	6.99	4.43	4.52	6.66	3.38	2.59
Sulphur trioxide	.21	.24	.21	.17	.18	.28	.12	.12	.10
Fusing point	2320	2231	2231	2190	2180	2239	2410	2210	2221

\* The fusing point is given in degrees Fahrenheit. All other figures represent percentages.

several samples. Wherever possible, analyses of the slips were made; where no such analysis is shown, it was not possible to obtain a sufficient sample.

<sup>1</sup> [I am indebted to Professor E. A. Speiser and Miss D. Cross of the University of Pennsylvania for their advice and assistance in obtaining these analyses.—H. H. V. D. O.]

## CHALCOLITHIC AGE

- No. 1. Surface solid black. Color has penetrated the base clay almost to the back.<sup>2</sup> No vitrification. Base clay has large pieces of quartz and gravel in it. No color change in burning of base clay. Black color burns to a buff color. [Black-slipped ware; cf. *OIP* XXVIII 52 and 54 and Pl. I 7.]<sup>3</sup>
- No. 2. Surface solid black. Deposit on back of specimen. No vitrification. Black color completely through clay. Burns to a buff color. [Same ware as No. 1.]
- No. 3. Surface red-brown. Thin slip, has not penetrated clay. Base clay carbonaceous. Burns to a buff color. Slip contains 12.00 per cent of iron oxide. [Ware with dark red slip; cf. *OIP* XXVIII 52 and 54 and Pl. II 4.]
- No. 4. Thin section on face and back decarburized. Center portion very carbonaceous. Burns to a clear brown. [Ware with grayish buff slip; cf. *OIP* XXVIII 52 and 54 and Pl. I 3.]
- No. 5. Surface black, unwashed. Decarburized on surface. Carbonaceous clay. Burns to a light greenish color. [Wet-smoothed ware; cf. *OIP* XXVIII 52 and 54 and Pl. I 1.]
- No. 6. Solid black color. Thin section on back decarburized. No vitrification. Burns to a clear brown. [Black-slipped fine ware; cf. *OIP* XXVIII 52.]
- No. 7. Slip on face colored reddish brown. Back colored black. Very carbonaceous clay. Has been decarburized on face. No vitrification. Pieces of quartz in clay. Burns to a gray color. Slip contains 2.40 per cent of iron oxide. [Yellowish red slip on inside, black slip on outside.]

## COPPER AGE

- No. 8. Face and back red. No vitrification. Burns to light gray color. Slip contains 6.43 per cent of iron oxide. [Ware with rich red slip; cf. *OIP* XXVIII 152 and Pl. III 1-2.]
- No. 9. Face and back red. No vitrification. Burns to a buff color. Slip contains 9.63 per cent of iron oxide. [Same ware as No. 8.]
- No. 10. Surface buff. Small amount of slip of reddish brown. Base clay buff; contains some quartz and gravel. Burns to a lighter buff. [Buff slip with dark red design (Troy II ware); cf. *OIP* XXVIII 158 and Pl. IV 7.]

## EARLY BRONZE AGE

- No. 11. Red clay with dark red lines. No vitrification. Burns to a deep red. Slip contains 5.14 per cent of iron oxide. [Reddish buff slip with design in purplish brown (intermediate ware); cf. *OIP* XXVIII 230 and 236 and Pl. IV 8.]
- No. 12. Solid black with red lines and black dots. No vitrification. No color change on burning. Slip contains 16.86 per cent of iron oxide and 12.08 per cent of manganese oxide. [Buff slip with design in brownish black and brownish red (typical Early Bronze Age ware); cf. *OIP* XXVIII 230 and 240 and Pl. VI 1 and 4.]
- No. 13. Red surface with black lines. No vitrification. No color change on burning. Slip contains 1.90 per cent of iron oxide and .76 per cent of manganese oxide. [Reddish buff slip with design in brownish black (same ware as No. 12); cf. *OIP* XXVIII 230 and 240 and Pl. V 1.]
- No. 14. Base clay red. No vitrification. No color change on burning. Slip contains 3.45 per cent of iron oxide. [Reddish buff slip with design in brownish black (similar to ware from Kültepe); cf. *OIP* XXVIII 230 and 240 and Pl. V 5.]

## PERIOD OF THE HITTITE EMPIRES

- No. 15. Solid color. No washing. Decarburized on surface. Burns buff. [Buff wet-smoothed ware; cf. *OIP* XXIX 110 f. and (for color of surface) Pl. I 2.]
- No. 16. Face red. Slightly decarburized on surface. Burns buff. Slip contains 12.14 per cent of iron oxide. [Ware with yellowish red slip; cf. *OIP* XXIX 111 and Pl. I 7.]

## POST-HITTITE-PHRYGIAN PERIOD

- No. 17. Face same color as base clay. Lines dark brown. No vitrification. Burns buff. Slip contains 2.34 per cent of iron oxide and 1.32 per cent of manganese oxide. [Buff slip with design in blackish brown; cf. *OIP* XXIX 350 and Pl. III 2.]

<sup>2</sup>[On the method by which black ware was produced see A. Lucas, *Ancient Egyptian Materials & Industries* (2d ed.; London, 1934) pp. 320-32.—H. H. v. D. O.]

<sup>3</sup>[The additions in brackets give the terminology for the types concerned as used elsewhere in *OIP* XXVIII-XXX.—H. H. v. D. O.]



- No. 18. Face same color as base clay. Lines dark brown. No vitrification. No color change on burning. Slip contains 8.46 per cent of iron oxide and 5.35 per cent of manganese oxide. [Reddish buff slip with design in reddish brown; cf. *OIP* XXIX 350 and Pl. II 3-4.]
- No. 19. Completely vitrified. No color change on burning. Slip contains 12.86 per cent of iron oxide. [Buff slip with design in reddish brown; cf. *OIP* XXIX 350-51 and Pl. III 8.]

# SECOND HALF OF THE FIRST MILLENNIUM B.C.

- No. 20. Face same color as base clay. No vitrification. Burns to a buff color. Slip contains 4.60 per cent of iron oxide. [Buff ware with buff slip, similar in color to *OIP* XXX, Pl. IV 7.]
- No. 21. Face red. Lines brown. No vitrification. Burns red. Slip contains 7.89 per cent of iron oxide and 1.78 per cent of manganese oxide. [Reddish slip with creamy white panel and brownish red design; "Galatian."]

# ROMAN-BYZANTINE PERIOD

- No. 22. Color light red and dark brown. Completely vitrified. No color change on burning. Slip contains 3.20 per cent of iron oxide. [Fine red-"glazed" ware; cf. p. 160 and Pl. VII 6-8 and 10.]
- No. 23. Face and back red. Completely vitrified. No change on burning. Slip contains 4.23 per cent of iron oxide. [Same ware as No. 22.]

# ANALYSES OF COPPER AND BRONZE OBJECTS

Copper or bronze objects from various levels at Alishar have been analyzed under the supervision of Professor Cecil H. Desch, of the committee which investigated Sumerian copper for the British Association for the Advancement of Science, and of Professor Julius Stieglitz, late chairman of the Department of Chemistry at the University of Chicago. One pin, from the 1927 excavations, was analyzed by Dr. Walter Goebel, of the Rockefeller Institute, New York.

# PIN ANALYZED BY DR. GOEBEL

Find-Spot	Period	Copper	Tin
With skeleton 3202 (X <sub>3</sub> in Plot IX) . . . . .	Copper Age	89.4	10.6

# PINS ANALYZED UNDER THE SUPERVISION OF PROFESSOR STIEGLITZ\*

Field Number	Period	Amount Used (Grams)	Copper	Tin	Iron	Lead
e 523 . . . . .	Chalcolithic	0.4452	94.87	0.37		trace
e 2465† . . . . .	Chalcolithic	.2026	94.34	2.49	0.35	
b 381‡ . . . . .	Copper Age		94.44	0.49		trace
e 1081 . . . . .	Copper Age	.1473	96.80	1.82§		
e 1082† . . . . .	Copper Age	.3655	91.81	3.33	0.61	
e 1754 . . . . .	Early Bronze Age	.2320	88.52		3.95	
e 1997 . . . . .	Early Bronze Age	.1746	98.64	1.31§		
e 113 . . . . .	Hittite	.1372	97.60		1.58	
e 176 . . . . .	Hittite	.2190	95.74		1.21	
e 1325 . . . . .	Hittite	.1734	97.35	trace		0.57
e 1584 . . . . .	Post-Hittite-Phrygian	0.1744	98.02	trace		
b 528‡ . . . . .	Phrygian or later		93.23	0.36		trace

\* Analyses made by Kenneth N. Campbell under the direction of W. E. Vaughn.

† A later analysis by E. L. Haenisch showed for Nos. e 2465 and e 1082 a tin content of 2.3 per cent and 3.7 per cent respectively.

‡ Zinc was the only other metal detected in a qualitative analysis. A very faint trace of lead was discovered electrolytically.

§ Upper limits.

On Nos. b 381 and b 528 Professor Stieglitz commented: "Neither of the specimens is a 'bronze' in the common or at least modern sense of the term; the per cent of tin is very low. It may be that these nails are made from a native ore."

Of the specimens obtained in 1930 he remarked: "I wanted to be quite certain as to the amount of tin present in the nails showing the highest content of tin, namely Nos. c 1082 and c 2465. I am certain now, since Mr. Haenisch has repeated the work very carefully, that the results are quite reliable. The amounts of tin in Nos. c 1997 and c 1081 are maximum amounts . . . , but even at the upper limits there seems to me to be so small a quantity that deliberate addition of tin to form a bronze is out of the question."

OBJECTS ANALYZED UNDER THE SUPERVISION  
OF PROFESSOR DESCH

Field Number	Period	Copper	Tin	Nickel	Arsenic	Lead	Other Materials
e 1554 . . . . .	Chalcolithic	55.08			2.43		2.75 sulphur
e 1801 . . . . .	Chalcolithic	59.23	6.05	0.06	0.29	0.25	
e 2058 . . . . .	Chalcolithic	17.78			trace		(impregnated earth)
e 480 . . . . .	Copper Age	55.75					sulphur and earth
e 700* . . . . .	Copper Age	58.12	4.82	0.04	0.14	1.22	
e 832 . . . . .	Copper Age	85.29	0.22	trace	0.05	trace	some slag
e 833* . . . . .	Copper Age	61.36	10.8	0.51	0.03		
e 860 . . . . .	Copper Age	46.41	7.16	trace	0.11	2.13	sulphur
e 936 . . . . .	Copper Age	51.78	8.19	0.07	0.06	0.81	
e 962 . . . . .	Copper Age	43.09	0.97	trace			some sulphur
e 963* . . . . .	Copper Age	60.52	0.76	trace	0.11	0.40	much sulphur

\* Published in Cecil H. Desch, "Sumerian copper; fifth interim report of committee appointed to report on the probable sources of the supply of copper used by the Sumerians," in *British Association for the Advancement of Science, Report, 1933*, pp. 302-5.

Professor Desch comments: "The analyses do not add up to 100, as the specimens were much oxidised. The difference represents oxygen, carbon dioxide, etc. All metallic constituents have been looked for."

On the method by which the small objects were manufactured Professor Desch has expressed the following opinion:

The specimens received were completely corroded, so that there was no metal which could be examined under the microscope. I think, however, that it is safe to say that the small objects which still retain their shape well were forged. This applies to the bracelet No. e 833, the earring No. e 1580,<sup>1</sup> and the fragment of square section No. e 1698.<sup>1</sup> Most of the others were completely used up in the course of the analysis. These small objects, however, were almost certainly made of cast bars hammered or twisted into shape. Specimens from Ur and elsewhere when found in such a condition that a large part of the metal is preserved show distinct traces of hammering. I do not think it at all likely that very small objects would be cast. It is more likely that the metal was first run into a simple form such as a bar, and then worked up later.

<sup>1</sup> Not analyzed.

## GLASS

BY CHRISTINE ALEXANDER

Associate Curator of Greek and Roman Art, The Metropolitan Museum of Art, New York

Many bases, rims, handles, and other fragments of glassware from Levels 2 and 3 T (middle of 1st to 6th century after Christ) were examined.<sup>1</sup> Among them were:

1. Fragmentary alabastron of opaque glass with dragged pattern (Fig. 264 1); Hellenistic type.<sup>2</sup>
2. Portion of the rim of a bowl of ribbed ware, originally about 14.6 cm. in diameter; greenish (Fig. 264 2).<sup>3</sup>  
Two other fragments of the same ware were examined.
3. Portion of the rim of a beaker, originally about 7.6 cm. in diameter; engraved lines running around it; greenish yellow (Fig. 264 3).
4. Portion of the rim of a beaker with slightly flaring lip, originally about 8.9 cm. in diameter; raised lines running around it; uncolored (Fig. 264 4).
5. Flaring rims of cups, green (Fig. 264 5) and uncolored (Fig. 264 6-7).
6. Portions of offset rim and base of a dish or dishes, originally about 20.3 cm. in diameter; bluish green. (Not illustrated.)
7. Neck of small bottle, uncolored (Fig. 264 8).<sup>4</sup>
8. Necks of two small bottles with flaring lips, one green (Fig. 264 9), one uncolored (Fig. 264 10).
9. Offset feet of cups and jugs, with and without stems, 3.2 cm. to 4.4 cm. in diameter; amber, green, yellow-green, and uncolored (e.g., Fig. 265 1-3).
10. Lower portions of bottles, three uncolored (Fig. 265 4-6), one black (Fig. 265 7).<sup>5</sup>
11. Lower portion of a flattened round bottle (Fig. 265 8).
12. Bases of vessels with no offset, raised in the center; uncolored. (Not illustrated.)
13. Handle, 7 cm. high; green (Fig. 265 9).<sup>6</sup>
14. Fragmentary handles (Figs. 265 10-14 and 266 1-4).<sup>7</sup>
15. Fragments of handles: of black glass, spirally twisted (Fig. 266 5); decorated with green and yellow spiral rods (Fig. 266 6-7); of brown glass with green knobs (Fig. 266 8); of dark blue glass (Fig. 266 9-10).
16. Curved tube, 1.3 cm. in diameter (Fig. 266 11).
17. Plate (window?) glass. One fragment 8.2 cm. long and 0.5 cm. thick; three edges are fractures, the fourth is the rounded edge formed when the glass was poured; slightly yellow-green. Another fragment 6.8 cm. long and 0.8 cm. thick; slightly blue-green. (Not illustrated.)
18. Fragment, blue, with fern pattern (Fig. 266 12).<sup>8</sup>
19. Pendants, one yellow with blue and white decoration (Fig. 266 13), one white with blue and yellow decoration (Fig. 266 14).

The following specimens are evidence of a local glass factory:<sup>9</sup>

1. Broken quartz pebbles (e.g., Fig. 267 3-4). Such pebbles, when ground, afforded silica in a purer form than could be obtained from sand, free from the iron which lends a greenish tinge to glass.<sup>10</sup>
2. Lump of blue copper frit (Fig. 267 5). A small fragment of glass colored with such frit was observed.
3. Piece of purple frit (manganese or other metal oxide) cast in a runlet (Fig. 267 6).
4. Lump of frothy scum from a crucible of smelted glass,<sup>11</sup> amber in color (Fig. 267 1).
5. Fractured lumps of unworked, blackish glass (e.g., Fig. 267 2).
6. Cane of black glass, 0.3 cm. in diameter; broken at one end, slightly bent at the other (Fig. 267 7). Perhaps used in the manufacture of glass vessels, though it could equally well be one of the dipping or stirring rods commonly found in tombs.

<sup>1</sup> With the exception of No. 1 all the pieces submitted for this study were glass fragments found in 1932, which are representative for the glass objects found in the other campaigns.

<sup>2</sup> OIP XX, Fig. 155. Cf. Robert Zahn, *Sammlung Baurat Schiller* (Berlin, 1929) No. 169.

<sup>3</sup> Cf. A. Kisa, *Das Glas im Altertum* (Leipzig, 1908) I, Fig. 42.

<sup>4</sup> Cf. *ibid.* III, Formentafel B 77 ff.

<sup>5</sup> Cf. *ibid.* III, Formentafel A 52-53, B 113 and 122.

<sup>7</sup> Cf. *ibid.* Nos. 29, 31, and 45, also Fig. 156, Nos. 1 and 7.

<sup>6</sup> Cf. *ibid.* II, Fig. 157, No. 32.

<sup>8</sup> Cf. Zahn, *op. cit.* p. 16.

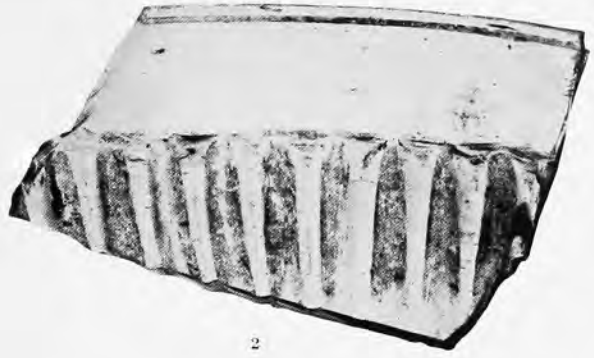
<sup>9</sup> For the preparation of glass in ancient times cf. Kisa, *op. cit.* I 3 ff.

<sup>10</sup> W. M. Flinders Petrie, *Tell el Amarna* (London, 1894) p. 25.

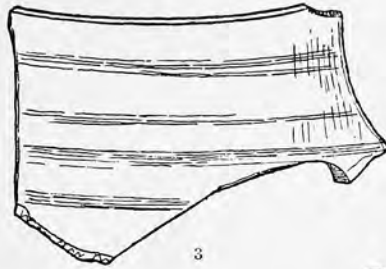
<sup>11</sup> *Ibid.* p. 26.



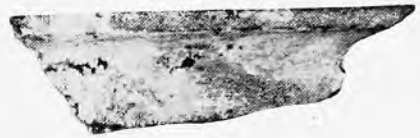
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2



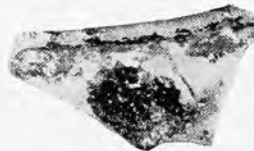
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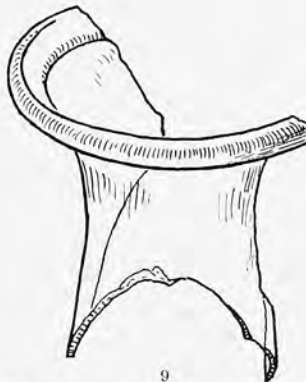
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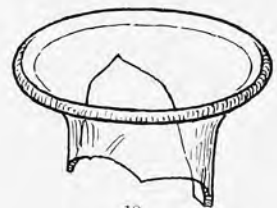
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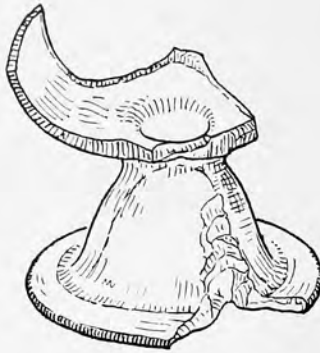
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FIG. 264.—FRAGMENTS OF GLASS VESSELS. ACTUAL SIZE

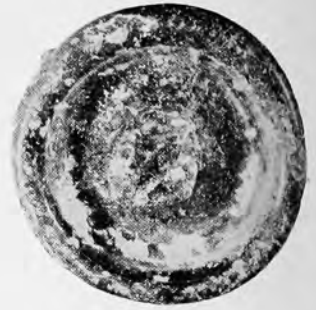




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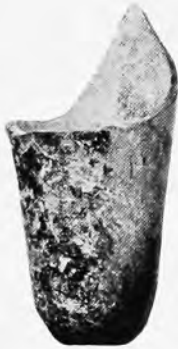
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6



7



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11



12



13



14



FIG. 265.—FRAGMENTS OF GLASS VESSELS. ACTUAL SIZE



FIG. 266.—GLASS FRAGMENTS AND PENDANTS. ACTUAL SIZE

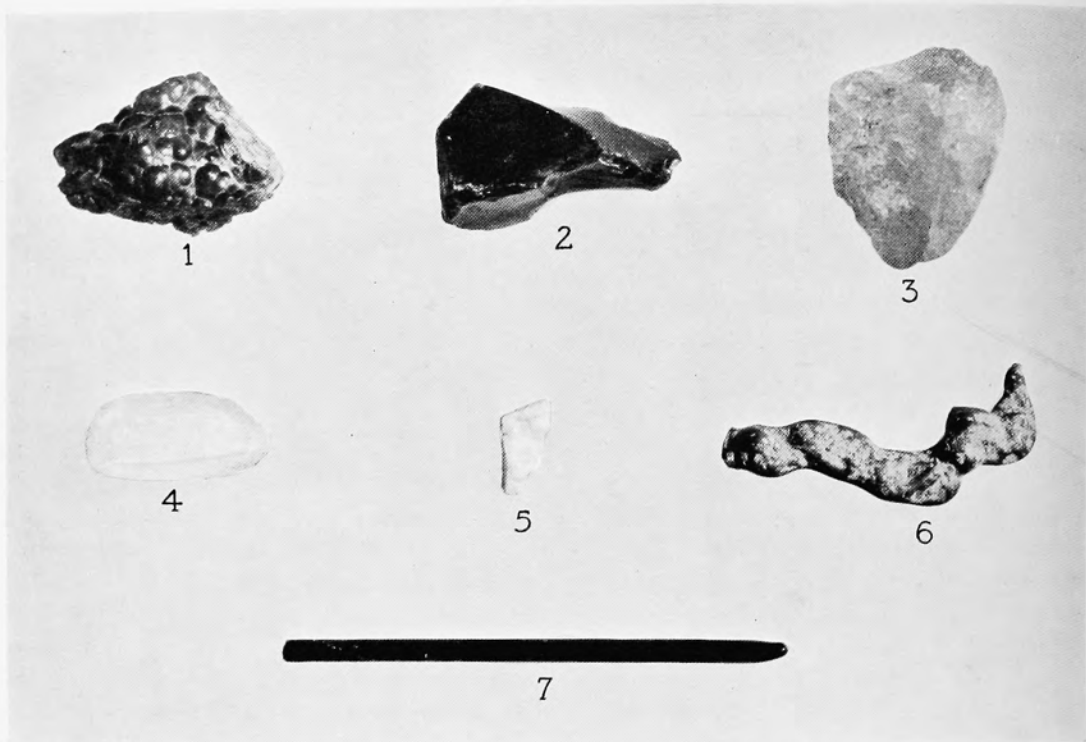


FIG. 267.—EVIDENCES OF THE MANUFACTURE OF GLASS. ACTUAL SIZE

## BEADS

BY ANN L. PERKINS

The greater number of the Alişar beads from the period of the Hittite Empires until Byzantine times are made of glass, a material which conditions to some extent the forms, and to a greater degree the decoration, of objects for which it is employed. The techniques in use are without exception familiar, closely resembling those used in Egypt. As far as can be observed, the earlier beads from Alişar are wire-wound, made by the simple process of winding hot threads of glass around a copper wire. As the bead cools the wire contracts and is withdrawn; further shaping or incised decoration may be made on the warm glass with a metal instrument. A few examples of molded glass occur in the Hellenistic and Roman periods, and one or two of blown glass in the Turkish period; but the earlier method seems to have prevailed as long as the settlement existed on the Alişar mound. The decorations of the wire-wound beads include line and eye designs (Fig. 268),<sup>1</sup> both types applied after the bead is formed but while the glass is still hot. Eye designs include the simple spot eye, a bit of colored glass allowed to remain as a protuberance or pressed into the matrix until flush with the surface; the ring eye, formed by impressing a ring of glass into the bead, with the matrix showing in the center; and the stratified eye, built up by applying, one on top of the other, spots of variously colored glass, which either stand out in horns or are pressed into the matrix until they appear in the form of concentric circles. In the linear designs one or more threads of glass are applied and may be simply wound around the bead, dividing it into zones, or drawn out by means of a wire into waves, ogees, spirals, and other patterns.

A few technical characteristics of the glass in the beads have been observed and may be mentioned here. Some pieces are of excellent quality, appearing fine-textured and relatively free from impurities even under the microscope; others are full of air bubbles and are of such coarse texture and so poorly vitrified that they may almost be classed as frit. The colors of some specimens are as clear and fresh as those of modern glass, while others are completely covered with a milky, iridescent, or gold corrosion which sometimes penetrates well into the core of the bead. The colors used include white, black, lapis lazuli blue, turquoise blue, aquamarine, yellow, orange, apple green, bottle green, and purple. The orange color is noteworthy because of its rarity in ancient oriental glass; the other colors are well known from previous finds. In addition to those cited, one Alişar specimen which I have not been able to examine is stated to be red with a dark green patina;<sup>2a</sup> the description leads one to suspect that the coloring matter was red oxide of copper, which characteristically alters to a green color. Since none of the beads has been analyzed, the coloring matter in other cases is not known.

Glazed frit was in use as early as the Chalcolithic period and continued to be made up to the end of the settlement, usually being employed for small and simple beads, sometimes with an incised decoration under the glaze. Stone beads were common until Roman times; limestone, chalcedonies (including carnelian, agate, and jasper), rock crystal and other varieties of crystalline quartz, and diorite were most used. A Copper Age burial has yielded a necklace of copper or bronze beads;<sup>2</sup> and a necklace of the period of the Hittite Empires contains gold,

<sup>1</sup> The accompanying chart illustrates only the principal types of Alişar beads, omitting all types which are believed to be of no value as dating evidence. A few unique specimens have been included in order to facilitate correlation with other sites. The types are classified according to decoration whenever possible, since it is our belief that this criterion is more valuable than that of mere form; undecorated beads are of necessity typed by form. Both form and design names are adapted from the Beck system (H. C. Beck, "Classification and nomenclature of beads and pendants," *Archaeologia* LXXVII [1928] 1-76). Except where other materials are specified in the headings, all of the beads are of glass. Oriental Institute Museum numbers ("A" numbers) are used where the field numbers are lacking.

<sup>2a</sup> No. c 1638 (*OIP* XXIX 456 and Fig. 510).

<sup>2</sup> No. d 1100a (*OIP* XXVIII, Fig. 144).



silver, and bronze or copper beads.<sup>3</sup> Metals were occasionally combined with other materials, as in a glass bead of Post-Hittite-Phrygian age, both ends of which are capped with silver,<sup>4</sup> and a Hellenistic frit bead or pendant which is mounted on a bronze "handle."<sup>5</sup>

Simple geometric forms predominate (Fig. 268). The clay beads of the Chalcolithic and Copper ages<sup>6</sup> with their inlaid ring eyes of white paste are noteworthy as prototypes of the later eye beads in frit and glass. As far as I know, this type has not been found elsewhere in the Near East; the design is, however, very common on the Alishar "whorls." A flush spot eye bead of serpentine inlaid with paste<sup>7</sup> is also unusual, since elsewhere the eye design is confined to artificial materials. Another extraordinary bead is of black frit with inlaid angular patches of white<sup>8</sup> in a design so strongly resembling the rock breccia that one wonders whether the ancient craftsman was not copying the natural product, somewhat in the manner of the predynastic Egyptian potters who decorated their vessels in imitation of stone. An alternative explanation may be found in Eisen's mention of an Egyptian glass-making process of approximately the same date in which angular fragments of colored glass were mixed with, or set in a matrix of, fused colorless glass,<sup>9</sup> suggesting a technological prototype of the Alishar frit bead.

Practically every design in the Alishar glass beads finds parallels in Egypt and Palestine, dating from the Second Intermediate period to Coptic times.<sup>10</sup> In addition, spot eye decoration is found at Mycenae in Late Helladic III,<sup>11</sup> ring eye in Hellenistic times at Dura-Europos,<sup>12</sup> and the melon or lotus bead in glass or frit as early as the 1st dynasty in Egypt<sup>13</sup> and as far east as Tepe Giyan in Iran.<sup>14</sup> The great number and exact similarities of the Egyptian parallels force the conclusion that Alishar derived its bead techniques and designs from that country. The argument is strengthened by the fact that the Egyptian influences are not seen until the period of the Hittite Empires, a time when Egypt and Anatolia are known to have been in close contact. Some of the beads may actually have been Egyptian imports; but slight variations of design and technique, noticeable only upon careful study, give strong indication that most, if not all, of the Alishar beads were manufactured at the site.

<sup>3</sup> No. c 2000a (*OIP* XXIX, Fig. 309).

<sup>4</sup> No. c 2292 (*ibid.* Fig. 510).

<sup>5</sup> No. d 666 (Fig. 109).

<sup>6</sup> Nos. c 1824 (*OIP* XXVIII, Fig. 100) and c 1820 (*ibid.* Fig. 197).

<sup>7</sup> No. d 627 (*OIP* XXIX, Fig. 487).

<sup>8</sup> Oriental Institute Museum No. A 10030.

<sup>9</sup> Gustavus A. Eisen, *Glass; Its Origin, History, Chronology, Technique and Classification to the Sixteenth Century* (New York, 1927) I 119.

<sup>10</sup> Beck, *op. cit.*

<sup>11</sup> A. J. B. Wace, "Chamber tombs at Mycenae," *Archaeologia* LXXXII (1933) 208 and Pl. IX.

<sup>12</sup> M. T. Nettleton in *The Excavations at Dura-Europos, Conducted by Yale University and the French Academy of Inscriptions and Letters; Preliminary Report of Fourth Season of Work, October 1930—March 1931* (New Haven, Conn., 1933) p. 257.

<sup>13</sup> Eisen, "Lotus- and melon-beads," *AJA* XXXIV (1930) 20-43, esp. p. 20.

<sup>14</sup> G. Contenau and R. Ghirshman, *Fouilles du Tépé-Giyan près de Néhavend, 1931 et 1932* (Musée du Louvre. Département des antiquités orientales, "Série archéologique" III [1935]) p. 51.









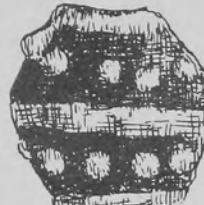










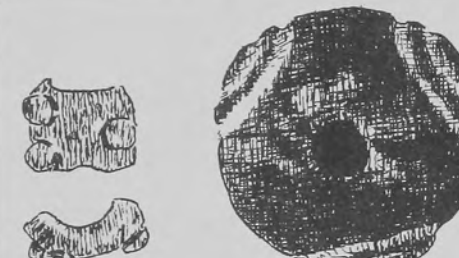















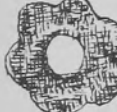
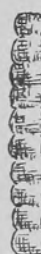








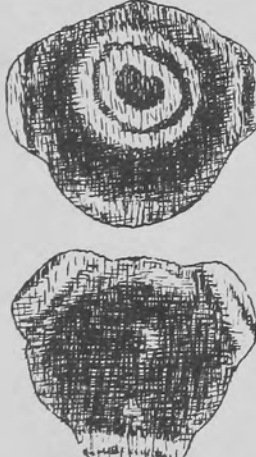




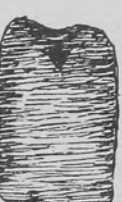



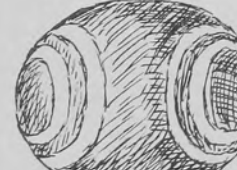



	CYLINDER DISK, STONE	CYLINDER DISK, GLAZED FRIT	LONG BARREL, STONE	LONG CYLINDER, STONE	TOOTH PENDANT, STONE	PENDANT, STONE	INCISED CYLINDER, GLAZED FRIT	MELON, FRIT AND GLASS	SEGMENTED FRIT	MULTI- FACETED	FLUSH SPOT EYE	IMPRESSED RING EYE	RAISED SPOT EYE	FLUSH STRATIFIED SPOT EYE	RAISED STRATIFIED SPOT EYE	SPOT AND ZONE	ZONE	SCALLOP	WAVE	ZONE AND WAVE	UNIQUE SPECIMENS				
ROMAN-BYZANTINE PERIOD		 e 262						 b 1755		 838 (A 9924)	 1811 (A 9989)	 b 1790	 1696 (A 9972)	 b 1753	 A 10077	 c 1765	 e 1887	 e 1153		 e 247					
SECOND HALF OF FIRST MILLENNIUM B.C.		 d 737						 c 2058		 1494 (A 9957)	 b 2506	 885 (A 9926)	 d 1787	 c 2568	 d 1794      c 1761	 a 489 (A 10221)	 c 1116	 A 10200	 c 2087	 c 1679		 d 795	 a 687 (A 10231)	 a 304 (A 10207)	 A10215
POST-HITTITE- PHRYGIAN PERIOD	 d 1007	 e 741	 d 1277	 e 496			 b 575	 c 794	 d 1201	 e 392	 d 1907			 c 2329						 b 235					
PERIOD OF THE HITTITE EMPIRES	 d 2092		 d 2366	 c 728			 d 2239	 e 1105							 d 1128							 c 769	 c 1427	 2143 (A 10030)	
COPPER AND EARLY BRONZE AGES			 d 1974	 d 1725	 e 1043	 e 520					 e 397	 c 1820													
CHALCOLITHIC AGE	 c 2344	 c 394										 e 1824													

FIG. 268.—TYPES OF BEADS. ABOUT ACTUAL SIZE

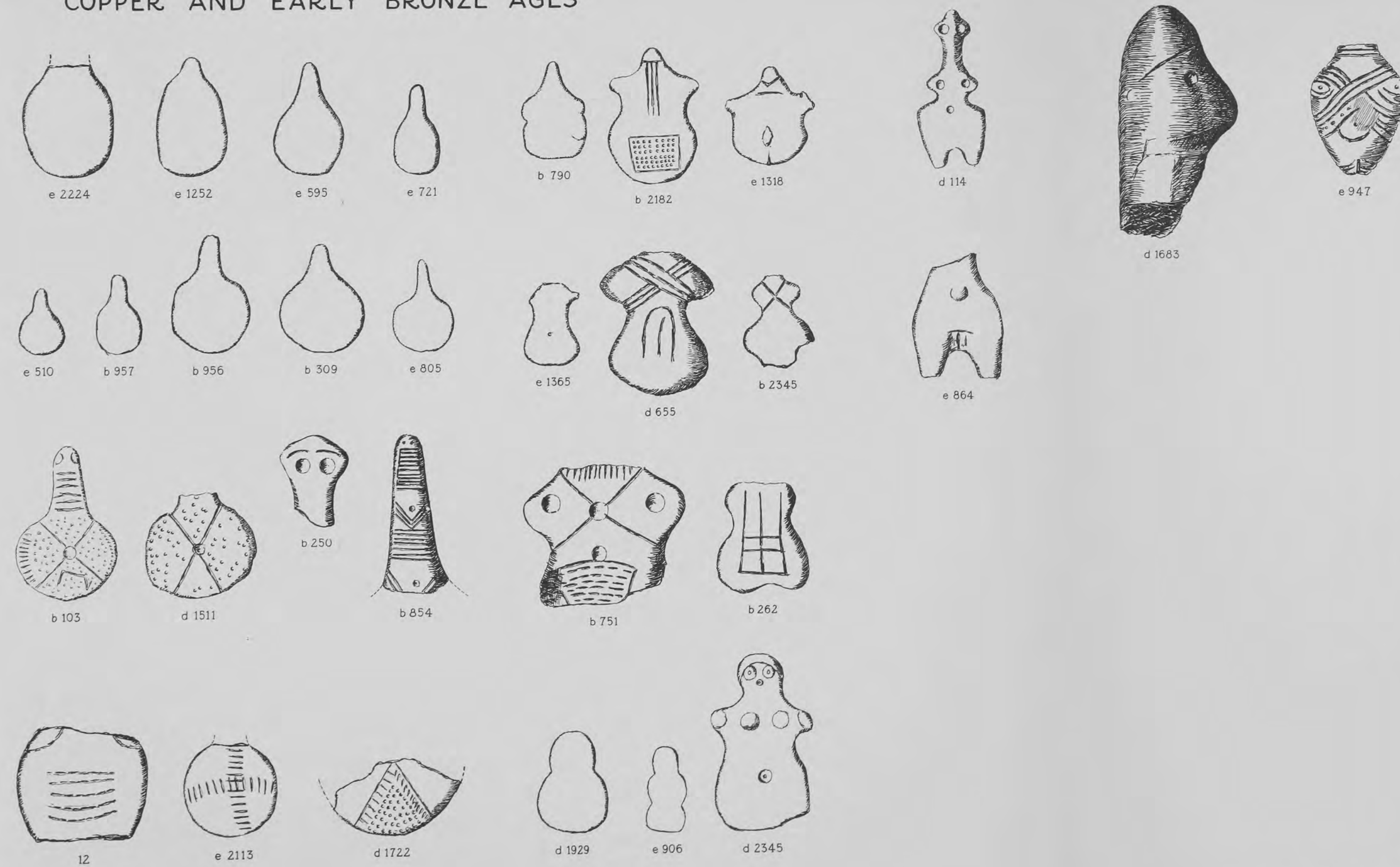




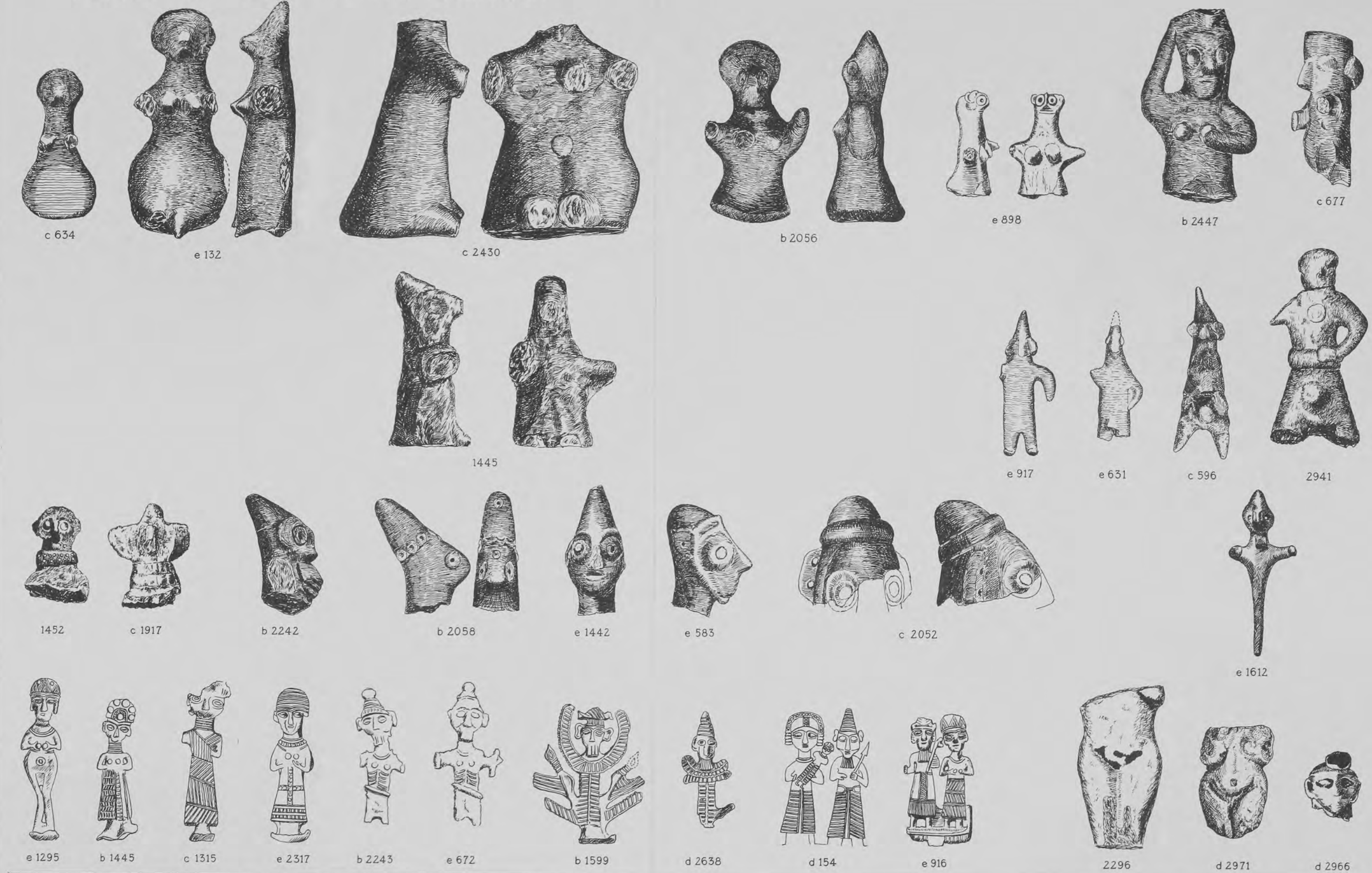
## CHALCOLITHIC AGE



## COPPER AND EARLY BRONZE AGES



## PERIOD OF THE HITTITE EMPIRES



## POST-HITTITE - PHRYGIAN PERIOD



## SECOND HALF OF FIRST MILLENNIUM B.C.



## ROMAN - BYZANTINE PERIOD



FIG. 269.—TYPES OF HUMAN FIGURINES. SCALE, 1:2





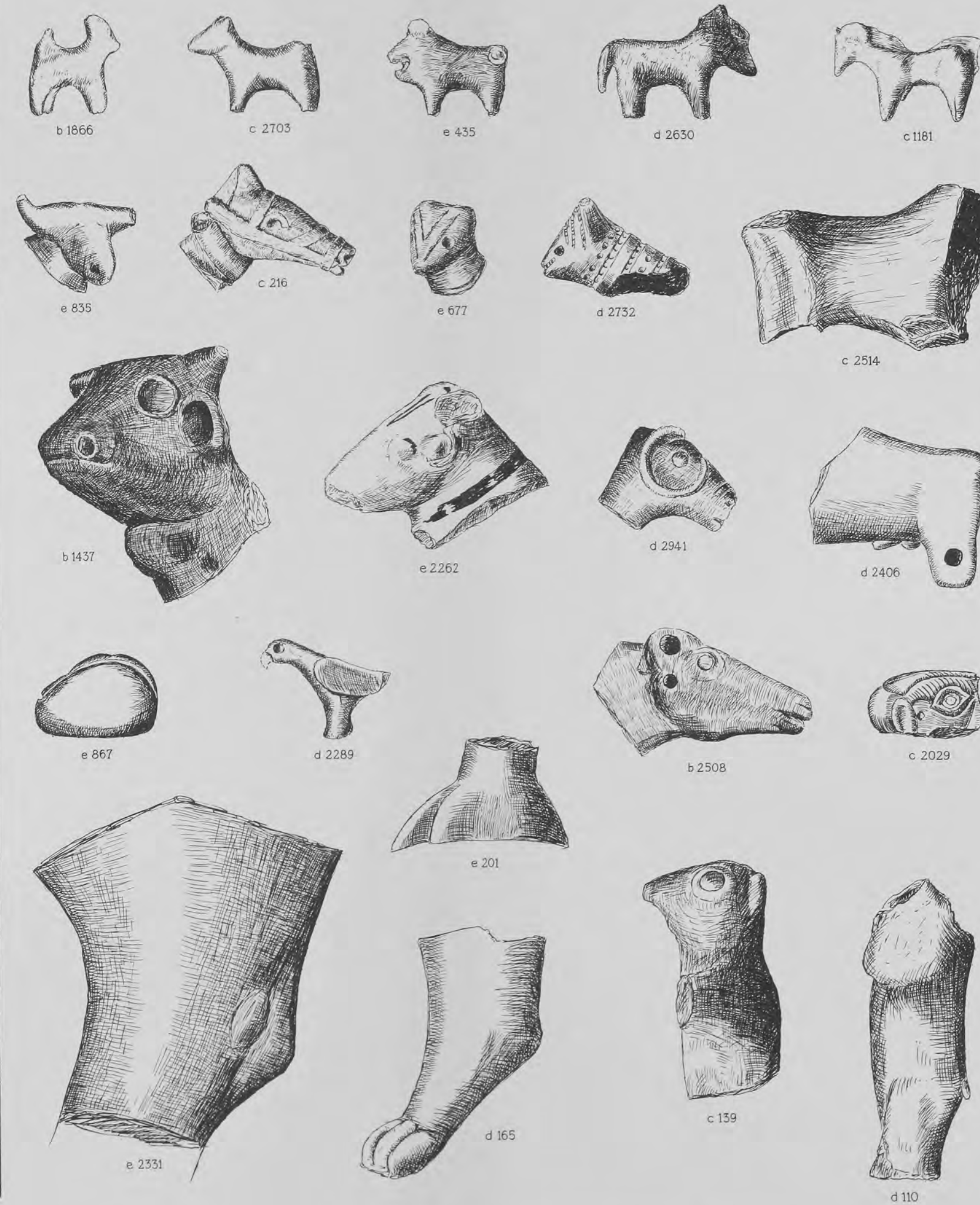
# CHALCOLITHIC AGE



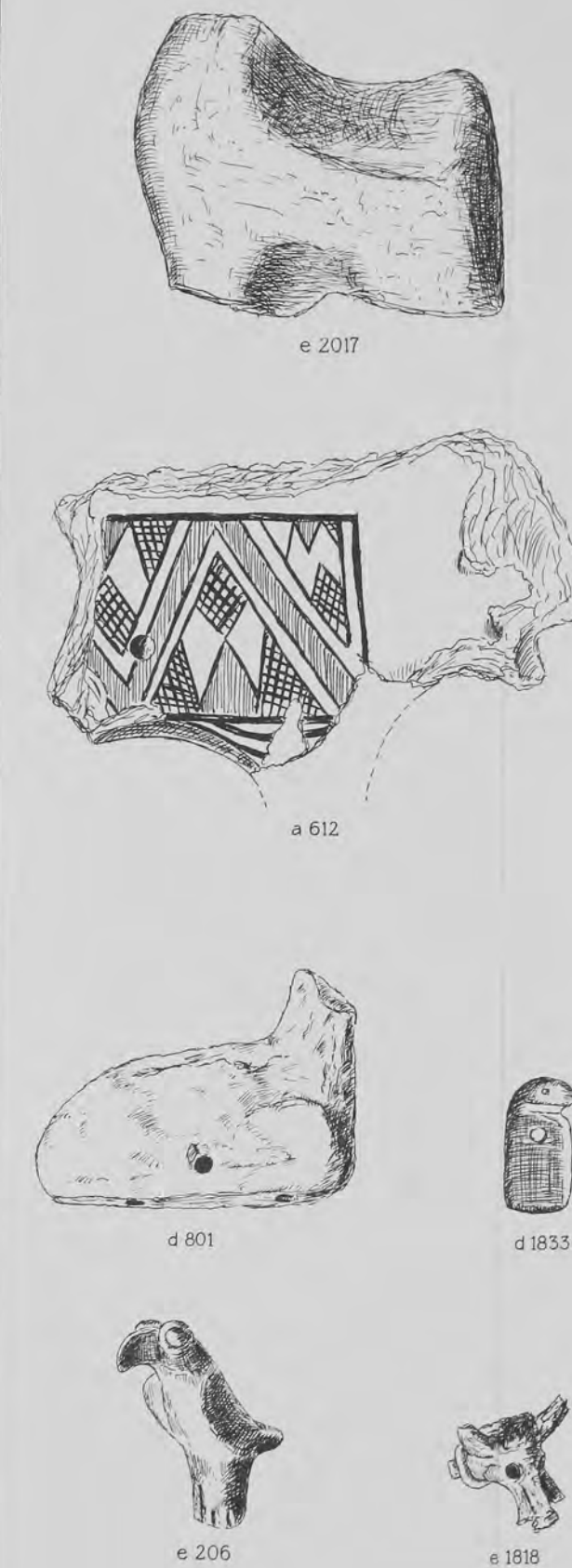
## COPPER AND EARLY BRONZE AGES



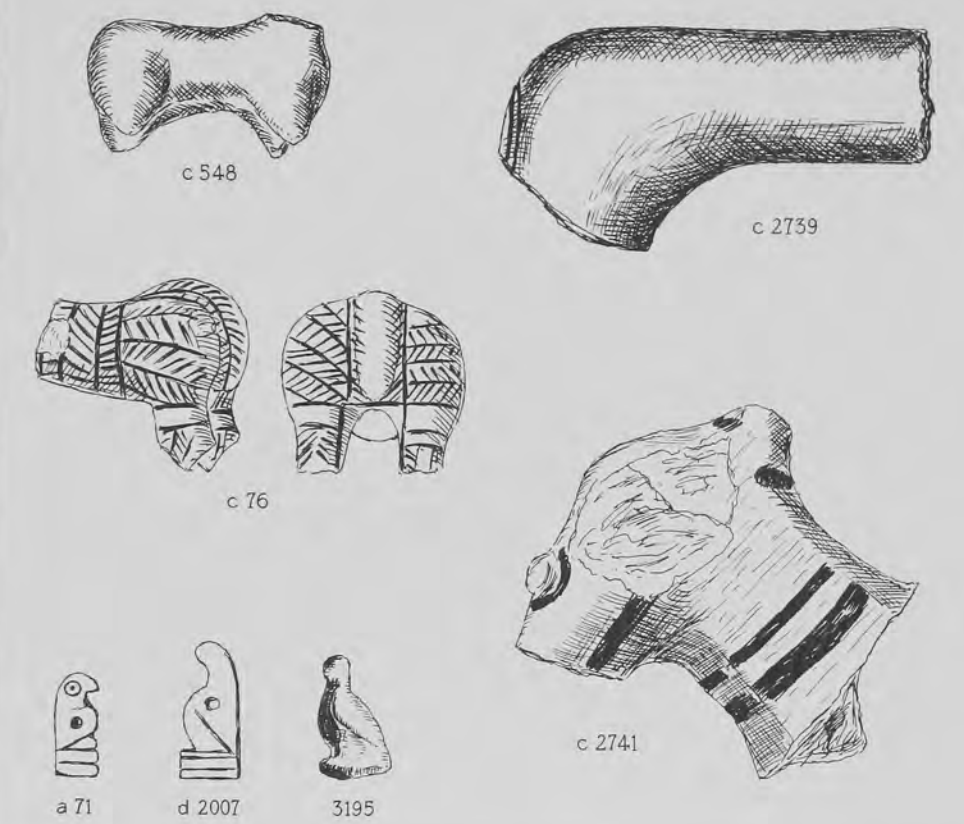
# PERIOD OF THE HITTITE EMPIRES



# POST-HITTITE-PHRYGIAN PERIOD



# SECOND HALF OF FIRST MILLENNIUM B.C.



# ROMAN-BYZANTINE PERIOD

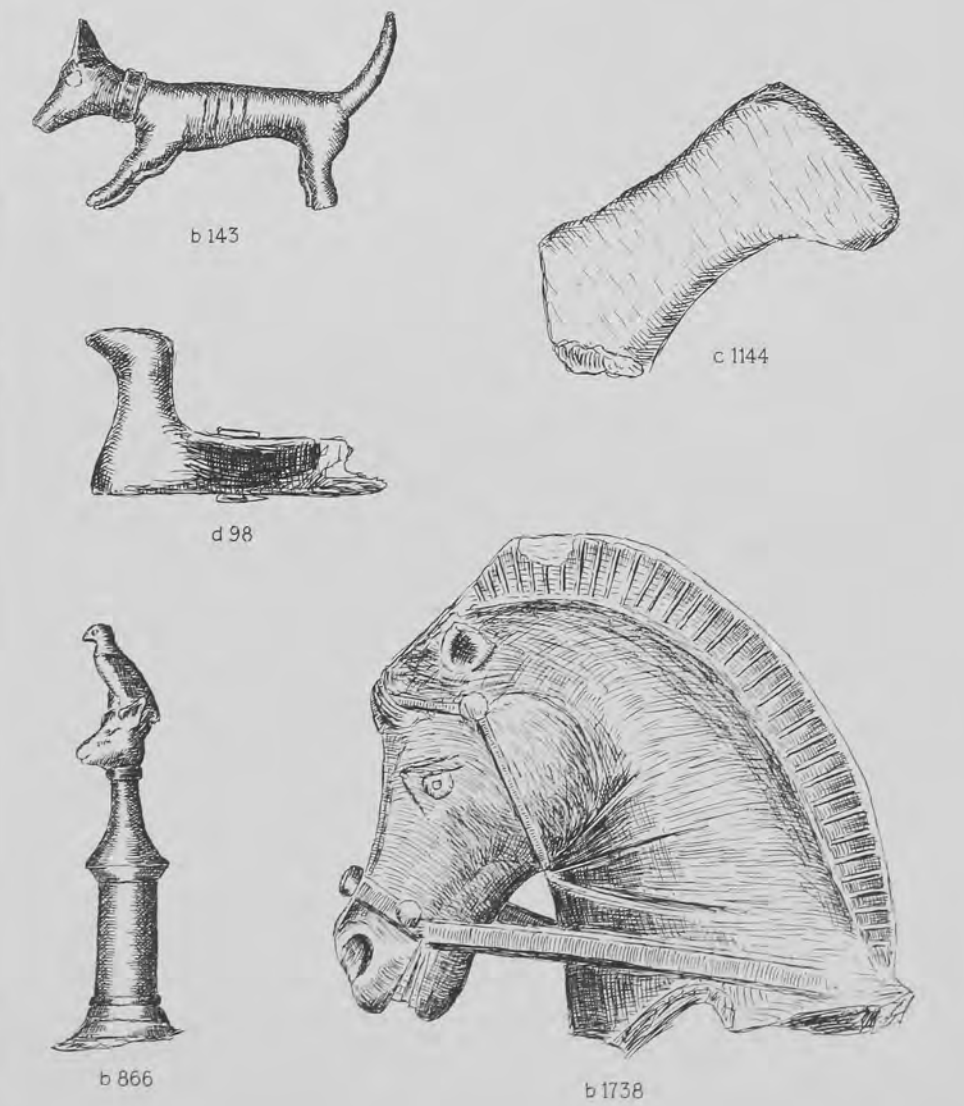
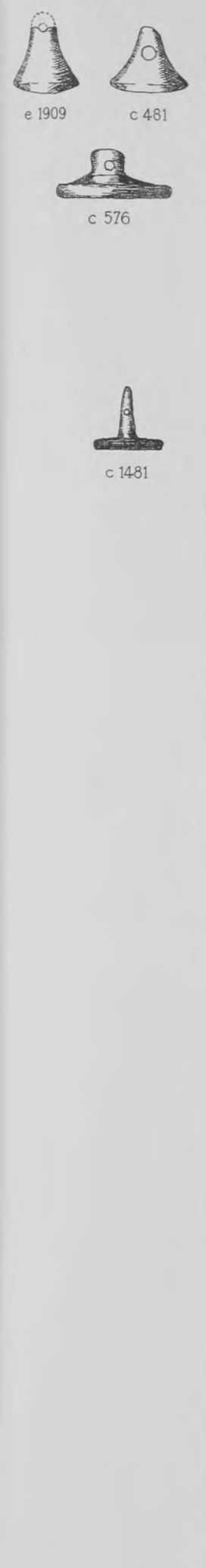


FIG. 270.—TYPES OF ANIMAL FIGURINES. SCALE, 1:2

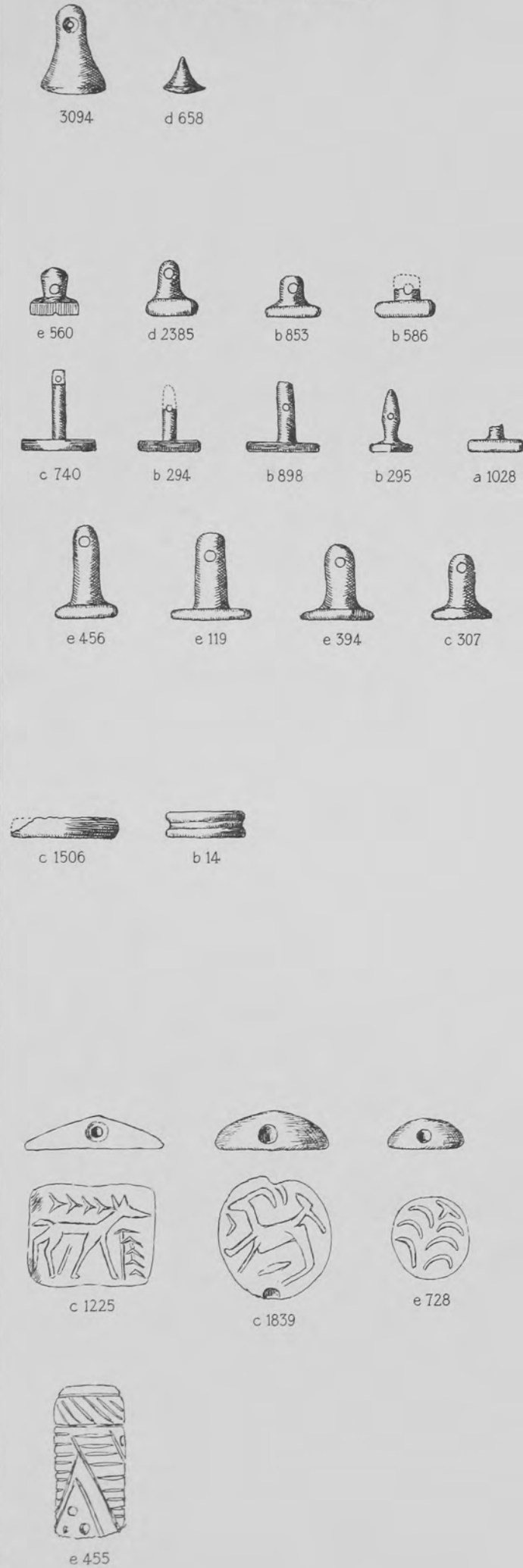




# CHALCOLITHIC AGE



# COPPER AND EARLY BRONZE AGES



# PERIOD OF THE HITTITE EMPIRES



# POST-HITTITE- PHRYGIAN PERIOD



# SECOND HALF OF FIRST MILLENNIUM B.C.



# ROMAN-BYZANTINE PERIOD



FIG. 271.—TYPES OF SEALS. SCALE, 1:2





## FIGURINES

In Figure 269 an attempt is made to show the development of human figurines through the various periods represented at Alişar. The drawings require little explanation. For example, it may be seen at a glance that two rather primitive types—the so-called “Scheibenidole” and “Geigenidole”—predominate in the Copper and Early Bronze ages, with only a few examples of more elaborate types such as appear in the period of the Hittite Empires. Pottery is by far the most common material, though stone, metal, frit, and glass also were used. Characteristic of the period of the Hittite Empires are flat lead figurines such as are pictured in the last row under that period; three frit figurines shown with them are probably Mesopotamian representations of Ishtar.

Animal figurines of the various periods are illustrated in Figure 270. The materials are pottery, stone, and metal. It will be seen that crude figurines with rather rudimentary indications of head, tail, and legs are found in addition to better modeled forms in all periods except the Roman-Byzantine. Flat stone figurines of animals are typical of the Copper Age; they are perforated in one or more places and are often decorated with a few incisions representing hair or fur.

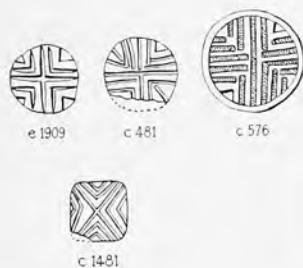
## SEALS

All the principal forms of stamp seals and cylinder seals from the Alişar excavations are drawn in Figure 271. It is unnecessary to add detailed descriptions of the various forms, some of which persist through several periods. The lowest row of stamp seals is not intended to show any development from period to period, but merely contains unusual forms.

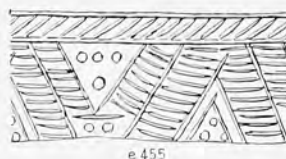
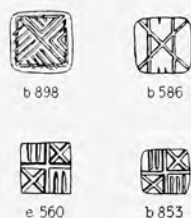
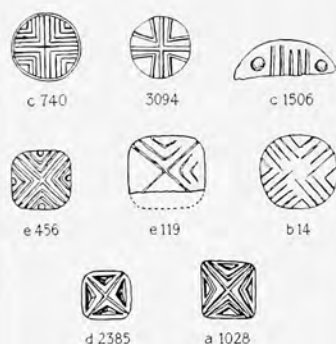
Figure 272 shows the distribution and persistence of certain geometrical designs appearing on seals.<sup>1</sup> Such designs form a rather large part of all those found at Alişar.

<sup>1</sup> The reader's attention is called to additional seal designs shown in *OIP* XXIX, Pl. XXV.

# CHALCOLITHIC AGE



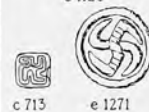
# COPPER AND EARLY BRONZE AGES



# PERIOD OF THE HITTITE EMPIRES



# POST-HITTITE-PHYRGIAN PERIOD



# SECOND HALF OF FIRST MILLENNIUM B.C.



FIG. 272.—GEOMETRICAL DESIGNS APPEARING ON SEALS. SCALE, 1:2

## VIII

## SURVEY OF THE ANATOLIAN BACKGROUND

## INTRODUCTION

In conclusion I have tried to relate the Alişar finds, which range from Chalcolithic (late Neolithic) to Turkish (Osmanli) times, to what we know of the general history of this part of Anatolia, which is commonly identified with the territory called Cappadocia. To accomplish this purpose adequately it has seemed to me desirable to give a geographical and topographical survey as well as a comprehensive historical view before dealing with the archeological material proper. No comprehensive synthesis is attempted, and little effort could at this time be made to bring our scanty knowledge of this section into relationship with the cultures of the surrounding territories. New discoveries add constantly to our knowledge and show new ways of interpreting older finds.

The cultural history of a region is determined by its geographical situation (as affecting both climate and relation to neighboring territories), its topography, and its natural resources on the one hand, and by human-historical factors on the other. The latter comprise the settlements, migrations, and expansions of peoples and involve their different forms of economic life, their social structures, and their individual cultural development.

While the topography and the natural resources of a given territory are often the predominating factors in determining the type of its political and economic history, the geographic setting is always the dominant factor in its general history. The topography and the natural resources influence primarily the economic life; the geographic setting, however, affects the political and social structure as well as the economic. Only the inherent cultural tendencies of a people are to a large degree independent of the natural setting.

The environment provided by a given territory can be of such a nature as to compel people of diametrically opposed characters to become assimilated to a general economic, social, and cultural standard, provided they actually settle within such a territory and do not merely pass through it or dominate it as a ruling minority. Therefore certain fundamental economic, social, and even cultural characteristics can commonly be detected which are peculiar to a given territory and which no amount of migration, invasion, ravages of war, or influence of people from the outside, superior politically or culturally, has succeeded in changing or eliminating. In view of this, the importance of a people as a race or as a nation becomes to an extent secondary; for if a people made the most of its "home," it had to adjust itself in its economic and social life to the geographic situation, the topography, and the natural resources. Only with such an adjustment as a background could the creative and intellectual potentialities of a people reach their highest development.

Of course, not all peoples have the same cultural potentialities. It is only within recent times that the natural factors have begun to be partly neutralized in cultural development by the advance in transportation, communication, and mechanization of industry; for these developments—we need but think of the airplane and the radio—certainly tend to erase racial and national boundaries, be they those of material or of spiritual culture. Whether this is a sign of a healthy evolution, or the beginning of cultural leveling and ultimate cultural decline, does not concern us here. It should, however, be mentioned that within the last decades a strong



reaction against the trend toward internationalization is beginning to assert itself in the revival of states on strictly nationalistic bases.

From the beginning of known cultural history to the present day the geographical and topographical situation in the region about Alishar has not changed. Even the natural resources have probably been much the same, with the exception that the territory was more wooded in ancient times and hence less arid than it is today. Since this change has taken place relatively recently (probably not much before the decline of Byzantine rule and the coming of the Mongols), it may be considered as essentially unimportant. Investigation of the first factor necessary for understanding Anatolian cultural history, namely the examination of the topography and the natural resources of Anatolia together with its geographical situation, is therefore relatively easy.

The tracing of the second, the human-historical, factor is much more difficult. In the realm of political history, which must be derived primarily from written documents, we know nothing of central Anatolia before the middle of the 3d millennium B.C., and even then our information is of doubtful value. For later periods also the picture is generally not clear, since there is either a lack of sufficient written records or a lack of adequate studies from an Anatolian angle. Only in the many writings of Sir William Mitchell Ramsay are the history and geography of Asia Minor treated as a whole.<sup>1</sup> Use of such data as we have on these two factors will shed much light on the cultural remains. The latter in turn, here as in other lands, will help us to reconstruct the political events, especially in the earlier periods.

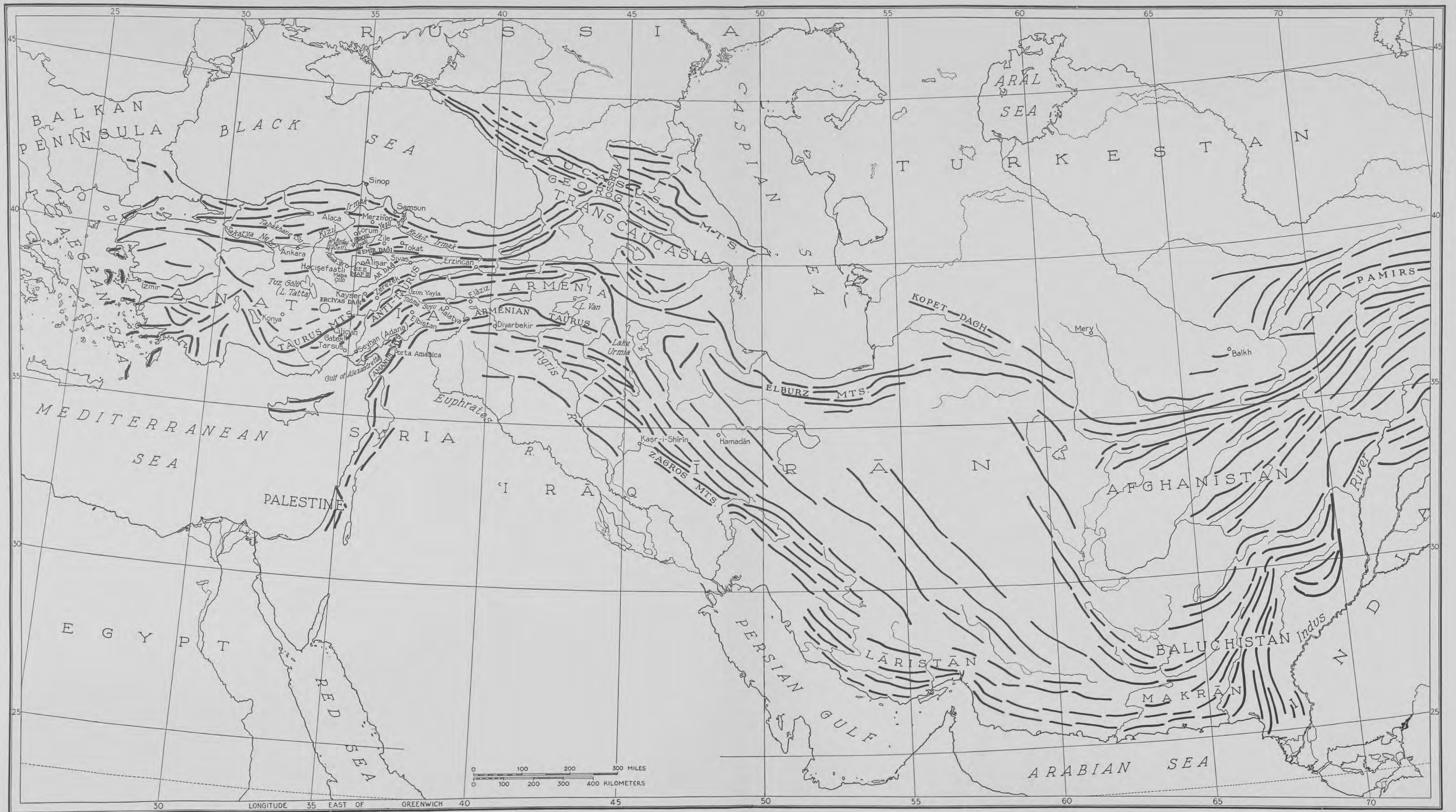
## GEOGRAPHY AND TOPOGRAPHY

Asia Minor is the western end of a large land bridge which connects the Central Asiatic territories with the lands around the Mediterranean Sea in a general southeast-northwest direction.<sup>2</sup> The mountains of Armenia form the narrow middle part of this land bridge, and the highland of Iran forms its eastern end. Iran resembles a large basin. On the north and south it is bordered by mountain chains with only a few natural roads through them. In the eastern part the highland of Iran is filled with the mountains of Afghanistan and Baluchistan, which spread fanlike from the plateau of the Pamirs, their extensions sloping westward toward the center of the basin. At the western end of Iran the land bridge narrows, and the mountains rise again with pronounced chains on the north (Elburz) and on the southwest (Zagros). These converge into the highland of Armenia, which consists of many parallel ranges with only a few relatively large valleys or valley plains; the latter include a number of lakes, such as Lake Van and Lake Urmia. At the northern border of Armenia lies the Transcaucasian trough with the Caucasus on the north, and at its southern border the Armenian Taurus fuses with the Zagros chain. Toward the west the Armenian mountains again diverge, sloping down to the Anatolian plateau and forming definite borders along the north and south coasts of Asia Minor. The highland of Asia Minor opens in its western part, and parallel valleys lead down to the shore of the Aegean Sea. The mountain ranges bordering these valleys extend like fingers toward the west in the direction of the sea and the Balkan Peninsula.

<sup>1</sup> The available historical material for the whole of Asia Minor has been treated briefly in *The Hittite Empire* (London, 1929) by John Garstang. Cf. my notes on this in *OIC* No. 8 (1930) pp. 158-77. For the earlier periods see Albrecht Götze, *Kleinasien* ("Handbuch der Altertumswissenschaft," begründet von Iwan von Müller, hrsg. von W. Otto, 3. Abt., 1. Teil, 3. Bd.: *Kulturgeschichte des alten Orients*, 3. Abschnitt, 1. Lfg. [München, 1933]), and Kurt Bittel, *Prähistorische Forschung in Kleinasien* ("Istanbuler Forschungen" VI [Istanbul, 1934]). For the later periods see W. M. Ramsay, "The geographical conditions determining history and religion in Asia Minor," *Geographical Journal* XX (1902) 257-82, and his *The Historical Geography of Asia Minor* (Royal Geographical Society, *Supplementary Papers* IV [London, 1890]).

<sup>2</sup> Cf. *OIC* No. 2, pp. 2 f. and Maps I and II.





MAP II.—ASIA MINOR AND ADJACENT COUNTRIES, SHOWING GEOGRAPHIC FEATURES THAT MAKE ASIA MINOR A "BRIDGE." SCALE, 1:12,000,000





The Balkh and Merv roads lead from the plains of Turkestan between the extensions of the Hindu Kush and the Kopet Dagħ into this complex; the Georgian and Ossetic routes lead from the South Russian plains over the Caucasus into it. The north coast of Asia Minor offers only a few good natural ports connected by narrow valleys with the hinterland.

On the south Iran is hemmed in by the mountains of Makran and Laristan, which fall steeply into the Persian Gulf. On the southwest, along the valley of the Tigris, there is only one important natural opening through the Zagros—the road from Hamadan to ẖaṣr-i-Shirin and Baghdad. From the highland of Anatolia a natural road leads from Sivas diagonally through the mighty complex of the Anti-Taurus via Malatya into Upper Mesopotamia. The Taurus barrier which divides the Anatolian highland from the plain of Adana is pierced by a road passing through the Cilician Gates. The south coast of Asia Minor has only a few good natural ports, connected by almost impassable valleys with the plateau. Toward the west the bridge is open, permitting easy access.

Asia Minor may be subdivided into three main parts (Map II): (1) the eastern mountain chains and complexes leading up to the Armenian mountains; (2) the central portion, including the actual Anatolian plateau; (3) the western valleys leading toward the Aegean. Two natural main roads pass through Asia Minor between east and west. From them side roads branch northward, southward, and diagonally at several points. The northern route leads from the Aegean Sea along the Sakarya to Ankara, thence via the Tabakhane Su through the territory surrounded by the Kızıl Irmak to Sivas. There it divides into a northern and a southern branch. The southern branch passes through the mighty barrier of the Anti-Taurus and reaches the Upper Mesopotamian regions via Malatya, Elâziz, and Diyarbakir. The northern branch first follows the Kızıl Irmak eastward and then enters the Armenian mountains via Erzincan. The southern west-east route from the Aegean reaches Konya, then follows the northern slopes of the Taurus until it passes through the Cilician Gates to reach the Adana plain; thence it continues through the Porta Amanica into North Syria, then to Upper Mesopotamia or along the coast to Palestine and Egypt.

One important natural north-south route can be distinguished. Branches from Sinop and Samsun unite near modern Çorum or modern Alaca. Thence the road continues southward through the plain of the upper Delice-Kanak Su<sup>3</sup> to Kayseri and from there through the Cilician Gates to the shores of the Mediterranean. From Kayseri a road branches due eastward, reaching the Tohma Suyu and following the valley to the plain of Malatya.<sup>4</sup>

Central Asia Minor<sup>5</sup> in turn may be subdivided into three parts. In the north is the territory drained by the Yeşil Irmak and Kelkit Irmak, including the mountain chains forming the coast of the Black Sea. Along the coast there are only a few natural ports. The mountains at the coast are even today densely wooded, with many meadows well suited for cattle- and

<sup>3</sup> The lower course of this river is called the Delice Su, the upper course the Kanak Su; cf. *OIP* V 18.

<sup>4</sup> For the road system in historical times see J. G. C. Anderson, "The road-system of eastern Asia Minor," *JHS* XVII (1897) 22–44 (with map); J. G. C. Anderson and F. and E. Cumont, *Studia Pontica* I–II (Bruxelles, 1903–6); W. M. Calder, "The royal road in Herodotus," *Classical Review* XXXIX (1925) 7–11; John Garstang, *The Hittite Empire* (London, 1929) pp. 36–38 and 189–93; Biagio Pace, "Ricerche nella regione di Conia, Adalia e Scalanova," *Annuario della R. Scuola archeologica di Atene e delle missioni italiane in oriente* VI–VII for 1923–24 (Bergamo, 1926) 383–90; Stefan Przeworski, "Vorderasien und Osteuropa in ihren vorgeschichtlichen Handelsbeziehungen," *Klio* XXV (1932) 22–31; W. M. Ramsay, *The Historical Geography of Asia Minor* (London, 1890) pp. 27–88, 164–79, 197–221, 237–42, 254–81, 349–61; Franz Taeschner, *Das anatolische Wegenetz nach osmanischen Quellen* ("Türkische Bibliothek" XXII–XXIII [Leipzig, 1924–26]) and "Die Verkehrslage und das Wegenetz Anatoliens im Wandel der Zeiten," *Petermann's Mitteilungen*, 1926, pp. 202–6; L. Scheidl, "Die Verkehrsgeographie Kleinasien," *Mitteilungen der Geographischen Gesellschaft in Wien* LXXIII (1930) Nos. 1–3; Konrad Miller, *Itinaria Romana; römische Reisewege an der Hand der Tabula Peutingeriana* (Stuttgart, 1916).

<sup>5</sup> There is now a very good topographical map of Asia Minor in eight sheets at 1:800,000, published by the Turkish General Staff in 1933–34.



sheep-raising. The bottoms of the valleys are narrow and, although exceedingly fertile, not so well suited for grains, but rather for gardening and fruit-raising. The mountains are rich in all kinds of ore, especially iron, silver, and copper. Southward this territory leads into the section which is drained by the Kızıl Irmak, from which it is divided by a rather low watershed. On the southern slopes of the northern mountain complex are several large and very fertile valley plains such as those of Merzifon, Alaca, Zile, and Tokat, well suited for agriculture and pasturing. The surrounding mountains often show barren slopes, but still offer sufficient pasture for sheep and goats. The mountains within this territory are frequently divided by deep abysses, forming easily defensible retreats. A number of rivers and smaller streams have water throughout the year. This territory was known in classical times as Pontus.

The middle part, the Anatolian plateau, includes the Kızıl Irmak basin and the salt steppe southwest of it, north of Konya.<sup>6</sup> With the exception of the salt steppe, the whole central part is embraced on three sides by the Kızıl Irmak, which originates in the east in the extensions of the Armenian mountains. Its most important tributary is the Delice-Kanak Su. This whole territory is a high plateau subdivided into several basins by mountains with rather gently rolling slopes. Some of the basins are fertile valley plains through which streams flow; others are semiarid steppes. The steppes form a band across the territory within the bend of the Kızıl Irmak. North of the steppe band the country resembles the southern part of the Yeşil Irmak basin, from which it is not very sharply divided. The section south of the steppes is more like that from which rise the Taurus and Anti-Taurus chains, south of the Kızıl Irmak. The watered valleys are fertile, while the steppes and the gentle slopes of the mountains offer pasturage for sheep and goats. With the exception of the Ak Dağ complex there are hardly any woods left, but there are sufficient vestiges to warrant the assumption of forests in ancient times. In the mountainous eastern section of the Kızıl Irmak basin are silver and copper mines. In the western part of the basin, which is by no means as rich and fertile as its northern, eastern, and southern sections, are many barren slopes and wildly torn mountains with little water. That region resembles the plateau west of the Kızıl Irmak, which is drained by the Sakarya. The southern part of the Kızıl Irmak basin merges with the northern slopes of the Taurus. This territory, including some land south of the Kızıl Irmak, is commonly called Cappadocia. The salt steppe, together with Lake Tatta, lies just southwest of the Kızıl Irmak basin. It has no drainage. Recent experiments have shown that the present desolate steppe could be at least partly transformed into a fertile plain by means of correct irrigation and drainage.<sup>7</sup> The classical name for this region is Lycaonia.

The southern part of central Asia Minor is composed of the mighty chains of the Taurus and Anti-Taurus, including their northern and southern slopes, and the fertile triangular Adana plain. Not far south of the Kızıl Irmak valley rises the dominating pyramid of the Erciyes Dağı, an extinct volcano, at the base of which Kayseri is situated.<sup>8</sup> The Adana plain, the ancient name of which is Cilicia, is bordered on one side by the Taurus itself, on another by extensions of the Amanus Mountains, and on the third by the Gulf of Alexandretta. Otherwise this region is very mountainous; but it has many large and small valleys and plains (such as the Uzun Yayla, Zerezek, and Elbistan plains) which are well suited for cattle-raising and agricul-

<sup>6</sup> For this territory cf. the description given by Gerhart Bartsch, "Vorläufiger Bericht über eine Reise nach Mittelanatolien," *Jahrbuch der Geographischen Gesellschaft zu Hannover für das Jahr 1930* (Hannover, 1930) pp. 163-83.

<sup>7</sup> Hermann Wenzel, *Sultan-Dagh und Akschehir-Oea. Eine landeskundliche Untersuchung in Inneranatolien* ("Schriften des Geographischen Instituts der Universität Kiel," Heft 1 [Kiel, 1932]) and *Forschungen in Inneranatolien. I. Aufbau und Formen der lykionischen Steppe (Türkece hülâsayı havidir)* (same series, Bd. V, Heft 1 [Kiel, 1935]).

<sup>8</sup> For a description of the Erciyes Dağı and the surrounding territory see G. Bartsch, *op. cit.* pp. 176-83 and his "Das Gebiet des Erciyes Dağı und die Stadt Kayseri in Mittel-Anatolien," *Jahrbuch der Geographischen Gesellschaft zu Hannover für das Jahr 1934 und 1935* (Hannover, 1935) pp. 87-202.



MAP III.—THE REGION AROUND ALIŞAR. SCALE, 1:150,000





ture. The volcanic region around Kayseri is especially well suited for viticulture and gardening. There are also rich ore deposits in the mountains. The Taurus curves northward from the Mediterranean coast and merges into the Armenian mountains. Its southeastern slopes descend into North Syria and Upper Mesopotamia. The Taurus and the Anti-Taurus together form an almost impassable barrier to the south and southeast.

The coast of the Black Sea has a moderate climate with ample rains throughout the year. The temperature is on the whole very agreeable. The mountains are covered with deep snow during the winter, at which time the temperature falls considerably.

The Anatolian plateau has the typical continental climate of semiarid regions with snow in winter, rains in autumn and spring, and, with the exception of an occasional thunderstorm, an exceedingly hot and dry summer. The rains in autumn and spring often make the roads impassable, sometimes even necessitating the use of two different routes, one during the dry season, the other during the autumn, winter, and spring. The dry season begins about the middle of June and lasts to the end of September. The temperature changes are not gradual, but rather marked and severe.

In the Adana plain the typical Mediterranean climate prevails, with moderate changes in temperature between and within the different seasons.

The mound of Alişar is situated in the central section of the Anatolian plateau, in the fertile plain drained by the Kanak Su (Map III). East and west the limits of this plain are sharply defined: to the east by the Ak Dağ complex and to the west by the Kerkenes Dağ, the eastern outpost of the mountainous complex through which the Kızıl Irmak flows northward after having made its great bend to the south. The northern and southern limits of the plain are less well defined. To the north the watershed between the Kanak Su and Yeşil Irmak basins is formed partly by the tumbled mass of the Emir Dağı and partly by low saddles east and west of that range leading into the middle Yeşil Irmak valley and the plain of Alaca respectively. To the south the plain gradually rises in the middle in a series of terraces toward the Yazır Dağ, which trends northeast-southwest. East of the Yazır Dağ an abrupt step leads to a high plateau, into which reach western extensions of the Ak Dağ. West of the Yazır Dağ appears a similar formation, part of which is called the Bayat Çölü. Both plateaus are separated from the Yazır Dağ by low saddles and valleys which lead southward into the basin of the Boğazlıyan Çay (Kara Su). The latter, turning northward, flows northwesterly between the steep eastern escarpment of the Malya Çölü and the western extension of the Yazır Dağ and Bayat Çölü, joining the Kanak Su just before it enters the gorge near Hacısefaath. Below this point the river is called the Delice Su.

The mound of Alişar is situated approximately 250 kilometers south of Samsun on the Black Sea, 340 kilometers north of Tarsus near the Mediterranean, and 500 kilometers east of İzmir on the Aegean.

In summing up the geographic and topographic features which are most important for understanding the political and cultural history of that part of Asia Minor in which Alişar is situated, the following two points deserve special emphasis: (1) As part of the large land bridge connecting inner Asia with Europe, Asia Minor was of necessity subjected to any migrations which passed over the bridge from west to east or from east to west. It would naturally be most accessible from the west and the northeast. Those parts which lay near one of the natural main routes would be affected especially by invasions. It was inevitable that the larger plains and valleys would be the sites of battles and conflicts, ravages and plunderings. But in the more remote mountain valleys the invaded and pressed population could find refuge in easily defensible positions. However, this same advantage held for the invaders and brigands, who could find strongholds from which they could descend upon and plunder the richer valleys



and plains at will, always retreating to their mountain lairs. (2) Characteristic of central Anatolia in particular is its division by nature into many small territories surrounded by mountains with only one or two natural inlets, inviting from the very beginning the formation of small independent realms and principalities, frequently possessing their own individual cultural features.

## HISTORY<sup>9</sup>

### TO THE END OF THE NEW HITTITE EMPIRE<sup>10</sup>

The oldest historical references to eastern and central Anatolia date from the period of the Akkadian Empire (about 26th century B.C.).<sup>11</sup> They tell of military expeditions of Sargon of Agade and Naram-Sin and describe various goods brought back, such as fruit, trees, silver, and precious stones. How many of these accounts are actually true, and how many are mere brag, we cannot yet decide. In one of the legendary texts of Naram-Sin an insurrection of seventeen kings is related, but nothing is said concerning their people or their society. If these reports are based on actual facts (and at least part of them must be), it is probable that they concern the territories south of the Kızıl Irmak and north and west of the Taurus and Anti-Taurus.<sup>12</sup>

Whether the rulers of the 3d dynasty of Ur had actual contact with eastern Anatolia is uncertain. The texts which could be interpreted as mentioning these territories might more plausibly concern North Syrian territories or perhaps refer to the Cilician plain.<sup>13</sup>

With the beginning of the 2d millennium B.C. we have texts which permit at least some historical deductions for central and eastern Anatolia. They are on cuneiform tablets of a special type, the greater part of which have been found at Kültepe in Cappadocia, but some of which have appeared in Alishar, Boğazköy, Nuzi (near Kirkuk), and Assur. The tablets from Kültepe may be dated between 2050 and 1950 B.C.<sup>14</sup> They are mercantile documents. From them we may infer that Kültepe at that time was called Kaniš and was the main trading center in Asia Minor (see Map IV)<sup>15</sup> of merchants who were seemingly representatives of large commercial houses in Assur. So far there is no conclusive evidence that Assyria actually dominated these areas either politically or culturally. The merchants seem to have occupied well defined quarters within or without the cities. The rulers were independent princes of another race, the so-called "Proto-Hittians," as their personal names show. In the documents a few apparently Hurrian names also appear.<sup>16</sup>

<sup>9</sup> This summary is a compilation of political data derived not from original sources but from standard books or articles by modern authorities on the various periods. The more important authorities consulted are listed in the bibliography given at the beginning of each political period.

<sup>10</sup> See OIP XXVII 1-18; E. F. Weidner, "Der Zug Sargons von Akkad nach Kleinasien," *Bogazköi-Studien*, Heft 6 (Leipzig, 1922); Albrecht Götze, *Kleinasien* (München, 1933) pp. 61-172 and "Das Hethiterreich; seine Stellung zwischen Ost und West," *AO XXVII* 2 (1928); Kurt Bittel and H. G. Güterbock, *Boğazköy. Neue Untersuchungen in der hethitischen Hauptstadt* (APAW, Jahrgang 1935, Nr. 1 [Berlin, 1935]); Fritz Schachermeyr, *Hethiter und Achäer* ("Mitteilungen der Altorientalischen Gesellschaft," IX 1/2 [Leipzig, 1935]) pp. 9-20; Bedřich Hrozný, art. "Hittites" in *Encyc. Brit.* (14th ed., 1929) XI 598-608; Robert S. Hardy, *History of the Old Hittite Kingdom* (in preparation); A. T. Olmstead, *History of Palestine and Syria to the Macedonian Conquest* (New York and London, 1931); Fritz Hommel, *Ethnologie und Geographie des alten Orients* ("Handbuch der Altertumswissenschaft," hrsg. von Walter Otto, 3. Abt., 1. Teil, 1. Bd. [München, 1926]); Eduard Meyer, *Geschichte des Altertums* II 1 (2. Aufl.; Stuttgart und Berlin, 1928); René Dussaud, *La Lydie et ses voisins aux hautes époques* (Paris, 1930); G. Contenau, *La civilisation des Hittites et des Milanniens* (Paris, 1934); L. Delaporte, *Les Hittites* (Paris, 1936). I am also indebted to Dr. Ignace J. Gelb for advice and suggestions on the history of this period.

<sup>11</sup> Weidner, *op. cit.*; the date is according to Frankfort, *OIC* No. 19, p. 86.

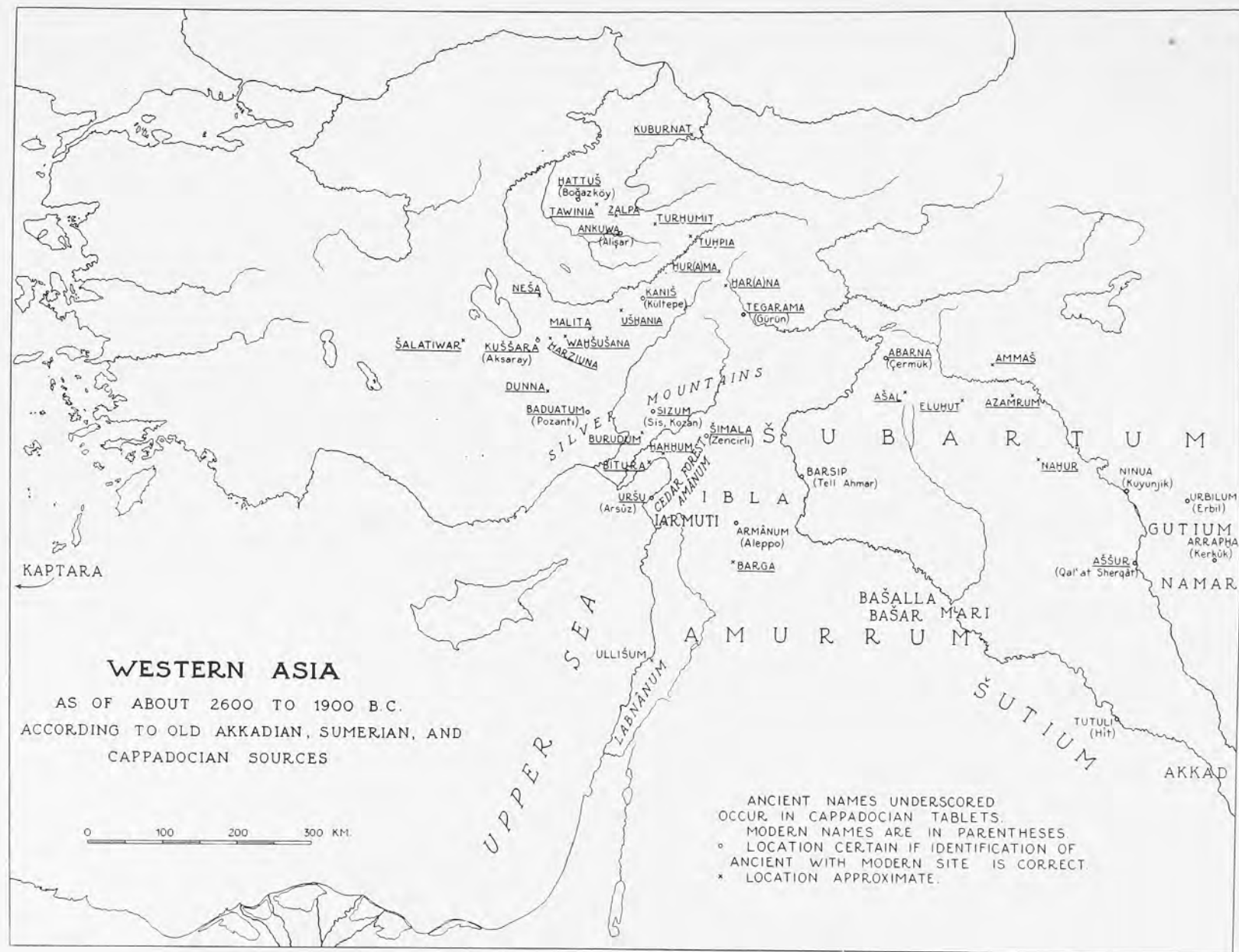
<sup>12</sup> OIP XXVII 3-7; Götze, *Kleinasien*, pp. 61-63.

<sup>13</sup> Götze, *op. cit.* p. 63.

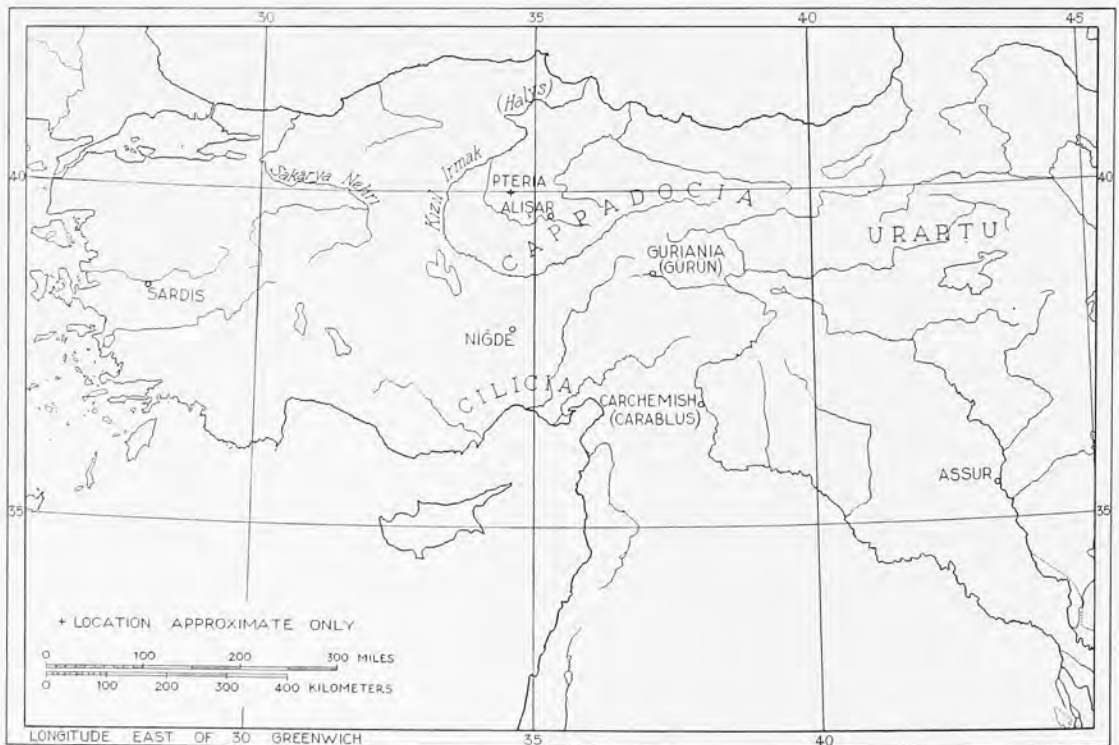
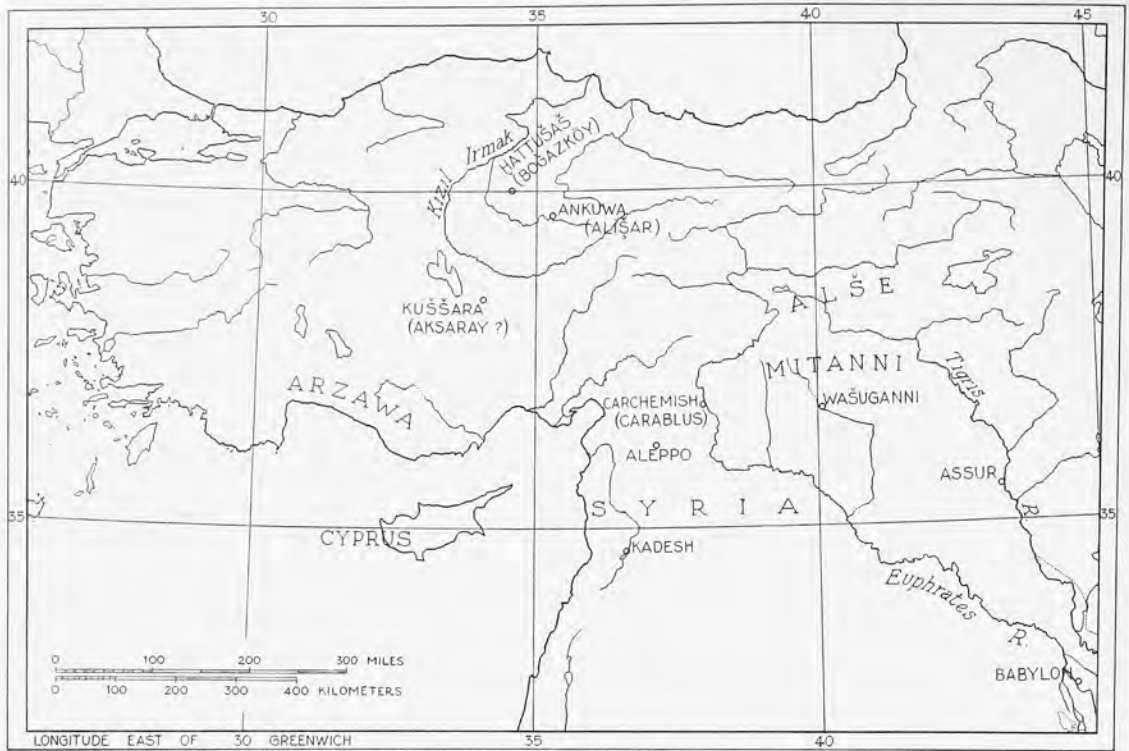
<sup>14</sup> Cf. OIP XXVII 8 f.

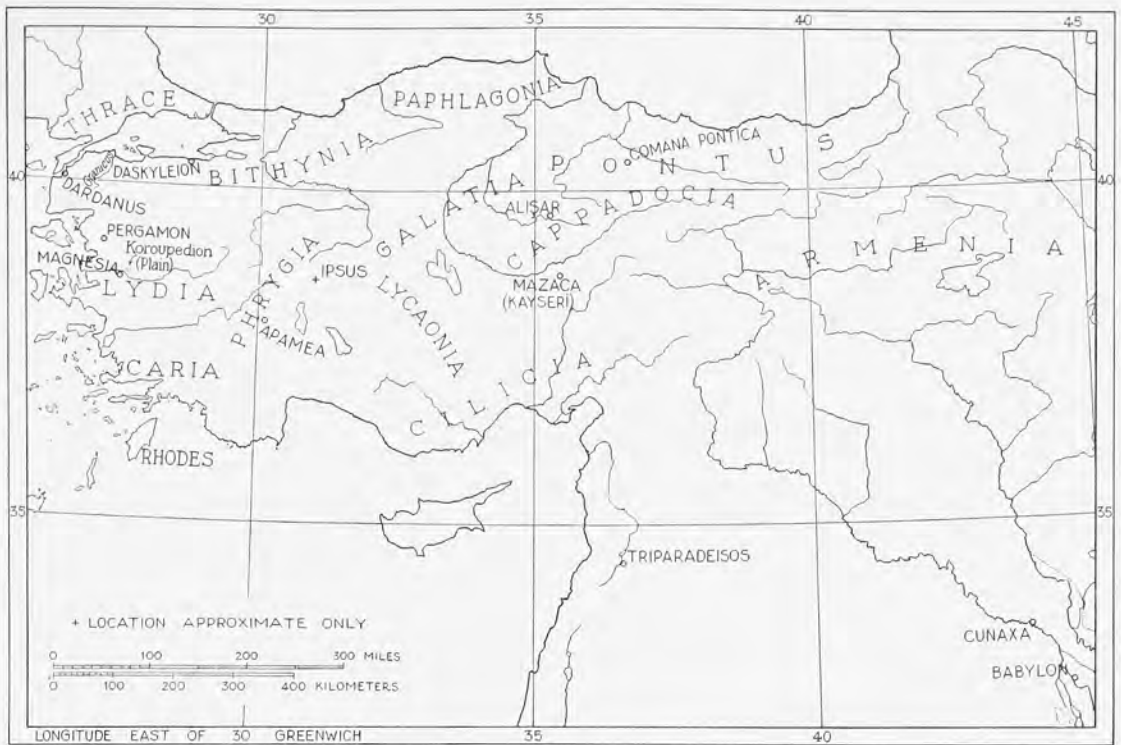
<sup>15</sup> Götze, *op. cit.* pp. 47 and 68.

<sup>16</sup> OIP XXVII 11-16; Götze, *op. cit.* pp. 67-72.

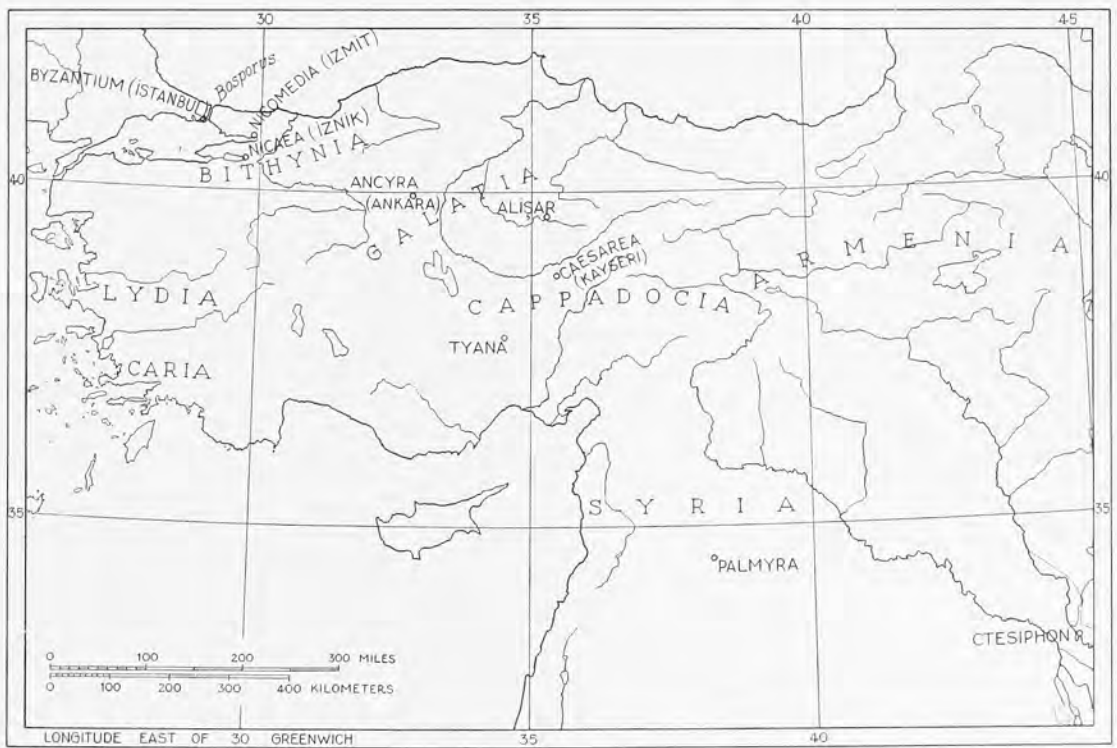


MAP IV.—THE EARLIEST HISTORICAL PERIOD IN WESTERN ASIA. REPRODUCED FROM *OIP* XXVII, PL. LXIII. SCALE, 1:7,500,000





MAP VII.—PERIOD OF THE PERSIAN AND MACEDONIAN CONQUESTS, INCLUDING THE HELLENISTIC PERIOD. SCALE, 1:12,000,000

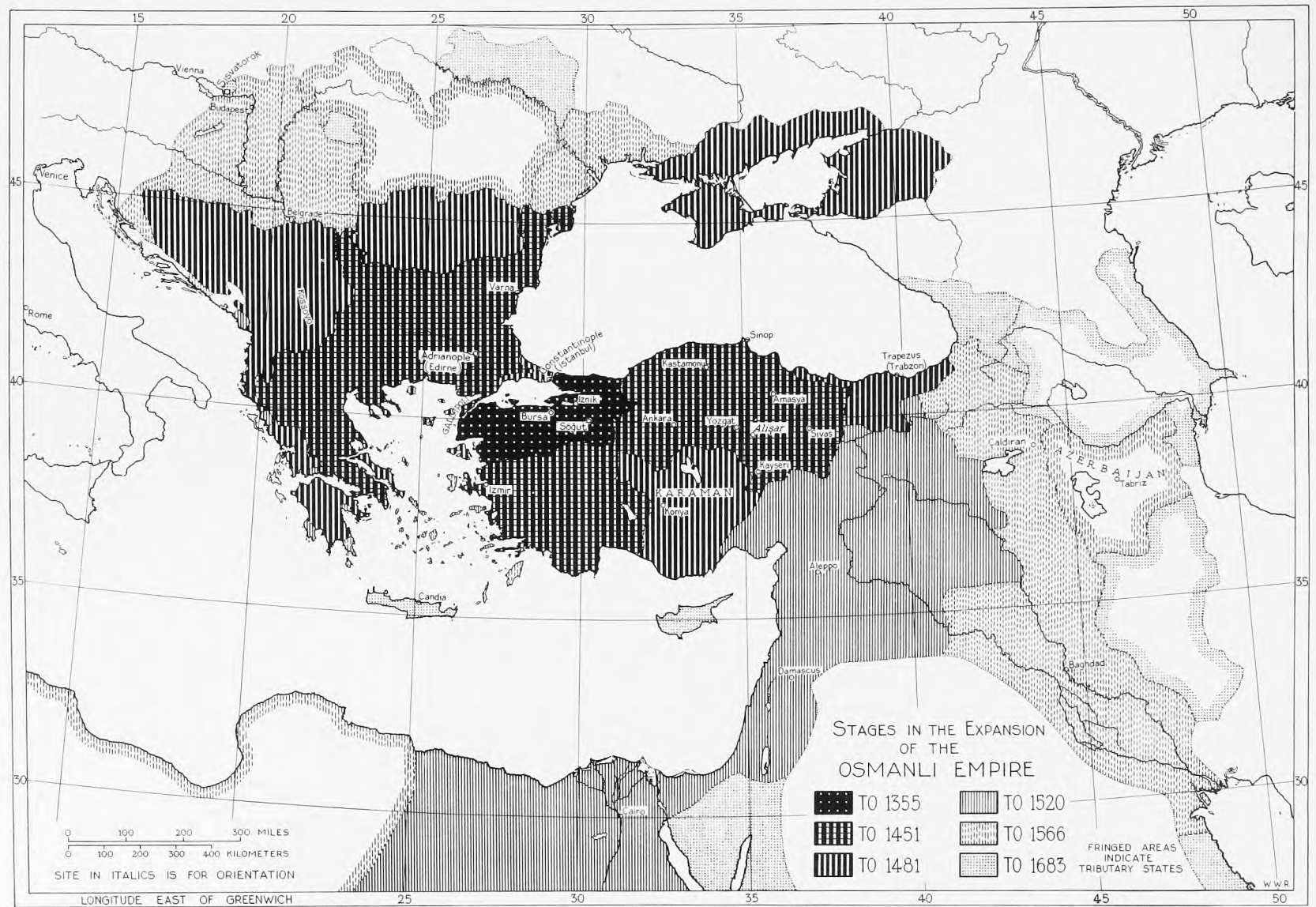


MAP VIII.—THE ROMAN PERIOD. SCALE, 1:12,000,000



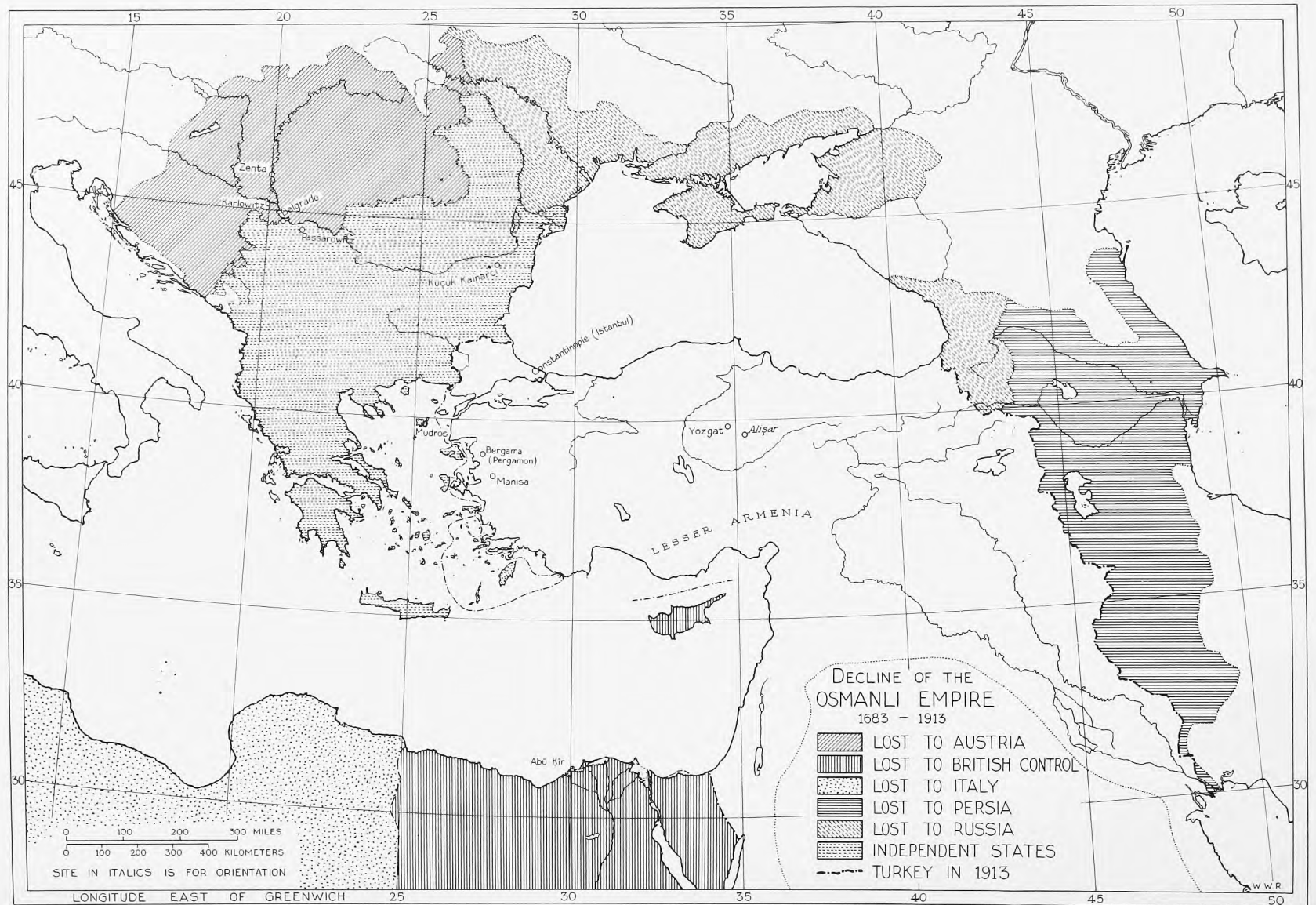


MAP IX.—THE BYZANTINE PERIOD, INCLUDING THE ARAB INVASIONS AND THE SELJUK DOMINATION. SCALE, 1:16,000,000

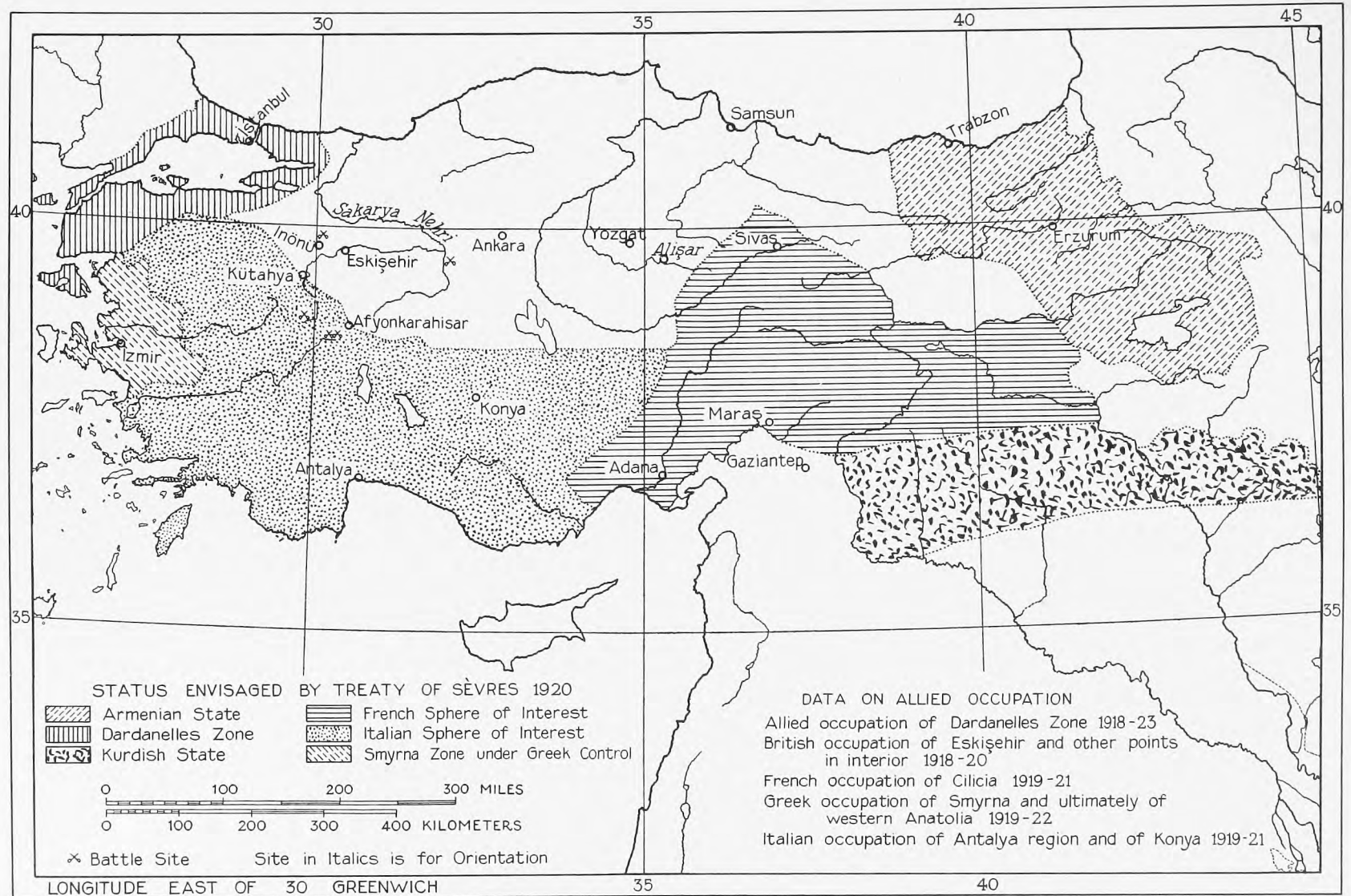


MAP X.—PERIOD OF EXPANSION OF THE OSMANLI EMPIRE. SCALE, 1:16,000,000

360

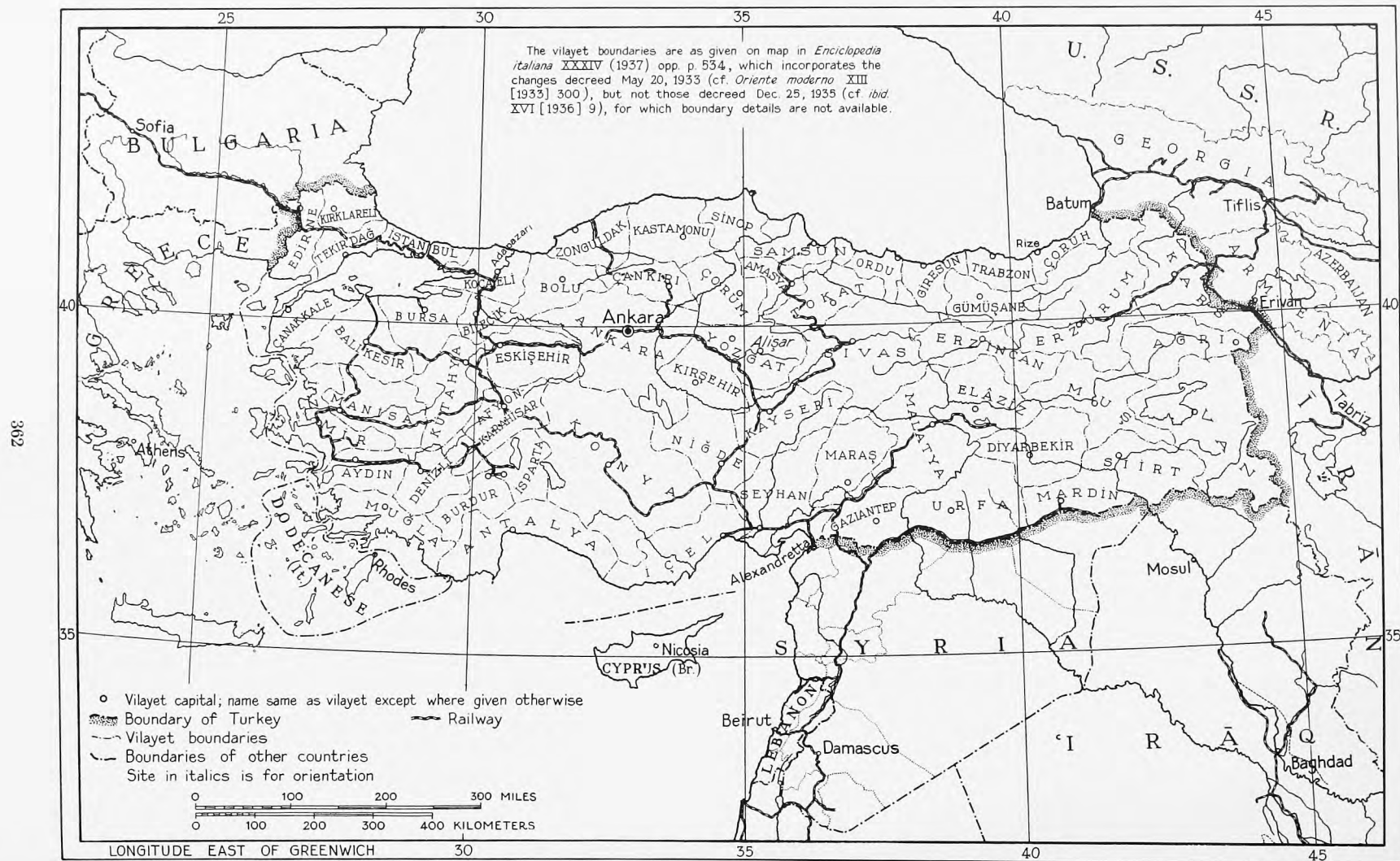


MAP XI.—PERIOD OF DECLINE OF THE OSMANLI EMPIRE. SCALE, 1:16,000,000



MAP XII.—PERIOD OF TURKISH STRUGGLE FOR INDEPENDENCE, 1918-23. SCALE, 1:8,000,000





The whole region, which must have comprised the larger part of the later Cappadocia (i.e. the territory from the Taurus northward, including the valleys of the Kanak Su, the Budak Özü, and the Hüseyin Ovası), seems to have been well organized, as there is little indication that commerce was endangered by the insecurity of roads.<sup>17</sup> The country seems to have been divided into many small independent principalities, often comprising no more than a city or town with the fields and pastures belonging to it. Two such city principalities seem to have exercised a certain hegemony over others; one of the two was Kuššara, which was to become the nucleus of the first Hittite Empire. The population cultivated various kinds of grain, refined olive oil, and raised sheep and cattle. The trading goods seem to have consisted chiefly of metals (such as copper, silver, and lead), fine cloth, and other fabrics. As even today in central Anatolia, the donkey was the chief means of transportation.<sup>18</sup>

About 1900 B.C. the records suddenly cease, perhaps because of the rise of a new power within the native principalities, perhaps because of the advent of a new ethnic element which gradually assumed the hegemony within the older city principalities of central Anatolia. In one of these ways began the Old Hittite Empire (Map V).<sup>19</sup>

About the first half of the 20th century B.C. we find that Anittaš, king of the city of Kuššara, conquered a number of other city states, including Hattušaš (the present Boğazköy).<sup>20</sup> It seems probable that Kuššara was situated somewhere west of modern Kayseri and that the path of conquest moved northward and northeastward.<sup>21</sup> The power of Kuššara had started to rise just previously under Pithanaš, the father of Anittaš, when other city princes also had begun similar conquests.<sup>22</sup> The period following Anittaš is still in a mist. Perhaps not much later we find references to King Tuthaliyaš I and his two sons, Pawahtelmaḥ and Pušarma. Pušarma was the father of Labarnaš, who may be considered the real founder of the Old Hittite Empire.<sup>23</sup> Under the latter the capital was shifted to Hattušaš. By this time the territory around Alışar was probably already under Hittite rule. Labarnaš expanded the dominion northward to the Black Sea and southward to the Mediterranean.<sup>24</sup> His son, Hattuşiliš I, continued the expansion and even attacked Aleppo in Syria.<sup>25</sup> After his death Mursiliš I continued the warfare in Syria, conquering and destroying Aleppo. He then invaded southern Mesopotamia and destroyed and sacked Babylon (ca. 1758 B.C.). The Hittite warriors returned laden with spoils. The invasion of Babylon must be considered more as a raid than as an actual conquest, but the Hittites seem to have kept their grip on Syria.<sup>26</sup>

Mursiliš I was assassinated by his brother-in-law Hantiliš, who succeeded him. Hantiliš had to defend his not yet well established empire on all sides. During his reign the Kaška appeared for the first time somewhere in the northeast, and from that time on these people were a constant menace and cause of unrest to the Hittite empires. Under Hantiliš the city of Hattušaš seems to have been fortified for the first time.<sup>27</sup> After his death followed a long period of internal revolts. One member after another of the royal family was assassinated. The empire suffered defeat after defeat, and the land was plagued by drought and famine. Finally Telepinuš succeeded in putting down the anarchy. The oldest edition of the Hittite law code probably dates from his rule.<sup>28</sup>

<sup>17</sup> Götze, *op. cit.* p. 72.

<sup>18</sup> *Ibid.* pp. 72-75 and 78.

<sup>19</sup> *Ibid.* p. 76; *OIP* XXVII 17 f.; Schachermeyr, *op. cit.* pp. 9-14.

<sup>20</sup> Götze in *AO* XXVII 2, p. 15. For a very recent discussion of this event, as well as for a history of the city of Hattušaš, see Bittel and Güterbock, *Boğazköy*, pp. 12-19; cf. also *MDOG* Nr. 74 (1936).

<sup>21</sup> *OIP* XXVII 17 f.

<sup>22</sup> Götze in *AO* XXVII 2, pp. 16 f.

<sup>23</sup> Götze in *AO* XXVII 2, p. 15.

<sup>24</sup> *Ibid.* pp. 17 f.

<sup>25</sup> *Ibid.* pp. 15 f.

<sup>26</sup> *Ibid.* p. 19; cf. Bittel and Güterbock, *op. cit.* p. 14.

<sup>27</sup> Götze, *Kleinasiens*, p. 78.

<sup>28</sup> Götze in *AO* XXVII 2, pp. 19-21.

During a period running parallel with the Hyksos domination of Egypt the records cease. Perhaps the Hittite Empire in Asia Minor was another victim of the Hyksos migration or of a movement of peoples connected with it.<sup>29</sup>

After 1450 B.C. we again have records of the Hittites. Tuthališa II states that he destroyed Aleppo, but it is improbable that he actually dominated Syria.<sup>30</sup> Under his successor, Hattuşiliš II, Aleppo was allied with Mitanni in Upper Mesopotamia, the most important of the states that succeeded the Hyksos domination. The Mitannian state soon formed a coalition against the rising Hittite power. Tuthališa III was at first successful in defending his frontiers, but soon his power was limited to the central part of the Kızıl Irmak basin, the land of the city of Hattuşaş.<sup>31</sup>

Tuthališa III was followed by his son Arnuwandaš I, and the latter by Šuppiluliumaš, who was contemporary with Ikhnaton of Egypt. In a long and energetic campaign Šuppiluliumaš first pacified the interior of Asia Minor. Then he started to surround his dominion by a chain of vassal states, the princes of most of which were related in some way to the members of the imperial Hittite house. After Asia Minor was securely under his control, Šuppiluliumaš descended upon Syria. His first assault on Tušratta, king of Mitanni, failed. Šuppiluliumaš then started systematically to isolate Tušratta. One after another the vassal or allied states left Mitanni. Then the Hittite king struck in North Syria, where a number of small principalities wavered between Mitanni and Egypt. Neither Egypt nor Mitanni aided its vassals, and Šuppiluliumaš was thus enabled to bring a number of them under his own control. Finally he attacked Mitanni proper and destroyed its capital, Wašuganni. He left Tušratta in possession of the territories east of the Euphrates and consolidated his own power in Syria. Tušratta was soon assassinated, and in the ensuing anarchy part of the Mitannian territory went to Alše (Alzi) and the rest to Assur. In Asia Minor Šuppiluliumaš continued to consolidate his dominion, fighting the Kaška especially.

With the reduction of the empire of Mitanni and the conquest of North Syria, the Hittite Empire had become the neighbor of the Egyptian Empire. The Egyptian resistance against the Hittites, centralized around Carchemish, was inefficient. In a campaign of five years Šuppiluliumaš consolidated the Hittite power in Syria and established there two states, with Carchemish and Aleppo as capitals, which he gave to two of his sons. To check the growth of the Assyrian state, Šuppiluliumaš created a new Mitannian state, which was, of course, completely dependent on him. The Hittite Empire was at this time as important as any other of the Near East. In Egypt, after the death of Ikhnaton, anarchy had broken out, and revolts were frequent against the successors of the religious reformer. The widow of Ikhnaton wrote to Šuppiluliumaš, asking for a son of his to be her husband. Her request was finally granted; but on his way to Egypt the Hittite prince was assassinated in Syria by partisans of Egyptian nationalism, who were opposed to Ikhnaton's widow as well as to being ruled by a foreigner.<sup>32</sup>

While Šuppiluliumaš was strengthening his empire in the south and in the east, there was unrest in Asia Minor, and after his death there were open revolts throughout the latter region and in Mitanni. His son, Arnuwandaš II, was not able to suppress the uprisings. After a short reign this son was succeeded by his younger brother, Muršiliš II, who averted the dissolution of the empire. He devoted the first years of his reign to consolidating his dominions in Asia Minor, while his brother, as king of Carchemish, subdued the Syrian territory. Thereupon Muršiliš II systematically broke the power of the Kaška and conquered the Arzawa lands. The remainder of his long reign was given to strengthening the empire, which under him had

<sup>29</sup> *Ibid.* pp. 21-23; Schachermeyr, *op. cit.* pp. 14 f. and 18.

<sup>30</sup> Olmstead, *History of Palestine and Syria*, pp. 155 f.

<sup>31</sup> Götze in *AO XXVII 2*, pp. 24-26.

<sup>32</sup> *Ibid.* pp. 26-31; Olmstead, *op. cit.* pp. 180-82; cf. Bittel and Güterbock, *op. cit.* p. 71.



again reached the dimensions of that of Šuppiluliumaš. It is from the reign of Muṣiliš II that we have documents which suggest to some scholars connections with the Greeks of the mainland.<sup>33</sup>

In the time of Muwatalliš, the son of Muṣiliš II, Egypt reappeared on the political horizon of the Hittites. Already Seti I (1313–1292) had pushed beyond Kadesh into North Syria. His successor, Ramses II, continued this policy. The Battle of Kadesh (1288), between the Egyptian and Hittite kings, ended rather in favor of the Hittites.<sup>34</sup> On the side of the Hittite king appeared a number of allies who are named later among the Sea Peoples rebuffed by Merneptah. Ramses II had to retreat toward the south, and Syria remained under the control of the Hittite Empire. While the Hittite king had been occupied in Syria, Assur had taken the occasion to expand its territory by taking a large part of Mitanni. Meanwhile the Kaška were held in check by Ḫattušiliš, the brother of Muwatalliš.<sup>35</sup>

Muwatalliš was followed by his son Urḫi-Tešup. The latter soon lost his throne to his uncle, Ḫattušiliš III, who had intrigued against him. In 1272 B.C. Ḫattušiliš concluded a peace treaty on even terms with the Egyptian pharaoh and preserved the power and extent of the Hittite Empire. In spite of clever diplomacy he could not, however, keep Assur from growing stronger and stronger. By the elimination of Mitanni, Assur had become the direct neighbor of the Hittites.<sup>36</sup>

Strained relations with Assur continued under Tuthaliyaš IV, the successor of Ḫattušiliš III. At the same time the Aegean migration (see Map VI), which later became the doom of the Hittite Empire, began to make itself felt and called for special defensive measures. Tuthaliyaš IV was able to hold the western frontier of his empire; hence the migrants tried to enter Egypt. The Egyptians under Merneptah (1225–1215 B.C.) repelled these Sea Peoples. Soon thereafter, in the time of Arnuwandaš III, the danger from the west, especially from the northwest, became more serious for the Hittites, who lost control of the western part of their possessions. Arnuwandaš seems to have been followed by a son, Tuthaliyaš V, in whose time a new wave of peoples, surging from the shores of the Aegean Sea with immense force and momentum, swept the Hittites and their empire from Asia Minor. The Kaška also seem to have played a not inconsiderable part in the destruction of the empire. In the mountains of the Taurus and the Anti-Taurus remnants of the Hittites were able to hold on in the small principalities of their former vassals. The western invaders swept into Cyprus, Syria, and Palestine. They were again turned back from Egypt, this time by Ramses III. It is hardly probable that the invaders were a homogeneous people. They were more likely various Indo-European hordes, such as the Phrygians and Lycians, who, after the wave had spent itself, continued to fight one another for the spoils.<sup>37</sup>

#### THE AEGEAN MIGRATION AND THE PHRYGIAN AND LYDIAN EMPIRES<sup>38</sup>

The first group of these invaders to found on the debris of the Hittite Empire a state of any consequence (and, as far as we can say historically, the only one) seems to have been the

<sup>33</sup> Götze in *AO XXVII* 2, pp. 31–35; *idem*, *Kleinasien*, pp. 171 f.; Olmstead, *op. cit.* p. 218; cf. Bittel and Güterbock, *op. cit.* p. 71.

<sup>34</sup> Olmstead, *op. cit.* pp. 216–22; cf. J. A. Wilson in *AJSL* XLIII (1927) 266–87.

<sup>35</sup> Götze in *AO XXVII* 2, pp. 35–37.

<sup>36</sup> *Ibid.* pp. 37–40; Olmstead, *op. cit.* pp. 225 f.; cf. Bittel and Güterbock, *op. cit.* p. 71.

<sup>37</sup> Götze in *AO XXVII* 2, pp. 40–43; Olmstead, *op. cit.* pp. 226 f.; cf. Bittel and Güterbock, *op. cit.* p. 71; Dussaud, *op. cit.* pp. 31–37 and 99–110.

<sup>38</sup> See A. Götze, *Kleinasien* (München, 1933) pp. 186–95; Eduard Meyer, *Geschichte des Altertums* II 1 (2. Aufl.; Stuttgart und Berlin, 1928); F. Hommel, *Ethnologie und Geographie des alten Orients* (München, 1926) pp. 27–33 (cf. 986 f.) and



Phrygians (Map VI).<sup>39</sup> However, we have archeological evidence that some time before the main body of Phrygians arrived in Asia Minor another people, culturally if not also racially related to the Phrygians, established smaller state organizations in eastern and central Anatolia. The Assyrians referred to them as "Muški (Muškaia)."<sup>40</sup> A large body of these Muški under their five kings invaded Upper Mesopotamia, occupying Assyrian territory, but they were not permitted to remain there long. Tiglathpileser I (ca. 1115-1093 B.C.) tells how he completely defeated these Muški and drove them back into the mountains.<sup>41</sup> They soon amalgamated with the remnants of the Hittites in the small principalities on both sides of the Taurus and Anti-Taurus.

Under the same name, "Muški," the Phrygians appear in the 9th century B.C. in Assyrian records.<sup>42</sup> But it is only in the last phase of the Phrygian Empire that the Assyrian kings came into contact with them north of the Taurus. The influence of the Phrygian kings must have extended over nearly all of Asia Minor, from the west coast far into the interior, covering large parts of the territory embraced by the Kızıl Irmak (including Alishar) and the plain south of Niğde (around ancient Tyana). The center of their realm was at first probably in the Sakarya basin.<sup>43</sup> New tribes from Europe may have been arriving on the west coast of Asia Minor, in their turn pressing the Phrygians. New states soon formed themselves, at first more or less dependent on Phrygia, then gradually gaining independence. In the mountains along the north and south coasts the Phrygian rule was probably never acknowledged. These regions were ideal retreats for "minorities," be they invading barbarians or remnants of those who had inhabited Asia Minor before the great migration. Between the Phrygian Empire and the kingdom of Urartu on the one side and the steadily expanding Assyrian Empire on the other were several small buffer states, most of them "Hittite," which were all too ready to change sides to whichever of these three nations seemed to offer the most advantages.<sup>44</sup>

Tukulti-Ninurta II of Assur (890-885 B.C.) tells of a victorious expedition against the Muški, and Ashurnasirpal II (885-860) lists tribute received from them.<sup>45</sup> In 718 we find Mita of Muški, who had become afraid of the steadily growing "sphere of influence" of Assyria under Sargon II (722-705 B.C.), instigating revolt against Assyria in the buffer states. Sargon suppressed the revolt and gave the land of the rebels to his devoted partisans. In 717 Mita formed an alliance with the king of Urartu and with Pisiris, king of Carchemish. Again Sargon defeated the rebels; and Carchemish, the last "Hittite" principality of the post-empire period, was reduced to a province. In 716 or 715 Sargon undertook a demonstration against the

210-14; Julius Lewy, "Forschungen zur alten Geschichte Vorderasiens," *MVAG* XXIX 2 (1925) pp. 1-14; G. and A. Körte, *Gordion. Ergebnisse der Ausgrabung im Jahre 1900* ("Jahrbuch des Kais. Deutschen archaologischen Instituts," 5. Ergänzungsheft [Berlin, 1904]) pp. 1-27; Sidney Smith, "The supremacy of Assyria," *CAH* III (1929) 32-58, "Sennacherib and Esarhaddon," *CAH* III 61-87, and "Ashurbanipal and the fall of Assyria," *CAH* III 113-31; E. H. Minns, "The Scythians and northern nomads," *CAH* III 187-205; A. T. Olmstead, *History of Assyria* (New York and London, 1923) pp. 63, 80, 85, 266-67, 358-68, 395, 421-26; *idem*, *Western Asia in the Days of Sargon of Assyria (722-705 B.C.). A Study in Oriental History* (New York, 1908) pp. 80-102 and 148-59; *idem* in *Hebrew Union College Annual* II (Cincinnati, 1925) 31 and 49 f.; *idem*, *A History of New Testament Times in the Near East* (in preparation) chap. ii; D. G. Hogarth, "Mushki and Phrygia," *CAH* III 166-67, "The Assyrian retreat," *CAH* III 145-47, and "Lydia and Ionia," *CAH* III 501-26; G. B. Gray, "The foundation and extension of the Persian Empire," *CAH* IV (1926) 1-25. For the Cimmerians and the Scythians see also M. Rostovtzeff, *Iranians and Greeks in South Russia* (Oxford, 1922) pp. 35-60. I am indebted to Dr. Waldo Dubberstein and Dr. George G. Cameron for advice and suggestions on this material.

<sup>39</sup> Götze, *Kleinasiens*, p. 189.

<sup>40</sup> Hommel, *op. cit.* pp. 31 f.; cf. Meyer, *op. cit.* p. 586.

<sup>41</sup> Götze, *Kleinasiens*, p. 187; Olmstead, *History of Assyria*, p. 63.

<sup>42</sup> Olmstead, *Western Asia in the Days of Sargon of Assyria*, pp. 81 f., n. 3, following Winckler, thinks that the Assyrians called the Phrygians Muški only because the Phrygians had conquered the territory once held by the Muški.

<sup>43</sup> *CAH* III 503-5.

<sup>44</sup> Götze, *Kleinasiens*, p. 189; *CAH* III 166 f.

<sup>45</sup> Olmstead, *History of Assyria*, pp. 80 and 85.

Phrygian king and passed the Taurus; he tells of twenty-two cities which he took from the Phrygians. Another revolt against Assyrian rule broke out in this region in 714 or 713, and Sargon then established a province there. The Phrygians were now the allies of the king of Urartu, the hereditary enemy of Assyria. In 712 Sargon drove a wedge between the two allies and fortified it, probably as far west as Guriania (classical Gauraina, modern Gürün). In 709 he invaded victoriously the Muški lands, and Mita paid tribute to Assyria.<sup>46</sup>

A few years later the first Cimmerians appeared in eastern Asia Minor. They were the vanguard of the great Cimmerian storm which broke through the passes of the Caucasus from the South Russian plains.<sup>47</sup> In 707 B.C. Argištiš, king of the Urartean Empire, had suddenly to abandon his yearly campaign against the Assyrians to meet this danger, which had appeared on the frontier of his realm out of the "Cimmerian darkness." Although by no means defeated, the invaders were deflected toward the west; but the Urartean Empire had been crippled. In 706 Sargon II of Assur marched toward the frontier of his empire, which was being menaced by these invaders. He succeeded in checking their advance, but lost his life one year later (705 B.C.) in a battle which was probably against the same people. His death was not in vain; the Cimmerians were at least for the time being turned toward the west, where they settled in Cappadocia east of the Halys, and for many years Assyria and its dependent territories were not directly threatened by them.<sup>48</sup>

While the easternmost territory of the Phrygian Empire had thus been lost to the Cimmerians, the Phrygians seem to have been able to repel and disperse the invaders in the west; but the Phrygian power had received a severe blow. It is probably due to this fact that Lydia gained its independence at this time, having been apparently a vassal state of Phrygia. That this first Cimmerian invasion had no more immediately serious effect on the Phrygian Empire may be due in part to the fact that somewhere in western Asia Minor the Cimmerian invaders clashed with similar hordes, for example with Treres, who had crossed directly from Europe, thus expending much of their force against these other raiders.<sup>49</sup>

The Cimmerian danger appeared again on the horizon of the Assyrian Empire during the rule of Esarhaddon of Assur (680–669 B.C.), and this time the movement was much stronger and more dangerous. The Urartean king had to retract his western frontier and secure it with fortresses.<sup>50</sup> The Medes appeared as allies of the Cimmerians.<sup>51</sup> The Assyrian king was able to hold his own against the Cimmerians only by allying himself with the Scythians, to whose king, Bartatua, he gave his daughter in marriage.<sup>52</sup> For the time being the Assyrian Empire was safeguarded from the onslaught. An effort to meet the Cimmerian danger in the west by a counter-offensive northward into Asia Minor from Cilicia in 679 was not entirely successful.<sup>53</sup> In the meantime the Cimmerian hordes, pressed by the Scythians, had fallen with renewed violence upon Phrygian territory and about 680 B.C. destroyed the last remains of independent Phrygia, King Mita (Midas) perishing by his own hand.<sup>54</sup>

<sup>46</sup> CAH III 54–56; Olmstead, *Western Asia in the Days of Sargon of Assyria*, pp. 82–96. On Gauraina see *ibid.* p. 92, n. 40, also Ramsay, *The Historical Geography of Asia Minor*, p. 309.

<sup>47</sup> Hommel, *op. cit.* pp. 210 f.; CAH III 188.

<sup>48</sup> Olmstead, *Western Asia in the Days of Sargon of Assyria*, pp. 155–57, and *History of Assyria*, pp. 266 f.; CAH III 59; Lewy, *op. cit.* pp. 3 f.

<sup>49</sup> Götze, *Kleinasien*, pp. 189 f.; CAH III 505 f.

<sup>50</sup> Olmstead, *History of Assyria*, p. 364.

<sup>51</sup> On the rise of the Medes and on their relations with the Assyrians, Cimmerians, and Scythians see George G. Cameron, *History of Early Iran* (Chicago, 1936) pp. 170–84; also Olmstead, *A History of New Testament Times in the Near East* (in preparation) chap. ii.

<sup>52</sup> Olmstead, *History of Assyria*, p. 360; CAH III 82.

<sup>53</sup> Olmstead, *op. cit.* pp. 363 f.; CAH III 83.

<sup>54</sup> Thus Olmstead, *op. cit.* p. 422. According to Eusebius these events occurred in 696/95, and according to Julius Africanus in 676 (see Körte, *Gordion*, pp. 20–24). Götze, *loc. cit.*, uses Eusebius' dating.

Gyges of Lydia, shortly after he succeeded Candaules, sent an embassy to Ashurbanipal of Assyria to ask aid against the Cimmerians; but even while his embassy was still in Assur, Gyges was able to drive back the invaders once more. In 652 B.C. the Cimmerians, reinforced by the Treres and Lycians, again attacked Lydia, and Gyges lost both throne and life. Shortly after this Sardis was taken and plundered. Then the Cimmerian hordes and their allies turned eastward again and approached Cilicia from the north. We do not know by what means it was done, but the Assyrian army was able to check this advance on Cilicia.<sup>55</sup> Turning northward again, the Cimmerian host probably met new groups of Scythians. The Cimmerians were dispersed; and those who survived retreated into the mountains of Cappadocia, assimilating there with the remaining population which had not been extinguished by the constant invasions of the last decades.<sup>56</sup>

A new Lydian Empire was formed out of the débris left by the Cimmerian invasion. The Cimmerians had not stayed long in the west coast region of Asia Minor; after a few raids against the Greek colonies there they had turned eastward again. Ardys, son of Gyges, soon started the reconstruction. He again established relations with Assyria. Unlike his father, Ardys followed an aggressive policy toward the Greek cities on the coast.<sup>57</sup> His successor, Alyattes, continued this policy at first, but soon directed his attention eastward. Gradually he incorporated more and more territory of the former Phrygian Empire into his own. About 590 B.C. he met the Medes under Astyages, who were pushing westward to incorporate parts of Asia Minor into their empire. Alyattes seems to have been successful in stopping them. In a treaty of 585 B.C. Astyages became the brother-in-law of Alyattes and recognized the Halys River as the western limit of the Median "sphere of interest."<sup>58</sup>

The successor of Alyattes of Lydia was Croesus. He at first directed his attention westward to the Greek colonies, which became more closely attached to the Lydian Empire. This was probably to their own advantage as well as to that of the hinterland; at least western Asia Minor was thus opened in a larger degree to commerce. About 550 B.C. Croesus had to turn his attention eastward. No problems had arisen there since the treaty with Astyages, to whom Croesus was related by marriage. But now the Mede had been overthrown by Cyrus, prince of the Persians. There is evidence that Croesus first tried to have Astyages released through diplomatic negotiations, but probably he soon realized that he had underestimated the Persian power. Croesus then, probably wanting to take advantage of the situation to secure Cappadocia for himself, with great deliberation prepared to attack across the Halys. Croesus' slowness gave Cyrus ample time to consolidate his power as well as to prepare his westward advance. An attempt by Cyrus to arouse the Greek cities along the west coast of Asia Minor did not succeed. Finally Croesus marched to the Halys and crossed the river. He seized Pteria and made several raids in the surrounding territory before he was checked by the arrival of the Persian army under Cyrus.<sup>59</sup>

The ensuing campaign seems to have been a draw. Croesus guided his army back over the Halys and dismissed a large part of his troops into winter quarters. Cyrus followed him quickly, but the Lydian king is said to have been unaware of the pursuit until shortly before he reached Sardis. After a valiant battle the Lydian army was routed. Croesus fled into the citadel of Sardis; but it was quickly taken, and he was made a prisoner (547 or 546 B.C.). A revolt of the Lydian Pactyas against the Persians was quickly suppressed. The dependence of the Greek cities along the coast was assured, and toward 540 B.C. we find the whole of Asia Minor

<sup>55</sup> Olmstead, *op. cit.* pp. 420-23; *CAH* III 116 f. and 506-10.

<sup>56</sup> *CAH* III 188 f.

<sup>57</sup> *Ibid.* pp. 511 f.

<sup>58</sup> *Ibid.* pp. 512 f.; cf. also Lewy, *op. cit.* pp. 14-18.

<sup>59</sup> *CAH* III 518-23 and IV 7-9; Olmstead in *Hebrew Union College Annual* II 49.



pacified. With the exception of minor regional disturbances, there were some two centuries of rest and peace under Achaemenian rule, during which the territory recuperated from the turmoil and ravages of past invasions.<sup>60</sup>

#### PERSIAN AND MACEDONIAN CONQUESTS<sup>61</sup>

Asia Minor was divided into satrapies like the rest of the Achaemenian Empire (Map VII). The satrapal organization was principally the work of Cyrus the Great; for with very few exceptions the various satrapies, including that of Cappadocia, were already in existence when Darius I ascended the throne.<sup>62</sup> He appears to have greatly strengthened and unified the internal organization of the satrapies and established law and order in a high degree throughout the far-flung empire.<sup>63</sup> In the account of his Scythian campaign a satrap of Cappadocia called Ariaramnes is mentioned as having made a reconnaissance by sea to southern Russia.<sup>64</sup> This, as well as other facts, precludes any doubt that the satrapy of Cappadocia comprised besides the Kızıl Irmak basin also that part of the Black Sea coast which later on became known as Pontus. Whether the Cappadocian satrapy extended south of the Kızıl Irmak, or this southern territory belonged to the satrapy of Cilicia, cannot yet be definitely determined.

Under Xerxes I some new satrapies were created, while some of the existing ones were combined, as is evident from the army list given by Herodotus.<sup>65</sup> Cappadocia, however, continued as an independent satrapy.<sup>66</sup> The inclusion of Cappadocia in the enlarged satrapy of Daskyleion, which comprised also the territories of the Hellespontic Greeks, the Phrygians, the Bithynians, the Paphlagonians, and the Mariandynians, did not, therefore, take place under Darius I, as is implied in the tribute list of Herodotus,<sup>67</sup> but occurred in the time of Artaxerxes I.<sup>68</sup>

In 407 B.C. Darius II carved out Lydia, Phrygia, and Cappadocia as a new satrapy for his son Cyrus the Younger and, in addition, appointed him commander-in-chief of the Persian army in Asia Minor.<sup>69</sup> Soon after Cyrus had assumed his appointment he started his ill-fated revolt against his brother, Artaxerxes II. Probably as a result of this rebellion, after the death of Cyrus the Younger in the Battle of Cunaxa a division of the Cappadocian satrapy took place. The northern part was given as the Pontic Cappadocian satrapy to Mithradates.

<sup>60</sup> Olmstead, *op. cit.* pp. 50 f.; *CAH* III 523–26 and IV 9 f.

<sup>61</sup> See K. J. Beloch, *Griechische Geschichte* (2. Aufl.; Strassburg, Berlin und Leipzig, 1912–27) III–IV; Benedictus Niese, *Geschichte der griechischen und makedonischen Staaten seit der Schlacht bei Chaeronea* ("Handbücher der alten Geschichte," 2. Ser., 1. Abt. [Gotha, 1893–1903]) I 45–50; Walther Judeich, *Kleinasiatische Studien* (Marburg, 1892) pp. 190–220 and his art. "Datames" in *PW* VIII 2224 f.; G. B. Gray, "The satrapies," *CAH* IV (1926) 194–96; W. W. Tarn, "The heritage of Alexander," *CAH* VI (1927) 461–504; A. T. Olmstead, *A History of New Testament Times in the Near East* (in preparation); Eduard Meyer, *Geschichte des Altertums* III–IV (2. Aufl.; Stuttgart und Berlin, 1915) and V (3. Aufl.; Stuttgart und Berlin, 1921); F. H. Weissbach, *Die Keilinschriften der Achämeniden* ("Vorderasiatische Bibliothek," 3. Stück [Leipzig, 1911]); Oscar Leuze, *Die Satrapieneinteilung in Syrien und im Zweistromlande von 520–320* ("Schriften der Königsberger gelehrten Gesellschaft," geisteswissenschaftliche Klasse, 11. Jahr, Heft 4 [Halle, 1935]) pp. 4–17 and 43–100; (Paul) Alfred Baumbach, *Kleinasien unter Alexander dem Grossen* (Weida i. Th., 1911) pp. 10–19; Ernst Meyer, *Die Grenzen der hellenistischen Staaten in Kleinasien* (Zürich und Leipzig, 1925) pp. 1–12; Götze, *Kleinasien* (München, 1933) pp. 196–98; Lehmann-Haupt, art. "Satrap (und Satrapie)" in *PW*, 2. Reihe, III 82–188. I am indebted to Professor Olmstead for the use of his manuscript and for his suggestions on the frontiers of the satrapies, as well as to Dr. Cameron and Dr. Debevoise for their advice and suggestions on the material of the Achaemenian period.

<sup>62</sup> Behistun inscription, § 6, in Weissbach, *Die Keilinschriften der Achämeniden*, p. 11.

<sup>63</sup> *Ibid.* pp. 9–105 (inscriptions of Darius I); Olmstead, *A History of New Testament Times in the Near East*.

<sup>64</sup> *PW*, 2. Reihe, III 121; Beloch III 2, p. 153.

<sup>65</sup> Herod. VII 61–80; cf. also Olmstead, *op. cit.*

<sup>66</sup> This is made definite by the Oriental Institute's recent discoveries at Persepolis.

<sup>67</sup> Herod. III 90.

<sup>68</sup> The full reasons for this interpretation are given by Dr. Olmstead, *op. cit.*

<sup>69</sup> *PW*, 2. Reihe, III 124; *CAH* VI 4; Eduard Meyer, *Geschichte des Altertums* IV 628.



The region north of the Taurus, which had perhaps formerly belonged to the Cilician satrapy, was added to the new Southern (Tauric) Cappadocian satrapy, which was given to Kamisares.<sup>70</sup>

Datames, who followed his father Kamisares in the rule of the Tauric Cappadocian satrapy and for meritorious service appears to have received the Pontic Cappadocian satrapy as well, started an insurrection about 370 B.C. against Artaxerxes II. This came to a full outbreak in 362/61 B.C. under the leadership of Ariobarzanes, satrap of Phrygia. It was bloodily suppressed, Datames having been assassinated (*ca.* 362).<sup>71</sup> His son Sysinas, who had not taken part in the revolt, received the satrapy of his father.

When Alexander the Great entered Asia Minor, the Tauric Cappadocian satrapy was under the rule of Mithrobarzanes. The latter was killed in the Battle of the Granicus.<sup>72</sup> The Pontic Cappadocian satrapy was at that time under the rule of Ariarathes.<sup>73</sup> After the conquest of the Persian Empire Alexander did not change the satrapies of Asia Minor, but Macedonian nobles replaced Persians except in the satrapy of Caria and in the two Cappadocias.<sup>74</sup> In Pontic Cappadocia, which was never conquered by Alexander, Ariarathes continued to rule. Very little is known of Sabiktas, whom Alexander appointed satrap of Southern Cappadocia.<sup>75</sup> Soon after the death of Alexander Asia Minor again became a battleground, as a result first of the political ambitions of the Diadochi, then of the Galatian invasions.

#### THE HELLENISTIC PERIOD<sup>76</sup>

After the sudden death of Alexander in Babylon in 323 B.C., the council of his generals decreed the joint kingship of his weak-minded half-brother Philip Arrhidaeus and of his young son Alexander, borne posthumously by Roxane. Only the former, as being of age, was entitled to the exercise of kingship, and Craterus was appointed as his executive guardian. Antipater, then commander-in-chief in Europe, was confirmed in his position, while Perdikkas was appointed to a corresponding position, that of chiliarch, in Asia. Since both kings remained for some years in Babylon, and since Craterus was absent in Europe, Perdikkas possibly took upon himself the actual exercise of the guardianship of Philip.<sup>77</sup>

In the division of the vast empire for administrative purposes Eumenes, Alexander's chancellor, received the two satrapies of Cappadocia (Map VII), the northern or Pontic satrapy being

<sup>70</sup> Beloch III 2, p. 154.

<sup>71</sup> Judeich, *Kleinasiatische Studien*, pp. 190-206; cf. PW VIII 2224 f., also Beloch III 2, pp. 254-57.

<sup>72</sup> PW VIII 2225; Beloch III 2, pp. 154 f.

<sup>74</sup> Ernst Meyer, *op. cit.* p. 8.

<sup>73</sup> Beloch III 2, p. 155; Ernst Meyer, *op. cit.* pp. 7 and 10.

<sup>75</sup> *Ibid.* pp. 10 f.

<sup>76</sup> For the period from the conquest of Alexander the Great to the establishment of the Roman province of Cappadocia see K. J. Beloch, *Griechische Geschichte* IV 1-2 (2. Aufl.; Berlin und Leipzig, 1925-27); B. Niese, *Geschichte der griechischen und makedonischen Staaten* (I 190-416; II 67-173, 350-504, 562-770; III); U. Wilcken, *Griechische Geschichte im Rahmen der Altertumsgeschichte* (3. Aufl.; München und Berlin, 1931) pp. 189-211; A. T. Olmstead, *A History of New Testament Times in the Near East* (in preparation); (Paul) Alfred Baumbach, *Kleinasien unter Alexander dem Grossen*; Ernst Meyer, *Die Grenzen der hellenistischen Staaten in Kleinasien*; Fritz Schachermeyr, "Zu Geschichte und Staatsrecht der frühen Diadochenzeit," *Klio* XIX (1925) 435-50; Theodor Mommsen, *Römische Geschichte* (7. Aufl.; Berlin, 1881-82) II 263-303, 333 f., and III 40-164; W. E. Gwatkin, *Cappadocia as a Roman Procuratorial Province* ("University of Missouri Studies" V 4 [1930]); W. W. Tarn, "The heritage of Alexander," *CAH* VI 461-504; M. Rostovtzeff and H. A. Ormerod, "Pontus and its neighbors: the First Mithradatic War," *CAH* IX (1932) 211-60; H. A. Ormerod and M. Cary, "Rome and the East," *ibid.* pp. 350-96; W. W. Tarn, "Antony in the East," *CAH* X (1934) 31-35; also the following articles in PW: Klebs, "Aquilus," III 323 f.; Wilcken, "Archelaos" and "Aristonikos," III 450 f. and 962-64; Niese, "Ariarathes V-X," "Ariobarzanes I-III,"<sup>77</sup> and "Deiotarus," III 818-21, 833-35, VIII 2401-3; F. Geyer, "Mithradates V-VI," XXX 2162-2205. For the Galatians in Asia Minor see Felix Stähelin, *Geschichte der kleinasiatischen Galater bis zur Errichtung der römischen Provinz Asien* (Basel, 1897 [2d ed., 1907, not available]); Félix Robiou de la Tréhonnois, *Histoire des Gaulois d'Orient* (Paris, 1866); Brandis, art. "Galatia" in PW XIII 519-59.

<sup>77</sup> *Klio* XIX (1925) 435-50; *CAH* VI 461 f.; Beloch IV 1, pp. 64 f.

still unconquered. After careful preparation Perdicas attacked and defeated Ariarathes, satrap of Pontic Cappadocia, and, after executing him, installed Eumenes as satrap of the whole of Cappadocia in 322 B.C. Perdicas, aided by Eumenes, then attempted openly to gain the regency; but before a decisive battle could be fought Perdicas was assassinated by his own troops in Egypt, and Eumenes was declared banished by the army. Craterus had only shortly before been defeated and killed by Eumenes in Asia Minor.<sup>78</sup>

Nicanor was now appointed satrap of Cappadocia by Antipater, whom the combined Macedonian army, united for the last time at Triparadeisos in Syria, had appointed regent of the empire. Asia Minor, or as much of it as was still in the hands of the adherents of Perdicas, was conquered in two brilliant campaigns by Antigonos, the satrap of Phrygia, who was a partisan of Antipater. Antipater died in 319 B.C. and Polyperchon became regent.<sup>79</sup>

Antigonos formed a coalition of the other satraps and generals against Polyperchon and reinstated Eumenes in Cappadocia. But almost immediately Eumenes, loyal to the royal house and possibly tempted by high appointments, went over to Polyperchon. A general struggle ensued from Greece to the Nile and the Indus. With the exception of Roxane and her son, who became prisoners of Cassander, all the relatives of Alexander lost their lives. Finally Cassander emerged as victor in Europe. Antigonos gained the supremacy in Asia after a violent struggle with Eumenes, in which Cappadocia was often the battleground. Eumenes was finally taken prisoner and executed. Although the pretense of a regency for the son of Alexander was kept up until he and his mother Roxane were murdered by Cassander in 310 or 309, the empire in 311 B.C. was in reality divided into five empires, under Cassander, Antigonos, Seleucus, Lysimachus, and Ptolemy respectively. An attempt by Ptolemy to reduce the power of Antigonos was foiled. Antigonos then reached for the diadem of Alexander the Great. Together with his son Demetrius he valiantly fought a coalition of the other four rulers. In spite of a promising beginning, the Battle of Ipsus (301 B.C.) ended with the complete defeat of Antigonos, who lost his life on the battlefield.<sup>80</sup>

With the exceptions of Cilicia and adjacent territories up to the Euphrates (which were formed into a buffer state under Pleistarchus) and of parts of Caria, Asia Minor was given to Lysimachus as his share of the spoils. He incorporated it with his Thracian possessions. The larger part of the territory of Pleistarchus soon fell to Seleucus, and parts of the south coast became Ptolemaic possessions. After many campaigns Lysimachus finally established his power over Asia Minor except for the provinces claimed by Seleucus and Ptolemy and two independent states, Bithynia and Paphlagonia, which had formed themselves during these struggles. A final attempt of Demetrius to regain the Asiatic possessions of his father Antigonos failed in 287 B.C.; after having tried to hold on in Cappadocia he was forced to go to Cilicia, where he was imprisoned. The power of Lysimachus was weakened by domestic intrigues, and after a general revolt against him in Asia Minor all his possessions there were conquered by Seleucus. In the Battle of Koroupedion (281 B.C.) Lysimachus lost his life fighting for his empire.<sup>81</sup>

How firmly the power of the Seleucids was really established in Asia Minor after this event is uncertain. They were interested in Asia Minor proper more as a connection with the Aegean Sea than as a territory in itself. Bithynia, Paphlagonia, and Pontic Cappadocia, henceforth called Pontus, were never subdued but continued as independent principalities.<sup>82</sup> Around 260 B.C. Ariarathes II defeated Amyntas, the Seleucid satrap of Southern Cappadocia, and es-

<sup>78</sup> *CAH* VI 465-69; Beloch IV 1, pp. 65 f. and 79-90.

<sup>79</sup> Beloch IV 1, pp. 90-98; *CAH* VI 469-72; Ernst Meyer, *op. cit.* pp. 12-16.

<sup>80</sup> Beloch IV 1, pp. 98-169; *CAH* VI 476-504; Ernst Meyer, *op. cit.* pp. 17-27.

<sup>81</sup> Beloch IV 1, pp. 210-44; Ernst Meyer, *op. cit.* pp. 27-40. <sup>82</sup> Ernst Meyer, *op. cit.* pp. 108-44, esp. pp. 135-37.

tablished himself there as an independent ruler with his capital at Mazaca (later called Eusebeia, then Caesarea, today Kayseri). He was succeeded by his son Ariaramnes. Pergamon had previously been recognized as independent by Antiochus I, the successor of Seleucus. Only with many struggles did the kingdom of Cappadocia retain its absolute independence until the advent of the Romans.<sup>83</sup>

About 278/77 B.C. Nicomedes of Bithynia had called the Galatians from Thrace, which they had invaded, to aid him in suppressing an insurrection. This, however, was probably not his only reason for calling in these mercenaries, who came with wives and children. His chief attention, as well as that of the other independent princes of Asia Minor, was directed against the Seleucid power in the south. The Galatians were not easy to handle. In spite of being valuable as soldiers, they were the scourge of the whole peninsula, being given to plundering and burning when not occupied in "legitimate" war. In fact, they plundered Anatolia for a hundred and fifty years, much as the Cimmerians had done before them. They soon divided into three main groups, one of which, the Trocmi, ravaged the eastern part of Anatolia. The Seleucid king Antiochus I succeeded in inflicting a severe defeat upon the Galatians in a battle between 270 and 265 B.C., thus creating a limited period of safety from these murderous hordes. In 241 B.C. a victory of the Pergamenians under Attalus saved the western part of Asia Minor for a time from their invasions. The Galatians slowly concentrated in the eastern part of Phrygia Major and the western part of Cappadocia, and this territory was afterward named Galatia. From there they continued their raids, and eastern Cappadocia suffered more than a little from these western neighbors. Nevertheless, the Cappadocian rulers seem to have held their own fairly well in their struggles against the Galatians, as also in the intrigues of the independent princes of Asia Minor against the Seleucid power and in the "brother war" of Seleucus II and Antiochus Hierax (235-226 B.C.).<sup>84</sup>

The Seleucid Antiochus III started energetically to bring under at least formal domination those parts of Asia Minor which were not included under the rule of Cappadocia, Bithynia, or Pontus. Pergamon had expanded greatly, and one of the objectives of Antiochus III was to reduce its power. This policy brought him into conflict with the expanding interests of Rome. In the Battle of Magnesia (190 B.C.) Antiochus III was defeated, and with the ensuing Treaty of Apamea in 188 B.C. Rome became dominant over the Hellenistic states of Asia Minor. The Seleucids had lost forever their influence in western Asia Minor.<sup>85</sup>

Probably on the request of Eumenes II of Pergamon, who had loyally assisted the Romans against the Macedonians and against Antiochus III, the Roman general Cn. Manlius Vulso started a campaign against the Galatians. His justification was the fact that Galatians had fought in the Battle of Magnesia as allies of Antiochus III. The Galatians retreated to the mountains, but were routed completely in two battles and forced to settle down (188 B.C.). Galatia became a kind of dependency of the king of Pergamon. After the defeat of the Galatians Ariarathes IV of Cappadocia, who had assisted Antiochus III in his struggles against the Romans, hastened to make his peace with Rome; and from then on the Cappadocian rulers always sided with Rome. Ariarathes IV also concluded an alliance with Eumenes of Pergamon, the great friend of the Romans, and Eumenes married a daughter of Ariarathes. The treaty held good until the last Pergamene ruler died, willing his realm to Rome.<sup>86</sup>

Eumenes II of Pergamon, shortly after he had completed, with Roman intervention, a war against Prusias of Bithynia (184 B.C.), suppressed a Galatian revolt. In 183 Pharnaces of

<sup>83</sup> Beloch IV 1, pp. 670-72, and IV 2, pp. 217 f.; Ernst Meyer, *op. cit.* pp. 121 f.

<sup>84</sup> F. Stähelin, *Geschichte der kleinasiatischen Galater*, pp. 10-37; Ernst Meyer, *op. cit.* pp. 132-34.

<sup>85</sup> Niese II 637-43 and 674-762; Ernst Meyer, *op. cit.* pp. 140-44.

<sup>86</sup> Stähelin, *op. cit.* pp. 64-74; Niese II 750-56.



Pontus attacked Galatia and Cappadocia. Rome, to which Eumenes and Ariarathes appealed, deliberately arbitrated so slowly that the war continued and assumed greater dimensions. The prince of Armenia, Mithradates, united with Pharnaces. Even Seleucus IV entered the coalition against Eumenes and Ariarathes. After the Romans in 180 had diplomatically deferred positive action, Eumenes and Ariarathes led a combined attack which finally resulted in forcing the Pontic king to a peace and again put Galatia under Pergamene supremacy. After 168 the principalities of Pergamon and Cappadocia suffered again because of an insurrection of the Galatians. Rome, to which Eumenes appealed, refused to aid; and only after both principalities had suffered much were Eumenes II and Ariarathes IV able to subdue the Galatians in 166 B.C. Roman intervention forced a guaranty of Galatian independence.<sup>87</sup>

With the succession of Ariarathes V in 163/62 B.C. Hellenistic culture entered Cappadocia to a larger extent than before. We are informed about the foundation of several Hellenistic settlements. In 159 Orophernes, a half-brother of Ariarathes V, started a revolt. An appeal by Ariarathes to Rome resulted in the division of the kingdom of Cappadocia between Ariarathes V and Orophernes; but this was of short duration. In 156 we find Ariarathes again in control of all Cappadocia. Together with a number of other Hellenistic princes in Asia Minor he took the side of Alexander Balas in the latter's struggle with Demetrius over the succession to the Seleucid throne.<sup>88</sup>

Attalus III (138–133 B.C.) willed Pergamon to Rome. Aristonicus, a pretender to the Pergamene throne, tried in vain to gain possession of it. In 132 the kings of the surrounding Hellenistic states, including Bithynia and Cappadocia, attacked him in behalf of Rome. In one of the battles Ariarathes V of Cappadocia fell. In 131 a Roman army under Publius Licinius Crassus was defeated, Crassus himself being taken prisoner. His successor, Marcus Perpenna, however, defeated Aristonicus and forced him to surrender. Manius Aquilius, who succeeded Perpenna, broke the last opposition and instituted the Roman province of Asia after recompensing the surrounding rulers who had assisted Rome in taking over the inheritance of Pergamon. Phrygia Major was given to Mithradates V of Pontus, and with it Galatia may have come temporarily under Pontic influence. Lycaonia and parts of Cilicia were donated to the heirs of Ariarathes V; from then on the destiny of Cappadocia was more than ever dependent on Rome.<sup>89</sup>

In the Mithradatic wars the Galatians were faithful supporters of the Romans. When in 88 B.C., at the instigation of the Pontic king Mithradates VI, all the Romans in Asia Minor were massacred in one day, many Galatian nobles also were killed.<sup>90</sup> The loyalty of the Galatians to the Roman cause and their hatred of the Pontic kingdom, against the constant inroads of which they had to struggle, became more confirmed than ever. They subsequently supported Lucullus and Pompeius. In 63 B.C. Pompeius reorganized Galatia, and Brogitarus became the ruler of the eastern part of it, the land of the Troemi. Soon the Troemi complained to Rome of constant encroachment on their territory and liberty by Deiotarus, the ruler of the Tolistobogii. In spite of this complaint Deiotarus was confirmed by Rome in 44 B.C. as king of all the Galatians. In 40 B.C. Antonius confirmed Castor as successor of Deiotarus. Castor was succeeded by Amyntas, after whose death in 25 B.C. Galatia was incorporated as a Roman province.<sup>91</sup>

The kingdom of Cappadocia was one of the last territories in Asia Minor to be united

<sup>87</sup> Niese III 69–79 and 199–206; Stähelin, *op. cit.* pp. 77–90.

<sup>88</sup> Niese III 248–52 and 258–62.

<sup>89</sup> Niese III 363–75; PW III 962–64 and 323 f. and XIII 546.

<sup>90</sup> PW XXX 2170; *CAH* IX 242 and 254.

<sup>91</sup> F. Robiou, *Histoire des Gaulois d'Orient*, pp. 233–58; PW XIII 546–49 and VIII 2401–3; *CAH* IX 211–60 and 350–96 and X 34 and 174.



formally with the Roman Empire as a province. Since the defeat of Antiochus III at Magnesia (190 B.C.) Cappadocia had been to a large extent dependent on the good will of Rome. Ariarathes V left six minor sons (*ca.* 130 B.C.). From a chaos of family intrigues and revolts Ariarathes VI finally emerged as king. At the very beginning of his reign it was necessary for him to defend himself against the steadily growing power of the Pontic kingdom under Mithradates V. It was probably with the assistance of the Romans that he was able to keep his throne. The successor to the Pontic throne, Mithradates VI, was the last of the Hellenistic kings to put up a persistent and stubborn resistance to the steadily increasing influence of Rome in Asia Minor. He now renewed the attempt to add Cappadocia to his kingdom. At his instigation Gordius assassinated Ariarathes VI about 112 B.C. Mithradates VI then installed the son of the assassinated king as Ariarathes VII on the throne of Cappadocia under the regency of his mother, Laodice, who was Mithradates' sister. But Laodice married the king of Bithynia and with his help tried to free Cappadocia from the Pontic supremacy. Mithradates VI then deposed Laodice as regent and installed Ariarathes VII as king *de facto*, demanding at the same time that Gordius, the murderer of the new king's father, be recalled. Ariarathes VII refused and assembled a large army, assisted by the other Hellenistic princes of Asia Minor. Before the battle Mithradates arranged an interview with Ariarathes and killed him with his own hand. Mithradates then installed his own son (later Ariarathes IX) as king of Cappadocia. The people revolted and expelled the foreign prince, crowning the brother of the assassinated Ariarathes VII as Ariarathes VIII. But Mithradates soon succeeded in overthrowing this native king; and Ariarathes VIII, the last king of the old Cappadocian dynasty, died in exile about 95 B.C.<sup>92</sup>

Mithradates VI continued with renewed energy to fortify his power against the Roman influence. First he reinstated his own son as Ariarathes IX on the throne of Cappadocia. The question of the succession came for arbitration before the Roman Senate, and the Cappadocian people were granted liberty of election. They chose a Cappadocian, Ariobarzanes I, as their king, and Ariarathes IX had to leave Cappadocia a second time. Still Mithradates persisted in his attempt to control Cappadocia; twice Ariobarzanes I was expelled, and twice he was reinstated with Roman help (by Sulla in 92 and by Cassius in 90 B.C.).<sup>93</sup>

At the outbreak of open hostilities between Mithradates VI and Rome in the First Mithradatic War Cappadocia was the principal battleground. Again Ariobarzanes I had to leave the country, to return only after the peace of Dardanus in 85 B.C. Mithradates did not evacuate the whole of Cappadocia, as was demanded in the treaty; but in the Second Mithradatic War the Romans drove him out. Ariobarzanes I and Mithradates VI then settled their personal difficulties and fortified their alliance by an intermarriage. Rome interfered because it did not desire the strengthening of the Pontic power, which was far from being broken despite the lost war. Sulla finally forced Mithradates VI to give up the Cappadocian lands which Ariobarzanes I had agreed to leave in the possession of the Pontic king. As an act of revenge Tigranes of Armenia, son-in-law of Mithradates VI of Pontus, invaded Cappadocia soon after the death of Sulla in 78 B.C., and only after a large part of it had been ravaged and plundered did he retreat again into the mountains.<sup>94</sup>

Meanwhile King Nicomedes III of Bithynia had died, leaving his kingdom to Rome. Mithradates VI declared war (Third Mithradatic War) on Rome and occupied Bithynia; one of his armies occupied Cappadocia. After early defeats Mithradates seemed able to hold his own. In 66 B.C. Pompeius was nominated commander-in-chief of the Roman troops in Asia, with unlimited authority. In a brilliant campaign he drove Mithradates VI back and by 63 B.C. had reorganized Asia Minor. Bithynia and Pontus were united as a Roman province. Cappa-

<sup>92</sup> PW III 818-20 and XXX 2166 f.

<sup>93</sup> PW XXX 2167 f. and III 833.

<sup>94</sup> PW III 833 f. and XXX 2178 f.; CAH IX 211-60 and 353 f.

docia, enlarged by parts of Cilicia, remained nominally the last independent state in Asia Minor. In his South Russian territories, his last possessions, Mithradates VI prepared a new scheme to break the Roman power by an invasion of Italy itself; but when his own son Pharnaces revolted against him he killed himself.<sup>95</sup>

Ariobarzanes I of Cappadocia abdicated about 62 B.C. in favor of his son, who, after the consent of Pompeius was received, succeeded to the throne as Ariobarzanes II. After continuous internal struggle and revolt he was assassinated about 52/51 B.C. His son Ariobarzanes III was recognized by Rome as his successor; and Cicero, then proconsul of Cilicia, helped him to gain his throne. In the ensuing Roman civil war Ariobarzanes III sided with Pompeius, but Julius Caesar pardoned Ariobarzanes and even enlarged his territory. Since the Cappadocian king did not take sides with the murderers of Caesar, he was assassinated at the instigation of Cassius in 43 B.C.<sup>96</sup> His brother Ariarathes X succeeded him. A quarrel between the two brothers had been arbitrated earlier by Caesar, who had designated Ariarathes X as crown prince. The Cappadocians did not favor this new ruler. They elected Archelaus, also called Sisines, as their king.<sup>97</sup> Sisines was of a Pontic family; his father, as high priest of Comana Pontica, had previously participated in the intrigues against the last kings of the old Cappadocian dynasty. However, in 41 Antonius recognized Sisines as king of Cappadocia. In spite of this, for many years the latter had to fight Ariarathes X, the grandson of the king elected two generations earlier. In 36 B.C. Antonius dethroned and killed Ariarathes and established Sisines on the throne. In the Battle of Actium Sisines sided with Antonius. After the defeat of Antonius, Octavianus permitted Sisines to keep his realm. Sisines, however, had difficulties with his subjects, who accused him at Rome. Tiberius defended him; but, during the voluntary exile of Tiberius in Rhodes, Sisines showed no gratitude whatsoever. Upon the succession of Tiberius to the throne of Augustus, Sisines was called to Rome and accused before the Senate. Before his case came to judgment Sisines died (A.D. 17); in the same year Tiberius converted Cappadocia into a province of the Roman Empire.<sup>98</sup>

#### THE ROMAN PERIOD<sup>99</sup>

Tiberius commissioned Germanicus to organize the Roman possessions in the East, among them the new province of Cappadocia (Map VIII).<sup>100</sup> Until the Sasanian invasion of A.D. 230 Cappadocia enjoyed a relatively peaceful period as a province of the Roman Empire.

#### PARTHIAN INVASIONS<sup>101</sup>

Armenia, however, proved a constant source of friction with the Parthians under the rule of the Arsacids, although through the diplomacy of Germanicus peaceful relations were maintained for sixteen years. The Arsacid dynasty, heir to the Seleucid rule in Iran and Meso-

<sup>95</sup> PW XXX 2181-98; CAH IX 390 f.

<sup>96</sup> PW III 834.

<sup>97</sup> *Ibid.* cols. 820 f.

<sup>98</sup> *Ibid.* cols. 450 f.; Gwatkin, *Cappadocia as a Roman Procuratorial Province*, pp. 7-16.

<sup>99</sup> See Theodor Mommsen, *The Provinces of the Roman Empire from Caesar to Diocletian* (London, 1909); H. Dessau, *Geschichte der römischen Kaiserzeit* (Berlin, 1924-30); Alfred von Domaszewski, *Geschichte der römischen Kaiser* (Leipzig, 1909); Edward Gibbon, *The History of the Decline and Fall of the Roman Empire* (orig. dated 1776-81) ed. by J. B. Bury (7 vols.; London, 1896 ff.; the various "editions" appear to be only impressions); A. T. Olmstead, *A History of New Testament Times in the Near East* (in preparation); W. T. Arnold, *The Roman System of Provincial Administration to the Accession of Constantine the Great* (3d ed.; Oxford, 1914); Emil Kuhn, *Die städtische und bürgerliche Verfassung des römischen Reichs bis auf die Zeiten Justinians* (Leipzig, 1864) II 231-43; W. E. Gwatkin, *Cappadocia as a Roman Procuratorial Province* (1930); M. P. Charlesworth, "Tiberius," CAH X (1934) 607-52; and the following articles in PW: Benjamin, "Constantinus," VII 1013-26; Seeck, "Constantius II," VII 1044-94; E. von Borries, "Iulianos (Apostata)," XIX 26-91.

<sup>100</sup> Mommsen, *The Provinces of the Roman Empire* II 40 f.; CAH X 619-21.

<sup>101</sup> See W. W. Tarn, "Parthia," CAH IX (1932) 574-612; Alfred von Gutschmid, *Geschichte Irans und seiner Nachbarländer von Alexander dem Grossen bis zum Untergang der Arsaciden* (Tübingen, 1888); N. C. Debevoise, *A Political History of Parthia* (in press). I am indebted to Dr. Debevoise for advice and suggestions on this material.

potamia, had arisen about the middle of the 3d century B.C., when Arsaces established himself in Parthia as an independent ruler. Mithradates I (ca. 171-138 B.C.) had been the actual founder of the Parthian Empire. Under Mithradates II (ca. 123-88 B.C.), surnamed the Great, the Parthian power had come into contact with Rome for the first time in connection with the control of Armenia.<sup>102</sup> In 40 B.C. the Parthians, invading Asia Minor for the first time, had reached Lydia and Caria. After severe fighting they had been driven back into their own territory.<sup>103</sup> But in the reign of Nero (A.D. 54-68) serious conflict over Armenia broke out again between the Romans and the Parthians when the Parthian king Vologases I placed his brother upon the vacant throne of Armenia.<sup>104</sup> Syria and Cappadocia naturally became bases of Roman operations. This, added to the recruiting of men for military service, influenced the Romanization of Cappadocia, though the province was not actually touched by the campaigns.<sup>105</sup> In A.D. 66 an agreement was reached between Rome and the Arsacid ruler, and the Parthians took no part in the civil war following the death of Nero. In 72 Vespasian, ending the interregnum, reorganized the Roman Empire, giving particular attention to the eastern territories. At this time the province of Cappadocia was united with Galatia.<sup>106</sup>

In A.D. 114 Trajan attacked Parthian territory with a large army and established Roman provinces in parts of Armenia, of Assyria, and of Mesopotamia. A general revolt of the newly conquered territory forced Trajan to retire. He planned a new campaign in 117 but was forestalled by death.<sup>107</sup> Hadrian gave up the conquests of Trajan and concentrated the Roman defense on the Euphrates. On two of his inspection trips (in 123 and 129) he spent some time in Asia Minor building new roads, repairing old ones, and generally furthering the prosperity of the provinces there. He took particular care to safeguard the northeastern frontier against the inroads of the nomadic Alani.<sup>108</sup> Under the rule of Antoninus Pius new frictions developed. The Parthian king claimed Armenia, and the Roman governors of Cappadocia and Syria were defeated in their attempt to keep him out; but in the time of Marcus Aurelius Antoninus Rome reconquered Armenia. By A.D. 165 the Romans had defeated the Parthians in Mesopotamia also, and Ctesiphon their capital was taken.<sup>109</sup>

Barbarian tribes were menacing the Roman Empire. Marcus Aurelius Antoninus undertook the consolidation of the frontiers but was unable to complete it. Under his incompetent successor, Commodus, the Roman Empire declined rapidly. Dissatisfaction in the provinces and corruption in Rome created a state of insecurity everywhere. Septimius Severus secured the throne after pursuing Niger, a pretender, across Asia Minor and through the Taurus and defeating him in Syria. During this time the provinces and their native elements became more and more influential. Under Elagabal (Antonius Heliogabalus, 218-22) and Severus Alexander the oriental, Aramaic element even became predominant over the old Roman cultural and ethnic elements. The army was disorganized and hardly able to defend the frontier. Roman control of Armenia had, of course, disintegrated.<sup>110</sup>

#### SASANIAN AND GOTHIC INVASIONS<sup>111</sup>

The Arsacid dynasty came to an end in A.D. 227 under the attacks of Ardashir (Artaxerxes) the Sasanian, who claimed to be the successor of the Achaemenians. Except for a branch which

<sup>102</sup> CAH IX 574-612; A. von Gutschmid, *op. cit.* pp. 29-81.

<sup>103</sup> Mommsen, *op. cit.* pp. 22 f.; A. von Gutschmid, *op. cit.* pp. 94-96.

<sup>104</sup> Mommsen, *op. cit.* pp. 47-58; A. von Gutschmid, *op. cit.* pp. 129-34. <sup>105</sup> Gwatkin, *op. cit.* pp. 41 and 44.

<sup>106</sup> *Ibid.* pp. 55-62; Mommsen, *op. cit.* pp. 53-65.

<sup>107</sup> A. von Gutschmid, *op. cit.* pp. 141-46; Mommsen, *op. cit.* pp. 65-71.

<sup>108</sup> A. von Domaszewski, *op. cit.* II 195 and 202-8.

<sup>109</sup> A. von Gutschmid, *op. cit.* pp. 147-50; Mommsen, *op. cit.* pp. 72-77. <sup>110</sup> A. von Domaszewski, *op. cit.* II 217-78.

<sup>111</sup> See George Rawlinson, *The Seventh Great Oriental Monarchy* (London, 1876); al-Tabarī, *Geschichte der Perser und Araber zur Zeit der Sasaniden*, . . . übersetzt . . . von Theodor Nöldeke (Leyden, 1879); Arthur Christensen,



succeeded in maintaining a kind of independence in part of Armenia, the Arsacid royal family was exterminated. The Sasanian power continued the Arsacid policy; taking advantage of Rome's weakness, a Sasanian detachment raided Cappadocia in 230. A countercampaign of Severus Alexander, though it ended disastrously, temporarily stopped the Sasanian invasions.<sup>112</sup>

The Roman Empire became the prey of invading Germanic tribes and other barbarians and of the resulting internal anarchy. Several short-lived emperors were in turn elected and assassinated by various army groups. The Persians under Shapur I once more menaced Roman Mesopotamia and Syria; the north coast of Asia Minor was ravaged by Gothic pirates and by other barbarians.<sup>113</sup> In 256 Gothic hordes crossed the Bosphorus and raided Asia Minor. Valerianus, elected emperor that year, commissioned his son Gallienus with the defense of the western part of the tottering empire. Valerianus himself turned eastward to Syria and from there marched against the invading Goths; but in Cappadocia an epidemic in the army forced him to turn back. The Goths returned to Europe laden with spoils. The forces of Valerianus were so weakened that he could not attempt to oppose the Sasanians; he tried to arbitrate, but in 260 he was treacherously captured by Shapur. After this calamity Asia Minor was open to Sasanian raiders. Cappadocia was ravaged and plundered, and Caesarea was captured. On their retreat, however, the Sasanian advance troops in Cilicia were defeated by a Roman detachment; and the main army, as it retreated across the Euphrates, was defeated and harassed by Odenathus, prince of Palmyra. The peace of the East was again assured. Soon after the death of Valerianus came the first uprising of the Isaurians, who were a scourge to the provinces along the southern coast of Asia Minor from this time until they were reduced early in the 6th century.<sup>114</sup>

Palmyra, nominally under Roman suzerainty, had under Odenathus and his widow Zenobia become a leading power, with Egypt, Syria, and Asia Minor under its influence. In 271 Aurelianus was elected emperor of Rome. He first secured the northwestern frontier and then turned eastward, regulating the Danubian frontier on his way. On the approach of the imperial army the Palmyrenes retreated from Asia Minor. The Emperor defeated them in Syria and in 272 captured Palmyra. By 274 Aurelianus had succeeded in unifying the Roman Empire once more and establishing order and security; but in 275 he was assassinated in Byzantium.<sup>115</sup> With the death of this great emperor the barbarians on the frontiers again became restless; anarchy was again rampant. Emperor Tacitus repelled a Gothic invasion of Asia Minor in 276. Emperor Carus with his son Numerianus attempted to safeguard the eastern provinces. Carus died near Ctesiphon during a plague, and Numerianus was assassinated while on the march. In Bithynia Diocletian avenged his emperor and was himself elected.<sup>116</sup>

It was Diocletian who inaugurated the division of the Roman Empire into an eastern and a western part. The empire had become too large, the problems too involved; no one executive could possibly be everywhere at the same time. Diocletian appointed Maximian as co-emperor. With Constantius as "Caesar," Maximian was to administer the West; Diocletian himself, with Galerius as "Caesar," took the East. In 297 the Roman armies defeated the Sasanians, and peace and order were established. Diocletian resided in Nicomedia until 305, when he abdicated; he finished his days in his native land, Dalmatia.<sup>117</sup> Under his rule and that of his

*L'empire des Sassanides, le peuple, l'état, la cour* ("Mémoires de l'Académie des sciences et des lettres de Danemark," 7me série, Section des lettres, t. I, No. 1 [Kopenhagen, 1907]); F. Justi, "Herrschaft der Sasaniden," *Grundriss der iranischen Philologie*, hrsg. von W. Geiger und Ernst Kuhn (Strassburg, 1896-1904) II 512-49. I am indebted to Dr. Debevoise for advice and suggestions on this material.

<sup>112</sup> A. von Domaszewski, *op. cit.* pp. 280-82; A. von Gutschmid, *op. cit.* p. 162.

<sup>113</sup> A. von Domaszewski, *op. cit.* II 280-96. <sup>114</sup> *Ibid.* pp. 297-302. <sup>115</sup> *Ibid.* pp. 306-15. <sup>116</sup> *Ibid.* pp. 316-18.

<sup>117</sup> *Encyc. Brit.* VII 393 and XIX 505 f.; Gibbon, *op. cit.* I 371 f.



successor, Constantine the Great, the civil administration of the provinces was entirely divorced from the military administration. The provinces were united into several dioceses, Cappadocia becoming part of the diocese of Oriens.<sup>118</sup>

Constantius, the western "Caesar," had been succeeded by his son Constantine in 306; Galerius, who had succeeded Diocletian as eastern emperor, had been forced to recognize him. After the death of Galerius in 311 the empire had been divided among four rulers, each struggling for supremacy. Constantine had emerged victorious in 323, when Byzantium became the actual capital of the Roman Empire. Constantine devoted all his energy to the reorganization of the empire as begun by Diocletian, and succeeded in re-establishing peace and order. Under him Christianity became the state religion. He died in 337 while preparing a campaign against the Sasanians, who were constantly threatening the eastern provinces.<sup>119</sup>

After a short internal struggle the three sons of Constantine the Great emerged in control of the empire. Constantius ruled the East, and after the death of his two brothers he was sole ruler. He repelled the Sasanians in several campaigns. Border warfare broke out again in 359, and Constantius died in 361.<sup>120</sup> Julian the Apostate, whom Constantius had banished to the neighborhood of Caesarea, succeeded as sole ruler. After long and careful preparation he advanced through Asia Minor against the Sasanians. At first the campaign was successful, but in 363 the gallant emperor died of wounds received in battle, and his army retreated. A shameful treaty concluded by Jovianus gave to the Persians five Roman provinces.<sup>121</sup>

Valentinian I was elected emperor at Nicaea and nominated his brother Valens as co-emperor to govern the eastern half of the empire. The Sasanians continued to harass the frontier and to meddle in Armenia. In 371, having subdued an insurrection in Asia Minor led by Procopius, Valens attempted to repel the Sasanians. In the same year, in order to weaken the power of Basil the Great, bishop of Caesarea, Valens divided the province of Cappadocia into Cappadocia Prima, with Caesarea as capital, and Cappadocia Secunda, with first Podandus, and then Tyana, as capital.<sup>122</sup> It was probably under the rule of Theodosius I (379-95) that a bridge was built over the Kızıl Irmak.<sup>123</sup> The main road connecting Ancyra and Caesarea, which up to that time had followed the left bank of the river, was now re-routed over this bridge into Cappadocia; farther up, it crossed the river a second time to Caesarea. This change in location of the road was, of course, of great importance in the development of this part of Cappadocia.

#### THE BYZANTINE PERIOD<sup>124</sup>

Theodosius I was succeeded by his sons Honorius and Arcadius. According to his will they were under the tutelage of Stilicho.<sup>125</sup> Honorius was to rule over the West with his seat in

<sup>118</sup> PW VII 1024.

<sup>119</sup> PW VII 1014-24.

<sup>120</sup> *Ibid.* cols. 1044-48 and 1053-94.

<sup>121</sup> *Ibid.* XIX 28-63.

<sup>122</sup> Ramsay, *The Historical Geography of Asia Minor*, p. 283.

<sup>123</sup> *Ibid.* p. 75.

<sup>124</sup> The placing of the beginning of the Byzantine period is, of course, a somewhat arbitrary matter. For further material on this period see J. B. Bury, *A History of the Later Roman Empire from the Death of Theodosius I to the Death of Justinian (A.D. 395-A.D. 565)* (2 vols.; London, 1923); *idem*, *A History of the Later Roman Empire from Arcadius to Irene (395-800)* (2 vols.; London and New York, 1889); *idem*, *A History of the Eastern Roman Empire from the Fall of Irene to the Accession of Basil I (802-867)* (London, 1912); *idem*, *The Imperial Administrative System in the Ninth Century* (British Academy, "Supplemental Papers" I [London, 1911]); Edward Gibbon, *The History of the Decline and Fall of the Roman Empire*; Karl Güterbock, *Byzanz und Persien in ihren diplomatisch-völkerrechtlichen Beziehungen im Zeitalter Justinians* (Berlin, 1906); H. Gelzer, "Abriss der byzantinischen Kaiser Geschichte," in Karl Krumbacher, *Geschichte der byzantinischen Literatur* (2. Aufl. bearb. unter Mitwirkung von A. Ehrhard . . . [und] H. Gelzer; "Handbuch der klassischen Altertumswissenschaft," hrsg. von I. von Müller, 9. Bd., 1. Abt. [München, 1897]) pp. 911-1067; *idem*, "Die Genesis der byzantinischen Themenverfassung," *AGWL XVIII* (1889) 1-114; W. M. Ramsay, *The Historical Geography of Asia Minor* (London, 1890); H. F. Tozer, *The Church and the Eastern Empire* (London, 1888; new impression, 1904); Charles Diehl, "The government and administration of the Byzantine Empire," *CMH IV* (1923) 726-44.

<sup>125</sup> Bury, *History of the Later Roman Empire* (1889) 1 61.

Rome; Arcadius was to rule the East with Constantinople as his capital. A series of palace intrigues in Constantinople resulted in serious revolts in the provinces. In the Taurus Mountains the Isaurians, who since the time of Severus Alexander had plundered the surrounding territory, showed renewed activity. From their mountain lairs not only Cilicia and Pamphylia were raided, but in the years 403–5 Cappadocia and Pontus also were overrun by their plundering hordes.<sup>126</sup> A colony of Goths, who had been established in Phrygia in 386 by Theodosius I,<sup>127</sup> also made trouble; the rebellion, which broke out just as the Emperor and his court were ready to go to Ancyra, where Arcadius liked to pass the summer, probably was instigated by Gainas, a Goth in the imperial service. Galatia, Bithynia, and Pisidia were plundered. After the defeat of the imperial army in Asia Minor Gainas led the Gothic soldiery to Constantinople, where he and his troops took quarters within the city. A spontaneous uprising of the citizens in 400 resulted in the practical annihilation of these hated barbarians within the walls of the city. Gainas attempted to return to Asia Minor, but was prevented by a loyal imperial army.<sup>128</sup>

In 395 Transcaucasian Huns had raided Mesopotamia, Syria, and large parts of Asia Minor;<sup>129</sup> they appeared on the Danube in 400.<sup>130</sup> By 424 Theodosius II had to pay yearly tribute to them. This menace to the Byzantine provinces grew rapidly after the appearance of Attila. In 441 the Huns allied themselves with the Vandals, possibly also with the Sasanians,<sup>131</sup> and Theodosius II bought peace only by an enormous tribute.<sup>132</sup> Attila attempted to invade Gaul in 451. Checked in the Catalaunian fields near Troyes, he turned to Italy; but his death in 453 brought the Hunnic danger in Europe to an end as abruptly as it had come.

In Constantinople the higher army officers, most of them recruited from barbarians such as Goths and Isaurians, constantly became more powerful. In 474 Zeno the Isaurian became emperor. The next year he had to flee from a revolt in Constantinople led by Basiliscus. Troops sent by Basiliscus to capture the fugitive joined him instead; in 476<sup>133</sup> Zeno re-entered Constantinople as emperor, and Basiliscus was banished to a Cappadocian fortress. It was Zeno's successor, Anastasius I, who broke the menace of the Isaurians and transplanted the remnant into Thrace.<sup>134</sup> During the latter's reign, in 515, occurred a second raid of the Huns into Cappadocia.<sup>135</sup>

Justinian I (527–65) was the last Byzantine emperor who controlled the whole Roman Empire, both East and West. The western empire had been a prey to Germanic soldiery since the days of Odoacer. Italy, Sicily, Africa, and a part of Spain were now reconquered by Byzantine armies. In the east the Byzantine army was generally successful in defending the frontiers against the Sasanians. That part of Cappadocia Secunda through which the main road from Ancyra to Caesarea had been diverted in the time of Theodosius I was in 536 made a separate province and designated Cappadocia Tertia, with Mokissos (Justinianopolis) as capital.<sup>136</sup> A treaty with Persia, concluded in 562, provided for the yearly payment of money by Rome, part of which was a continuation of assistance to the Sasanians in their defense of the Caspian Gates against the Turks.<sup>137</sup> With the death of Justinian I the power of the Byzantine Empire began to decline.

<sup>126</sup> *Ibid.* p. 70.

<sup>127</sup> *Ibid.* p. 82.

<sup>128</sup> *Ibid.* pp. 86–88; also Gelzer, "Abriss der byzantinischen Kaisergeschichte," p. 914.

<sup>129</sup> Bury, *op. cit.* (1889) I 69 f.

<sup>130</sup> *Ibid.* p. 161.

<sup>131</sup> *Ibid.* pp. 161 f.

<sup>132</sup> *Ibid.* p. 161.

<sup>133</sup> Bury, *op. cit.* (1923) I 393; also *Encyc. Brit.* XXIII 944.

<sup>134</sup> Gelzer, *op. cit.* pp. 923 f.; Bury, *op. cit.* (1889) I 292 f.

<sup>135</sup> *Ibid.* p. 300.

<sup>136</sup> Ramsay, *The Historical Geography of Asia Minor*, p. 283.

<sup>137</sup> Karl Güterbock, *Byzanz und Persien in ihren diplomatisch-völkerrechtlichen Beziehungen im Zeitalter Justinians*, pp. 57–105.

Under Justin II a Turkish embassy appeared in Constantinople, seeking to establish direct trade relations between Europe and the Far East, particularly in the interest of the silk trade, and to avoid Persia, where the Turks were not welcome; but such relations were never realized.<sup>138</sup> At about the same time the Byzantine emperor interfered with Sasanian policies in Persia, Armenia, and Arabia; and in 572 he refused the payment required by the treaty concluded ten years earlier. In the resulting war with Khusrau Anūsharvān (Chosroes Nushirvan)<sup>139</sup> most of the fighting took place in Syria, Mesopotamia, and Armenia. The Persians plundered Cappadocia in 575, but on their retreat they were definitely routed.<sup>140</sup>

After the death of Khusrau Anūsharvān revolts attendant upon struggles for the throne arose in the weakened Persian Empire. The Byzantine Empire too was in a weak position. Palace intrigues as well as wars with the Slavs in the north and the Avars in the east helped to speed the decline of East Rome.<sup>141</sup> A treaty of peace was concluded by the two empires in 591, and with the help of Maurice of Byzantium Khusrau II was invested as king of Persia. Maurice was dethroned in 602, and Phocas succeeded him. Khusrau II viewed the dethronement of his benefactor as a cause for war. Phocas committed one blunder after another. The Sasanian armies ravaged the Byzantine provinces in Asia and Asia Minor; in 608 a Sasanian army was encamped at Chalcedon, opposite Constantinople, and the whole of Asia Minor was open to Persian raids. In the capital, revolt followed revolt. Finally in 610 Heraclius, the son of the Exarch of Africa, arrived in Constantinople with an army. He was welcomed by the population and declared emperor in place of Phocas, who was killed.<sup>142</sup>

When Heraclius ascended the throne the Byzantine possessions in Europe had been overrun by the Slavs, those in Asia by the Persians. There were still some Byzantine contingents in the field, but they were powerless to check these raiders effectively. Jerusalem was conquered by the Persians in 614 or 615, and the Holy Cross was carried away. Egypt was taken in 616.<sup>143</sup> In the following year the Persians again occupied Chalcedon,<sup>144</sup> and in 619 the Avars tried a *coup de main* against Constantinople from the European side. It was then that Heraclius seriously considered shifting the capital to Carthage in order that he might prepare, undisturbed, for the reconquest of the Byzantine Empire. This desperate plan and the personality of the Emperor inflamed the Byzantines to action. The war against the Persians became a crusade. After most careful preparations Heraclius sailed in 622 and landed in Cilicia.<sup>145</sup> He assembled the remaining Byzantine contingents and partisans, reorganized them, and entered Cappadocia. The Persian army left Chalcedon to meet the Byzantine army. After marches and countermarches in Cappadocia and Pontus the Persians were completely routed.

During the following years Heraclius attacked the Persian possessions; in 624 he invaded Armenia, in 625 he routed the Persians in Cilicia. The critical year was 626. Khusrau II had sent two new armies against Heraclius, and the Avars were again prepared to attack Constantinople. Heraclius did not change his tactics. He divided his army into three parts. Disregarding the appearance of the Persian army in Scutari, he himself attacked Armenia and Media;

<sup>138</sup> Bury, *op. cit.* (1889) II 96 f.

<sup>139</sup> On the form of this name see al-Ṭabarī, *Geschichte der Perser und Araber zur Zeit der Sasaniden*, . . . übersetzt . . . von Th. Nöldeke (Leyden, 1879) pp. 136, n. 2, and 151, n. 1. Instead of the *ō* of classical Persian we adopt in the transliteration of Persian names the *ū* of modern Persian.

<sup>140</sup> Gelzer, *op. cit.* pp. 942 f.

<sup>141</sup> Bury, *op. cit.* (1889) II 114-42.

<sup>142</sup> Gelzer, *op. cit.* pp. 943 f.; Bury, *op. cit.* (1889) II 198-206.

<sup>143</sup> Bury, *op. cit.* (1889) II ix and 214.

<sup>144</sup> Bury, *op. cit.* (1889) II ix and 216, n. 4. The date is somewhat uncertain; cf. *Encyc. Brit.* XI 455.

<sup>145</sup> Bury, *op. cit.* (1889) II 223-26.



the second division met the Persians in Cilicia, and the third was left to defend Constantinople. Byzantine arms were victorious everywhere, and the residence city of Khusrau II, Dastagird, was occupied in 628. The Persians revolted against the tyrannical Khusrau II, proclaimed Kāwādh (Siroes) king, and murdered Khusrau (628). In 629 the return of the Holy Cross to Jerusalem was effected, and Egypt was evacuated by the Persians. A treaty of peace restored to the Byzantines their eastern possessions. However, this struggle with Persia had left the Byzantine Empire too weak to resist the expansion of Moslem-Arab power which was soon to begin.<sup>146</sup>

The division of Asia Minor into themes probably dates from the reign of Heraclius. That emperor organized large frontier districts under military commanders who had great executive power vested in them. The most important theme was the Armeniac. The term "theme" seems to have been primarily less a designation of a territory than of the troops stationed there. Though originally the names of military divisions were given to the respective themes in which they were stationed, later some themes received geographical names, which were then transferred to the troops. The limits of the themes were altered as conditions and circumstances required. Thus, with the Byzantine frontier steadily retreating before the advancing Arabs, the Armeniac theme soon comprised none of the actual territory of Armenia, but the territory of Cappadocia and southern Pontus, while the Cappadocian theme came to comprise the territory between the Kızıl Irmak and the Sakarya.<sup>147</sup>

#### ARAB INVASIONS<sup>148</sup>

The Hegira of Muḥammad from Mecca to Medina in 622 had started a religious and political movement which was to result eventually in the conquest of nearly the entire Near East by the Arabs. In the time of Muḥammad and of Abū Bakr, the first caliph, Islam meant hardly more to the Arab tribes than the recognition of the political supremacy of Medina. Abū Bakr had to suppress numerous revolts against the Moslem state by rival prophets as well as to fight so-called "apostate" tribes. These first wars of the caliphate were rather raids than campaigns. It was in one of these raids, at Muṭah in 629, that Moslem Arabs first clashed with Byzantine troops. The only bulwarks between the rising Arab flood and the possessions of the Byzantines and the Sasanians had been the two Arab states of the Lakhmids and the Ghassānids; but as a result of the struggles between the Byzantines and the Sasanians these two states had disappeared.

<sup>146</sup> *Ibid.* pp. 227-46; Gelzer, *op. cit.* pp. 946-49.

<sup>147</sup> Gelzer, "Die Genesis der byzantinischen Themenverfassung," pp. 8 f. and 19-25; Bury, *op. cit.* (1889) II 339-51; *idem* in Gibbon, *op. cit.* VI 532-35; Ramsay, *op. cit.* pp. 315 f.; *CMH* IV 732-34.

<sup>148</sup> See C. H. Becker, "The expansion of the Saracens," *CMH* II (1913) 329-90; Albert Vogt, "The Macedonian Dynasty from 867 to 976 A.D.," *ibid.* IV (1923) 49-82; E. W. Brooks, "The struggle with the Saracens," *ibid.* pp. 119-52; J. B. Bury, *A History of the Later Roman Empire from Arcadius to Irene (395-800)* (1889) II; *idem*, *A History of the Eastern Roman Empire from the Fall of Irene to the Accession of Basil I (802-867)* (London, 1912); Edward Gibbon, *The History of the Decline and Fall of the Roman Empire*, ed. by Bury, V-VI; G. F. Hertzberg, *Geschichte der Byzantiner und des osmanischen Reiches bis gegen Ende des XVI. Jahrhunderts* ("Allgemeine Geschichte in Einzeldarstellungen," hrsg. von W. Oncken, 2. Hauptabt., 7. Teil [Berlin, 1883]); A. Müller, *Der Islam im Morgen- und Abendland* ("Allgemeine Geschichte in Einzeldarstellungen," hrsg. von W. Oncken, 2. Hauptabt., 4. Teil [Berlin, 1885-87]); J. Wellhausen, *The Arab Kingdom and Its Fall*, translated by M. G. Weir (Calcutta, 1927); *idem*, "Die Kämpfe der Araber mit den Römern in der Zeit der Umayyiden," in Kgl. Gesellschaft der Wissenschaften zu Göttingen, *Nachrichten der philol.-hist. Klasse aus dem Jahre 1901* (Göttingen, 1902); I. Goldziher, *Muhammedanische Studien* (Halle, 1888-90); W. Muir, *The Caliphate; Its Rise, Decline, and Fall*, rev. by T. H. Weir (Edinburgh, 1915); E. Herzfeld, *Samarra. Aufnahmen und Untersuchungen zur islamischen Archäologie* (Berlin, 1907); P. Wittek, "Zur Geschichte Angoras im Mittelalter," *Festschrift Georg Jacob zum siebenzigsten Geburtstag . . . gewidmet* . . . , hrsg. von Theodor Menzel (Leipzig, 1932) pp. 329-54; W. M. Ramsay, *The Historical Geography of Asia Minor* (London, 1890); also the following articles in *ET*: M. Streck, "al-Ḳādisiyya," II 611-13; E. Honigsmann, "Malatya," III 192-97. I am indebted to Professor Martin Sprengling for advice and suggestions on this material.



Beginning with 633 the Moslems directed their attention against Syria. The first invasions were in the nature of raids. The complete defeat of a Byzantine army at the Yarmūk in 636 delivered Syria and Palestine to the Arabs. A last effort of Heraclius to regain these territories, in 638, was a failure. A Sasanid army had been defeated by Moslem Arabs in 635, but it was not until the defeat of Rustam in the Battle of Kādisiyyah in 637 that Mesopotamia was conquered. The Arabs advanced over the Zagros into Persia and annihilated the Sasanian Empire at the Battle of Nihāvand in 641. Egypt was conquered in 639-42, and Cyprus was raided in 649.<sup>149</sup>

After 642 there were almost annual Arab incursions into Asia Minor, predatory raids rather than expeditions with actual conquest as a goal. Since in spite of the new military theme organization the Byzantine power was not strong enough to prevent such invasions, a new form of defense was developed. Strong fortresses, which could be taken only after long siege, were built in the threatened zones. Since the invaders usually retired in a relatively short time, seldom later than autumn, a kind of control could be kept by this method. These fortresses became nuclei of new cities and bishoprics, whereas the older cities, not easily defensible, were reduced to villages.<sup>150</sup>

Mu'āwiyah, a general of Caliph 'Uthmān, in 655 prepared an attack by land and sea against Constantinople. The Arab fleet defeated the Byzantine fleet; but, because of the death of 'Uthmān, Mu'āwiyah did not follow up his victory. He hastened back to Syria to contest the legality of the election of 'Alī to the caliphate. Relations between Caliph 'Alī, backed by the Arabs in Iraq, and Mu'āwiyah, backed by the Arabs in Syria, were strained. A treaty favorable to the Byzantines was signed in 659, and Asia Minor was for a time safe from Arab raids.<sup>151</sup>

After the death of 'Alī in 661 Mu'āwiyah became caliph. The yearly raids into Asia Minor were resumed. They now extended to the west coast; for with the long absence of Constans II in Italy there were only a few Byzantine troops in Asia Minor. Constantinople was blockaded for several years by an Arab fleet; but, because of struggles between the Syrian and Iraqi factions over the caliphate, Constantine IV was able to conclude an advantageous treaty in 678. In the reign of Caliph Yazīd, the successor of Mu'āwiyah, the clash between the Syrian and Iraqi factions culminated in the tragedy of Karbalā', in which Ḥusain, the son of 'Alī, was killed. This was one of the incidents leading to the division in Islam between Sunnah and Shī'ah. Justinian II in 692 started a new campaign against the Arabs, which ended near Sebastopolis with the disastrous defeat of the Byzantines.<sup>152</sup>

With the fall of Justinian II (695) began a twenty-year period of revolt in the Byzantine Empire. An Arab general, Maslamah, recognized the pretensions of Leo, a Byzantine general, to the throne, hoping to conquer Constantinople with Leo's assistance. Although Maslamah plundered western Asia Minor and sacked Amorion, he refrained from attacking Cappadocia, which was part of Leo's domain. When the latter, as Leo III, became emperor in 717, Maslamah saw that his plan had been thwarted. He marched westward with his army, and after capturing Sardis and Pergamon crossed into Thrace and appeared before Constantinople. The city was invested for a year, but the siege ended in disaster for the Arabs.<sup>153</sup> During the reigns of the caliphs Umar II and Yazīd II only the customary raids took place.

<sup>149</sup> The exact dates of these early battles and conquests are somewhat uncertain. On Yarmūk see Bury, *op. cit.* (1889) II 263, n. 6; on Kādisiyyah see *EI* II 613; on the conquest of Egypt see W. Muir, *The Caliphate; Its Rise, Decline, and Fall*, p. 158. Cf. also *CMH* II 337-46, and above all Bury, "Chronology of the Sarācen conquest of Syria and Egypt," in his edition of Gibbon, *The History of the Decline and Fall of the Roman Empire* V 540-43.

<sup>150</sup> Yāqūt, *Mu jam al-buldān*, ed. F. Wüstenfeld (Leipzig, 1866-73) I 927-30, s. v. *al-thaghr*; Ramsay, *op. cit.* p. 200; cf. also his pp. 82-88.

<sup>151</sup> Bury, *op. cit.* (1889) II 290-92.

<sup>152</sup> *Ibid.* p. 322.

<sup>153</sup> *Ibid.* pp. 378-82 and 401-4.

Caliph Hishām turned his attention seriously to war against the Byzantines. Neocaesarea was taken in 726; Nicaea was besieged in 727. Northern Asia Minor was raided and Caesarea captured in 729; Cappadocia was raided in 735. A great invasion in 739 was stopped with the bloody defeat of the Arabs by Leo III near Acroinos.<sup>154</sup> Under Leo III the hitherto purely military themes took over the civil administration in Asia Minor.<sup>155</sup> In 742 the Arabs again invaded Asia Minor, and Constantine V marched against them. Before a battle occurred Constantine had to turn his attention to suppressing a revolt led by Artavasdus. The death of Caliph Hishām and the ensuing period of internal struggle over the caliphate prevented the Arabs from taking advantage of the Byzantine situation. Constantine V was again able to attack in 746–47, and in 751 he took Melitene (Malatya); but in the following years an Arab army reconquered it.<sup>156</sup>

In 747 Abū Muslim, of Persian origin, took advantage of the general discontent among the Moslems with Umayyad rule. In the name of the descendants of ʿAlī and Ḥusain he raised the black standard of the ʿAbbāsids in Khurāsān. By 750 Persia and large parts of Mesopotamia were in the hands of the ʿAbbāsīd forces. Then Damascus was taken by the army of the new caliph, Abū ʿAbbās. The governmental center now was al-Kūfah, some years later Baghdad. Only one member of the Umayyad family escaped extermination: he founded the Western Caliphate in Spain. The predominance of the Arab element in the caliphate was broken; the ʿAbbāsīds based their power more on the Persians and the Turkish soldiery.

Warfare in Asia Minor continued as before. In 756 Cappadocia was thoroughly plundered. In the reign of Caliph al-Mahdī, in 775, there started a series of more extensive raids into Asia Minor, in the course of which Ancyra and Dorylaeum were reached. The Byzantines retaliated by ravaging Cilicia and Syria. In 782 al-Mahdī sent his son Hārūn into Asia Minor with a strong army, which reached the Bosphorus. Empress Irene, pressed by internal struggles and by onslaughts of the Slavs, was forced to pay tribute.<sup>157</sup>

When Hārūn al-Rashīd became caliph he again turned his attention to his western frontier in an effort to pacify it permanently. From Tarsus, now an Arab military base in charge of a Turkish general, campaigns were conducted almost yearly against the Byzantines. In 797 the Caliph himself led the army and, after notable victories at Ancyra and Ephesus, once more forced Irene to pay tribute.<sup>158</sup> Nicephorus I, who succeeded Irene in 802, took advantage of invasions of the Khazars in Armenia, which required Hārūn's attention, to break the treaty concluded by Irene. Hārūn immediately sent new troops toward the west; and Nicephorus, now occupied with internal struggles, had to ask for peace in 804. However, whenever the Caliph seemed to be occupied elsewhere, Nicephorus broke the treaty—usually with disastrous results. Discord within the caliphate after the death of Hārūn relieved the pressure on the eastern frontier of the Byzantine Empire. Though a rebel, Thomas, established himself in eastern Asia Minor with the support of Caliph al-Maʾmūn and in 821–23 besieged Constantinople, Emperor Michael II defeated him with the help of a Bulgarian detachment.<sup>159</sup>

In 830 Caliph al-Maʾmūn set out from Tarsus for a campaign against Emperor Theophilus. During the next two years both sides conducted raids. Repeated overtures for peace by Theophilus were rejected by al-Maʾmūn.<sup>160</sup> Under al-Muʿtaṣim, the next caliph, an informal

<sup>154</sup> *Ibid.* pp. 405 f.; *CMH* IV 120 f. and 899.

<sup>155</sup> Gelzer, "Abriss der byzantinischen Kaisergeschichte," p. 961; *idem*, "Die Genesis der byzantinischen Themenverfassung," p. 75; Bury, *op. cit.* (1889) II 349–51.

<sup>156</sup> *CMH* IV 121 f.; also *ET* III 192 f.

<sup>157</sup> *CMH* IV 124.

<sup>159</sup> Bury, *A History of the Eastern Roman Empire*, pp. 84–110.

<sup>158</sup> Bury, *op. cit.* (1889) II 492 f.; *CMH* IV 125 f.

<sup>160</sup> *Ibid.* pp. 254–56 and 472–77.

truce ensued; for the Caliph, needed in the east to reduce Emir Bābak, who for nearly twenty years, with the aid of the Byzantines, had disturbed the northwestern frontier of the caliphate, abandoned Tyana and ceased hostilities. In 835 war was renewed by Theophilus, who raided Arab possessions in southeastern Asia Minor and Syria; but, after the final defeat of Bābak, al-Mu'tasim invaded Asia Minor with a large army, defeated Theophilus, and sacked Ancyra and Amorion. With the death of both sovereigns in 842 there followed a period of relative peace.<sup>161</sup>

Caliph al-Ma'mūn had shown an increasing preference for Turkish soldiers. Al-Mu'tasim founded Sāmarrā<sup>2</sup>, and that city instead of Baghdad was the residence of the caliphs with their Turkish troops for about forty years (836-76).<sup>162</sup> As the caliphs became more and more dependent on the whims of the Turkish soldiery, the situation in Asia Minor turned to the advantage of the Byzantines. In the reign of Michael III there was started a series of vigorous campaigns against the Arabs, and in 863 two Arab corps were annihilated in central Anatolia. Emperor Basil I continued the campaigns; but that of 873, after great success at the beginning, ended in his defeat at Melitene. A counterattack by a Moslem army from Egypt was unsuccessful.<sup>163</sup>

Early in the 7th century a Christian sect known as the Paulicians, which in part united the remnants of Gnostics and Manichaeans, had started to spread westward from the Euphrates. Members of this sect had established many communities in Pontus and Cappadocia. When they were persecuted by Theophilus, many of them had found refuge with the Moslems. Renewed persecution by Empress Theodora, then regent for Michael III, infuriated the Paulicians to open warfare. With the approval of the Caliph they fortified Tephrike, and here they were joined by many Moslem sectarians and adventurers. From this mountain fastness they raided Cappadocia and plundered Ancyra, Nicomedia, and Ephesus. Basil I with his army drove them back into the mountains, but had to desist from besieging Tephrike. Soon afterward Chrysocheir, the Paulician leader, was killed; and with his death the Paulician danger passed. On a second expedition Basil found Tephrike deserted. Remnants of the Paulicians joined the ranks of the Moslem raiders.<sup>164</sup>

In spite of temporary setbacks the Byzantine frontier was advancing eastward. Emperor Leo VI reorganized the themes. The large Armeniac theme, which included all the territory still controlled by the Byzantines east of the Kızıl Irmak, was subdivided. The old province of Cappadocia, which recently had been a *tourma* of the Armeniac theme, was organized as the Kharsian theme.<sup>165</sup>

The next Byzantine emperors took advantage of the fact that the caliphate was now a toy in the hands of the Turkish soldiery. Most of the campaigns against the caliphs were successful; the Arabs, however, were victorious on the sea. In the reign of Constantine VII General John Tzimisce prepared the way for their final expulsion from Asia Minor. Nicephorus Phocas harassed the Arabs on the eastern frontier and even raided Aleppo before he became emperor. After his ascension to the throne he started systematically to eliminate the constant danger of Arab raids. He appeared in Cilicia in 964; in 965 Tarsus, the base of Arab operations, surrendered, and Cyprus was reconquered; northeastern Syria was invaded in 966.

<sup>161</sup> *CMH* IV 129-31; Bury, *A History of the Eastern Roman Empire*, pp. 259-74.

<sup>162</sup> Herzfeld, *Samarra*, p. 54.

<sup>163</sup> Bury, *A History of the Eastern Roman Empire*, pp. 281-84; *CMH* IV 138 f.

<sup>164</sup> Hertzberg, *op. cit.* pp. 111 f., 137, 154; Gibbon, *op. cit.* VI 110-25 and 540-43; Wittek, "Zur Geschichte Angoras im Mittelalter," pp. 334-37.

<sup>165</sup> Gelzer, "Die Genesis der byzantinischen Themenverfassung," pp. 127-33 (table); Bury in Gibbon, *op. cit.* VI 534 (table).



Since in 967 Nicephorus had to protect his northern frontiers against the Bulgarians, he could not take advantage of the struggles among the Moslem generals for supremacy over the completely powerless caliphate in Baghdad; but in 969 he conquered Antioch and Aleppo and incorporated Cilicia and parts of Syria into the Byzantine Empire. The Emir of Aleppo became a Byzantine vassal. Nicephorus was assassinated in 969 at the instigation of the former Empress Theophano, in order to free the throne for her lover, John Tzimiskes.<sup>166</sup>

Bardas Phocas, a nephew of Nicephorus, proclaimed himself emperor in Caesarea; but his revolt was quickly suppressed.<sup>167</sup> Tzimiskes, after a victorious campaign against the Russians, joined the Byzantine armies in the east. An Egyptian army was repulsed at Antioch, and Tzimiskes campaigned victoriously in northern Palestine (in 975) but was not strong enough to capture Jerusalem.<sup>168</sup> His successor, Basil II, had to meet a revolt under Bardas Sclerus, who was assisted by Arab troops. Only with great difficulty was this revolt suppressed in 979, after Bardas Sclerus had overrun the whole of Asia Minor. Serious war against the Bulgarians started in 986, ending only with the complete breaking-up of the Bulgarian Empire in 1019. During this war another dangerous revolt was led by Bardas Phocas, who after his first revolt against Tzimiskes had been fighting in Syria and had successfully counteracted the Fatimid influence there. Only with the help of a Russian contingent could Basil suppress this revolt. The Fatimids then attacked Byzantine possessions in Syria, and the Emperor had to leave the Bulgarian front on two occasions to restore Byzantine supremacy in these recently acquired territories. During a campaign against the Iberians a revolt broke out in Cappadocia, but it soon collapsed. Basil then visited Armenia, with which the Byzantines were on friendly terms, and reorganized Iberia. He died in 1025 while preparing a campaign to regain Sicily from the Arabs. In the reigns of his weak successors the Moslems harassed the Byzantine territories in Syria and northern Mesopotamia, but they no longer menaced Asia Minor.<sup>169</sup>

Armenia for several centuries had been the bulwark against Moslem advances from the Persian side. A war in 1044 resulted in the incorporation of the Bagratid (Bagratuni) kingdom in Armenia into the Byzantine Empire. This shortsighted conquest made the Byzantines the direct neighbors of the Seljuk Turks, who were soon to rule the caliphate of Baghdad.<sup>170</sup>

## THE TURKISH PERIOD

### THE SELJUKS<sup>171</sup>

A Turkish tribe under a chieftain named Seljuk had taken an active part in struggles between Turkish groups in the plains of Turkestan. In 1029 these Turks, under the leadership

<sup>166</sup> *CMH* IV 142-47.    <sup>167</sup> *Ibid.* p. 81.    <sup>168</sup> *Ibid.* pp. 147 f.    <sup>169</sup> *Ibid.* pp. 84-96 and 148-50.    <sup>170</sup> *Ibid.* pp. 164 f.

<sup>171</sup> See N. Jorga, *Geschichte des osmanischen Reiches nach den Quellen dargestellt* ("Allgemeine Staatengeschichte" XXXVII [Gotha, 1908-13]) I; A. Müller, *Der Islam im Morgen- und Abendland* II (Berlin, 1887); G. F. Hertzberg, *Geschichte der Byzantiner und des osmanischen Reiches bis gegen Ende des XVI. Jahrhunderts* (Berlin, 1883); E. Gibbon, *The History of the Decline and Fall of the Roman Empire*, ed. Bury, VI-VII; Joseph Laurent, *Byzance et les Turcs seldjoudides dans l'Asie occidentale jusqu'en 1081* ("Annales de l'Est" XXVII 1 [Paris-Nancy, 1913]); Georg Altunian, *Die Mongolen und ihre Eroberungen in kaukasischen und kleinasiatischen Ländern im XIII. Jahrhundert* (Inaug.-Diss.; Berlin, 1911); H. M. J. Loewe, "The Seljūqs," *CMH* IV 299-317; *idem*, "The Mongols," *ibid.* pp. 627-52; F. Chalandon, "The earlier Comneni," *ibid.* pp. 318-50; Charles Diehl, "The Fourth Crusade and the Latin Empire," *ibid.* pp. 415-31; Wm. Miller, "The Empire of Nicaea and the recovery of Constantinople," *ibid.* pp. 478-516; *Tarih. II. Ortazamanlar* (Istanbul, 1931); Paul Wittek, *Das Fürstentum Mentesche. Studie zur Geschichte Westkleinasiens im 13.-15. Jh.* ("Istanbul Mitteilungen," hrsg. von der Abt. Istanbul des Archäologischen Instituts des Deutschen Reiches, Heft 2 [Istanbul, 1934]); W. M. Ramsay, "The war of Moslem and Christian for the possession of Asia Minor," *Contemporary Review* XC (London, 1906) 1-15; E. Gerland, "Der vierte Kreuzzug und seine Probleme," *Neue Jahrbücher für das klassische Altertum, Geschichte und deutsche Literatur und für Pädagogik* XIII (Leipzig, 1904) 505-14; also the following articles in *EL*: J. H. Morlmann, "Dānīshmandīya," I 913 f.; Cl. Huart, "Kaikā'ūs," II 636-38, "Kaikhūsraw," II 638 f., and "Seldjūqs," IV 208-13; T. W. Haig, "Kaikobād," II 640 f.; E. Honigsmann, "Kilidj Arslān," II 1006-8; J. H. Kramers, "Mu'īn al-Dīn Sulaimān Parwāna," III 704 f.; K. V. Zetterstēen, "Sulaimān b. Qutulmish," IV 521; and the following articles in



of Tughril of the house of Seljuk, began to occupy Khurāsān; Merv became their capital.<sup>172</sup> After several reverses Tughril started to move southward and westward in 1038;<sup>173</sup> and in 1040 the Seljuk Turks appeared on the eastern frontier of Armenia.<sup>174</sup> Their first clash with the Byzantines occurred in 1048.<sup>175</sup> After conquering the greater part of Persia, Tughril entered Baghdad in 1055. The puppet caliph received him gladly, hoping to use him against the Buyids (Buwaihids), who were the actual ruling power. But Tughril and his followers simply replaced the Buyids, and until 1157 the Great Seljuks were the real rulers of the caliphate.<sup>176</sup>

Warfare on the Caucasian-Armenian frontier continued under Alp Arslan, the successor of Tughril; Seljuk raids extended farther and farther into Asia Minor, and in 1067 Caesarea was captured and plundered.<sup>177</sup> A large part of the peasantry hailed the Turks as liberators from the Byzantine rule. In 1068 Romanus IV assembled an army in Cappadocia and by guerilla warfare cleared Asia Minor of the Turks; but as soon as his army retired to winter quarters the Seljuks returned as far as the walls of Amorion.<sup>178</sup> In 1071 Romanus met the Seljuk hosts, led by Alp Arslan, before the city of Manzikert in Armenia. In spite of the personal bravery of the Emperor, the Byzantine army was completely routed because of treachery within its ranks. Romanus, captured but released by Alp Arslan, was deposed and mutilated by his opponent, Caesar Ducas.<sup>179</sup> Anatolia was now open to the Seljuks; but with the death of Alp Arslan the expansion of the Great Seljuk Empire came to a temporary standstill.

With the advent of the Seljuk Turks the situation on the eastern frontier of the Byzantine Empire had changed completely. The Arabs had been only raiders; after their retreats Byzantine supremacy had always been re-established automatically. But in the wake of the Seljuks many tribes of Turkish nomads who were seeking new roaming grounds infiltrated into Asia Minor. Minor princes of the house of Seljuk conducted their invasions in the name of the Great Seljuk sultan in Baghdad, but actually they set themselves up as rulers of independent states along the frontier. Between the advancing Seljuk power and the retreating power of the Byzantines was no man's land. Here groups of nomads and societies of Moslem warriors or sectarians formed a kind of frontier guard for advancing Islam; opposed to them were Byzantine feudal lords and armed peasants. Before long, however, some Turkish groups were joining the Byzantine defenders, and some Christian sectarians and feudal lords were joining the Seljuk cause. Nomads, who never recognize political frontiers, drifted through both defense zones.<sup>180</sup>

Kutulmish, a paladin of Tughril, who had established for himself an independent realm with its capital at Damascus, had openly rebelled against the Great Seljuk sultan, Alp Arslan, and had fallen in battle (1064).<sup>181</sup> His son Sulaimān appeared in Asia Minor after the Battle of Manzikert, seeking glory and adventure. Meanwhile Emperor Michael VII had sent a general, Isaac Comnenus, into Asia Minor with troops, among them a number of Norman soldiers under Oursel (Roussel) de Bailleul. At Caesarea Oursel and part of the army revolted. Isaac

*Encyc. Brit.*: Capt. B. H. Liddell Hart, "Mongol campaigns," XV 705-7; Sir R. K. Douglas and A. N. J. Whyman, "Mongols," XV 716-21; M. T. Houtsma and F. M. Stenton, "Seljuks," XX 308-10. I am indebted to Professor Sprengling for advice and suggestions on this material.

<sup>172</sup> A. Müller, *op. cit.* II 74-76.

<sup>176</sup> *EI* IV 209; *CMH* IV 311.

<sup>173</sup> *CMH* IV 304.

<sup>177</sup> Hertzberg, *op. cit.* p. 248; Gibbon, *op. cit.* VI 236.

<sup>174</sup> Jorga, *op. cit.* I 37.

<sup>178</sup> Hertzberg, *op. cit.* pp. 248 f.; Jorga, *op. cit.* I 49 f.

<sup>175</sup> Hertzberg, *op. cit.* p. 238.

<sup>179</sup> Hertzberg, *op. cit.* pp. 248-52.

<sup>180</sup> Cf. the excellent account of the political and cultural conditions along this frontier in Wittek, *Das Fürstentum Montesche*, pp. 1-14.

<sup>181</sup> Jorga, *op. cit.* I 38 and 74; Müller, *op. cit.* II 87.

had to flee, and Oursel started to wage an adventurous warfare of his own against the Turkish lords. The deserted Isaac, captured by the Turks, had to be ransomed by the Emperor. Oursel proclaimed another Byzantine general, John Ducas, emperor.<sup>182</sup> Michael made a treaty with Sulaimān, in order to win his assistance in suppressing this insurrection. Later, when Nicephorus Botaniates rebelled, Sulaimān at first aided Michael VII, but later joined the rebels. With the help of Seljuk troops Nicephorus entered Nicaea in 1077 and became head of the Byzantine Empire as Nicephorus III.<sup>183</sup>

In 1081 Alexius Comnenus ascended the throne. Sulaimān had established himself in Nicaea with his Turks and was looking forward to westward expansion, but Alexius thwarted his plans. Sulaimān then tried to extend his power to the east over the many independent and semi-independent Christian and Moslem feudal lords of central Asia Minor. The independent Emir of Damascus attacked Sulaimān, declaring him a rebel against the Great Seljuk Sultan Malik Shāh, and in 1086 Sulaimān was defeated and lost his life near Aleppo. Shortly after this the Emir, on behalf of the Sultan, completed a treaty with the Byzantine emperor. The Seljuk general commanding in Nicaea ignored this treaty and expanded his power and influence westward, incurring the enmity of Malik Shāh in doing so.<sup>184</sup>

The successor of Malik Shāh permitted Sulaimān's sons to return to Asia Minor in 1092. One of them, Kilij Arslan I, succeeded to the rule of his father in Nicaea. Emperor Alexius by treaty recognized him as Turkish lord of Asia Minor, although he was by no means the only Turkish ruler there. Along with a large number of Turkish followers, Kilij Arslan had brought to Asia Minor the Dānishmands, who occupied the region around Sivas, Malatya, and Amasya. Kilij Arslan soon began to resent the steadily growing power of the Dānishmand ruler; but their common danger from the Crusaders postponed the final clash.<sup>185</sup>

It is very doubtful whether Alexius ever asked the Pope and the western princes for assistance in his fight against the advancing Moslems. Pope Urban II probably sponsored the First Crusade for reasons of his own, partly religious, but on the whole political. To the Byzantines the Crusades were only a means of reconquering their lost Asiatic territories. From the beginning relations between the Crusaders and the Byzantines were anything but friendly.<sup>186</sup>

In 1096 the first detachment of Crusaders, led by Peter the Hermit, arrived in Constantinople. They crossed to Asia Minor, where they met with minor successes at first, but soon were annihilated by Kilij Arslan I. In the same year Godfrey of Bouillon arrived at Constantinople with the main host of Crusaders. After much argument they took an oath of fealty to the Byzantine emperor, then crossed to Asia Minor in 1097 and captured Nicaea. The Crusaders were not long faithful to their oath. They soon began to carve out for themselves independent principalities; Bohemund, the Norman, even organized an expedition against Constantinople. In 1100 and 1101 the Crusaders suffered crushing defeats from the united Seljuks and Dānishmands between Amasya and Sivas.<sup>187</sup>

Like his father, Kilij Arslan I was more interested in controlling the western part of the caliphate than in new western conquests. He had left Nicaea before it was invested and joined forces with the Dānishmand ruler. Kilij Arslan was killed in a battle with the Emir of Damascus in 1107, and during the next few years the Moslem resistance in Asia Minor was led by the Dānishmand princes. Emperor Alexius took advantage of increasing dissension among the Turkish princes and of defeats which crushed the Crusaders in Mesopotamia (from 1104 on) to reoccupy former Byzantine possessions in southern and southeastern Asia Minor. He drove

<sup>182</sup> Jorga, *op. cit.* I 69-72.

<sup>183</sup> *Ibid.* p. 75; Hertzberg, *op. cit.* pp. 255 and 257 f.; *EI* IV 521.

<sup>184</sup> Jorga, *op. cit.* I 76-81.

<sup>185</sup> *Ibid.* I 82-86; *EI* II 1006 f.

<sup>186</sup> *CMH* IV 333 f.; Jorga, *op. cit.* I 87-90.

<sup>187</sup> *CMH* IV 336-43.

the Turks into the interior, but neither he nor his immediate successors could suppress their constant raids. The Second Crusade ended disastrously. Mas'ūd, who succeeded his father Kilij Arslan, firmly established his rule in Iconium and made it the capital of the Seljuk state in Asia Minor. After a prolonged struggle from 1167 to 1177 Kilij Arslan II seized all the territory of the Dānishmands, and armed intervention in their behalf by the Byzantine emperor in 1176 was ineffectual. The Seljuk state was soon torn by family struggles. In 1190 Konya (Iconium) was captured by the army of the Third Crusade, but was retaken by Kilij Arslan's successor.<sup>188</sup>

Emperor Isaac of Byzantium was deposed by his brother Alexius III in 1195. The army of the Fourth Crusade stormed Constantinople and restored Isaac in 1203. The Byzantines revolted. In 1204 the Crusaders stormed the city a second time and set up the Latin Empire, with Baldwin, count of Flanders, as emperor. The nationally minded Byzantines gathered around Theodore Lascaris and in 1206 crowned him emperor in Nicaea. Other Byzantine states were founded in Trapezus and Epirus.<sup>189</sup> During the ensuing struggle between the Nicaean and Latin empires the Seljuk state had its greatest political expansion and cultural development under Kaikhusrau I, Kaikā'ūs I, and Kaikubād I, the successors of Kilij Arslan II in Konya. They incorporated Sinop into their empire and reduced Lesser Armenia (see p. 394) to a semidependency on the Seljuk sultanate of Konya.<sup>190</sup> About 1240 the Seljuk power in Asia Minor began to decline. Emperor John Vatatzes of Nicaea successfully held his own against the Seljuks, on whose eastern frontier the Mongols had appeared. After the Seljuks were defeated by the Mongols at the Köse Dağ (1243) John Vatatzes devoted his time and resources to preparing the conquest of Constantinople and the doom of the weakened Latin Empire. Michael Palaeologus in 1261 restored the Byzantine rule to Constantinople.<sup>191</sup>

Jenghiz Khan had succeeded, after several reverses, in uniting the Mongol tribes. By 1214 they had completed the conquest of northern China. The kingdom of the Khyārizm Shāh was shattered in 1219-44. Under Ogdai Khan, the successor of Jenghiz Khan, the Mongols again overran Iran and then proceeded to Armenia and to Mesopotamia. Mongol hordes also advanced westward through Russia; one army conquered and ravaged Hungary, and an attack on Poland by another culminated in a victory at Liegnitz in 1241. But the death of Ogdai Khan stopped this advance, and struggles for the succession brought about the disintegration of the Mongol Empire and the establishment of the rule of the Mongol ilkhans in Persia.<sup>192</sup> In Asia Minor the Mongols met the Seljuks and defeated them at the Köse Dağ in 1243. Though the Seljuk sultan had to pay tribute, he was permitted to keep his realm under the suzerainty of the Mongols.<sup>193</sup>

Soon Kaikā'ūs II and his brother Kilij Arslan IV were in open warfare for the throne of Konya. Kilij Arslan was defeated and imprisoned. Kaikā'ūs then refused to appear before his Mongol overlord. In 1256 the Mongol general Baijū attacked and defeated Kaikā'ūs II. The latter fled to the Byzantines in Nicaea, and Kilij Arslan IV was invested as sultan in Konya by the Mongols. Immediately after the departure of Baijū and his army Kaikā'ūs reappeared, and the two brothers agreed to divide the Seljuk territory in Asia Minor. Kaikā'ūs II took the west, with Konya as capital; Kilij Arslan IV took the east, including Kayseri and Sivas. This arrangement was confirmed by Hulagu, commander of the Mongol forces in the west, who had conquered Baghdad in 1258, at which time its last caliph was executed. Hoping to free himself from Mongol overlordship, Kaikā'ūs II then entered into a conspiracy with the

<sup>188</sup> *EI* I 913 f., II 1006-8, and IV 212; *Encyc. Brit.* XX 309 f.

<sup>189</sup> *EI* II 636 f., 638 f., 640 f. and IV 211 f.

<sup>189</sup> *CMH* IV 417-23 and 478.

<sup>191</sup> *CMH* IV 491-516.

<sup>192</sup> *Ibid.* pp. 627-44; Müller, *op. cit.* II 199-238; Bury in Gibbon, *op. cit.* VII 1-22 and 330-32.

<sup>193</sup> *EI* II 639; *Encyc. Brit.* XX 310.



Mameluke sultan of Egypt, but was forced to flee to Constantinople. Now Kilij Arslan IV became sole ruler of the Seljuk state in Asia Minor under the surveillance of Sulaimān, a *parvānah*<sup>194</sup> of the Mongol ilkhān. A few years later the Turkish lords rose again; with the help of the Mameluke sultan they defeated the Mongols at Elbistan in 1277. But the Mameluke army was obliged to retreat; and the following year a Mongol army appeared in Asia Minor, wreaking vengeance. Seljuk territories in Asia Minor now came under stern Mongol supervision, and the last Seljuk rulers were only puppets. Later, when the Mongol power weakened, small independent emirates rose on the ruins of the Seljuk sultanate, especially along the western frontier. One of them was the emirate of the Osmanlis.<sup>195</sup>

#### THE OSMANLIS<sup>196</sup>

The zone of defense which had formed between the Seljuk and Byzantine empires was divided into military fiefs on both sides. With the weakening of both central governments the frontier fiefs became more and more independent. Adventurers, sectarians, and elements which had come into conflict with their governments took service on the frontier, and the various "Christian" and "Moslem" frontier defenders were soon more related, ethnically and culturally, to one another than to their respective central powers. Within the Seljuk ranks appeared nomadic units which penetrated the Byzantine zone. Soon their migrations or raids reached even to the west coast, and the Byzantine defense had to retreat farther and farther to the northwest.<sup>197</sup>

Among the Seljuk frontiersmen appeared Ertuğrul with his warriors. To this Turkoman chieftain the Seljuk sultan granted a military fief, the center of which was Söğüt. This group of Turks, like many others, had been swept from the plains of Turkestan at the time of the westward advance of the Mongol armies.<sup>198</sup> Ertuğrul's son Osman became the founder of a new Turkish Empire. Cleverly using the antagonisms of the Turkish and Byzantine feudal lords, Osman expanded his realm on all sides. With the death of the last Seljuk sultan of Konya, about 1300, Osman became an independent prince. His subchiefs continued to expand the power of the new state on their own responsibility. Only the large fortified cities in the northwest remained Byzantine; but in his old age Osman saw the fall of Bursa (1326), which was to become the next capital of the Osmanli state (Map X).<sup>199</sup>

<sup>194</sup> A high administrative official (high chancellor) in the Seljuk state. The title is here given to the "resident" of the Mongol ilkhān at the court of the Seljuk sultan; see *EI* III 704.

<sup>195</sup> *EI* II 637 f. and 1008, III 704, IV 212; Altunian, *op. cit.* pp. 38-43.

<sup>196</sup> See N. Jorga, *Geschichte des osmanischen Reiches nach den Quellen dargestellt* I-V (Gotha, 1908-13); A. Müller, *Der Islam im Morgen- und Abendland* II (Berlin, 1887); G. F. Hertzberg, *Geschichte der Byzantiner und des osmanischen Reiches bis gegen Ende des XVI. Jahrhunderts* (Berlin, 1883); E. Gibbon, *The History of the Decline and Fall of the Roman Empire*, ed. Bury, VII; Kurt Ziemke, *Die neue Türkei: politische Entwicklung 1914-1929* (Berlin und Leipzig, 1930); Mustafa Kemal, *Die neue Türkei, 1919-1927* (Leipzig, 1928) I-III; C. F. Lehmann-Haupt, *Armenien einst und jetzt* (Berlin und Leipzig, 1910-31) II; Paul Wittek, *Das Fürstentum Mentesehe* (Istanbul, 1934) pp. 1-23; *idem*, "Zur Geschichte Angoras im Mittelalter," *Festschrift G. Jacob . . . gewidmet* (Leipzig, 1932) pp. 329-54; Sir Edwin Pears, "The Ottoman Turks to the fall of Constantinople," *CMH* IV 653-705; J. M. Kinneir, *Journey through Asia Minor, Armenia, and Koordistan in the Years 1813 and 1814* (London, 1818) pp. 84-91; A. D. Mordtmann, *Anatolien; Skizzen und Reiseberichte aus Kleinasien (1850-1859)*, eingeleitet und mit Anmerkungen versehen von Franz Babinger (Hannover, 1925); F. W. Hasluck, *Christianity and Islam under the Sultans* (2 vols.; Oxford, 1929); *Tarih. III. Yeni ve yakın zamanlarda Osmanlı Türk tarihi* (Istanbul, 1931); the following articles in *EI*: K. Süsseheim, "Abd al-Aziz b. Mahmūd," I 36; J. H. Mordtmann, "Derebeys," I 945 f.; Cl. Huart, "Ismā'il I," II 544 f., and "Kizil-Bāsh," II 1053 f.; T. W. Arnold, "Khalifa," II 881-85; J. H. Kramers, "Murād V," III 732, "Selim I," IV 214-17, and "Sulaimān I," IV 522-27; L. Bouvat, "Timūr Lang," IV 777-79; and the following articles in *Encyc. Brit.*: "Abdul-Hamid II," I 30; "Abdul Mejid," I 31; A. Safrastian, "Armenia," II 377-81; Philip Graves, "Mesopotamia (Mediaeval and Modern Times)," XV 298 f.; A. A. Adnan, "Turkey (Modern History)," XXII 600-617.

<sup>197</sup> Wittek, *Das Fürstentum Mentesehe*, pp. 1-23; *CMH* IV 653-55.

<sup>198</sup> *CMH* IV 655 f.; Jorga, *op. cit.* I 149-51.

<sup>199</sup> *CMH* IV 656-61.



During the reign of the incompetent Emperor Andronicus II the Osmanli emirate continued to expand. Urhan (Orkhan), Osman's successor, took little part in the civil strife between Andronicus II and Andronicus III in Constantinople; but Turkish warriors hired themselves out on both sides. We are little informed as to conditions in central and eastern Asia Minor at this time; but it is safe to believe that there, as in the west, emirates had formed. Most of the territory, surely, was in the hands of nomadic Turks, and the Byzantine emperors often allied themselves with one emir against another. Andronicus III tried to regain supremacy over northwestern Asia Minor, but in 1329 Urhan completely defeated him. Andronicus, severely wounded, returned to Constantinople, the last Byzantine emperor to tread the soil of Asia Minor.<sup>200</sup>

The interest of the early Osmanli rulers, unlike that of the Seljuks, was always directed westward—that is, toward Europe. Their territories in Asia Minor were left much to themselves. Murat I, successor to Urhan, occupied Gallipoli and conquered Adrianople in 1361 and again in 1363; to this city, as Edirne, he transferred the capital of the Osmanli state in 1366. The Byzantine Empire, weakened by civil war, could offer but little resistance.<sup>201</sup> Bayazıt I Yıldırım reduced a number of the emirates in Asia Minor to vassalage. He soon advanced into Europe against the Serbs and Hungarians, far more dangerous enemies than the Byzantines. In 1402 he besieged Constantinople, and the position of the city was desperate; but Timur appeared on the eastern frontier of Asia Minor with a Mongol army, and Bayazıt was obliged to desist from the siege.<sup>202</sup>

The realm of the Mongol ilkhans of Persia had split up into many small units; by 1386 Timur had succeeded in gaining the lordship over the greater part of these western Mongols. In that year he had appeared at the eastern frontier of Asia Minor, but had turned back; in 1398 he had invaded India and sacked Delhi. Timur then returned westward. Sivas was retaken in 1400; in Syria, Damascus and Aleppo were conquered; Baghdad was sacked in 1401.<sup>203</sup>

In 1402 Timur sent a message to Bayazıt I, reminding him that as successor to the Seljuks he owed allegiance to the Mongol rulers. Bayazıt sent an insulting reply, commanding Timur to appear before him. Then, desisting from the siege of Constantinople, Bayazıt marched eastward. Passing Ankara, he conducted his army to the region of Yozgat, believing that the Mongols would march from Sivas toward Ankara by that route. Instead, Timur led his host to Kayseri. Bayazıt tried to intercept him there, but Timur advanced to Ankara ahead of Bayazıt and had the choice of positions before the city, while the Turks were weakened by their march through a country devastated by the Mongols. For several days the armies were encamped opposite each other. Many Turkish lords who had been driven from their realms by Bayazıt were in the army of Timur, and several Turkish contingents of the Osmanli army joined their former lords in the Mongol ranks. Bayazıt was forced by shortage of supplies and increasing disaffection among his troupes to attack Timur. The battle ended in the complete defeat of the Osmanli army; Bayazıt himself was taken prisoner.<sup>204</sup>

Soon the whole of Asia Minor was ravaged by the Mongols. Bursa and İznik (Nicaea) were captured and sacked, and Timur enforced payment of tribute from Constantinople. The last conquest of Timur in Asia Minor was İzmir (Smyrna), where the Knights of Rhodes had withstood Moslem attacks for more than half a century. Timur, having recognized the sons of Bayazıt in their realms, as also the emirates which had arisen again after the Battle of Ankara,

<sup>200</sup> *CMH* IV 661-68; Hertzberg, *op. cit.* pp. 466 f.

<sup>202</sup> *CMH* IV 674-79.

<sup>201</sup> *CMH* IV 668-74.

<sup>203</sup> *EI* IV 778; *CMH* IV 679 f.; Jorga, *op. cit.* I 310-18.

<sup>204</sup> *CMH* IV 680-83; Jorga, *op. cit.* I 320-22; Gibbon, *op. cit.* VII 57-62.

returned to Samarkand. There he died in 1405, in the midst of preparations for an invasion of China. With him passed the Mongol danger for the West.<sup>205</sup>

For ten years the six sons of Bayazıt I struggled for supremacy; in 1413 Muhammet I, the only survivor, proclaimed himself Grand Sultan of the Osmanlis. During his reign and that of his successor, Murat II, there was a large immigration of Turkomans into Asia Minor. With their help Murat II overran the Balkans and defeated Christian armies at Varna in 1444 and at Kossovo in 1448. His successor, Muhammet II Fatih, crowned the campaigns of his predecessors by conquering Constantinople in 1453. The last Byzantine emperor, Constantine XI, fell during the gallant resistance of the city.<sup>206</sup>

Although the emirates in Asia Minor had been endangered by the existence of the Osmanli state, for a time they had been undisturbed because of the internal struggles in the house of Osman and the fact that its interest centered in the west. The conquest of Constantinople had consolidated the Osmanli power in Europe to some degree, and its interest now turned eastward. Muhammet II in 1461 marched into Asia Minor against the Turkoman chieftain Uzun Hasan, who was then in Azerbaijan. This chief considered himself the legitimate successor of Timur and as such had his bands raid Asia Minor and collect tribute from the emirs there. Muhammet II, having conquered Kastamonu and Sinop and visited Amasya and Sivas, where his son was in command, considered himself satisfied by a formal acknowledgment of his sovereignty from Uzun Hasan. Muhammet II then returned northward and conquered Trapezus, the last Byzantine state in Asia Minor.<sup>207</sup> In 1463 the Emir of Karaman revolted, but the revolt was suppressed by Muhammet II in 1465.<sup>208</sup> In 1473 Uzun Hasan allied himself with a Christian league, in which Venice played the most important role, and again attacked the Osmanli territories in Asia Minor. Finally Uzun Hasan's main army was defeated decisively, and he was obliged to flee.<sup>209</sup>

Adversaries of the Osmanli sultans had little difficulty in inciting the Turkish elements in Asia Minor against the central power. The emirate of Karaman played an important role. Here the spirit of independence of the Turkish lords, based on Seljuk traditions, survived longest; here, as in the rest of Asia Minor, soon developed a deep-rooted discontent with the sultan in İstanbul, who based his power chiefly on renegades and not on the Turkish element. In the time of Bayazıt II the Sultan of Egypt aroused this spirit of unrest in southern Anatolia. Bayazıt did not conduct the ensuing war with great energy. Although the many campaigns of the Osmanli troops nearly always ended in defeat, by the treaty concluded in 1490 parts of Cilicia were incorporated into the Osmanli realm.<sup>210</sup>

Anatolia was again torn by warfare in 1499. Once more the moving power was the Sultan of Egypt, aided by the feeling of independence in Karaman. At the same time there was a general revolt of the Turkish peasantry in central Anatolia, led by a mystic, Shah Kuli. An army of the Osmanli Sultan was defeated by these rebels between Kayseri and Sivas.<sup>211</sup> A similar mystical movement in Azerbaijan was led by Shah Ismail, whose Sufi forces conquered Baghdad in 1508.<sup>212</sup> Bayazıt II did not take very energetic steps against them. Shī'ite communities formed in Anatolia; and, in spite of bloody persecutions of later times, this sect has survived to the present day as the Kızılbaş or Alevi (Alawī, i.e. followers of 'Alī).<sup>213</sup>

Bayazıt II was forced to abdicate by his son Yavuz Selim I, who had all his brothers and most of their sons assassinated as possible pretenders. Prince Murat, the only nephew who escaped with his life, found refuge at the court of Shah Ismail in Persia.<sup>214</sup> This prince, leading

<sup>205</sup> *CMH* IV 683 f.; Hertzberg, *op. cit.* pp. 530 f.

<sup>206</sup> *CMH* IV 684-705.

<sup>207</sup> Jorga, *op. cit.* II 98-104

<sup>208</sup> *Ibid.* pp. 161 f.; Müller, *op. cit.* II 339 f., prefers the dates 1464 and 1466 respectively.

<sup>209</sup> Jorga, *op. cit.* II 165-67.

<sup>211</sup> *Ibid.* pp. 249-51.

<sup>212</sup> *ET* II 1053 f.

<sup>210</sup> Jorga, *op. cit.* II 243-49.

<sup>213</sup> *ET* II 544 f.; *Encyc. Brit.* XV 298.

<sup>214</sup> Jorga, *op. cit.* II 310-15.

Sufi troops, attacked Amasya in 1514. Yavuz Selim advanced against Murat with a strong army. The Sufi army was defeated decisively on the plains of Çaldıran, and the Osmanli troops captured Tabriz. Shah Ismail of Persia then formed an alliance with the Sultan of Egypt and the Khan of the Özbeks against Selim; in 1516 Selim met these adversaries near Aleppo and defeated them. In 1517 Cairo was taken, and Egypt was incorporated into the Osmanli Empire.<sup>215</sup> Yavuz Selim assumed the title of caliph as had his predecessors also.<sup>216</sup> At the death of Yavuz Selim Osmanli power was firmly established in Asia. In Europe no additions had been made to the Osmanli territory.

Süleyman the Magnificent (called by the Turks *kanuni*, the Lawgiver) gave most of his attention to his European possessions, although he had to contend with serious revolts in Syria and Egypt. In 1527 a dangerous rebellion of dervishes and Shī'ites, united with peasants, broke out in Anatolia;<sup>217</sup> but in the subsequent European wars of Süleyman Anatolian contingents played an important part.<sup>218</sup> Belgrade was captured and became the Turkish military base for the western wars. Hungary was conquered, Budapest was taken, and Vienna was besieged for three weeks.<sup>219</sup> In 1533 Süleyman was obliged to turn his attention to Persia; Tabriz and Baghdad were stormed by the Osmanli troops.<sup>220</sup> Similar campaigns against Persia were undertaken in 1548 and in 1553.<sup>221</sup> The Osmanli Empire reached its apex under Süleyman the Magnificent.

After Süleyman the decline set in (Map XI). For many years the actual power was in the hand of janizaries (*yenîçeri*) and of renegades (Christians who had become Moslem more from an adventurous spirit than from religious conviction), some of whom were able statesmen, although most of them were corrupt. Asia Minor was ruled by emirs under the suzerainty of the Porte and by pashas appointed by the Porte; but the pashas soon tended to become independent. Rebellion was recurrent in Asia Minor. There were found the old Turkish element, resenting the court camarilla and the janizaries, and the Shī'ite communities, in which persisted a much older spirit of personal mysticism, ever resentful of what they called the degenerate religion of the orthodox Sunnite sultanate. There, furthermore, was the indomitable feeling of independence which is in the soil of Asia Minor, especially of central Anatolia, along with the spirit of political brigandage.<sup>222</sup>

The Osmanli Empire with its capital at İstanbul endured until the present century. With so many antagonistic elements within, it was inevitable that its history should be one of strife, especially since the 17th century, when complications with European governments began.

In the time of Sultan Murat III the Persians again aided a serious revolt in Asia Minor, and from 1598 to 1600 there was complete anarchy there. The grand vizier, Murat Paşa, finally suppressed the rebellion in a bloody campaign and attempted to exterminate the Shī'ites in Asia Minor.<sup>223</sup> But the power of the empire was weakened; for the first time Turkey concluded a treaty with Austria (at Sisvatorok in 1606) on even terms, and Rudolf was the first Austrian emperor to be referred to as *padişah*.<sup>224</sup> When in 1622 the janizaries assassinated Osman II because he tried to reform them, another rebellion broke out at once in Asia Minor; the rebels posed as avengers of the slain sultan.<sup>225</sup> With iron energy Murat IV started to break the power of the court camarilla and the janizaries. He was then ready to suppress the rebellion and also

<sup>215</sup> *Ibid.* pp. 329-41; *EI* IV 214-17.

<sup>216</sup> *EI* II 883.

<sup>217</sup> Jorga, *op. cit.* II 357-65.

<sup>218</sup> *Ibid.* p. 397.

<sup>219</sup> *Ibid.* pp. 385-413.

<sup>220</sup> *EI* IV 523.

<sup>221</sup> *Ibid.* p. 524.

<sup>222</sup> Jorga, *op. cit.* III 162-89, 217-32, and esp. 407-31.

<sup>223</sup> *Ibid.* pp. 420-39.

<sup>224</sup> *Ibid.* pp. 338-40; *Encyc. Brit.* XXII 603.

<sup>225</sup> Jorga, *op. cit.* III 444-48.



to act against Persia, which persistently instigated unrest in the eastern possessions of Turkey. In 1635 the Sultan marched through Asia Minor, "pacifying" it as he passed through. Baghdad was conquered in 1638. In 1640, before he could finish his task of regenerating his empire, Murat IV died.<sup>226</sup>

War with Venice for the possession of Crete—a war which drained the resources of the empire—started in the reign of Murat IV's successor, Ibrahim. In Asia Minor and among the European vassals rebellions broke out. Discontented Anatolian contingents under Warwar Ali Paşa of Sivas marched against Istanbul, but were defeated by the janizaries. Soon after this, Ibrahim was throttled; and again Anatolian rebels, this time the united forces of Kaderei Oğlu and Nebi ("Prophet") Gurcu, attempted to "avenge" a sultan.<sup>227</sup> Muhammet Köprülü, appointed grand vizier in 1656, pressed the war with Venice. The Anatolians openly defied him, declaring that no Anatolian contingents would be available for wars for glory only or for further expansion in Europe.<sup>228</sup> Muhammet Köprülü was succeeded by his son, who continued the policy of his father; he ended the twenty-five years of war with Venice by the conquest of Candia and continued the war in Europe.<sup>229</sup> His successor was an Anatolian, Kara Mustafa Paşa, who attacked the Russians in 1677 and again in 1678. He invested Vienna but was defeated before its walls and paid with his life at Belgrade.<sup>230</sup>

Unsuccessful wars in Europe continued from 1684 to 1699, Austria enlarging its territory at the expense of Turkish provinces. In 1687 the army, prompted by the Asiatic contingents, marched on Istanbul and forced Muhammet IV to abdicate.<sup>231</sup> A third grand vizier of the Köprülü family, Mustafa, fought the Austrians successfully but soon was killed in battle.<sup>232</sup> Sultan Mustafa II, who came to the throne in 1695, continued the war at first successfully, but was decisively defeated by Eugene of Savoy at Zenta in 1697. Through the intervention of other European powers peace was signed at Karlowitz in 1699.<sup>233</sup> Though Austria and Russia made large territorial gains, they soon resumed their efforts to drive the Turks from Europe.<sup>234</sup> Persia also became involved, and as a result Turkey lost some of its eastern provinces.<sup>235</sup> By the Treaty of Passarowitz in 1718 Turkish possessions in Europe were still more reduced.<sup>236</sup> Later wars with Austria and Russia were more successful, and by the Treaty of Belgrade (1739) Turkey regained much of its lost European territory.<sup>237</sup>

Of course internal political conditions had not improved during these turbulent times. Many provinces were only nominally under Turkish suzerainty, and the pashaliks had become hereditary. After the Treaty of Belgrade a certain regeneration began. For twenty years the Porte followed a policy of peace, and no promises or enticements could bring the Osmanli Empire into the War of the Austrian Succession (1740–48). From about 1750 the empire was led mostly by real Turks, and the renegade class was ousted. Many young men came from Asia Minor to Istanbul to study and to enter government service. There was a religious regeneration also.<sup>238</sup>

A war with Russia began in 1768 on account of the succession to the Polish throne; it ended with the peace of Küçük Kainarçı, so humiliating for Turkey.<sup>239</sup> Russia and Austria began again to expand their territory at Turkey's expense. Then the French Revolution demanded the attention of both nations, and Sultan Selim III (1789–1807) concluded favorable treaties in 1791 and 1792.<sup>240</sup> He recognized the importance of reforms along western lines. The greatest evil facing him was the practical independence of the provincial governors and the influ-

<sup>226</sup> *Ibid.* pp. 449–76.

<sup>227</sup> *Ibid.* IV 32–58.

<sup>228</sup> *Ibid.* pp. 75 f., 84–87, and 93 f.

<sup>229</sup> *Ibid.* pp. 108–34.

<sup>230</sup> *Ibid.* pp. 172–80 and 191–98.

<sup>231</sup> *Ibid.* pp. 222–26.

<sup>232</sup> *Ibid.* pp. 247–55.

<sup>233</sup> *Ibid.* pp. 258–72.

<sup>234</sup> *Ibid.* pp. 275 f.

<sup>235</sup> *Ibid.* pp. 400–408.

<sup>236</sup> *Ibid.* pp. 337–60.

<sup>237</sup> *Ibid.* pp. 420–48.

<sup>238</sup> *Ibid.* pp. 449–81.

<sup>239</sup> *Ibid.* pp. 472–512.

<sup>240</sup> *Ibid.* V 1–99.



ence of powerful families. In Asia Minor the most powerful families were the Çapan (Çapar) Oğlu, with Yozgat as its residence, and the Kara Osman Oğlu, in Manisa (Magnesia on the Sipylus) and Bergama (Pergamon).<sup>241</sup> Naturally these leaders opposed the suggested reforms, which would have meant a strengthening of the central power in İstanbul. The reforms were interrupted in 1798 by war with France following Napoleon's attack on Egypt. The French advance was checked by the semi-independent governor of Syria. In the Battle of Abukir the greater part of the Osmanli army consisted of Anatolian contingents furnished and led by the feudal lords of the Kara Osman Oğlu and Çapan Oğlu families.<sup>242</sup> In 1807 the reactionary elements revolted, and Selim III was forced to abdicate in favor of Mustafa IV, who immediately abolished all reforms.<sup>243</sup>

Mahmut II, an ardent believer in the policies of Selim III, followed Mustafa IV after a revolt. Mahmut started a military reform based on Anatolian elements, but he was thwarted by the still mighty janizaries, who were not finally crushed until 1826.<sup>244</sup> Although Mahmut was an able ruler, Turkey suffered great loss of prestige and of territory during his reign; Muhammet Ali had to be recognized as nearly independent ruler of Egypt, and Greece became an independent kingdom.<sup>245</sup> In the struggle for the unification of power in Asia Minor Mahmut was more successful. The last great feudal lord, Süleyman of the Çapan Oğlu family, died in 1814 and his territory passed again under the direct rule of the Porte.<sup>246</sup> From now on there was relative peace in Asia Minor. The reform movement continued under Mahmut's successor, Abdülmecit (1839-61), who proclaimed the Tanzimât, an edict consolidating and enforcing the reforms. In 1856 this was supplemented by a similar statute.<sup>247</sup> Abdülaziz (1861-76) mismanaged and was deposed.<sup>248</sup> Murat V, in whom the leaders of the reform movement had placed their hope, also proved incapable and was deposed after a rule of only three months.<sup>249</sup>

Abdülhamit II (1876-1909) promulgated a constitution in 1876, but suspended it in 1877. In 1908 a revolutionary movement headed by the "Young Turks" forced him to restore it. A reactionary military revolt against the new régime in 1909, in which the Sultan apparently connived, ended in defeat and in the capture of İstanbul by the Young Turks, who forced Abdülhamit to abdicate in favor of Muhammet V.<sup>250</sup>

With the close of the Russo-Turkish War in 1878 came the "Armenian question." After the incorporation of the Bagratid kingdom into the Byzantine Empire following the war of 1044 many Armenians had settled in central Asia Minor and Cilicia. In Cilicia there was formed in 1080 the kingdom of Lesser Armenia, which disappeared as a state in 1375. For centuries these Armenians had lived peaceably with their Turkish neighbors; but with the spread of Russian and British influence a movement for Armenian national liberty was started. Natural resentment of such a movement, augmented by suspicion of foreign influences, prompted the Sultan to send troops into the country. In 1896 this resulted in massacres, which were prosecuted with terrible ardor by both sides.<sup>251</sup>

The constitutional régime headed by the Young Turks, who now called themselves the Committee of Union and Progress, soon became firmly established; but during this whole period

<sup>241</sup> *Ibid.* pp. 105 and 226-28; Kinneir, *Journey through Asia Minor, Armenia, and Koordistan in the Years 1813 and 1814*, pp. 84-91; Hasluck, *Christianity and Islam under the Sultans II* 595-603; Moridmann, *Anatolien; Skizzen und Reiseberichte aus Kleinasien (1850-1859)*, pp. 113-16.

<sup>242</sup> Jorga, *op. cit.* V 117-30.

<sup>246</sup> *EI* I 945 s.v. "Derebeys."

<sup>243</sup> *Ibid.* pp. 168-71.

<sup>247</sup> *Encyc. Brit.* I 31.

<sup>244</sup> *Ibid.* pp. 233 and 310-16; *Encyc. Brit.* XXII 608.

<sup>248</sup> *EI* I 36.

<sup>245</sup> Jorga, *op. cit.* V 317-402.

<sup>249</sup> *EI* III 732.

<sup>250</sup> Jorga, *op. cit.* V 567-69 and 614-23; *Encyc. Brit.* I 30 and XXII 611 f.

<sup>251</sup> *Encyc. Brit.* II 379 f.; C. F. Lehmann-Haupt, *Armenien einst und jetzt II* 442-50 and 988-1001.

territorial losses in Europe and Africa continued. In the World War Turkey joined the Central Powers. The armistice of Mudros was signed in 1918 by the government of Muhammet VI Vahideddin.<sup>252</sup>

#### THE TURKISH REPUBLIC

The Turks soon realized what they had to expect from the peace treaty. Muhammet VI, by bringing Damat Ferit Paşa into power, gave the reins of the government to the Allies. A nationalist movement started in İstanbul and in the only Turkish territory—parts of Asia Minor—not occupied by enemy forces (Map XII). The Sultan sent Mustafa Kemal Paşa to eastern Anatolia as inspector general of the Third Army. There he met with some of the local leaders of the nationalist organizations and signed the Amasya protocol on June 19, 1919. This protocol formally declared the determination of the Turks to resist the Allies and their instrument the Sultan. A national congress, presided over by Mustafa Kemal Paşa, assembled in Erzurum July 23, 1919, and another congress was held in Sivas on September 4. By the Treaty of Sèvres in 1920 the Allies aimed to destroy the Turkish state as an independent political factor. The nationalists in Asia Minor now armed themselves openly, while the Allies occupied İstanbul in an effort to quash the nationalist movement. Parliament being closed, Mustafa Kemal Paşa invited Anatolia to elect deputies for a new assembly to meet in Ankara. Even this assembly declared its loyalty to the Sultan, whom it considered a prisoner in the hands of the Allies. Nationalist forces drove French troops out of Cilicia and freed northeastern Asia Minor by reducing the newly founded Armenian republic. In 1921 Greek forces advanced toward central Anatolia, almost reaching Ankara; but the next year their armies were annihilated, and Asia Minor was cleared of enemies. In 1922 the sultanate was abolished; in 1923 the new Turkish republic signed the Treaty of Lausanne, by which the Turks gained their independence and retained their Anatolian home, İstanbul, and part of Thrace (Map XIII). Since then Turkey has been steadily advancing in cultural and material prosperity through the great reforms introduced with untiring energy by Gazi Mustafa Kemal Atatürk.<sup>253</sup>

#### THE INFLUENCE OF GEOGRAPHY ON HISTORY AND RELIGION<sup>254</sup>

The preceding survey of the political history of central Asia Minor has demonstrated how every political factor from the very beginning of written history to the present day has finally had to adjust itself to the same problems—problems inseparably connected with the geographical and topographical factors which have created the peculiar Anatolian mentality.

<sup>252</sup> *Encyc. Brit.* XXII 611–13.

<sup>253</sup> Mustafa Kemal, *op. cit.*; *Encyc. Brit.* XXII 613–17; *Tarih*. IV. *Türkiye Cumhuriyeti* (İstanbul, 1931); Hilmi Malik Evrenol, *Revolutionary Turkey* (Ankara and İstanbul, 1936).

<sup>254</sup> See W. M. Ramsay, *The Historical Geography of Asia Minor* (London, 1890); *idem*, "The geographical conditions determining history and religion in Asia Minor," *Geographical Journal* XX (1902) 257–82; *idem*, "The Tekmoreian guests: an antichristian society on the imperial estates at Pisidian Antioch," *Studies in the History and Art of the Eastern Provinces of the Roman Empire* (Aberdeen, 1906) pp. 305–77; *idem*, *Pauline and Other Studies in Early Christian History* (2d ed.; London, 1908); R. H. Whitbeck, "The influence of geographical environment upon religious beliefs," *Geographical Review* V (Jan.–June, 1918) 316–24; J. Garstang, *The Hittite Empire* (London, 1929); A. Götze, *Kleinasien* (München, 1933); Sidney Smith, *Early History of Assyria to 1000 B.C.* (London, 1928); W. E. Gwatkin, *Cappadocia as a Roman Procuratorial Province* (1930); *OIP* XXVII; *OIC* Nos. 8 and 14; Eduard Meyer, *Geschichte des Altertums* I 2 (3. Aufl.; 1913); *idem*, *Ursprung und Anfänge des Christentums* (Berlin, 1921–23) I; J. H. Kurtz, *Lehrbuch der Kirchengeschichte für Studierende* (14. Aufl.; Leipzig, 1906) II; Édouard Cuq, "Note sur la novelle XXX de Justinien," *Mélanges offerts à M. Gustave Schlumberger* (Paris, 1924) pp. 61–66; P. Wittek, "Zur Geschichte Angoras im Mittelalter," *Festschrift G. Jacob*, . . . gewidmet (Leipzig, 1932); Franz Babinger, "Der Islam in Kleinasien," *ZDMG* LXXVI (1922) 126–52; *idem*, "Scheich Bedr ed-din, der Sohn des Richters von Simāw. Ein Beitrag zur Geschichte des Sektenwesens im altosmanischen Reich," *Der Islam* XI (1921) 1–106; Köprülüzaade Mehmed Fuad, "Bemerkungen zur Religionsgeschichte Kleinasiens," *Mitteilungen zur osmanischen Geschichte*, hrsg. von F. Kräpitz und P. Wittek, I (Wien, 1922) 203–22; Georg Jacob, *Beiträge zur Kenntnis des Derwisch-Ordens der Bektaschis* ("Türkische Bibliothek" IX [Berlin, 1908]); *idem*, "Die Bektaschije in

The most striking of these geographical factors is the character of the peninsula of Asia Minor as part of the great land bridge between east and west. Nearly every movement of peoples from Europe to the east, or from Asia to the west, has passed over it. We cannot yet trace completely the earlier movements, of which the most important was that which brought the Hittites into Anatolia. The first great movement which we can see as a political entity was the Aegean migration, which in the 12th century B.C. passed through or around Asia Minor from west to east and flooded the eastern coast of the Mediterranean. Next came an east-west movement, which reached its climax in the conquest of all of Asia Minor by the Old Persian Empire under the Achaemenians in the second half of the 6th century B.C. On this followed, a few centuries later, the expansion of Hellenistic culture, inaugurated by the campaigns of Alexander the Great and finally culminating in the establishment of the Imperium Romanum. The last great movement began with the appearance of the Arabs in the 7th century after Christ and culminated in the establishment of the Turkish (Osmanli) Empire.<sup>255</sup>

The character of Asia Minor as a corridor has become apparent whenever a political power having its center outside of Asia Minor had interests in both the West and the East. This was especially evident during the stormy period following Alexander the Great. The Ptolemies in Egypt and the Seleucids in Persia, Mesopotamia, and Syria wished to control the European part of the empire; the successors of Alexander in Europe wanted to control Mesopotamia, Syria, and Egypt. Asia Minor as a self-contained unit was of no importance to either; as a corridor it was vital. During the Crusades and the period following them, when most of Asia Minor was already in the hands of the Turks, Crusaders and Byzantines were interested in Asia Minor principally as a link connecting Europe with Palestine or with the Byzantine possessions in Syria and northern Mesopotamia. Similarly the Osmanli sultans in Istanbul found Asia Minor vital as a link between their European and Asiatic possessions. In recent times the importance of Asia Minor as a strategic corridor has been brought to the attention of the world by the construction of the Baghdad Railway—which followed the old southern route from west to east—and its political repercussions in Europe.<sup>256</sup>

The second important geographical factor is that Asia Minor, besides being part of the great land bridge, is also a sharply defined unit in itself. Asia Minor has never been penetrated much from north or south. Neither the influence of the Greek colonies along the Black Sea coast, nor the Gothic sea raids there, ever passed beyond the mountain chains separating the coast from the interior plateau; and although the mountains along the south coast offered safe retreats for Mediterranean pirates, the interior never suffered from them. The east and west boundaries, much shorter than those on the north and south, are of course more vulnerable. Of the two, the eastern is the less easily penetrable. The mighty walls of the Taurus and Anti-Taurus in the southeast have few passes, and only a few good roads lead from the Armenian highland.

This situation made it inevitable that Asia Minor should become an outpost of the large eastern or western powers. Thus it was the western outpost of the Old Persian Empire; and, although Persia could not entirely close the relatively open west coast against the expanding Greeks, it was able for centuries to retain political control of this important littoral. In the time of the Roman Empire, and even more during the period of the Byzantine Empire, Asia Minor was the bulwark of the West against the Parthians, Sasanians, Arabs, and Turks. With the

ihrem Verhältnis zu verwandten Erscheinungen," *AAWM* XXIV, 3. Abt. (1909) pp. 1-53; E. Banse, *Die Türkei. Eine moderne Geographie* (2. Aufl.; Braunschweig, 1916); K. Ziemke, *Die neue Türkei* (Berlin und Leipzig, 1930); R. Tschudi, art. "Bektāsh," *ET* I 691 f.; and the following articles in *Encyc. Brit.*: "Baghdad Railway," II 924 f.; J. B. Bury, "Roman Empire, Later," XIX 432-45.

<sup>255</sup> Balinger in *ZDMG* LXXVI 126.

<sup>256</sup> *Encyc. Brit.* II 924 f.



breakdown of Byzantine resistance Asia Minor became again the outpost of the East, making possible the Turkish advance into Europe.

But Asia Minor has been not only an outpost; it could also become a veritable fortress—a fortress surrounded by relatively easily defended walls, with a natural glacis. On north and south respectively the Black Sea and the Mediterranean with the plain of Adana form the glacis. In the west it is the Aegean; in the east the highland of Armenia, the northern Mesopotamian plains, and North Syria. There is little if any danger of attack from north or south. The only weak spot in the south is one easily closed pass across the Taurus.

The eastern and western sides of this "fortress" are naturally much exposed. The mountains of Armenia and Kurdistan and their western extensions, with the natural strongholds they afford an attacking or invading enemy, form a steady menace; and control of Armenia has always been essential to the defense of Asia Minor. It is probably in western Armenia or in the northeastern Taurus that the Kaška dwelt during the time of the Hittite Empires;<sup>257</sup> and the north-south Hyksos movement, which may have brought on the doom of the Old Hittite Empire (see p. 364), possibly reached Anatolia from this direction.<sup>258</sup> It was through this territory that the Cimmerians broke in, destroying the Phrygian state.<sup>259</sup> The struggle between the Romans and the Parthians, and later between the Byzantines and the Sasanians, was largely for the control of Armenia. Through the shortsightedness of Byzantine diplomacy the independent kingdom of Armenia under the rule of the Bagratids ceased to exist; and the Battle of Manzikert laid Asia Minor open to Turkish inroads. It was from Armenia that the Mongols entered Asia Minor, from Armenia that Russian armies during the World War tried to deal a deathblow to Turkish resistance. Not until a treaty between Persia and the Turkish Republic in 1926 guaranteed mutual non-interference with the Kurds in the boundary zones of the Ararat complex was Turkey's eastern frontier safeguarded against the continual unrest of the Kurds.<sup>260</sup>

More favorable for defense are conditions in the southeast, where the northern Mesopotamian and Syrian plains are the "glacis." If control over these territories was lost, the Anti-Taurus and the Taurus formed an efficient defense against actual conquest. The passes are few, and even if these were held by the enemy sufficient forces could be concentrated at strategically important points to check or at least control invasions. Defense here became impossible only when defense in the northeast had been broken, as at the Battle of Manzikert.

The weakest side of the "fortress of Asia Minor" is to the west. The coast is relatively open and possesses many routes into the interior. The islands between the Greek mainland in Europe and the coast of Asia Minor greatly assist an invasion from the west. Asia Minor cannot be safe if the ruling power does not control these islands, by either arms or diplomacy, as a kind of checkerboard defense zone. In this light we must understand the Persian expeditions against the Greek city-states and, in later times, the establishment of Genoese and Venetian interests here; for the power which dominates the islands controls to a very important degree both the coast of Asia Minor and the Greek mainland.

Only twice, as far as we know, has an autonomous state with its center in the peninsula ruled the whole of Asia Minor. The first was the New Hittite Empire in the 2d millennium B.C. At its apogee the northeast was firmly under control; Mitanni was incorporated as a buffer state in northern Mesopotamia; and in Syria many vassal states formed the "glacis" toward

<sup>257</sup> Thus Garstang, *The Hittite Empire*, pp. 196 f. Götze (*Kleinasiën*, pp. 168 and 187) would locate the Kaška in the mountains along the Black Sea coast and connect them with the Muški.

<sup>258</sup> This is on the assumption that the Hyksos came from the Caucasus or were connected with the movements of the Hurri-Mitanni peoples in Upper Mesopotamia. Cf. Meyer, *Geschichte des Altertums* I 2, p. 315; *OIP* XXVII 18.

<sup>259</sup> Götze, *Kleinasiën*, pp. 178 and 189.

<sup>260</sup> Ziemke, *Die neue Türkei*, p. 412.



the Egyptian Empire. We are not yet well informed as to conditions in the west, but seemingly a political truce prevailed there. The situation of the second autonomous state of Asia Minor, the present Turkish Republic, is similar. The eastern frontier is guaranteed by control of parts of the Armenian highland, part of the northern Mesopotamian plain, and part of North Syria. Political treaties and an adequate military defense safeguard the western approaches. The Phrygian kingdom would have formed a third state of Asia Minor if it had succeeded in efficiently protecting its eastern frontiers; but it never controlled the "glacis" there. It is evident that the Phrygian king tried to secure this control; it is thus that we must understand his treaty with the Vannic kingdom and his conspiracies with the rebellious North Syrian states against Assyria.<sup>261</sup>

The entrance to Asia Minor from the west was of course best suited for a peaceful penetration lasting over a long period. It was relatively easy for invading elements to establish on the west coast "bridgeheads" from which they could expand. But in the east invaders could be stopped rather easily, unless the momentum of the movement was sufficient to permit their establishment in the central plateau. When resistance in the east was once broken, large parts of Asia Minor were exposed to constant raids, which could be stopped only in a zone of defense rather than along a single strategic line. The part of Asia Minor with which we are especially concerned fell within this zone.

The first invaders known to have settled in Asia Minor, the Indo-European-speaking Hittites, appeared near the end of the 3d millennium B.C. The next invasion of actual settlers came from the west, when the Phrygians followed in the wake of the Aegean migration. They established their kingdom in the western part of Asia Minor and gradually penetrated eastward to the Taurus. The Galatians were another wave of settlers from the west. The Moslem-Arab wave weakened the resistance of the Byzantine Empire and prepared the way for the latest settlement of Asia Minor, this time from the east. After a long struggle in the defense zone of central Asia Minor the Turkish invaders became the predominant element.

The political history of the territory with which we are particularly concerned was determined by its location in the center of Asia Minor and by its own topography and natural resources. It is as a whole a plateau subdivided by mountain complexes into many small units of fertile valleys, valley plains, and steppes; in the mountain complexes are many easily defended retreats. For a state covering all or most of Asia Minor, central Anatolia is of course the nucleus. Both Hattuşaş, capital of the Hittite Empire, and Ankara, capital of the Turkish Republic, are located here. When Asia Minor was incorporated in one of the larger empires, central Anatolia became an important part of the empire because of its natural resources. Its location made it a *place d'armes* also; for, if the eastern defense was once broken, the central plateau became inevitably an important battleground. Its western and southern parts were always important parts of the corridor between Europe and the East.

The natural division of central Anatolia into small topographical units is by far the most important factor in shaping its internal history. At the dawn of recorded history we find a great number of small, self-contained political units. There was no Nile, no Mesopotamian plain to force these independent units to merge for either economic or political reasons. At times strong governments have seemed to overcome the deeply rooted tendency to local independence; but at the first sign of weakening of the central government, or of abuses by it, the smaller units have again emerged, regardless of the ethnic element predominant at the time. The Hittite empires were confederations of such small units, recognizing the king of Hattuşaş as their head; and similarly the Aegean migration left in its wake a great number of small

<sup>261</sup> Götze, *Kleinasien*, p. 189.

principalities. Persian satraps of central Anatolia likewise soon began to consider themselves as independent rulers rather than as representatives of the "King of Lands."

From the Hellenistic period on we have everywhere small priestly principalities (temple states) and feudal realms, based of course on the old traditions.<sup>262</sup> The king of Cappadocia who ruled part of central Anatolia during the Hellenistic period was a *primus inter pares* whose power was only too often challenged by his "subjects."<sup>263</sup> The Romans retained in Cappadocia the old *stratēgiai* instead of introducing the administrative divisions used in other provinces; but in spite of this concession the Cappadocians were only too ready to make all possible difficulties for the central power.<sup>264</sup> The division into *stratēgiai* held good until the Byzantine Empire reorganized Asia Minor into themes (see p. 381). During the struggles between the Byzantines and the advancing Moslems the whole of central Anatolia was again a congeries of small realms very loosely connected with one another or with a dominating power.<sup>265</sup> This same feudal system continued during the period of Seljuk domination and after its downfall, through the period of the emirates, far down into the time of the Osmanli Empire. The early Osmanli sultans had to fight many wars to break the power of the feudal lords. Actually the last feudal lord did not disappear until the 19th century, when the realm of the Çapan Oğlu family, with its residence at Yozgat, was incorporated in the vilayet of Sivas (see p. 394). Even many Osmanli governors felt themselves independent rulers, acknowledging the supremacy of the sultan of their own free will only as long as it was convenient for them; their pashaliks often became hereditary.

The intricate mountain complexes of central Anatolia offered excellent retreats for minorities or for rebels, and remnants of defeated peoples one after another took refuge in these fastnesses (see pp. 365 f., 368, and 384). It was into the Taurus and Anti-Taurus that the remnants of the Hittites and of their conquerors, who had come in with the Aegean migration, retreated. It was to the mountains of Cappadocia that the remnants of the Cimmerians and, much later, the Galatians were driven. In Byzantine times political and religious dissenters used these mountain complexes as a base for operations, even as some of the contenders for the domain of Alexander the Great had used them centuries before.

Much of central Anatolia is an extremely fertile land well suited for agriculture and pasturage. There are now many desert-like, semiarid regions; but these steppes may once have been flourishing fields and rich pastures, for the soil itself is excellent and in ancient times irrigation was evidently practiced on a large scale.<sup>266</sup> The shortage of water could be overcome even now by systematic irrigation, and there is evidence that this whole territory was at one time much more wooded than it is today. In modern times even large sectors of the so-called "salt desert" near Akşehir have been turned into gardens and fertile fields (cf. p. 352). There are many mineral deposits also.

Suggestive of the economic importance of Cappadocia is the fact that the earliest ostensible mention of the region is in a legendary report of an Akkadian expedition more commercial than military. Later, at the beginning of the 2d millennium B.C., Mesopotamian merchants established permanent headquarters in this area. A Cappadocian tablet indicates that horses were known here at a very early date (2100–1900 B.C.).<sup>267</sup> As a province of Persia, and later of West and East Rome, Cappadocia continued to play an important economic role.<sup>268</sup> The country was famous for its horses, and both Achaemenians and Romans imported their mounts from

<sup>262</sup> Gwatkin, *Cappadocia as a Roman Procuratorial Province*, p. 18.

<sup>263</sup> *Ibid.* pp. 18 f.

<sup>264</sup> *Ibid.* pp. 17–19.

<sup>265</sup> Wittek in *Festschrift G. Jacob*, . . . *quidmet*, p. 339.

<sup>266</sup> OIC No. 14, pp. 123–27. A reservoir similar to the one there described is situated not far from Alaca Hüyük.

<sup>267</sup> Sidney Smith, *Early History of Assyria to 1000 B.C.*, p. 214.

<sup>268</sup> Gwatkin, *op. cit.* pp. 21–24.

there in large numbers.<sup>269</sup> As a matter of fact, until fairly recently Yozgat was still famous for its yearly horse market. Under Roman and Byzantine rule the province was particularly important as a granary.<sup>270</sup> Tales of flourishing cities in Asia Minor attracted the Mongols, and the rich pasturage stimulated immigration of the Turkoman tribes.

It is not surprising that each wave of settlers soon became deeply attached to the new homeland. The recent settlers would soon merge with the remnants of the previous inhabitants, uniting with them in a recurrent struggle to defend their homesteads against new invasions. In modern times we have seen examples of such blending and struggling in the case of the Afşar (Avshar, Awshar, Aissor), Çerkes (Circassians), and Tatars after the Russian wars of the 19th century, and of the Muhacirs ("Refugees") from the Balkan lands after the World War.<sup>271</sup>

Thus was formed a population at the same time agricultural, pastoral, and warlike, with a feeling of independence and a love of liberty.<sup>272</sup> Central Anatolian contingents formed the nucleus of the Hittite armies, and in Roman and Byzantine times Cappadocia was a favorite recruiting district. Anatolian soldiers formed the choice troops of the Turkish armies of the early sultans; even later they faithfully defended the frontiers of the empire in Africa, Yemen, and the Caucasus after preference had been given to the renegades and the janizaries. Many struggles of the sultans with the Anatolian element resulted from the Anatolian Turk's desire to free his sultan from foreign, un-Turkish influences. During the decline of the sultanate in the 18th century after Christ there was one moment of possible regeneration, when during the reign of Selim III Anatolian Turks replaced the renegade class.

In keeping with the indomitable feeling of independence of all Anatolians, the Anatolian Turk resented the imposition of a non-Turkish ruling element and culture. Many rebellions were directed not against Osmanli rule but against the foreign element in it. The rising of the Anatolian Turks after the World War was at first not against the central government, although they may have had ample cause for opposing it, but to free Sultan Muhammet VI, who was considered a prisoner of the Allies. Only after the Sultan had betrayed the cause of the Turks to save his throne as caliph did the National Assembly of the Anatolian Turks under the leadership of Mustafa Kemal Atatürk depose him.<sup>273</sup> The Turkish Republic was born.

As the geographic and topographic conditions of Asia Minor predestined its political history by encouraging a highly localized, almost fanatical individualism and provincialism, so the same physical conditions gave rise to a deep-rooted individualistic religious concept, which found expression in the varied mystic and orgiastic cults of the *Magna Mater* associated with local stone- and tree-worship.<sup>274</sup> In the continued existence of these local cults side by side we find an explanation of Anatolian tolerance toward other beliefs. For centuries members of Christian sects in Anatolia dwelt among the Moslem Arabs and Turks undisturbed. A late example of this tolerance is found in the friendship of many dervish orders to Christians. Only when the central government tried to suppress one sect or another did religious zeal flare into bloody rebellion. This, for example, was the history of the Paulicians in the time of the Byzantine Empire (see p. 384). Later, Christian Armenians and Moslem Turks lived side by side in peace until outside influence created unrest, which in turn led to interference by the central government in İstanbul.<sup>275</sup>

<sup>269</sup> PW XX 1913.

<sup>270</sup> Gwatkin, *op. cit.* p. 21.

<sup>271</sup> Banse, *Die Türkei* (2. Aufl.; 1916) pp. 15, 60 f., and 181; Ziemke, *op. cit.* pp. 198 f.

<sup>272</sup> Cuq, "Note sur la nouvelle XXX de Justinien," in *Mélanges ... Schlumberger*, p. 61.

<sup>273</sup> Ziemke, *op. cit.* pp. 377 f.

<sup>274</sup> On the influence of geography on religion see art. by Ramsay in *Geographical Journal* XX (1902) 257-82 and art. by Whitbeck in *Geographical Review* V (1918) 316-24.

<sup>275</sup> Banse, *op. cit.* pp. 58 f.



At many Anatolian sites we have an unbroken continuity of cults from the earliest known time down to the present day, each cult being an expression of the old, mystic faith, with often only external changes.<sup>276</sup> An example may be found at Hacı Bektaş, the central seat of the dervish order, or rather sect,<sup>277</sup> of the same name. Here, near the tomb of Hacı Bektaş, is found an unusual and beautiful stone resembling Mexican onyx, from which is made the twelve-pointed star called *taslim taş* ("stone of resignation") given to a Bektāşi after completion of his novitiate and worn suspended from the neck.<sup>278</sup> Near by is a mound in which are found potsherds dating from prehistoric times on. Venasa, a cult place known to us from Roman sources, may have been in this neighborhood.<sup>279</sup> Traces of a Christian church too are close to the modern dervish monastery. The twelve points of the stone star used as an emblem by the Bektāşi sect are probably due to Christian influence, being derived from the Twelve Apostles. In all likelihood, however, the use of the stone itself for cult purposes goes back to very ancient times.<sup>280</sup>

The theocracies or temple states of pre-Hellenistic times continued to exist in disguise, first as domains of the Hellenistic princes and then as domains of the Roman emperors, when the worship of the emperor was connected in a mystical way with the old cult of the deity of the region.<sup>281</sup> The worship of Anahit at Zile in the Pontic kingdom was probably only an Iranian version of an old mother-goddess cult.<sup>282</sup> The new Christian religion found here a fertile soil. The oldest indication of the cult of the Virgin Mary, in the 3d century after Christ, is found in Phrygia closely linked to a site sacred to Cybele.<sup>283</sup> Anatolian Christianity soon split up into many heretical sects, based on local peculiarities, which no amount of persecution could entirely suppress. In the 8th century Anatolian individualism led the Byzantine emperor and his army to take a prominent part in the iconoclastic movement, a protest against the veiled paganism of the "orthodox" iconolatry of the Eastern Church.<sup>284</sup> After the conquest of Anatolia by Islam the mystical Sufi doctrine, based to a considerable extent on Gnosticism and Manichaeism, found fertile ground here; dervish orders such as the Bektāşi, combining Islam with Christian traditions on a pagan base, sprang up everywhere in mystical, individualistic forms.<sup>285</sup> Bloody persecutions failed to wipe them out, and even today this religious peculiarity remains among the Kızılbaş or Alevi.<sup>286</sup>

Thus we find in the spiritual life of Asia Minor the same tendency as in its political history: the Anatolian individualist resisting any outside element seeking to enforce conformity. This opposition to conformity could be overcome only when Anatolia became an autonomous unit, as it is now.

<sup>276</sup> *Ibid.* pp. 15 and 54 f.

<sup>277</sup> *EI* I 691; Jacob, *Beiträge zur Kenntnis des Derwisch-Ordens der Bektaschis*, pp. 2 f.

<sup>278</sup> *Ibid.* pp. 19 f.; *OIC* No. 8, pp. 133 f.

<sup>279</sup> *OIC* No. 8, p. 173; but see also Ramsay, *The Historical Geography of Asia Minor*, pp. 287, 292 f., and map opp. p. 196 where Venasa is placed south of the Kızıl İrmak.

<sup>280</sup> *OIC* No. 8, pp. 133-35 and 173.

<sup>281</sup> Gwatkin, *op. cit.* pp. 18-20, 25, and 28; Ramsay, *Pauline and Other Studies*, pp. 113 f.; *idem*, *Studies in the History and Art of the Eastern Provinces of the Roman Empire*, pp. 305 f., 313, 347.

<sup>282</sup> Franz Cumont, *Les religions orientales dans le paganisme romain* (4. éd.; Paris, 1929) p. 134.

<sup>283</sup> Ramsay, *Studies in the History and Art of the Eastern Provinces of the Roman Empire*, pp. 375 f.; *idem*, *Pauline and Other Studies*, pp. 138, 140-46, 157 f., 184. Cf. also Meyer, *Ursprung und Anfänge des Christentums* I 80.

<sup>284</sup> Kurtz, *Lehrbuch der Kirchengeschichte* II 2 f.; *Encyc. Brit.* XIX 438 f.

<sup>285</sup> Babinger in *Der Islam* XI 91-102; *idem* in *ZDMG* LXXVI 133 f.; Jacob in *AAWM* XXIV 3, pp. 1-51. On all of these articles cf. Köprülüzaade Mehmed Fuad in *Mitteilungen zur osmanischen Geschichte* I 203-22.

<sup>286</sup> Jacob in *AAWM* XXIV 3, pp. 16 and 51.



## IX

### CULTURAL REMAINS IN CENTRAL ANATOLIA

Because of the manifold vicissitudes through which Anatolia has passed in the course of the centuries, as sketched in the preceding pages, few regions offer a richer variety of ancient material remains. Although investigation of the prehistoric period of Asia Minor has hardly begun, we already have traces of human cultures reaching back into the Paleolithic age (see pp. 404 f.). Moreover, in central Anatolia we are only at the beginning of our knowledge of the remains of even the historical periods. In other parts of Asia Minor archeological research is comparatively farther advanced. The western coast of the peninsula is fairly well known through surveys and excavations of Hellenistic, Roman, and Byzantine sites; the same is true for parts of Phrygia, Pisidia, Cilicia, Paphlagonia, and Pontus. Magnificent Seljuk and Osmanli monuments have been well studied all over Asia Minor, though for these later periods also there is still much to be done.

#### TYPES OF SITES

In central Anatolia, more specifically in the Kızıl Irmak basin, in the middle of which is the site of Alişar, we can differentiate four principal types of ancient settlement remains in addition to natural and artificial caves, tumuli, and individual monuments. Natural caves and *abris sous roche* may well have served as dwellings for prehistoric man. Although many artificial caves served as dwellings, the greater number of them were apparently places of burial, and those ranged in groups appear to have been used as monasteries of a special type. Tumuli were mostly burial mounds, especially where they appear in groups. In some instances I am inclined to see in them watchtowers or signal towers, as for instance the two large tumuli at Kadamut near Samsun, though these too may originally have been tombs. Under "individual monuments" I understand bridges, rock reliefs, isolated rock tombs, rock altars, milestones, *han's*, *türbe's*, etc.

The first type of settlement remains comprises locations which were chosen principally for economic reasons, such as adequate water supply and surroundings suitable for agriculture, cattle- and sheep-raising, or commerce.<sup>1</sup> Facility of defense was of course also considered; but lack of natural defense was counterbalanced by compactness of the settlement and by an artificial surrounding wall, which made every village or town an easily defensible fortress. The villages and cities in which the people of Anatolia lived more or less continuously during the many periods of its history were of this type. These settlements now appear as round or oval, high or low mounds of grayish color, strewn with potsherds and often covered with *Peganum harmala* L.<sup>2</sup> They are often in sheltered locations within shallow valleys. Such a mound is called in Turkish *hüyük* or *höyük*, rarely *maltepe* or *til* (Arabic *tell*). Such sites often show a continuous occupation from the earliest times up to the present day. A modern village is frequently built on the slope or on top of such a mound. Sometimes a modern city is built around the ancient mound, which then forms the citadel. Moreover the presence of building stones in the foundations of previous periods makes such sites attractive for continuous occupation.

<sup>1</sup> I have not yet seen any important ancient settlement remains in Anatolia near the many copper and silver mines, a great number of which must have been known and worked from very early periods.

<sup>2</sup> See references in *OIC* No. 14, p. 117, and *OIP* XXVII 26, also F. Gieseke in *Journal für Landwirtschaft* LXXVII (1929) 211.

The second type of settlement remains comprises locations similar to those of the first type, but larger in extent and usually going back only to the Hellenistic, Roman, or Byzantine period, when a great many new settlements were founded. Whereas the older settlements were built compactly to facilitate defense, the later ones were planned spaciouly; and whereas settlements of the first type seem to have grown without plan, often in a round or oval form, those of the second type were carefully laid out in a more or less rectangular form. If not surrounded by a city wall, settlements of the second type were difficult to defend; hence many of them were deserted during the Sasanian and Arab invasions and not resettled until much later. Such a site is now called in Turkish *ören*, *viranşehir*, or *eskişehir*.

Whereas the choice of the first or second type of settlement location was influenced primarily by economic conditions, strategic and tactical reasons were the important factors for the third type. Castles, small forts, and large fortresses were built on easily defensible rocks or mountain promontories in strategically important locations. Most of them dominated main routes or controlled defiles. A few may have been refuges, although most of the fortified places are very small. A site of this third type may show several layers of occupation, and in some cases a settlement has grown up at its base. In Roman times numerous castra were built. During the Byzantine-Arab wars many new castles and fortresses were constructed which could not be conquered without long sieges, and settlements sprang up around them. The earlier fortresses, usually observation posts or refuges, were equally difficult to reach or to leave; but the castra were built along the roads, in the plains or on the hillsides, in order to control the main routes effectively. A settlement of this third type is referred to by modern Anatolians as a *kale* (Arabic *kal-ah*, "fort").

The fourth type of settlement remains comprises capitals or large refuge sites; naturally, relatively few of these exist. The location chosen for such a settlement was usually on a commanding mountain plateau, in an easily defensible position of strategic importance in relation to the territory to be controlled. No consideration was given to the existing trade routes or other economic factors; the routes were often shifted to suit the new order. A relatively small part of the fortified area was used for permanent buildings, such as the fortress proper, the palace of the rulers, and a few temples, magazines, and armories. Otherwise the area was unoccupied, allowing space in which to assemble an army or, in time of danger, to shelter the people of the surrounding territory with their movable possessions. Such cities were founded by the ruling element of one or another cultural period of central Asia Minor and were usually abandoned after the fall of that ruling class. If not abandoned completely, they lost at least their political importance. Since few of these places had any economic advantages, a site of this type would thereafter be occupied only by poor and scattered villages. Hence only relatively small portions of the area originally settled would show even scant remains of later periods. Such a site is usually referred to as a *hisar*. Within the Kızıl Irmak bend I have visited four such sites: Boğazköy, Bozluk Dağ, Çalapverdi, and Kerkenes Dağ. Another is Göllü Dağ, north of Niğde.<sup>3</sup>

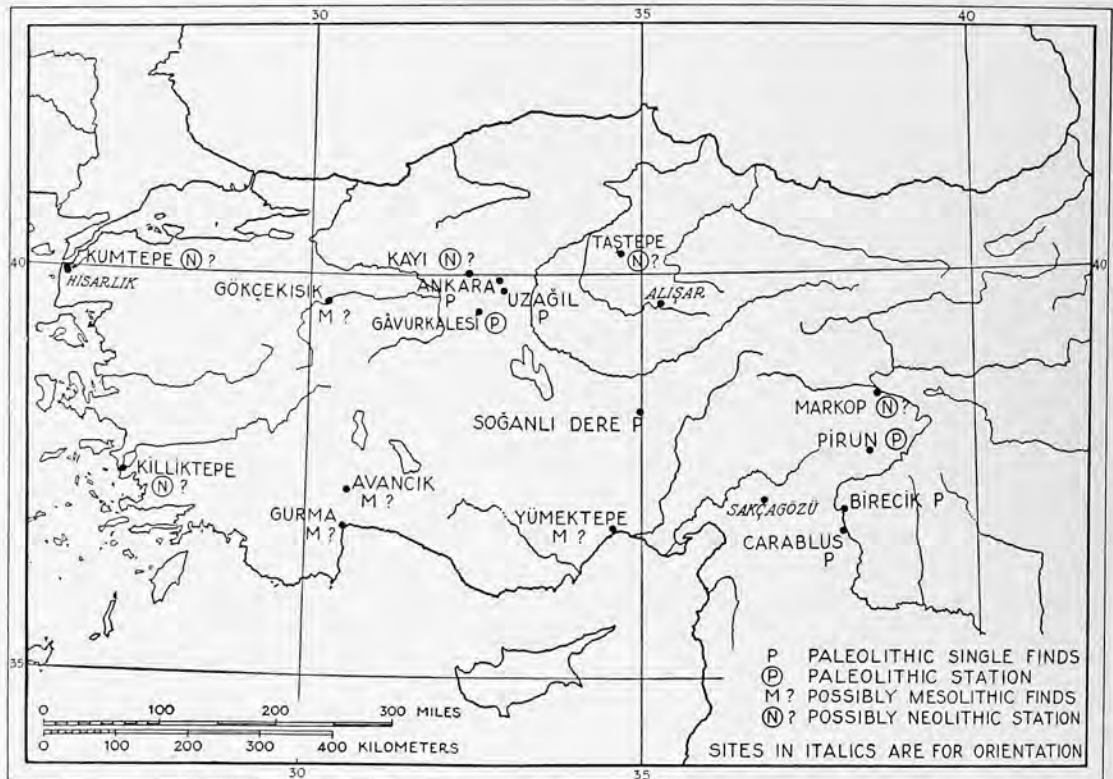
Thus we usually find the *hüyük* and *ören* types of remains near the borders of the many valley plains into which central Anatolia is naturally subdivided; the *kale* type on the mountains surrounding the valley plains, particularly near the defiles or along main routes; and the *hisar* type on high and dominating locations in mountainous regions, controlling groups of valley plains.

<sup>3</sup> See *RHA*, 5. année (1935) p. 140; *TTAED* III (1934) 3-48.

## PERIODS REPRESENTED

## THE STONE AGE

From the Paleolithic period we have very few remains so far (Map XIV).<sup>1</sup> Except for two or three stations they are all single finds. In central Anatolia R. Campbell Thompson found at Uzağıl, not far from Ankara, two implements of undoubtedly Paleolithic character,<sup>2</sup> and K. Bittel found a flint scraper in a quarry a little southwest of Ankara.<sup>3</sup> Near the entrance of the Soğanlı Dere, southwest of Kayseri, Thompson found another scraper.<sup>4</sup> On the Alishar



MAP XIV.—STONE AGE SITES IN ASIA MINOR. SCALE, 1:10,000,000

mound remains of this cultural stage are missing so far, and it seems highly improbable that any will be found there.

The first Paleolithic station in Asia Minor to become known was found by E. Pittard at Pirun near Adıyaman in eastern Anatolia.<sup>5</sup> Pittard attributes this culture to the Aurignacian,

<sup>1</sup> Albrecht Götze, *Kleinasien* (München, 1933) p. 21; Kurt Bittel, *Prähistorische Forschung in Kleinasien* ("Istanbuler Forschungen" VI [Istanbul, 1934]) pp. 8 f.

<sup>2</sup> R. Campbell Thompson, "On some prehistoric stone implements from Asia Minor," *Man* X (1910) 71 f.; *idem* in *PSBA* XXXII (1910) 182; Kurt Bittel in *ADAI*, 1932, col. 260.

<sup>3</sup> Bittel, *loc. cit.*

<sup>4</sup> *Man* X 71 f.

<sup>5</sup> Eugène Pittard, "Découverte de la civilisation paléolithique en Asie Mineure," *Archives suisses d'anthropologie générale* V 2 (1928/29) pp. 135-65; *idem*, *Le visage nouveau de la Turquie* (Paris, 1931) pp. 147-55. See also *L'anthropologie* XXXIX (1929) 223; *CR*, 1928, pp. 348-50; *OIC* No. 14, p. 131; *R.Ar.*, 5. sér., XXIX (1929) 359 f.; *Türk Antropoloji Mecmuası* VI (1930) 19. [Another Paleolithic station, discovered by Dr. Şevket Aziz Kansu since this volume went to press, is Etiyokuşu, 5 km. north of Ankara on the Çubuk Çayı.]

but some pieces resemble the Capsian.<sup>6</sup> Inquiries in this region in 1931 make it very probable that there are several similar stations in this neighborhood, especially in the *nahiye* of Keyson, *kaza* of Besni, vilayet of Gaziantep. One Paleolithic implement was found near Birecik<sup>7</sup> and one in the Turkish village of Carablus.<sup>8</sup> In 1936 a few surely Paleolithic implements and a great number of chips and flakes were found a few hundred meters east of Gâvurkalesi; they suggest the presence of either a station or an atelier of this period.<sup>9</sup> The material at hand is of course too inadequate to permit even tentative conclusions concerning the Paleolithic period in Asia Minor.

No Mesolithic finds have as yet been made in Anatolia, nor have any purely Neolithic stations been found.<sup>10</sup> The oldest station where pottery appears seems to be a cave near Gurma<sup>11</sup> in the vilayet of Antalya. The attribution of surface finds, especially pottery, to the Neolithic

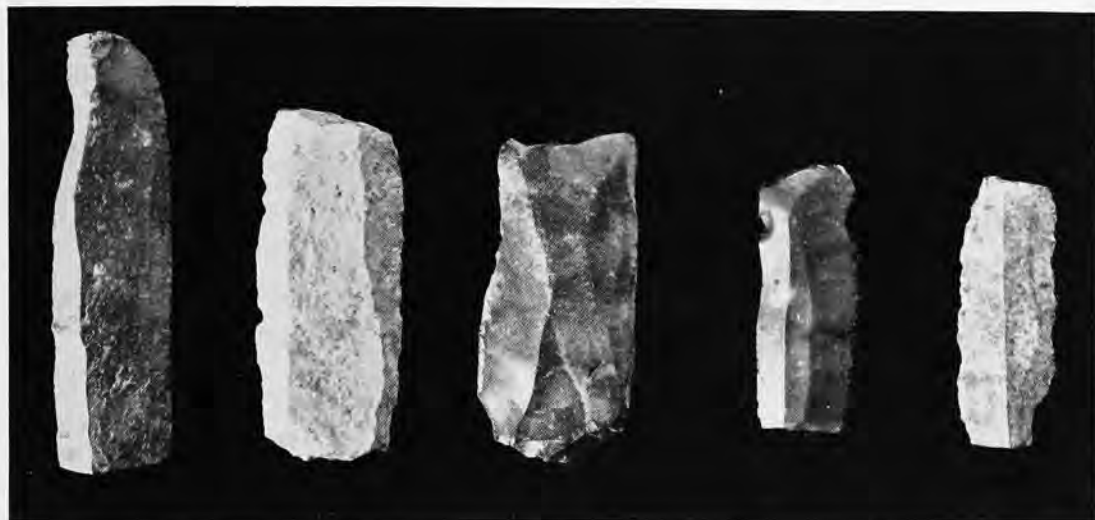


FIG. 273.—FLINT AND CHALCEDONY BLADES FOUND NEAR KAYI. ACTUAL SIZE

period is very dangerous;<sup>12</sup> and the attribution of the oldest remains at Troy, Yortan, Bozüyük, and Sakçagözü to this cultural stage is no longer possible. The assignment of finds in Pisidia,<sup>13</sup> Cilicia,<sup>14</sup> and Phrygia<sup>15</sup> to any phase of the Stone Age is very uncertain.<sup>16</sup> The excavations

<sup>6</sup> Bittel, *Prähistorische Forschung in Kleinasien*, p. 9.

<sup>7</sup> Ernest Chantre, *Recherches archéologiques dans l'Asie occidentale. Mission en Cappadoce 1893-1894* (Paris, 1898) pp. 131 f.

<sup>8</sup> "The Paleolithic and Neolithic Finds of the Anatolian Expedition at Alishar Hüyük," First International Congress of Prehistoric and Protohistoric Sciences, *Proceedings* (London, 1934) p. 182.

<sup>9</sup> Şevket Aziz Kansu in *Ülkü Halkevleri Dergisi* VIII (1937) 487 f.

<sup>10</sup> Bittel, *Prähistorische Forschung*, p. 10.

<sup>11</sup> Vittorio Viale in R. Scuola archeologica di Atene e delle missioni italiane in oriente, *Annuario* VIII-IX for 1925-26 (Bergamo, 1929) 389-92.

<sup>12</sup> The correctness of the attribution of sherds to the Neolithic period by Einar Gjerstad in *R.Ar.*, 6. sér., III (1934) 178-81, has to await confirmation, as he himself states.

<sup>13</sup> Near Avancık; see R. Paribeni and P. Romanelli in R. Accademia dei Lincei, *Monumenti antichi* XXIII (Milano, 1914) 248 f.

<sup>14</sup> *Ibid.* cols. 92-94 (Yümektepe); on the menhir-like stones cf. also Rudolf Heberdey and Adolf Wilhelm in K. Akademie der Wissenschaften in Wien, philos.-hist. Klasse, *Denkschriften* XLIV (1896) 39. I saw a similar monument in the plain of Elbistan (*OIC* No. 8, Fig. 116).

<sup>15</sup> At Gökçekısıık; see E. Brandenburg in *AAWM*, hist. Klasse, XXIII (1906) 709. <sup>16</sup> Götze, *Kleinasien*, pp. 21 f.



of 1932 have definitely proved that copper appears in the very oldest levels at Alishar, so that even its oldest culture cannot be called "Neolithic."<sup>17</sup>

However, Carl W. Blegen reports a probably Neolithic culture at Kumtepe, which may be the source from which Troy I culture developed.<sup>18</sup> In 1932 I found west of Ankara, somewhat south of Kayı, on a slope near the remains of a Roman castra, a great number of flint and chalcedony blades (Fig. 273) as well as some crude handmade pottery, indicating that here also may be a Neolithic station. A flat trapezoidal stone ax and several chalcedony blades have been found on Taştepe near Kalınkaya, about 2.5 kilometers east of Alaca Hüyük.<sup>19</sup>

A megalithic settlement is reported by Jean Przyluski<sup>20</sup> from Markop near Malatya, but further investigation will be necessary before this can be accepted. The same must be said with regard to the alleged "Neolithic" station at Killiktepe near Balat (Miletus).<sup>21</sup>

### THE CHALCOLITHIC PERIOD

Cultural remains from the Chalcolithic period in Asia Minor are both definite and distributed over a number of sites (Map XV). But they are not as yet sufficient to permit any definite conclusions as to the cultural history of the whole peninsula during this period or as to possible relations with other presumably contemporaneous cultures, nor can the period be limited chronologically with any great degree of certainty. We believe, however, that the available evidence permits the following general statements: (1) The cultural development of the west coast, as represented by Troy I, Kumtepe, and other sites with similar material, appears to be paralleled in the Balkan Peninsula. (2) The Central Anatolian culture, represented by the Chalcolithic deposits of Alishar, has ceramic forms and decoration that are comparable with certain "Black Earth" and Danubian wares.<sup>1</sup> It must be stressed, however, that at Alishar the typical spiral ornamentation (incised or painted) of the "Black Earth" and Danubian "variants" is not represented; the Alishar pottery, on the contrary, is mostly plain or incised with straight-line decoration. (3) Sakçagözü, which geographically belongs more to North Syria than to Asia Minor, appears to belong to a third cultural area, which may have included the Cilician plain. Lack of Cilician material attributable with certainty to the Chalcolithic period makes any more definite statement with respect to Cilicia hazardous.<sup>2</sup> In view

<sup>17</sup> *ADAI*, 1929, cols. 365 f.; 1930, cols. 467-71; 1932, col. 208; *OIC* No. 14, pp. 26 f.; *OIP* XXVIII 28-30.

<sup>18</sup> *AJA* XXXIX (1935) 33 f.; cf. Hâmit Zübeyr Koşay and Jerome Sperling, "Troia'da Dört Yerleşme Yeri (Kültür Bakanlığı Antikiteler ve Müzeler Direktörlüğü [İstanbul, 1936]).

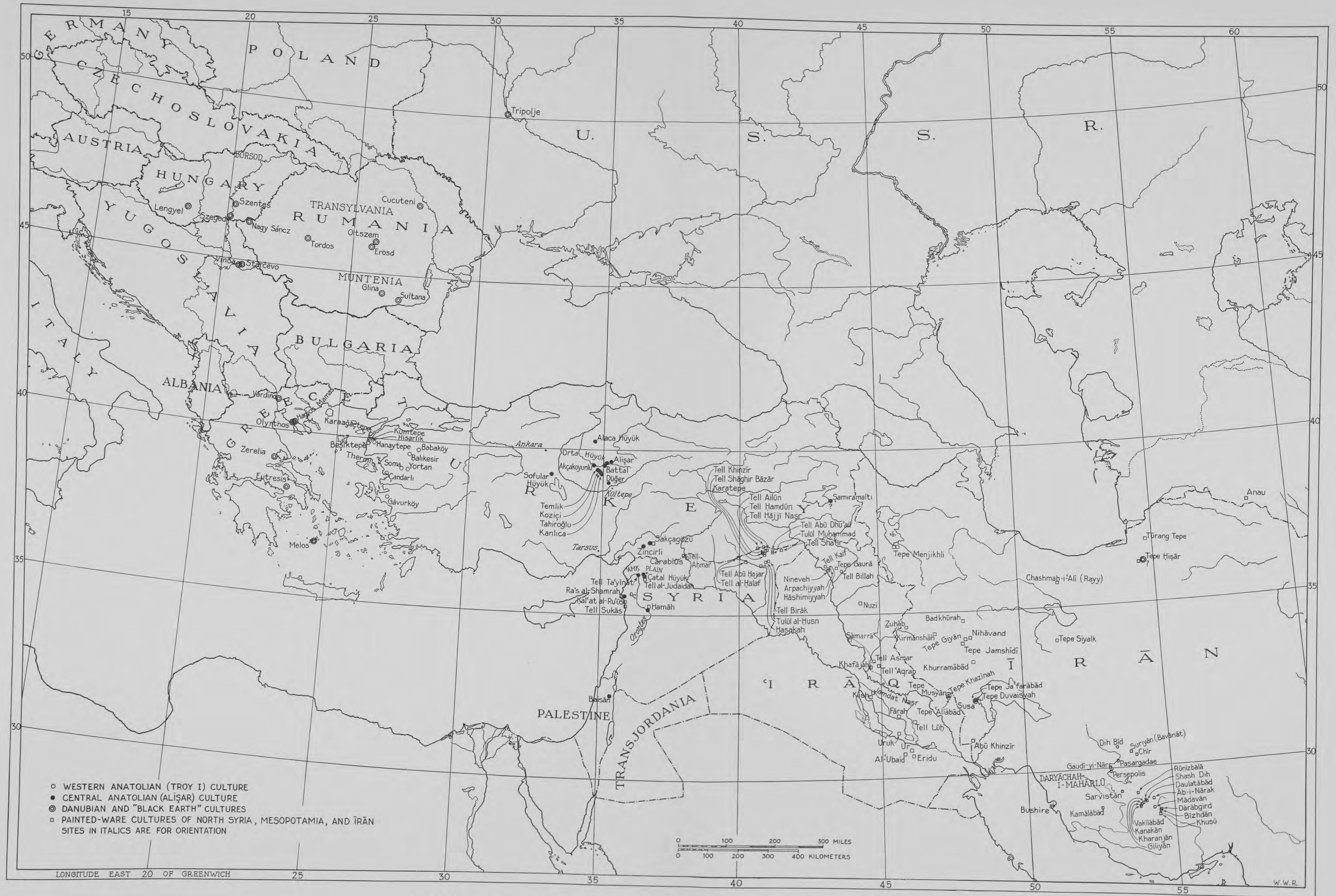
<sup>19</sup> See the forthcoming report by Remzi Oğuz Arık.

<sup>20</sup> *R.Ar.*, 6. sér., VI (1935) 3-7.

<sup>21</sup> Th. Wiegand, "Siebenter vorläufiger Bericht über die von den Königlichen Museen in Milet und Didyma unternommenen Ausgrabungen" ("Anhang" in *APAW*, 1911) pp. 4 f.

<sup>1</sup> Dr. K. Bittel calls attention to the following: "This hypothesis cannot yet be accepted as proven. The culture called 'Danubian' by Frankfort can no longer be considered a unit; it dissolves into many cultural phases, some of which differ markedly from one another. Similarities between finds in Macedonia and in Asia Minor have often been pointed out, especially by Heurtley; but they have not yet been clearly defined, and their reliability must still be investigated. The term 'Black Earth ware,' introduced by Frankfort, must now be considered antiquated, since the Rumanian and Bessarabian material has become better known. There too we now have to distinguish several cultural phases, and the unity formerly assumed can no longer be maintained, at least in certain details." Since a new term for the "Black Earth" culture has not yet come into vogue, I shall continue to use the old term.

<sup>2</sup> Surface finds, especially pottery, have been collected and published by Einar Gjerstad in his "Cilician studies," *R.Ar.*, 6. sér., III (1934) 155-203, where he gives also a tentative classification of the different wares; cf. also Theodore Burton Brown, "Anatolian relations with the Aegean before 2400 B.C.," *AAA* XX (1933) 43-64. In 1929 I visited 25 mounds in the Adana plain (cf. *OIC* No. 8, p. 43) and collected sherds, but I would not dare to base any classification on them, much less any deductions. Nevertheless I can say that I did not find one sherd resembling prehistoric wares from central Anatolia as known thus far. Miss Hetty Goldman's excavations in 1934 (test excavations on several mounds in the Adana plain) and in 1935 (Gözlü Kule in Tarsus; cf. *AJA* XXXIX [1935] 526-49) have not yet reached a depth at which Chalcolithic remains could be expected.



MAP XV.—DISTRIBUTION OF CULTURES DURING THE NEOLITHIC PERIOD. SCALE, 1:12,000,000





of the geographic setting of Cilicia, however, it would not be surprising if Chalcolithic remains there would prove to be related more to the North Syrian remains of this period (see pp. 412 f.) than to those of central Anatolia.<sup>3</sup> Chronologically the earliest Anatolian remains of the Chalcolithic period would seem to fall in the second half of the 4th millennium B.C. and the latest ones early in the 3d millennium B.C. (cf. p. 413, n. 89).

That the three representative sites Sakçagözü, Troy I, and Alişar are definitely Chalcolithic and should no longer be called "Neolithic" is now generally accepted.<sup>4</sup> A Chalcolithic deposit similar to that at Alişar has been excavated at Alaca Hüyük. Dr. Hâmit Zübeyr Koşay has kindly furnished the following statement, which he permits me to use:

Die Ausgrabungen am Alaca Hüyük im Auftrage der Türk Tarih Kurumu wurden auch dieses Jahr fortgesetzt.<sup>5</sup> Wir konnten vier Kulturperioden unterscheiden und stiessen in beinahe 14 m. Tiefe auf den gewachsenen Boden. Die erste Kulturperiode umfasst die Zeit nach der Zerstörung des Hethitischen Grossreiches bis zum heutigen Tage. Es ist nur eine verhältnismässig dünne Kulturlagerung. Die zweite Kulturperiode umfasst die Zeit der beiden Hethitischen Reiche und ist sehr reich an Töpferei und Kleinfunden; fernerhin wurden hier Teile von bedeutenden Gebäuden gefunden. Die wichtigste Kulturschicht ist jedoch die dritte, die wir aus Analogien mit Alişar und Ahlatlibel kupferzeitlich nennen. In ihr wurden schon im Vorjahr Gräber mit reichen goldenen, silbernen und kupfernen Beigaben gefunden. Drei weitere Gräber, teilweise mit noch reicheren Beigaben, wurden dieses Jahr ausgegraben. Die Töpferei ist hier besonders interessant, da wir hier die typische rote Ware der Kupferzeit von Alişar, die innen schwarze und aussen gefleckte (mottled)<sup>6</sup> und die hochpolierte schwarze Ware mit reliefierter Verzierung<sup>7</sup> von Ahlatlibel, zusammen mit zwei soweit mir in Anatolien unbekannten Waren zusammen gefunden haben, nämlich einer recht feinen, handgemachten grauen Ware, die der Vorläufer der radgemachten, feinen grauen Ware der hethitischen Zeit zu sein scheint—sogar die Randprofile dieser beiden Waren sind ähnlich—und einer Ware mit Finger- oder Fingernägel-Eindrücken, resp. mit solchen von Holzstäbchen. Ausser der feinen grauen Ware und der schwarzen Ware von Ahlatlibel kamen die anderen Waren in ziemlich gleichem Verhältnis in allen Bauschichten der kupferzeitlichen Periode vor. Nach der ältesten kupferzeitlichen Schicht fanden wir noch einige chalkolithische Wohnschichten mit ungefähr derselben Töpferei wie aus den chalkolithischen Schichten aus Alişar, bis wir in 13.81 m. Tiefe den gewachsenen Boden erreichten.

Several other sites with possibly Chalcolithic remains are known from western Anatolia.<sup>8</sup>

The cultures of Sakçagözü, Troy I, and Alişar seem not to be definitely related, a few common features notwithstanding.<sup>9</sup> But one should keep well in mind that on all three sites the

<sup>3</sup> Cf. Bittel in *AOF* XI (1936) 51. [Dr. von der Osten informs us that recent surface finds made by Miss Goldman and Prof. John Garstang tend to bear this out; as at Sakçagözü, the earliest ware would seem to be black or dark gray, highly burnished, and sometimes incised, whereas painted ware is apparently later.—EDITOR.]

<sup>4</sup> Bittel, *Prähistorische Forschung in Kleinasien*, p. 10 and n. 1, also pp. 11–22; R. Dussaud, "Note sur les fouilles de M. J. Garstang à Sakdje-Geuzi," *Revue d'anthropologie* XIX (1909) 371–74; H. Frankfort, *Studies in Early Pottery of the Near East II* (London, 1927) 6 f.; C. W. Blegen in *AJA* XXXVIII (1934) 226; *OIP* XXVIII 28–30.

<sup>5</sup> Ein kurzer Vorbericht von K. Bittel in *AOF* XI (1936) 48 f.

<sup>6</sup> Hâmit Zübeyr Koşay, "Türkiye Cumhuriyeti Maarif Vekâletince yaptırılan Ahlatlibel Hafriyatı," *TTAED* II (1934) 3–100; vgl. S. 20.

<sup>7</sup> *Ibid.* S. 23–25 and 49–53.

<sup>8</sup> For the prehistoric material of this period discovered in Asia Minor up to 1933 see Bittel, *op. cit.*, which is the most comprehensive study to date; cf. also S. Przeworski's review of that work in *OLZ*, 1935, cols. 667–69. Sites from which only trapezoidal flat stone axes (e.g. e 413, *OIP* XXVIII, Fig. 187) or flint, chalcedony, and obsidian implements (e.g. *ibid.* Figs. 88–89), without any other remains, are known or reported should not be considered as necessarily having prehistoric remains, much less as dating back to the Neolithic or even to the Chalcolithic period; for such objects were found at Alişar from the Copper Age to the Roman-Byzantine period and, in my opinion, may not be used as criteria for dating (cf. also Bittel in *AOF* XI [1936] 51 f.). In fact, such stone implements may have come from threshing sleds of the 20th century after Christ. An exception may be the station south of Kayı (p. 406). Trapezoidal flat axes have not as yet been found in the Chalcolithic deposits of Alişar—a fact which may very well be accidental in view of the smallness of the area in which remains of this period were excavated.

<sup>9</sup> On the basis of such common features Bittel (*Prähistorische Forschung*, pp. 85–88) mentions the possibility of a common Anatolian culture of this period with several subdivisions, of course with great reservations on account of the insufficient material. To such a common Anatolian culture may then also belong Şamiramaltı in Armenia (A. W. Jenny, "Şamiramaltı," *PZ* XIX [1928] 280–304).



area of Chalcolithic deposits uncovered thus far is very small, and that any conclusions based either on divergencies or on similarities must necessarily be regarded with great reservation. This caution being observed, the following survey of the main cultural features may prove instructive and enable the reader to evaluate for himself the evidence which has led to the general conclusions stated above.

## CULTURAL ASPECTS

### ARCHITECTURE

Complete architectural forms for the Chalcolithic period are as yet known from none of the three sites. In Sakçagözü no remains of buildings have come to light.<sup>10</sup> Of the settlement of Troy I also only very little has been unearthed.<sup>11</sup> The walls there are of sun-dried bricks (*kerpiç*) on a stone foundation, the stones being occasionally laid in herringbone fashion<sup>12</sup> and covered with a thick yellow plaster.<sup>13</sup> The general plan of the buildings appears to have been rectangular, one being of megaron type.<sup>14</sup> Some walls belonged to fortifications.<sup>15</sup>

At Thermi on Lesbos the oldest two settlements show Troy I culture,<sup>16</sup> as does also the oldest level of Karaağaçtepe (the so-called "Tumulus of Protesilaus" on Gallipoli).<sup>17</sup> In both cases the house plans are rectangular. In Thermi some of the walls were laid in herringbone fashion, and there is reason to believe that some of the houses were built entirely of stone.

At Alishar levels of the Chalcolithic period were uncovered only in L 14-16 on the south slope of the citadel mound. Eight main building levels (12-19 M) could be distinguished (Pl. I).<sup>18</sup> But the area here also was very small.<sup>19</sup> As materials *kerpiç*, wood, and stone were used. In the oldest three levels no architectural remains could be observed with the possible exception of a stone pavement.<sup>20</sup> In Level 16 M remains of two wooden roof supports on stone bases were discovered, but no plan of the building itself could be recognized.<sup>21</sup> In later levels parts of buildings were found, but sufficient area could not be cleared to enable us to recon-

<sup>10</sup> Garstang in *AAA* I (1908) 97-117 and V (1913) 63-72; the "Neolithic floors" referred to in I 112 are not necessarily floors of actual dwellings.

<sup>11</sup> W. Dörpfeld, *Troja und Ilion* (Athen, 1902) pp. 42-49; Blegen (*AJA* XXXVIII 224) differentiates four sublevels.

<sup>12</sup> Dörpfeld, *op. cit.* Fig. 9.

<sup>14</sup> Blegen in *AJA* XXXIX (1935) 551 f. and XLI (1937) 17-20.

<sup>13</sup> *AJA* XXXVIII 225.

<sup>15</sup> Cf. Blegen in *AJA* XLI 20 and 28.

<sup>16</sup> W. Lamb and R. W. Hutchinson in *ABSA* XXX (for 1928-30) 5 f., esp. Fig. 1.

<sup>17</sup> R. Demangel, *Le tumulus dit de Protésilas* ("Fouilles du Corps d'occupation français de Constantinople," 1. fasc. [Paris, 1926]) pp. 15 f. and Figs. 15-16.

<sup>18</sup> Bittel, *op. cit.* pp. 12-15 and 59-83, calls only the deposits of Levels 15-19 M Chalcolithic; Levels 12-14 M he calls Alishar Ia and considers them as an older phase of the Copper Age culture. In this I cannot follow him, because Levels 12-14 M, which he would attribute to the Copper Age, are undoubtedly more related to the preceding Chalcolithic Levels 15-19 M than to the following Levels 7-11 M and 13-14 T. While it is true that a division seems possible at the point where Bittel would begin his Copper Age, to my mind a division at that point would mark a subdivision of the Chalcolithic period rather than the beginning of the Copper Age; for a definite break in culture occurs between Levels 11 and 12 M, where I place the beginning of the Copper Age. The only common feature between Bittel's Ia and Ib is, so far as I have been able to observe, the sporadic appearance of red-slipped pottery and of copper. But it must be emphasized that apart from the red slip there is no similarity in the wares; in form and in technique (cf. *OIP* XXVIII, Pls. VII-VIII, and statements below [p. 409] as to the tempering and the application of the red slip) they are entirely different. The appearance of copper, too, is very sporadic in Levels 12-19 M (cf. *OIP* XXVIII 91-93). To my mind the very definite break to be observed in the cultural sequence between Levels 11 and 12 M (e.g. appearance of the typical red-slipped ware in its simple forms, disappearance of the flat bone awl, appearance of the joint awl, etc.; cf. also *ibid.* Fig. 32) marks the beginning of a new culture—the Copper Age, and therefore I cannot accept Bittel's division until more evidence can be advanced for it. Hence Bittel's "Alishar Ia" is considered throughout this report as part of the Chalcolithic period, namely a later phase of it. I have the growing conviction that such a division of the Chalcolithic period will in the course of time be borne out, though at present the existing evidence is not sufficient to warrant a definite statement.

Bittel's terminology is accepted by S. Przeworski in *Archiv orientální* VII (1935) 393.

<sup>19</sup> *OIP* XXVIII, Figs. 34, 38, 40, and 44.

<sup>20</sup> *Ibid.* pp. 32-34 and Fig. 34.

<sup>21</sup> *Ibid.* Figs. 36-38.

struct entire building plans. The remains in Levels 13 and 14 M showed that the buildings had walls meeting at approximately right angles.<sup>22</sup> The walls were built entirely of *kerpiç*, either in the shape of bricks or merely as piled-up handfuls of *kerpiç*.<sup>23</sup> Stone foundations do not appear in Alişar until the beginning of the Copper Age. Nearly circular fireplaces,<sup>24</sup> patches of tamped earth floor,<sup>25</sup> and refuse pits<sup>26</sup> (one with brick lining<sup>27</sup>) were uncovered.

In the small area of the Chalcolithic levels excavated at Alaca Hüyük only fireplaces, a tamped earth floor, fragments of a *kerpiç* wall, and some stone foundations were found.

#### POTTERY

With a few exceptions, the pottery of the three sites is entirely different in form and decoration. The oldest pottery of Sakçagözü<sup>28</sup> is said to be a rather fine, black-slipped ware, with incised, occasionally white-incrusted, ornamentation. The forms of this ware, as far as they have been reconstructed, are distinctly different from those at Troy I and Alişar. Many of the painted sherds found there belong to a higher Chalcolithic level, but of these only relatively few have yet been published.<sup>29</sup>

The typical Troy I ware has a grayish buff slip and is burnished;<sup>29a</sup> a few red-slipped fragments and some black- or brown-slipped pieces also were found.<sup>30</sup> Examples of incised decoration occur, as well as a few fragments with painted ornamentation. The forms known from Troy I are supplemented by others from Thermi.<sup>31</sup> The forms of all of these are different from those of either Sakçagözü or Alişar.

In Alişar we have, besides minor varieties (e.g. brown and mottled wares), a grayish buff slipped ware (the interior of which is often black), a common black-slipped ware, and a red-slipped ware which, in color, is distinctly different from the typical Copper Age ware.<sup>32</sup> In distinction from the common black-slipped ware there appears also a very fine black-slipped ware.<sup>33</sup> The ware of the Chalcolithic period is grit-tempered, whereas that of the Copper Age is plant-tempered. Another difference in technique between the Chalcolithic and the Copper Age red-slipped ware of Alişar is that in the Copper Age red ware the red slip was applied directly over the gray core, which, through firing, changed gradually to buff, while in the Chalcolithic red ware a very thin red slip was added over a heavier buff slip. Thus a sherd 12 mm. thick consists of 10 mm. grayish buff material with a grayish black core; it is black on the inside; on the outside a buff slip 2 mm. thick is added and over this a very thin red slip. In the black-slipped ware there is no intermediate slip.

The majority of the sherds and vessels found at Alişar are burnished,<sup>34</sup> though in some cases the burnishing appears on the shoulders of the vessels only. Some of the vessels are rippled.<sup>35</sup> Wet-smoothed ware also appears. While plain ware predominates, incised decoration is fairly

<sup>22</sup> *Ibid.* Figs. 40-41 and 44-45.

<sup>23</sup> *Ibid.* p. 42. May such *kerpiç* lumps be the primitive prototypes of the "Riemchen" described by H. Frankfort (*OIC* No. 20, p. 10)?

<sup>24</sup> *OIP* XXVIII, Figs. 40-41 and 44.

<sup>25</sup> *Ibid.* p. 40 and Pl. X.

<sup>26</sup> *Ibid.* Fig. 46.

<sup>27</sup> *Ibid.* Fig. 42.

<sup>28</sup> Garstang in *AAA* I (1908) Pls. XLIV 1 and XLV-XLVII.

<sup>29</sup> *Ibid.* Pl. XLVIII, bearing the legend: "Fragments of painted pottery: some of Neolithic date and all of earlier date than the great wall"; cf. Bittel, *op. cit.* p. 11.

<sup>29a</sup> Data from Dr. Blegen.

<sup>30</sup> Dörpfeld, *op. cit.* pp. 244-52; H. Schmidt, *Heinrich Schliemann's Sammlung trojanischer Allertümer* (Berlin, 1902) pp. 1-11.

<sup>31</sup> W. Lamb and R. W. Hutchinson in *ABSA* XXX (for 1928-30) 19 and 21; Bittel, *op. cit.* p. 31.

<sup>32</sup> *OIP* XXVIII 52-54 and Pls. II 1 and III 1-2.

<sup>33</sup> *Ibid.* Pl. I 7.

<sup>34</sup> *Ibid.* Fig. 67.

<sup>35</sup> *Ibid.* p. 54.

frequent. The medium and coarse wares are mostly punctated-incised;<sup>36</sup> the fine black-slipped ware is generally plain-incised,<sup>37</sup> as are also a few sherds of medium and coarse ware.<sup>38</sup> Remains of white and yellowish red (ocher) incrustation were found.<sup>39</sup> Ornamentation by small lumps of clay<sup>40</sup> or by finger-tip impressions<sup>41</sup> is rare. Some fragments from pedestals of "fruit stands" had cut-out patterns.<sup>42</sup> Only relatively few painted sherds have been found.<sup>43</sup> For the forms of the vessels from the Chalcolithic deposit of Alishar see Plate VII in *OIP* XXVIII.

At Alaca Hüyük the Chalcolithic pottery is about the same as that at Alishar, but only two incised black sherds have been found there.

Although the pottery remains from Sakçagözü, Troy I, and Alishar are, as stated above, quite different, there are a few similarities. Thus a fine black-slipped ware with incised decoration occurs at all three sites; but the forms of the vessels differ greatly.<sup>44</sup> One rim piece of a fine-ware bowl from Alishar<sup>45</sup> is nearly duplicated by a fragment of similar ware from Troy I.<sup>46</sup> From Troy I are known also a few black-slipped sherds and fragmentary vessels with painted decoration said to be of a grayish white color;<sup>47</sup> these are probably similar in technique and ornamentation to a few fragments from Alishar.<sup>48</sup> Furthermore, zigzag lines and chevrons appear as ornamental motives at all three sites.<sup>49</sup> However, the painted ware of Alishar thus far seems to have no relation in technique or color to that of Sakçagözü.<sup>50</sup>

#### SMALL OBJECTS

Small objects from Chalcolithic deposits are thus far known in any considerable quantity only from Troy I<sup>51</sup> and Alishar.<sup>52</sup> As stated before (p. 407, n. 8), blades, points, scrapers, flakes, and cores of flint, chalcedony, and obsidian, as well as the trapezoidal flat axes (with either symmetrical or asymmetrical cross-section) often called "celts," may not be used for purposes of comparison or dating. Of the small objects from Alishar very few forms can be called typical for the Chalcolithic deposits, because many occur in later periods also. What could be done in the way of comparison Bittel has done.<sup>53</sup> Of the few forms typical for the Chalcolithic deposits of Alishar, for example the flat bone awls<sup>54</sup> and the oblong "whorls,"<sup>55</sup> none is thus far known from Troy I. A fragment of a staghorn ax similar to No. e 1992<sup>56</sup> from Alishar was found at Has Hüyük and is now in the Ethnographical Museum at Ankara; but no exact data on its find-spot are available.

#### BURIALS

Material for a comparative study of burials is likewise scant. From Sakçagözü no burials are known. The four flexed earth burials from Kumtepe<sup>57</sup> may not be considered as yet, be-

<sup>36</sup> *Ibid.* Fig. 65.

<sup>37</sup> *Ibid.* Fig. 67.

<sup>38</sup> *Ibid.* Fig. 68 8 and 16.

<sup>39</sup> *Ibid.* Figs. 63-64 and Pls. I 6 and II 2-3 and 5.

<sup>40</sup> *Ibid.* Fig. 67; Schmidt, *op. cit.* Nos. 42-53, 54-68, and 79; Garstang in *AAA* I, Pls. XLIV 1 and XLV-XLVII.

<sup>41</sup> *OIP* XXVIII, Fig. 67 10.

<sup>42</sup> Schmidt, *op. cit.* No. 64, and Schliemann, *op. cit.* p. 216, No. 30.

<sup>43</sup> Schmidt, *op. cit.* Nos. 154 and 229-30.

<sup>44</sup> *OIP* XXVIII, Fig. 63 3-4 and Pl. I 6.

<sup>45</sup> *Ibid.* Fig. 66 11-14, 16, and 19; Schmidt, *op. cit.* pp. 4-5; Garstang in *AAA* I, Pls. XLIV 1 and XLV-XLVII.

<sup>46</sup> Cf. p. 409, n. 29. Professor E. Herzfeld, to whom I showed the Alishar material, kindly informed me, however, that he thinks the sherds shown in *OIP* XXVIII, Fig. 64 1-2, do show resemblances to some from Sakçagözü and Tell al-Ḥalaf.

<sup>47</sup> Dörpfeld, *op. cit.* pp. 321-25.

<sup>48</sup> *OIP* XXVIII 78-100.

<sup>49</sup> Bittel, *op. cit.* pp. 36-59 and 86 f.

<sup>39</sup> *Ibid.* p. 57.

<sup>40</sup> *Ibid.* Fig. 68 14.

<sup>41</sup> *Ibid.* Fig. 83 10.

<sup>42</sup> *Ibid.* Fig. 76 1-2 and 5.

<sup>54</sup> *OIP* XXVIII, Fig. 92.

<sup>55</sup> *Ibid.* Fig. 98, first group.

<sup>56</sup> *Ibid.* Fig. 94.

<sup>57</sup> *AJA* XXXIX 34.



cause they may actually be Neolithic. From Troy I two burials of fetuses in pots are recorded.<sup>58</sup> The burial ground of Yortan,<sup>59</sup> part of which is probably contemporaneous with the end of Troy I, shows that the custom of burying the dead in a flexed position in a pot was in use.<sup>60</sup> At Hanaytepe, in a level containing cultural remains similar to those of Troy I, several skeletons of children buried in flexed positions were found, two of them in *kerpiç*-brick boxes. Flexed skeletons of adults also were found, one with its head resting on a metate.<sup>61</sup> The burials from Alishar show that here too bodies were buried flexed, in earth burials,<sup>62</sup> in pot burials,<sup>63</sup> or in stone<sup>64</sup> or wood boxes.<sup>65</sup> In Level 13 M a fetus was found buried in a pot.<sup>66</sup> Most of the skeletons belonged to children and were buried beneath the floor level of a house.<sup>67</sup>

Two burials of children have been found in the Chalcolithic deposits at Alaca Hüyük. One was an earth burial; the other was in a stone box; both bodies were in lateral flexed positions.

We may assume, then, that intramural burial of the dead in a flexed position, sometimes in pots or in boxes, was customary in western and central Anatolia during the Chalcolithic period, as was the burying of fetuses in pots.<sup>68</sup> The *kerpiç*-brick boxes of Hanaytepe have their counterpart in the stone and wood box burials of Alishar. It is also worthy of note that the skeletons from Hanaytepe, like those from Alishar, are mostly of children.

#### MISCELLANEOUS

From Troy I and from Alishar we know that weaving of flax was known;<sup>69</sup> from Alishar we have also vestiges of the weaving of reed mats and of the use of leather.<sup>70</sup> Grain and straw found at Alishar bear witness to the agricultural activities of the Chalcolithic inhabitants.<sup>71</sup> Though agricultural remains are not yet known from Troy I, there can be little doubt that agriculture was practiced.<sup>72</sup> This holds true for Sakçagözü also.

Animal remains from Alishar indicate that sheep, goats, cattle, and pigs were domesticated (cf. p. 294), that stags<sup>73</sup> and boars<sup>74</sup> were hunted, and that shell animals were used as food and the shells sometimes made into implements and ornaments (cf. p. 324). The same would seem to apply to Troy I also. From Sakçagözü specific animal remains are not known.

Ruddle was found at Alishar and Troy I and may have been used for personal adornment as well as for the decoration of pottery.<sup>75</sup>

As to the form of the settlements not much can be said with certitude. For Sakçagözü not enough material is available for even a guess. Troy I was fortified (cf. p. 408). Alishar was probably a fortified settlement with an earthen wall, surrounded by a shallow lake or swamp (Pl. XIII A).<sup>76</sup>

<sup>58</sup> Schliemann, *op. cit.* p. 227, No. 59.

<sup>59</sup> *CR*, 1901, pp. 810-17.

<sup>60</sup> Cf. Bittel, *op. cit.* p. 29. He kindly informs me that Çandarlı is a large burial ground belonging to the Yortan culture and that there is another burial ground of the same period at Babaköy, vilayet Balıkesir, which he excavated with Steward in the spring of 1936.

<sup>61</sup> Schliemann, *op. cit.* pp. 712 f.

<sup>62</sup> *OIP* XXVIII, Figs. 49, 51, and 61.

<sup>65</sup> *Ibid.* Figs. 47-48.

<sup>63</sup> *Ibid.* Figs. 43, 52-53, and 55.

<sup>66</sup> *Ibid.* p. 44.

<sup>64</sup> *Ibid.* Figs. 50 and 55-59.

<sup>67</sup> In Level 13 M; cf. *ibid.* p. 32 and Fig. 44.

<sup>68</sup> For two instances of a possible disposal by cremation in Troy I cf. Schliemann, *op. cit.* p. 39.

<sup>69</sup> Schmidt, *op. cit.* Nos. 6122-23; possibly the fabric remains in one of the *kerpiç*-brick burials at Hanaytepe (Schliemann, *op. cit.* p. 713) were likewise of flax; for Alishar cf. *OIP* XXVIII, Fig. 60, and *OIP* XXX 334 f.

<sup>70</sup> *OIP* XXVIII, Figs. 54 and 60.

<sup>71</sup> *Ibid.* p. 44 and *OIP* XXX 333.

<sup>72</sup> Bittel, *op. cit.* p. 58; the remains of grain from Troy are all of the Second City.

<sup>73</sup> *OIP* XXVIII, Figs. 94-95, and *OIP* XXX 294.

<sup>74</sup> *OIP* XXVIII 87; Schmidt, *op. cit.* Nos. 7983-84.

<sup>75</sup> *OIP* XXVIII 106, No. e 1692.

<sup>76</sup> *OIP* XXVIII 31 f.



PROBABLE EXTENT AND INTERRELATIONSHIPS OF  
CHALCOLITHIC CULTURES OF ASIA MINOR<sup>77</sup>

Possible interrelationships of Troy I, Alishar, and Sakçagözü have been pointed out in the preceding paragraphs; here we shall inquire into connections with other sites in Asia Minor in order to determine, as far as possible, the different culture areas and their interrelationships.

Parallels from other sites in Asia Minor to the oldest remains at Sakçagözü, except for the few resemblances with Alishar and Troy I noted above (p. 410), are thus far unknown to me.

Material resembling the Chalcolithic pottery from Alishar is at present known to me only from Sofular Hüyük southeast of Ankara and west of Kaman and from the following mounds in the Kanak Su-Boğazlıyan Çay basin: Akçakoyunlu, Battal, Düğer (Düvelköy), Kanlıca, Koziçi, Orta Hüyük (near Dedik), Tahiroğlu, and Temlik. At Sofular Hüyük a few punctated-incised sherds with grayish buff slip were found,<sup>78</sup> and the mounds of the Kanak Su-Boğazlıyan Çay basin yielded the typical Chalcolithic coarse black-slipped ware.<sup>79</sup>

Sites with remains of Troy I culture<sup>80</sup> are Beşiktepe<sup>81</sup> and Hanaytepe<sup>82</sup> in the Troad, Bahkesir,<sup>83</sup> Gâvurköy,<sup>84</sup> Soma,<sup>85</sup> and some site (or sites?) in Caria;<sup>86</sup> likewise the "Tumulus of Protesilaus" on the Gallipoli Peninsula and Thermi on Lesbos. The possibly Neolithic culture at Kumtepe,<sup>87</sup> from which the pottery of Troy I may have originated, may also explain the difference existing between the wares of Beşiktepe and Hanaytepe on the one hand and Troy I on the other, as Miss W. Lamb has pointed out.<sup>88</sup>

What, if any, were the interrelationships of these three cultural areas? Although at first glance the western culture, as known from Troy I and other sites, appears to have been very different, especially in its pottery, from the cultures of the other two areas, certain features in common with central Anatolia as represented by the Chalcolithic deposits at Alishar—rectangular(?) plan of houses, similar ceramic technique in the case of some of the wares, and similar burial customs—do seem to indicate some cultural connection. Perhaps further excavations at Alishar or other sites will provide additional evidence and even permit us to subdivide the Chalcolithic period into an earlier and a later phase (see p. 408, n. 18). In that case the earlier Chalcolithic phase of Alishar may link up more closely with the earlier phase of Troy I, or perhaps even with the Neolithic culture from which Troy I possibly derived. The later stage of the Chalcolithic at Alishar—represented by the levels from which came the bulk of the Chalcolithic material—has, in spite of some technical similarities, a distinctly different character, and in my opinion we shall have to look elsewhere for parallel material.

The oldest stage of the Chalcolithic deposit of Sakçagözü shows, as we pointed out before, material faintly suggesting the fine black-slipped ware of Alishar and of Troy I. Hence the possibility that the oldest stage of this North Syrian site might be related to the central and western culture areas does not seem so improbable, especially if it should be proved that some

<sup>77</sup> We have as yet little more than the pottery as comparative material. This fact of course makes any statements with respect to cultures very incomplete, because pottery is only one phase or manifestation of a culture. The word "culture" is, however, such a convenient term that we have used it throughout this discussion, trusting that the reader will make the necessary adjustment.

<sup>78</sup> *OIP* V 143.

<sup>79</sup> *Ibid.* pp. 89-97.

<sup>80</sup> Bittel, *op. cit.* p. 85, points out correctly that the identification of wares from many sites in western and central Anatolia by Frankfort (*Studies* II 57, n. 3) cannot be accepted as definite and that in most cases they are surely not of "Troy I type. Frankfort had to base his deductions on insufficiently published material.

<sup>81</sup> Schliemann, *op. cit.* pp. 666-69; Dörpfeld, *op. cit.* p. 545; *ADAI*, 1929, cols. 358-65.

<sup>82</sup> Schliemann, *op. cit.* pp. 710 ff.; Dörpfeld, *op. cit.* p. 548.

<sup>83</sup> Bittel, *op. cit.* p. 122.

<sup>84</sup> Frankfort, *Studies* II 62.

<sup>85</sup> *BCH* XXXIX (1915) 40.

<sup>86</sup> *Ibid.* p. 58, n. 2b.

<sup>87</sup> *AJA* XXXIX 33 f.

<sup>88</sup> "Schliemann's prehistoric sites in the Troad," *PZ* XXIII (1932) 111-31.

of the pottery of the oldest deposits at Çatal Hüyük in North Syria is similar to that of Chalcolithic Alişar.<sup>89</sup> I am informed that surface finds on sites along the Orontes and in the Amk plain (Map XV) show such ware for this section also.<sup>90</sup>

The second stage of the Chalcolithic culture of Sakçagöz will probably have to be regarded as an offshoot of that distinct culture of North Syria and northern Mesopotamia which is characterized by its fine, painted pottery (Map XV).<sup>91</sup> It is found superimposed on the oldest Chalcolithic deposit, which, as shown above, may prove to be related to a western, that is Anatolian, Chalcolithic culture.<sup>92</sup>

<sup>89</sup> Dr. Calvin W. McEwan, director of the Oriental Institute's Syrian-Hittite Expedition, informs me that in 1934/35 he found in one of the deepest levels of Çatal Hüyük a ware which resembles that of Alişar Chalcolithic.

[The following, more detailed statement by Mr. Robert J. Braidwood of the Syrian-Hittite Expedition came to us only after this volume was in press:

"The ware to which Dr. McEwan refers is known much better since the last season's work (1935/36), as an extensive plot representing the same culture as that of the 'deepest levels' of Çatal Hüyük was uncovered on Tell al-Judaïdah. It belongs to the period termed 'Judaïdah XI,' and we have been calling the ware in question 'red-black burnished ware.'

"This ware is comparable with the Alişar Chalcolithic pottery of the black and red varieties; the slip has the same very definite colors, there is the same or even greater excellence in burnish, and incised and filled or fluted surface decoration occurs. The Tell al-Judaïdah forms are usually somewhat simpler, although the Alişar cup e 2747 (*OIP* XXVIII, Fig. 70) is a common form and there are sherds of cup-bases for large jars (cf. *ibid.* Fig. 72) and of 'fruit stands' (cf. e 1509, *ibid.* Fig. 76 6). There are parallels in handles, although in the Judaïdah series fewer handles were used. The most common base is concave (cf. *ibid.* Fig. 84 9-10 and 13). Even more interesting is a quite widespread use in Judaïdah XI of Dr. von der Osten's 'andiron' form (e 1732, *ibid.* p. 93 and Fig. 100), with the same finger-poked eyes and pinched nose as his fragment shows.

"It is possible to date Judaïdah XI with some degree of certainty on the basis of a number of Mesopotamian seals found in these levels. The beginning date is about 3100 B.C. and the end date about 2800 B.C., although this last must remain somewhat tentative for the moment, and it is even possible that the series may have gone on about two hundred years more. It is also possible to observe a change from black and red to an all red surface as time goes on, but we have no reason to break the period into two parts as Dr. von der Osten does his Chalcolithic period and Copper Age."]

<sup>90</sup> I am indebted for this information to Mr. R. A. Martin, of Field Museum, Chicago, who visited this region in 1931/32. The names of various Syrian and Palestinian sites yielding such pottery (see Map XV) were kindly furnished by Dr. McEwan and Mr. Braidwood. [See now also R. J. Braidwood, *Mounds in the Plain of Antioch* (*OIP* XLVIII).—EDITOR.]

<sup>91</sup> For Carabulus cf. *Iraq* I (1934) 146-62; for Tell al-Halaf, Max von Oppenheim, *Der Tell Halaf* (Leipzig, 1931) pp. 250-65; for Arpachiyyah, *Iraq* II (1935) 1-178; for Nineveh, AAA XX (1933) 149-63; for Sāmarrāb, E. Herzfeld, *Die Ausgrabungen von Samarra V* (Berlin, 1930). See also Bittel in *AOF* XI (1936) 50 f. For the information about Hamāh, Ka'at al-Rurūs, Nuzi, Ra's al-Shamrah, Tell al-Judaïdah, and Tell Sukās I am indebted to Dr. McEwan and Mr. Braidwood.

How much of the prehistoric painted pottery of Mesopotamia and Iran will prove to be related to that of North Syria we cannot yet determine. For the present I can only give such sites as I know have yielded prehistoric painted wares, without trying to discriminate among them. Recent discoveries of this nature have been reported by M. E. L. Mallowan (AAA XX [1933] 159 and *Iraq* III I [1936] p. 2 and Fig. 1) and by Sir Aurel Stein (*Iraq* III 2 [1936]). On the map we have in most cases given the names of the towns and villages near which the sites examined by Sir Aurel Stein are located.

<sup>92</sup> The existence of an independent Anatolian Chalcolithic culture as a counterpart of a Syrian and an Iranian Chalcolithic culture was postulated already by H. Frankfort, *Archeology and the Sumerian Problem* (SAOC No. 4 [1932]) pp. 23-40 and frontispiece. In spite of the difficulty of finding an approximately contemporaneous date for much of the comparative material, as Bittel pointed out in his review of Frankfort's publication in *PZ* XXIV (1933) 330-32, I am inclined to believe that Frankfort is right in assuming the existence of such a cultural unit for Asia Minor, though I cannot yet follow him in extending this cultural area into Mesopotamia or even into northern Iran. If one examines the material from Alişar, especially the pottery, one cannot but discern certain features which reappear in all periods, regardless of time or foreign invasions. These, I hold, may well be definitely Anatolian, perhaps *uranatolisch*. There is, first, the custom of adding a slip or a wash to the pottery. On the older wares the adding of a slip was originally perhaps due to necessity rather than to any artistic feeling (*OIP* XXVIII 52). The potters of the period of the Hittite Empires surely did not need this technique any longer to make their vessels waterproof; for the majority of the vessels of this period from Alişar are wet-smoothed and of excellent quality. Nevertheless we find a great number of vessels and sherds of red-washed and highly polished red- or brownish-slipped ware. From the late Hellenistic period we have molded bowls which, perhaps in reminiscence of this old technique, are likewise slipped (see p. 80). Secondly, we have at Alişar throughout all periods the zigzag motive (Frankfort's "zigzag of four parallel lines," *Studies* II 62), e.g. a Chalcolithic jar (Fig. 274), a Copper Age cup (*OIP* XXVIII, Pl. IV 1), an "intermediate ware" vessel (*ibid.* Fig. 233, No. d 1999), Early Bronze Age vessels (*ibid.* Figs. 242 and 246), a Post-Hittite-Phrygian cup (*OIP* XXIX, Fig. 409, No. c 2685), and a Hellenistic pitcher (*OIP*



FIG. 274.—CHALCOLITHIC JAR FRAGMENT. ACTUAL SIZE



FIG. 275.—BEAK-SPOUT PITCHER FROM KÜLTEPE. SCALE, 1:2



FIG. 276.—BEAK-SPOUT PITCHER FROM KÜLTEPE. SCALE, 1:2

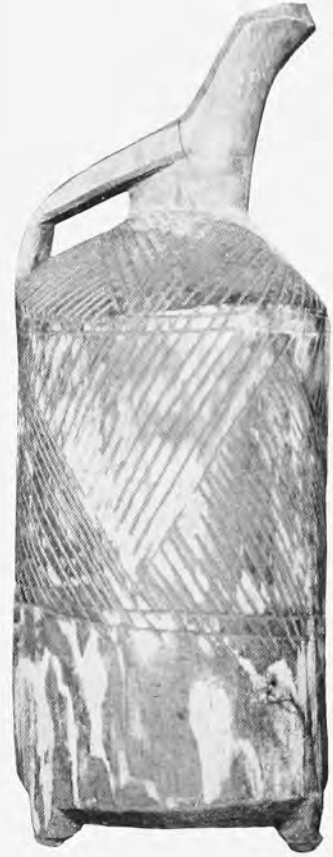


FIG. 278.—MODERN ANATOLIAN  
BEAK-SPOUT PITCHER OF WOOD



FIG. 277.—BEAK-SPOUT PITCHER FROM KÜLTEPE. SCALE, 4:5



In the west, at Troy I and its related stations, we have seemingly a continuous development from the beginning of the Chalcolithic period—perhaps even from the Neolithic (Kumtepe)—to the end of Troy II (Copper Age).<sup>93</sup> According to our present knowledge, the first real break occurs with Troy VII b, with a revival of primitive Troy I pottery forms and the appearance of *Buckelkeramik*. Such cultural influences as may have come from outside seem to have been absorbed without affecting the development as a whole. It was different in Alishar. Assuming that at the beginning of this cultural period there existed a common culture for the whole of Anatolia, we have evidence at Alishar of a foreign element which gave rise to a type of culture quite different from that of Troy I. Of course we can as yet judge that culture by little more than its pottery. Searching for comparative material in order to trace the possible source of this foreign element, we found nothing similar among the approximately contemporaneous cultures of the Near East, but some startling resemblances do appear among the pottery remains of the "Black Earth" and Danubian cultures.<sup>94</sup>

XXX, Pl. IX, No. 5 664). As a third feature we may mention the form of the beak-spout. While we have as yet no example of this spout from Alishar Chalcolithic, it must be pointed out that the Chalcolithic area uncovered there is only very small. We have such beak-spouts in the west from Thermi (Troy I) and from Troy II. In Alishar we found fragments of them in the Copper Age deposits (*OIP* XXVIII, Fig. 181), and several fine specimens are known from Kültepe from the Copper Age (Fig. 275) and the Early Bronze Age (Fig. 276). Two fine examples of beak-spouts were found in Copper Age levels at Alaca Hüyük in 1936 (now in the Ethnographical Museum at Ankara). From Kültepe we have also a small three-legged pitcher with beak-spout (Fig. 277; also in *TTAED* I 70, KT 7) which might well be contemporaneous with Troy I. In the period of the Hittite Empires the beak-spout finds its artistic climax (*OIP* XXIX, Figs. 183-88) and persists down to the late Hellenistic period. Even now in the wooded regions of central Anatolia a three-legged wooden vessel with beak-spout is used by the peasants, the handle being attached to the spout and the shoulder (Fig. 278); often the shoulders are decorated with parallel diagonal lines, sometimes crossing. Is it not likely that such a wooden form was the prototype of the pitchers from Troy I and Thermi? This assumption of an *ur*-Anatolian culture which has maintained itself through the ages in spite of invasions and change of population (cf. pp. 349 and 395-401) appears therefore to have much in its favor. Datable material for absolute proof is not yet available; but the modern traveler and ethnologist can see there even now certain *ur*-Anatolian elements which have persisted to the present.

<sup>93</sup> *AJA* XXXVIII 226.

<sup>94</sup> Since the Danubian area and the "Black Earth" region are outside of my special field of investigation, I shall not, of course, attempt to give a comprehensive survey of the comparative material available and note all points of similarity, but shall merely state my own observations and, where possible, refer to illustrative material in publications. Resemblances to pottery from the "Black Earth" region and Transylvania were noted in the following cases: (a) from Cucuteni, H. Schmidt, *Cucuteni in der oberen Moldau, Rumänien* (Berlin und Leipzig, 1932) Formentafel A; (b) from Tordos, H. Schmidt, "Tordos," *ZE* XXXV (1903) 438-69, esp. Figs. 14, 19-20, and 22-23; (c) from Erösd and Oltszem (Olteni), Ferencz László, "Háromszék vármegyei praemykenaei jellegű telepek," *Dolgozatok az Erdélyi Nemzeti Múzeum Érem- és Régiséggyűjteményéből* II (Kolozsvár [Cluj], 1911) 175-259, esp. Figs. 39, 42, 49, and 52; (d) from Nagy Sáncz, Márton Roska, "Ásatás a pécska-szemlakai határban levő Nagy Sánczon," *Dolgozatok* III (1912) 1-73 and Figs. 23, 27, 29, 59, etc.; (e) from Glina, J. Nestor, "Zur Chronologie der rumänischen Steinkupferzeit," *PZ* XIX (1928) 117, Fig. 3, esp. Nos. 19, 21, and 31. For figurines from Sultana resembling figurines from Alishar see I. Andriesescu, "Les fouilles de Sultana," in *Dacia. Recherches et découvertes archéologiques en Roumanie* I (1924) 51-107 and Pls. XXXIV-XXXV 1-2. For small objects from Erösd see F. László in *Dolgozatok* II 238-52, Figs. 79, 87 (upper row), 90, and 93-94 (clay weights, flints, awls, bracelets); from Oltszem, *ibid.* Figs. 80 and 89 (clay weight and metate); from Nagy Sáncz, Roska in *Dolgozatok* III 10, Fig. 9 (awl No. 1).

Resemblances to pottery from the Danube region (Hungary and Yugoslavia) were noted (a) in three Hungarian pieces in Field Museum of Natural History, Chicago, of which one was from Borsod (original in the National Museum in Budapest), one from Szentes (original in Field Museum), and one from Tiszadál (original in the museum at Nyíregyháza, Hungary); (b) in published material from Yugoslavia: from Vinča in M. M. Vassits (Vasić), "Die Hauptergebnisse der prähistorischen Ausgrabung in Vinča im Jahre 1908," *PZ* II (1910) 23-39, esp. Pls. 11 b (upper two rows), 14 a-b, and 15 d; from Starčevo in V. J. Fewkes, Hetty Goldman, and R. W. Ehrlich, "Excavations at Starčevo, Yugoslavia, seasons 1931 and 1932," *BASPR* No. 9 (1933) pp. 33-54, esp. pp. 43-51; from these and other Eastern Yugoslavian sites in V. J. Fewkes, "Neolithic sites in the Moravo-Danubian area (Eastern Yugoslavia)," *BASPR* No. 12, pp. 5-81, esp. p. 17, n. 52, where Dr. Fewkes, whose attention I had called to the resemblances between the Alishar Chalcolithic ware and Danubian wares, gives a brief yet detailed statement of striking similarities. For resemblances in small objects see M. M. Vassits



FIG. 279.—Two VESSELS FROM KÜLTEPE. SCALE, 2:3



FIG. 280.—VESSEL FROM KÜLTEPE. ACTUAL SIZE

While the material from Alishar itself and the scant evidence from other sites are insufficient for drawing definite conclusions, I believe they permit us to sketch the following tentative picture of cultural development in Anatolia: In the period which marks the initial appearance of pottery Asia Minor and North Syria had an essentially homogeneous culture. Local variants are, of course, to be expected in such a large area. During the later phase of the Chalcolithic period a new influence made itself felt in the eastern part of this area in the expansion of the painted-ware culture of which Tell al-Ḥalaf and Arpachiyyah are good examples—a culture which in Sakçagözü and Tell Shāghir Bāzār overlies the older “Anatolian” culture. In central Anatolia the second phase of the Chalcolithic period is characterized by a marked resemblance of certain kinds of pottery to Danubian and “Black Earth” material. The “Black Earth” culture may well have reached Anatolia via the Bosphorus without influencing to any great extent existing sites along the west coast, for similar cultural remains have not yet been found there. Another wave of this culture may have moved along the northern shores of the Black Sea and the Caspian Sea and touched Iran at Tepe Hisar. Tepe Hisar I<sup>95</sup> undoubtedly belongs to the area of the Iranian painted pottery, of which it forms a local group. Tepe Hisar II,<sup>96</sup> however, may very well be explained as a result of “Black Earth” influence. In Troy I the development continued undisturbed.

While it is not impossible that pottery of the Danubian and “Black Earth” type in central Anatolia may be due to an independent development, it is more probably derived from Eastern Europe. However, it is also possible that both Anatolia and Eastern Europe (including the Aegean) drew their initial impulses from a common source. It would be futile in the present stage of our knowledge to attempt to determine the mutual chronological relations of the cultures concerned; for related cultures may at different places show unequal accomplishments and varying degrees of interpenetration and thus give rise to erroneous views regarding their age and influence. The later Chalcolithic stage at Alishar may, therefore, for all we know, be either an older or a younger relative of Tripolje, Cucuteni, or Erösd.

(Vasić), *Preistorijska Vinča I* (Beograd, 1932) Figs. 129 and 130 *a-b*, and his “Die Hauptergebnisse der prähistorischen Ausgrabung in Vinča im Jahre 1908,” *PZ* II 23-39, esp. Figs. 4 and 6 (obsidian implements and “Hirschhornhacken”). Mr. R. A. Martin has informed me that flat bone awls like those from Alishar were found at several places in Hungary also.

The cultural relationship of western Asia Minor and Thrace, Macedonia, Thessaly, Greece, and the Aegean islands has been noted repeatedly (cf. H. Frankfort, *Studies* II, and the literature cited there), as well as the cultural connection of these areas with the “Black Earth” region and the Danubian area (e.g. Frankfort, *op. cit.* pp. 15-33; A. J. B. Wace and M. S. Thompson, *Prehistoric Thessaly* [Cambridge, 1912] pp. 231-34 and 257-59; W. A. Heurtley in *ABSA* XXIX [for 1927/28] 176; G. E. Mylonas, *Excavations at Olynthus. I. The Neolithic Settlement* [Baltimore, 1929] pp. 83-95). It is therefore not surprising that resemblances should appear between Alishar Chalcolithic wares and contemporaneous wares from the Aegean area. For cases of such correspondences from Macedonia see Léon Rey, “Observations sur les premiers habitats de la Macédoine,” *BCH* XLI-XLIII (for 1917-19; Paris, 1921) Pl. XVIII 2; W. A. Heurtley, “Report on an excavation at the tomba of Vardino, Macedonia,” *AAA* XII (1925) 15-36, esp. Pls. VIII-IX; W. A. Heurtley and C. A. R. Radford, “Two prehistoric sites in Chalcidice,” *ABSA* XXIX (for 1927/28) 126, Figs. 5 and 8; Mylonas, *op. cit.*, Figs. 28 and 50; from Thessaly see Wace and Thompson, *Prehistoric Thessaly*, p. 105; Wace, Droop, and Thompson, “Excavations at Zerelia,” *ABSA* XIV (for 1907/8) Fig. 8; from Greece see H. Goldman, *Excavations at Eutresis in Boeotia* (Cambridge, Mass., 1931) pp. 76-93 and 227 f. Also from Kültepe in Anatolia we have three vessels (Figs. 279 and 280) which can be compared with such pieces from Europe. Of especial interest is the vessel shown in Fig. 280; for we find exactly the same unusual form in Hungary (Lengyel and Szeged), in Rumania (Muntenia), in Troy I, and in Melos; cf. H. Schroll, *Die Stein- und Kupferzeit Siebenbürgens* (“Vorgeschichtliche Forschungen,” Heft 8 [Berlin, 1933]) p. 7 and Pl. 3, No. 4.

In house forms too there may be a resemblance between Alishar and Eastern Europe; cf. Frankfort, *Studies* II 15, where rectangular houses with pillared porches are mentioned—a feature which we seem to have in Alishar also [see p. 408]).

<sup>95</sup> *PUMJ* XXIII (1932/33) Pls. LXXXII-LXXXIX.

<sup>96</sup> *Ibid.* Pl. XCVII.

## THE COPPER AGE

The next great phase in the cultural development of central Anatolia is characterized by the profuse use of metal (copper or bronze).<sup>1</sup> Hence this period at Alişar (previously called "Alişar I")<sup>2</sup> is called, for convenience, the "Copper Age," even though some of the objects analyzed have proved to be of bronze (cf. pp. 338 f.). According to the observations of 1930 and 1932 in the only area of the Alişar mound where remains older than those of the Copper Age were reached,<sup>3</sup> there can be no doubt, at least to my mind, that the Copper Age culture is *not* a further development of the Chalcolithic culture there but is something new (cf. p. 408, n. 18). The pottery vessels are much simpler and show by no means the variety and sophistication of the Chalcolithic forms.<sup>4</sup> The typical Copper Age pottery at Alişar has a rich red, highly burnished slip,<sup>5</sup> in contrast to the black or grayish buff slip most common in the Chalcolithic period. Granting that the change from black to red slip through firing is rather easy and natural,<sup>6</sup> the treatment of the clay itself is something decidedly new in Alişar; the Chalcolithic pottery is, with few exceptions, grit-tempered,<sup>7</sup> whereas the Copper Age ware is almost exclusively plant-tempered.<sup>8</sup> The forms of some of the implements change also (e.g. bone awls<sup>9</sup> and "whorls"<sup>10</sup>), and a new type of stone animal figurine appears.<sup>11</sup>

The material from the few other excavated sites with deposits of this cultural period shows that, as in the Chalcolithic period, there was one culture in western Anatolia, represented by Troy II, Thermi, Karaağaçtepe, and Babaköy, and another one in central Anatolia, represented by Alişar, Alaca Hüyük, and Ahlatlıbel. Since at Alaca Hüyük, and especially at Ahlatlıbel, the wares of both cultures were found together, and since jewelry from Alaca Hüyük resembles that from the "Schatzfunde" of Troy II, at least partial contemporaneity of the two cultures is assured. The western culture is a further development of Troy I, showing also some relation to the Aegean. But the Central Anatolian culture seems to be new, and its origin must be looked for somewhere to the northeast (see p. 426). The regions south of the Taurus (Adana plain) and southeast of the Anti-Taurus (Sakçagözü and Carabulus) have thus far produced no evidence of contact during this period with either of the Anatolian cultures.

As stated previously, I am inclined to put the end of the Chalcolithic period at Alişar not much later than 3000 B.C. (cf. p. 407). The probability that the Copper Age culture in Alişar began around that time is strengthened by the glyptic objects found there.<sup>12</sup> A cylinder seal has analogies at Khafājah, where similar seals can be dated not later than the end of the Jamdat Naşr period (3100–3000 B.C.).<sup>13</sup> Several stamp seals also (c 1225, c 1839, and c 728)<sup>14</sup> can hardly be dated much later than 3000 B.C.

It is more difficult to determine the end of this period for central Anatolia. At Alişar the positions and thicknesses of three cultural deposits (cf. pp. 429–33) suggest to me that the Copper Age settlement on the citadel was destroyed in the 24th century B.C. by the bearers of the Early Bronze Age culture. The conquerors were seemingly a minority who settled on the citadel only, and it is quite possible that the Copper Age people continued to occupy the city

<sup>1</sup> OIP XXVIII 193–98. At this stage of our knowledge only an analysis of a large variety of samples can determine the metal characteristics of a cultural period.

<sup>2</sup> OIC Nos. 11 and 14; OIP VI–VII and XIX.

<sup>3</sup> Chalcolithic remains in L 14–16.

<sup>4</sup> Frankfort, *Studies in Early Pottery of the Near East* II (London, 1927) 63.

<sup>5</sup> OIP XXVIII 52.

<sup>6</sup> *Ibid.* p. 151.

<sup>7</sup> *Ibid.* Figs. 92 and 193, first row.

<sup>8</sup> *Ibid.* Figs. 98, 188–91, and 200–203.

<sup>9</sup> OIP XXVIII, Pls. VII–VIII.

<sup>10</sup> *Ibid.* pp. 152–54 and Pl. III 1 and 3.

<sup>11</sup> *Ibid.* Fig. 184.

<sup>12</sup> *Ibid.* pp. 183–85 and Fig. 186, last two rows.

<sup>13</sup> OIC No. 20, pp. 35 and 60 and Chronological Table.

<sup>14</sup> OIP XXVIII, Fig. 186.



terrace under their rule until the beginning of the Hittite period (which must have been before 2000 B.C.; see p. 434). The Copper Age people may have been the Proto-Hattians. One clue for dating is furnished by a few complete, and a number of fragmentary, two-handled goblets from Alishar,<sup>15</sup> while they are probably not imported pieces,<sup>16</sup> they correspond to some vessels from Troy II/III.<sup>17</sup> Although the dating of Troy II is not yet definitely settled,<sup>18</sup> it seems reasonably certain that that period ended about 2300 B.C.

## CULTURAL ASPECTS

### ARCHITECTURE

During the first part of this cultural period at Alishar only the citadel seems to have been occupied,<sup>19</sup> afterward the settlement expanded and became what we now call the "city terrace."<sup>20</sup> Not later than the second Copper Age building level on the citadel mound, the settlements there seem to have been fortified. The settlement on the city terrace was surrounded by a well built city wall. Stone foundations, not found in our limited excavations of the Chalcolithic deposit, appear in the Copper Age. Mud or earth was used in them as binding material. Except in the fortification walls, the foundations were rather narrow. The superstructures were of *kerpiç* bricks or sometimes of tamped *kerpiç* layers.<sup>21</sup> No complete house plan could be recognized, but the rooms seem all to have been roughly rectangular.

The excavations at Alaca Hüyük showed much better built wall foundations, some very wide and some built of very large stones. The walls met approximately at right angles. The superstructures were probably of *kerpiç*, but very little of them was preserved. There also, on account of the relatively small area excavated, no complete house plan could be recognized. But the remains uncovered there are much more imposing than those at Alishar and suggest that they belong to either a palace or a temple.<sup>22</sup>

The settlement at Ahlatlıbel can be considered completely excavated.<sup>23</sup> It consisted of two Copper Age building levels, with minor additions and changes, on top of which were found a few sherds of the period of the Hittite Empires. It seems to have been the seat of a minor feudal lord. Although the plan is not easily recognizable, the settlement was apparently very compact and roughly oval in form. More or less rectangular rooms were grouped around a courtyard, and the outer defense wall was built in box technique. The stone foundations here too were carefully built of medium-sized stones. Of the superstructure, probably of *kerpiç*, only traces remained.

From Dörpfeld's excavations at Troy the strong defense wall of the Troy II citadel and a few buildings of megaron type were known.<sup>24</sup> Three building periods (Troy II *a*, *b*, *c*) were determined, of which the third has been most thoroughly examined. In 1935 the University of Cincinnati expedition under the direction of Carl W. Blegen freed a complex of rectangular rooms;<sup>25</sup> these may have been storerooms for the neighboring large megaron, which probably contained the living-quarters of the king.<sup>26</sup> In the walls of the megara the large *kerpiç* bricks

<sup>15</sup> *OIP* XIX, Fig. 43 and Pl. I (b 139); *OIP* XXVIII, Fig. 164 1-2 and Pls. IV 7 and VIII (b 37 and b 332).

<sup>16</sup> Cf. S. Przeworski's review of Bittel, *Prähistorische Forschung in Kleinasien*, in *OLZ*, 1935, col. 669.

<sup>17</sup> W. Dörpfeld, *Troja und Ilion* (Athen, 1902) Fig. 130; H. Schmidt, *Heinrich Schliemann's Sammlung trojanischer Altertümer* (Berlin, 1902) Nos. 1421-55.

<sup>18</sup> Bittel, *Prähistorische Forschung in Kleinasien*, pp. 17 ff.

<sup>19</sup> *OIP* XXVIII 112-18.

<sup>20</sup> *Ibid.* pp. 118-35.

<sup>21</sup> *Ibid.* pp. 111 and 122.

<sup>22</sup> Courtesy of Dr. Hâmit Zübeyr Koşay; preliminary report in *La Turquie Kamâliste*, Oct., 1936, pp. 2-8.

<sup>23</sup> Hâmit Zübeyr Koşay, "Türkiye Cumhuriyeti Maarif Vekâletince yaptırılan Ahlatlıbel Hafriyatı," *TTAED* II (1934) 3-100; K. Bittel in *AOP* XI (1936) 38-47.

<sup>24</sup> Dörpfeld, *op. cit.* pp. 49-98.

<sup>25</sup> *AJA* XXXIX (1935) 553-62.

<sup>26</sup> *Ibid.* pp. 561 f.

of the superstructure were reinforced by a wooden framework presumably fastened with copper or bronze pins as were the roof beams;<sup>27</sup> the foundations were of stone. The walls of the storerooms were rather carelessly built of stone and *kerpiç* brick, often without any foundation.<sup>28</sup>

From the excavations at Thermi<sup>29</sup> we have fairly complete plans of two successive towns (Thermi IV and V) which are approximately contemporaneous with Troy II and so with the Central Anatolian Copper Age culture. Town V was fortified.<sup>30</sup> The houses were long and narrow and often had two rooms. While most of the houses were rectangular, several had one "semi-apsidal" end.<sup>31</sup> Stone seems to have been the chief building material, though mud brick also was used.<sup>32</sup> In one area there were brick walls with wooden cross-beams similar to those of Troy II.<sup>33</sup>

In the architecture of both the western and central cultures we find similar wall construction and approximately rectangular rooms. But there is also a fundamental difference: in the west the megaron type of building is used; in the central area—as far as we know—it is absent.

#### POTTERY

The pottery of the Copper Age at Alişar is handmade; the paste is usually medium to coarse and plant-tempered. The most common finish is a thick, rich red slip, more or less carefully burnished or polished. On several vessels only the inside is slipped, the slip lapping over the rim to form a red band on the outside. Painted sherds or vessels are relatively rare. In the oldest layers of the Copper Age in L 14–16 sherds of fine grit-tempered paste with light buff slip and brownish red decoration were found; they resemble the painted ware of the last two Chalcolithic layers there.<sup>34</sup> Painted sherds were found in the latest Copper Age levels also. Most of them have reddish brown decoration on a buff or creamy white slip.<sup>35</sup> Others have cream-colored decoration on a dark red slip.<sup>36</sup> Two-handled goblets of fine grit-tempered ware with a buff slip, decorated with four vertical red bands meeting at right angles on the base, resemble in form those of Troy II. A very few pieces have incised decoration,<sup>37</sup> and several small cups have vertical, horizontal, or diagonal fluting.<sup>38</sup>

Forms include bowls with rounded bottoms and rims rolled inward slightly,<sup>39</sup> sometimes with two knobs at the rim,<sup>40</sup> one-handled cups with rounded bottoms,<sup>41</sup> cups with lateral tubular spouts,<sup>42</sup> two-handled goblets,<sup>43</sup> pitchers with lateral tubular spouts,<sup>44</sup> and one-handled jars.<sup>45</sup>

From the excavations at Boğazköy we have now a few sherds resembling the typical Alişar Copper Age ware.<sup>46</sup> A fragment of a painted vessel from Boğazköy<sup>47</sup> seems to be similar to

<sup>27</sup> Dörpfeld, *op. cit.* pp. 40, 89–91, 94 f., and 348; Bittel, *op. cit.* p. 26.

<sup>28</sup> *AJA* XXXIX 554.

<sup>29</sup> W. Lamb and R. W. Hutchinson, "Excavations at Thermi in Lesbos," *ABSA* XXX (for 1928–30) 1–52; W. Lamb and J. K. Brock, "Excavations at Thermi," *ABSA* XXXI (for 1930–31) 148–65.

<sup>30</sup> *ABSA* XXXI 151–53.

<sup>39</sup> *Ibid.* Figs. 167 and 168, top.

<sup>31</sup> *Ibid.* p. 150.

<sup>40</sup> *Ibid.* p. 164 and Fig. 178 1–17.

<sup>32</sup> *ABSA* XXX 5 f.; cf. *ABSA* XXXI 151.

<sup>41</sup> *Ibid.* Fig. 168, second row.

<sup>33</sup> *ABSA* XXX 12.

<sup>42</sup> *Ibid.* Fig. 169, No. d 1331.

<sup>34</sup> *OIP* XXVIII 154.

<sup>43</sup> See p. 420, n. 15.

<sup>35</sup> E.g. *ibid.* Figs. 162–63.

<sup>44</sup> *OIP* XXVIII, Pl. VIII, Nos. a 1066 and b 331.

<sup>36</sup> E.g. *ibid.* Fig. 164 3 and 5.

<sup>45</sup> *Ibid.* Fig. 170.

<sup>37</sup> E.g. *ibid.* Fig. 165.

<sup>46</sup> *MDOG* Nr. 74, p. 11 (but seemingly grit-tempered).

<sup>38</sup> E.g. *ibid.* Fig. 166.

<sup>47</sup> *Ibid.* Fig. 6 and p. 14.

painted Copper Age ware from Alishar.<sup>48</sup> The pottery from Has Hüyük is very similar to that at Alishar.<sup>49</sup>

Another kind of handmade pottery, usually grit-tempered, with reddish buff slip and designs in purplish brown, was found in the highest layers of the Copper Age deposit and the lowest part of the Early Bronze Age deposit at Alishar; for this reason we call it "intermediate" ware; it is treated in the section on the Early Bronze Age (cf. p. 428).

In comparison with the Central Anatolian Copper Age ware the ware from the western sites (Troy II,<sup>50</sup> Thermi,<sup>51</sup> Karaağaçtepe,<sup>52</sup> Hanaytepe B,<sup>53</sup> Yortan,<sup>54</sup> and Babaköy<sup>55</sup>) shows a marked difference. The ware of Troy II seems to have developed from that of Troy I. The use of the wheel began in the second building period of Troy II. Colors include brown, reddish gray, red, and black. Among the forms may be mentioned jars and beak-spout pitchers, some with three legs, one-handled cups, face-urns, and two-handled goblets. The wares of Troy II-V have been treated together by H. Schmidt, but his ingenious typological grouping is not based on stratigraphic evidence. Until Blegen's investigations are completed we may look to Thermi for some help in differentiating the Troy II pottery from that of Troy III-V, for Thermi seems to have been abandoned before the end of Troy II.<sup>56</sup> The pottery of the third ceramic period (Towns IV-V) at Thermi<sup>57</sup> includes small, fairly fine vessels with brown, gray, or yellow slip and coarser vessels, often without slip. There is some incised decoration, but paint is not used. The forms include bowls with incurved rims, one- and two-handled jars, three-legged jars, beak-spout pitchers, concave lids, and a sauce-boat similar to one of gold from Troy.<sup>58</sup> The face-urns and two-handled goblets of Troy are not found at Thermi.<sup>58a</sup>

The ware from Yortan seems more related to Troy II than to Troy I.<sup>59</sup> On the excavations at Babaköy I have not yet seen a report.

Of great importance are the finds at Ahlatlıbel and Alaca Hüyük, where actually both cultures are represented. At Ahlatlıbel appears the red-slipped ware<sup>60</sup> typical of the Copper Age of Alishar together with a black ware, often deeply incised,<sup>61</sup> which clearly shows western influence. In addition to these two a brownish buff mottled ware, black-topped, and black inside, is frequent.<sup>62</sup>

These three wares occur at Alaca Hüyük also, along with two more.<sup>63</sup> One is a rather fine gray ware. The second is not so much a ware as a special kind of ornamentation used on vessels of all the wares except the black. Impressions of fingers or fingernails, or similar impressions produced with small wooden sticks, are arranged in one or more rows or cover the whole body.

<sup>48</sup> *OIP* XXVIII, Figs. 162-63.

<sup>49</sup> *ADAI*, 1932, col. 231.

<sup>50</sup> H. Schmidt in Dörpfeld, *op. cit.* pp. 252-80; H. Schmidt, *op. cit.* pp. 12-146; *AJA* XXXIX (1935) 555-61; Bittel, *op. cit.* pp. 32-34.

<sup>51</sup> W. Lamb and R. W. Hutchinson in *ABSA* XXX (for 1928-30) 24-27; Bittel, *op. cit.* pp. 33 f.

<sup>52</sup> *BCH* XLVII (1923) 541 f.

<sup>53</sup> W. Lamb in *PZ* XXII (1931) 114-18.

<sup>54</sup> *CR*, 1900, p. 269, and 1901, pp. 814-16; *ERV* XIV 455.

<sup>55</sup> Data from Dr. K. Bittel.

<sup>57</sup> *Ibid.* pp. 24-27.

<sup>56</sup> *ABSA* XXX 52.

<sup>58</sup> Schmidt, *op. cit.* No. 5863.

<sup>58a</sup> [Since this paragraph was written, Dr. Blegen has informed me that the face-urns he has found all belong to Troy III.—H. H. v. D. O.]

<sup>59</sup> Bittel, *op. cit.* pp. 34 f.

<sup>61</sup> *Ibid.* pp. 22-25 and 48-54.

<sup>60</sup> *TTAED* II 28-40 and 43, groups A-B.

<sup>62</sup> *Ibid.* p. 20, Nos. 4 (dış kırmızı içi siyah) and 5 (alacalı).

<sup>63</sup> See p. 407 and Remzi Oguz Arık in *Türk Tarih Kurumu, Belleten* I (Ankara, 1937) 225 f.



## CULTURAL REMAINS IN CENTRAL ANATOLIA

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## SMALL OBJECTS

Of small objects of the Copper Age at Alişar the flat stone figurines of animals,<sup>64</sup> the joint bone awls,<sup>65</sup> and the serpentine "whorls"<sup>66</sup> deserve special mention. Pottery "whorls," generally oval in cross-section, have punctated-incised designs, at least some of which were apparently inlaid originally.<sup>67</sup> Bone awls differ from those of the Chalcolithic age, the handle now being either a ball joint or a socket joint. Metal objects appear in relatively great numbers. The forms of pinheads show considerable variety.<sup>68</sup> Small arrowheads, mostly with rectangular cross-section, are common.<sup>69</sup> Metal and stone stamp seals were found;<sup>70</sup> the latter had approximately square or circular bases and roughly cylindrical handles perforated near the top or low domed or gable-shaped backs perforated parallel to the base. Geometrical designs predominate. One cylinder seal was found (e 455); it may be compared to seals from the Jamdat Naşr layers at Khafājah (cf. p. 419, n. 13). A certain type of idol from Alişar<sup>71</sup> shows some faint resemblance to idols from Troy II.<sup>72</sup>

A number of small objects from Ahlatlıbel<sup>73</sup> duplicate objects from Alişar; especially interesting is a series of idols. A few daggers<sup>74</sup> are similar in form to daggers from Troy II.

At Alaca Hüyük important finds were made in six tombs. A great number of well worked copper objects, several large copper figurines,<sup>75</sup> and objects of silver and gold were found as mortuary gifts.<sup>76</sup> Two daggers of the "Cypriote" type also came to light.

Except for the idols and daggers, the small objects from Troy II have in general a different character.<sup>77</sup> The hammer axes of stone, especially, are better worked and have more developed forms. In Troy II gold jewelry has been found, some of which is similar to jewelry from the tombs of Alaca Hüyük.

## BURIALS

At Alişar burial was usually in a large jar, the orifice closed with one or more stone slabs, or simply in the earth; one cist burial and three stone-box burials were discovered.<sup>78</sup> The bodies usually lay on the side in flexed positions. With three burials there were a few approximately cubical *kerpiç* bricks with incised diagonal lines and a depression in the middle.<sup>79</sup> Mortuary gifts were poor: small vessels and copper earrings, bracelets, and pins.

At Ahlatlıbel the same types of burials were found, but here the mortuary gifts were sometimes richer.<sup>80</sup>

At Alaca Hüyük we have very rich mortuary gifts of gold, silver, and copper. The bodies lay in flexed positions, sometimes lateral, sometimes dorsal. In one case the burial practice could be very clearly observed. After a rectangular grave had been dug in the ground and lined with a single-stone wall, wooden beams were laid on top of the two long sides. The body was deposited in the grave in a flexed, dorsal position, accompanied by rich mortuary gifts. Then a number of shorter beams were laid at right angles over the two long beams in order to cover the grave and were covered in turn with a thin coat of *kerpiç*. On top of this were deposited parts of animals—in this case two bulls' heads, eight pairs of bulls' legs, and part of

<sup>64</sup> OIP XXVIII, Fig. 184.

<sup>65</sup> *Ibid.* Figs. 195-96.

<sup>66</sup> *Ibid.* Fig. 193, top.

<sup>67</sup> *Ibid.* Fig. 197, upper left.

<sup>72</sup> Dörpfeld, *op. cit.* Fig. 345.

<sup>68</sup> *Ibid.* Figs. 188-91.

<sup>70</sup> *Ibid.* Fig. 186.

<sup>73</sup> TTAED II 55-57.

<sup>69</sup> *Ibid.* Figs. 200-203.

<sup>71</sup> *Ibid.* Fig. 182.

<sup>74</sup> E.g. *ibid.* p. 92, Ab-545 and Ab-363.

<sup>75</sup> There are several of stags and one of a bull; they resemble the bull figurine published in *Illustrated London News*, Sept. 21, 1935, p. 474, and in AOF XI (1936) 97 f., which is said to come from Asia Minor.

<sup>76</sup> Preliminary reports in *La Turquie Kamaliste*, Oct., 1936, pp. 2-8, and in Türk Tarih Kurumu, *Bulleten* I (1937) 210-34. The objects are now in the Ethnographical Museum in Ankara, and a final report is in preparation.

<sup>77</sup> Cf. Bittel, *op. cit.* pp. 36-59, where this material has received a comprehensive study.

<sup>78</sup> OIP XXVIII 135-37.

<sup>79</sup> E.g. *ibid.* Fig. 137.

<sup>80</sup> TTAED II 88-100.



a goat—as well as two vessels, which presumably contained food for the departed, and additional, but less pretentious, mortuary gifts.<sup>81</sup>

From Troy II and Thermi no tombs are known. In Yortan the dead seem to have been buried in flexed positions in large jars.<sup>82</sup> Mortuary gifts include metal and stone objects and pottery vessels. The data on the burials at Babaköy are not available to me. Tombs of perhaps the same cultural period at Balıkesir,<sup>83</sup> Bozüyük,<sup>84</sup> Çandarlı,<sup>85</sup> and Deveboynu Burun (Capo Krio)<sup>86</sup> are not properly recorded.

#### PROBABLE EXTENT AND INTERRELATION OF THE TWO COPPER AGE CULTURES

At only three sites in central Anatolia—Alishar, Ahlatlıbel, and Alaca Hüyük—have there been any extensive excavations of Copper Age deposits.<sup>86a</sup> A few other sites in this region have been investigated by *sondages*.<sup>87</sup>

Anatolian sites with the typical red-slipped ware known at Alishar are (Map XVI): Ağrı Hüyük,<sup>88</sup> Ahlatlıbel,<sup>89</sup> Akçakoyunlu, Alaca Hüyük,<sup>90</sup> Alevitepe,<sup>91</sup> Araph,<sup>92</sup> Ayaş, Ayvalı, Başköy, Battal, Bazırgan Hüyük,<sup>92</sup> Boğazköy,<sup>93</sup> Bozüyük, Budaksahip,<sup>92</sup> Bulumaşlı, Burunkışla, Büyüyük Ören, Çadır Hüyük, Çamurlu Hüyük, Çat Hüyük, Çatal Hüyük,<sup>94</sup> Çayırhan,<sup>95</sup> Çaykenarı,<sup>96</sup> Celâl, Çerkes Hüyük (formerly known simply as "Hüyük"), Çuğun, Dedili, Düğer, Etimesut, Gedikhasan, Gemerek, Gölhisar, Güller, Hacibektaş, Hacıkafatepesi, Hacılar, Has Hüyük,<sup>97</sup> Horla,<sup>92</sup> Etiyokuşu just north of Ankara,<sup>86a</sup> a *hüyük* in the Acı Özü, a *hüyük* southeast of Horla,<sup>92</sup> Ihsu, Kaman, Kanlıca, Karabucak, Karabük,<sup>92</sup> Kara Hüyük in the Elbistan plain,<sup>97</sup> Karayakup, Kayı, Koçkışla, Kötüköy, Kongurlu, Koziçi, Küçük Çalağlı, Kül Hüyük, Kültepe,<sup>98</sup> Kuşaklı Hüyük, Kuşale, Mal Hüyük, Misli, Öküzlühisar, Ömerli,<sup>99</sup> Öz Hüyük, Orta Hüyük (near Dedik),<sup>97</sup> Sahr, Şamramaltı,<sup>100</sup> Saray (near Çorum), Sincan Hüyük, Sofular Hüyük east of Kaman, Sofular Hüyük west of Kaman, Tahiroğlu, Temlik, Topaklı, Toprakpınar, Yazıgıncık, Zerezek, several *hüyük*'s north and east of Kırşehir, and a few *hüyük*'s south and east of Alaca Hüyük.<sup>92</sup>

Remains similar or related to the Troy II culture were found at Akhisar, Babaköy,<sup>101</sup> Bakla-

<sup>81</sup> Cf. n. 76. I am indebted to Dr. Koşay for permission to publish this advance information.

<sup>82</sup> *CR*, 1900, p. 269, and 1901, pp. 811-13.

<sup>83</sup> Bittel, *op. cit.* p. 29.

<sup>84</sup> *MDAIA* XXIV (1899) 5-15.

<sup>85</sup> G. Perrot and C. Chipiez, *Histoire de l'art dans l'antiquité* VI (Paris, 1894) 923 f.; *MDAIA* XXXVII (1912) 404.

<sup>86</sup> *JHS* IX (1888) 82.

<sup>86a</sup> [In 1936 a fourth site with Copper Age deposits, Etiyokuşu near Ankara, was thoroughly excavated.]

<sup>87</sup> Orta Hüyük near Dedik (E. Chantre, *Recherches archéologiques dans l'Asie occidentale. Mission en Cappadoce 1893-1894* [Paris, 1898] pp. 65-69), Kültepe (Chantre, *op. cit.* pp. 71-91; E. Grothe, *Meine Vorderasiens Expedition 1906 und 1907* I [Leipzig, 1911] cclxxx-cclxxxii; B. Hrozný in *Syria* VIII [1927] 1-12), Zerezek (Grothe, *op. cit.* pp. cclxxxii f.), and Kara Hüyük in the Elbistan plain (*ibid.* pp. cclxxxiii f.). The results of the excavations at Has Hüyük can hardly be of much use until a final publication appears (preliminary reports in *CR*, 1931, pp. 270 ff.; *ADAI*, 1932, cols. 230 ff.; *R.Ar.*, 5. sér., XXXV [1932] 116 ff.; cf. Bittel, *op. cit.* p. 15).

<sup>88</sup> Sherds from this and all the other sites here listed, except as otherwise indicated, were collected by the Anatolian Expedition of the Oriental Institute.

<sup>89</sup> Cf. p. 422, n. 60.

<sup>90</sup> See p. 407 and p. 422, n. 63.

<sup>91</sup> H. Frankfort, *Studies in Early Pottery of the Near East II* (London, 1927) 64, n. 4; seemingly the mottled ware of Alaca Hüyük and Ahlatlıbel (cf. p. 422, n. 62).

<sup>92</sup> Sherds in the Archeological Museum on the Hisar at Ankara, collected by Bay Cemal.

<sup>93</sup> *MDOG* Nr. 74, p. 11.

<sup>94</sup> Sherds in the museum at Kayseri.

<sup>95</sup> *ABSA* XVI (for 1909/10) 96-100.

<sup>96</sup> Sherds collected by Dr. Danyal Bediz.

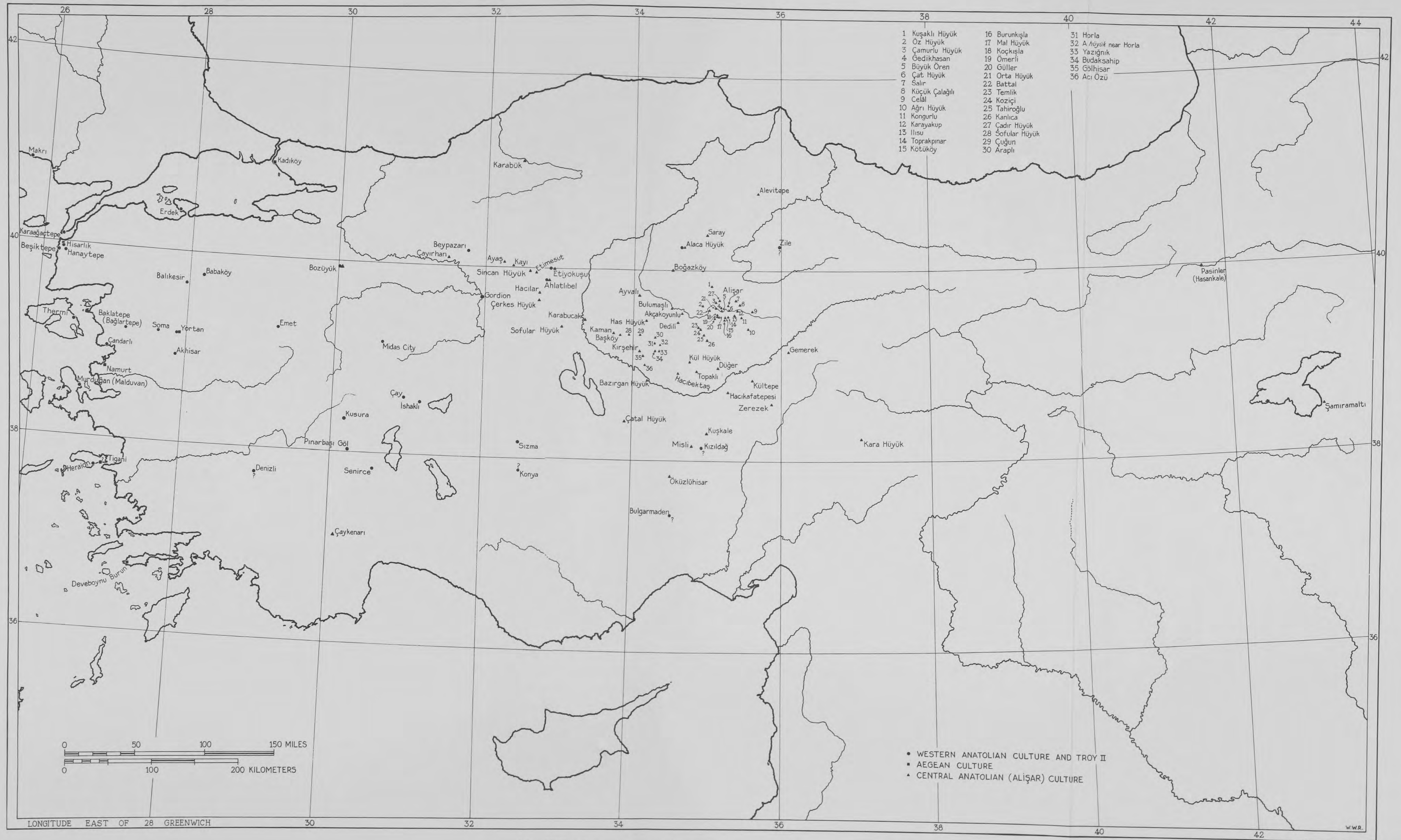
<sup>97</sup> Cf. n. 87.

<sup>98</sup> Cf. n. 87 and *TTAED* I (1933) 65-68; also, sherds collected by the Anatolian Expedition of the Oriental Institute.

<sup>99</sup> [Homarlı in Bittel, *op. cit.* p. 127.—EDITOR.]

<sup>100</sup> Bittel, *op. cit.* pp. 83 f.

<sup>101</sup> Data from Dr. Bittel.



MAP XVI.—DISTRIBUTION OF CULTURES DURING THE COPPER AGE. SCALE, 1:4,000,000  
Localities with Central Atolian culture not shown on map are Erivan, Kızılvan, and the Russian province of Nakhichevan





tepe (Bağlartepe), Balıkesir, Beşiktepe, Beypazarı, Bozüyük, Bulgarmaden(?), Çandarlı, Çay, Denizli(?), Emet, Erdek, Gordion, Hanaytepe, the Heraion on Samos,<sup>102</sup> İshaklı, Karaağaçtepe, Kızıldağ(?), Konya(?), Kusura,<sup>102a</sup> Makrı,<sup>103</sup> Murduğan (Malduvan), the Midas city, Pınarbaşı Göl, Senirce, Sızma, Soma, Thermi,<sup>104</sup> Yortan, Zile(?), and Etiyokuşu.<sup>105</sup>

The Central Anatolian culture therefore seems to have extended eastward into the Armenian mountains. In the southeast it seems not to have passed the Anti-Taurus and Taurus. In the west it seems to have spread as far as the north-south stretch of the Sakarya. The rest of Asia Minor to the west shows Troy II or related cultures. At Ahlatlıbel and Alaca Hüyük, in the sphere of the Central Anatolian culture, certain pottery showed strong western influence. At Alishar, Alaca Hüyük,<sup>106</sup> Has Hüyük,<sup>107</sup> and Kültepe<sup>108</sup> two-handed goblets typical of Troy II/III were found; they are not necessarily imports but may rather be local copies. One fragment of a face-urn was found at Boğazköy<sup>109</sup> and another at Alaca Hüyük.<sup>110</sup> Daggers from Ahlatlıbel and Alaca Hüyük resemble those from Troy II, and idols from these two sites and from Alishar are related to idols from Troy II. Therefore, in spite of a clear differentiation between the two cultures, a certain influence of the western on the central culture, or vice versa, seems to be evident, especially in the westernmost zone of the latter.

The two cultures have some further features in common. Both were already definitely city-cultures. Alishar,<sup>111</sup> Troy II,<sup>112</sup> Thermi,<sup>113</sup> and Ahlatlıbel<sup>114</sup> were strongly fortified. Agriculture and husbandry are proved in both areas.<sup>115</sup> Burials in large jars, the bodies in flexed positions, appear in the west (Yortan) and in the central area (Alishar and Ahlatlıbel). That the central culture was at least as important and rich as the western is now proved through the rich gold finds from Alaca Hüyük,<sup>116</sup> which surpassed in wealth, variety, and workmanship the "Schatzfunde" from Troy II.<sup>117</sup>

It seems to be evident that the culture of Troy II and its related stations is based on, and is a further development of, the Troy I culture. A certain amount of interpenetration between the culture of western Anatolia and that of the Cyclades and the mainland is noticeable; for on the one hand Cycladic finds occur on the coast of Asia Minor, while on the other hand traces of the Western Anatolian culture are found on the Aegean islands and the Greek mainland and in the Balkans.<sup>118</sup> The process of development from the old Troy I culture continues in the

<sup>102</sup> Bittel, *op. cit.* p. 98.

<sup>102a</sup> Excavated by Miss W. Lamb; see Remzi Oğuz Arık, *Türkiyede 1935 Yılındaki Arkeoloji İşleri* (Ankara Halkevi Neşriyatı Büyük Boy, No. 7. "Müze ve Sergi şubesi" [İstanbul, 1936]) pp. 10 f.

<sup>103</sup> Bittel, *op. cit.* p. 105.

<sup>104</sup> Cf. p. 422, n. 51.

<sup>105</sup> Discovered in 1936; see above. For sites in this list not otherwise accounted for see Bittel, *op. cit.* pp. 24-59 and 120-34.

<sup>106</sup> In the Ethnographical Museum at Ankara. Courtesy of Dr. Koşay.

<sup>107</sup> In the Ethnographical Museum at Ankara.

<sup>108</sup> H. de Genouillac, *Céramique cappadocienne* (Musée du Louvre. Département des antiquités orientales, "Série archéologique" I-II [Paris, 1926]) II, Pl. 30, AO 9450, probably from Kültepe.

<sup>109</sup> *MDOG* Nr. 74 (1936) pp. 16-17 and Fig. 11.

<sup>110</sup> In the Ethnographical Museum at Ankara. Courtesy of Dr. Koşay.

<sup>111</sup> *OIP* XXVIII 116; *OIP* XXIX 290.

<sup>113</sup> *ABSA* XXX (for 1928-30) 14; XXXI (for 1930/31) 151-53.

<sup>112</sup> Dörpfeld, *op. cit.* pp. 49-80.

<sup>114</sup> *TTAED* II, figure on p. 7.

<sup>115</sup> Troy II (Bittel, *Prähistorische Forschung*, p. 58); Thermi (*ABSA* XXX 51); Bozüyük (L. Wittmack in Gesellschaft naturforschender Freunde zu Berlin, *Sitzungs-Berichte*, 1896, pp. 27-30); Ahlatlıbel (*TTAED* II 18 and 307); Alaca Hüyük (courtesy of Dr. Koşay); Alishar (*OIP* XXVIII 111).

<sup>116</sup> Preliminary reports in *La Turquie Kamaliste*, Oct., 1936, pp. 2-8, and in Türk Tarih Kurumu, *Bolleten* (Ankara, 1937) 210-34.

<sup>117</sup> H. Schmidt, *op. cit.* pp. 225-47.

<sup>118</sup> Cf. Bittel, *op. cit.*, map on p. 97.



west until the time of Troy VII a with more or less strong western influence. Only with the advent of the Aegean migration do we find there a cultural break.

In central Anatolia we have a different picture. The skeletal remains from Alişar might suggest a racial continuation of the Chalcolithic population. But there seem to be enough differences in the culture to warrant the arrival of a new element, certainly of new influences. The pottery of the preceding Chalcolithic period is far more sophisticated than that of the Copper Age. On the other hand, in the Copper Age we find an advanced metal culture which must have been preceded by a long period of development, of which we have thus far no trace in central Anatolia. It may be that in the Alişar Copper Age culture we find an *ur*-Anatolian element manifesting itself again. That is, a related group of people with the assumed older Chalcolithic culture of Asia Minor (cf. p. 418) may well have pursued a separate course of development, not influenced by the Danubian or "Black Earth" culture, perhaps somewhere in the northeast, where the presence of rich ores led to the development of a metal culture. They may have learned the use of metal through contact with a new ethnic element. Together with the copper culture, they may then have reintroduced into central Anatolia the simpler, *ur*-Anatolian pottery forms. Support for such a view is offered by finds from Şamıramaltı, some of which show a decided relationship to Alişar Copper Age material, and by vessels from Paşınler (Hasankale), Erivan, and Kızılvanak.<sup>119</sup> The Cis-Caucasian culture, especially that of Kuban, also seems to show connections with central Anatolia in view of the recent excavations at Alaca Hüyük; as at Alaca, the custom of decorating vessels with finger or fingernail impressions is very common, and animal figurines and other copper or bronze objects are similar to those from Alaca Hüyük. Stylistically the finds from Cis-Caucasia impress one as being the later. This impression fits with Tallgren's dating of the Kuban finds.<sup>120</sup> For the common place of origin of the Kuban culture and that of central Anatolia I am tentatively inclined to accept northeastern Anatolia and Nakhichevan, with their many ancient copper mines.<sup>121</sup>

The rich finds from the "royal" tombs at Alaca Hüyük present a marked contrast to the material culture of Alişar and related sites. A parallel may be found in Mesopotamia, where the remains from the royal tombs at Ur show forms and conceptions apparently unconnected with the general Sumerian culture and its tradition; a similar situation seems to have existed in Egypt at approximately the same time (*ca.* 3000 B.C.). Contenau<sup>122</sup> points out northern affinities with the Ur material, and Menghin<sup>123</sup> suggests that this special culture may be that of a conquering minority from inner Asia. It is tempting to seek a similar explanation for the situation in Anatolia, that is, that the majority of the people were related to the bearers of the *ur*-Anatolian culture, whereas the ruling caste were newcomers,<sup>124</sup> perhaps from Central Asia. The finds from the "royal" tombs at Alaca Hüyük imply that the people buried there were totemists, and this too suggests a connection with Central Asia.

<sup>119</sup> For this information I am indebted to Mr. E. B. Reilly, who visited this region in 1936 and saw in the museums of Baku, Tiflis, and Erivan these vessels, which are in form and finish very similar to some vessels from Alişar.

<sup>120</sup> *ERV* VII 110.

<sup>121</sup> The geologists of the geological survey of the Turkish government found in 1936 a great number of exhausted copper mines, especially north and east of Sivas up to the Black Sea coast.

<sup>122</sup> G. Contenau, *Manuel d'archéologie orientale* III (Paris, 1931) 1556-58.

<sup>123</sup> Oswald Menghin, *Weltgeschichte der Steinzeit* (Wien, 1931) pp. 435 ff.

<sup>124</sup> The few skeletal remains found thus far suggest that the rulers and their subjects were of different races. The Copper Age skulls from Alişar are meso- to dolichocephalic (p. 220 and Table III), whereas the two skulls from "royal" tombs at Alaca Hüyük which have been examined are brachycephalic (Şevket Aziz Kansu in *Bulleten* I 193 f.).

## THE EARLY BRONZE AGE

The Early Bronze Age culture at Alishar is characterized by handmade painted pottery, which contrasts not only in decoration but also in form with the handmade monochrome pottery of the Copper Age. The small objects, with the exception of "whorls," are scarcely to be distinguished from those of the Copper Age.

A clear definition of this period in Alishar was, and still is, very difficult because of the peculiar situation at the site. Since the excavations of 1930,<sup>1</sup> however, there can be no doubt that this culture, previously called "Alishar III,"<sup>2</sup> is older (even if not very much older) than the culture previously called "Alishar II" but now attributed to the period of the Hittite Empires. It seems certain that during the Early Bronze Age only the citadel mound was settled.<sup>3</sup> There we could differentiate two building levels, an earlier characterized by handmade painted ware and a later one containing this ware in association with monochrome wheelmade ware of the period of the Hittite Empires. At only a few places on the city terrace could actual building remains of the Early Bronze Age be distinguished, although fragments of the handmade painted pottery appeared nearly everywhere between the deposit of the Copper Age and that of the period of the Hittite Empires.<sup>4</sup> On both the citadel mound and the city terrace the situation is further complicated by the appearance of so-called "intermediate" ware in the highest part of the Copper Age deposit and the lowest part of the Early Bronze Age deposit.

Other sites at which Early Bronze Age pottery has been found, among them even those which have been excavated, do not clarify the situation. The results of the excavations at Has Hüyük<sup>5</sup> cannot be adduced as conclusive evidence until a complete publication is available, although the short preliminary reports corroborate the observations made at Alishar. From the excavations at Orta Hüyük (near Dedik),<sup>6</sup> Kültepe,<sup>7</sup> Zerezek,<sup>8</sup> and Kara Hüyük in the Elbistan plain<sup>9</sup> no deductions can be made except that pottery of the Copper Age, the Early Bronze Age, and the period of the Hittite Empires is present. During the post-war excavations at Boğazköy relatively few sherds of the typical Early Bronze Age ware have been found;<sup>10</sup> perhaps further excavations there will throw some light on this question. At Alaca Hüyük likewise only a few Early Bronze Age sherds have come to light. But it should be remembered that excavations there have been conducted only in the city, not on the citadel. Conditions at Alaca may prove to be the same as those at Alishar, that is, there may be an Early Bronze Age deposit on the citadel only.

## CULTURAL ASPECTS

## ARCHITECTURE

Architectural remains definitely attributable to this period are known to me from Alishar only. Even there we could not learn much about the architecture, for the building remains on the terrace were very scanty,<sup>11</sup> and the Early Bronze Age levels on the citadel mound were

<sup>1</sup> *OIC* No. 14, pp. 21-23.

<sup>2</sup> *OIP* XXVIII 210-19.

<sup>3</sup> *OIP* VI-VII ("early Alishar III"); *OIP* XIX; *OIC* No. 11.

<sup>4</sup> *Ibid.* pp. 220-23.

<sup>5</sup> *CR*, 1931, pp. 270 f.; *ADAI*, 1932, cols. 230-33; *R.Ar.*, 5. sér., XXXV (1932) 116. Cf. Bittel, *Prähistorische Forschung in Kleinasien*, p. 15.

<sup>6</sup> E. Chantre, *Recherches archéologiques dans l'Asie occidentale. Mission en Cappadoce 1893-1894* (Paris, 1898) pp. 65-69.

<sup>7</sup> W. Belck in *ZE* XXXIII (1901): "Verhandlungen," pp. 489-500; Chantre, *op. cit.* pp. 71-91; H. Grothe, *Meine Vorderasienerexpedition 1906 und 1907 I* (Leipzig, 1911) cclxxx-cclxxxii; H. Winckler in *OLZ* IX (1906) 621-34 (see esp. cols. 633-34); B. Hrozný in *Syria* VIII (1927) 1-12.

<sup>8</sup> Grothe, *op. cit.* pp. cclxxxii f.

<sup>9</sup> *Ibid.* pp. cclxxxiii f.

<sup>10</sup> Bittel and Güterbock, *Boğazköy. Neue Untersuchungen in der hethitischen Hauptstadt* (*APAW*, 1935, Nr. 1) Pls. 5, Nos. 1-3 and 8, and 6, Nos. 4-6; *MDOG* Nr. 74, p. 17.

<sup>11</sup> *OIP* XXVIII 220.

reached in only a few small areas. Houses were built with the usual low stone foundations and *kerpiç* superstructures, but no complete house plan could be observed. The citadel fortification of the earlier part of the period (Level 6 M) apparently suffered violent destruction.<sup>12</sup> In the later part of the period (Level 5 M) was erected the only imposing structure of the Early Bronze Age, the broad citadel wall, which continued to be used, with some alterations, until at least the end of the Post-Hittite-Phrygian period.<sup>13</sup> At the first alteration of the citadel gateway, still in Level 5 M, numerous sherds of the period of the Hittite Empires were mixed with Early Bronze Age remains. The actual building technique of the Early Bronze Age shows no improvement over that of the Copper Age.

#### POTTERY

We can differentiate two principal types of ware in this period, both being handmade and painted.<sup>14</sup> One is the so-called "intermediate" ware which appears at the end of the Copper Age and the beginning of the Early Bronze Age, the other the typical Early Bronze Age ware.

In the intermediate ware<sup>15</sup> the paste is usually grit-tempered, well levigated, and finer than that of the typical Early Bronze Age ware; the firing is generally better. The slip is usually reddish buff, highly polished or burnished, with simple linear decoration in purplish brown. So few complete vessels were found that little can be said about forms. The bowls had sharp shoulders and contracted rims, as did the typical Early Bronze Age bowls. The cups resembled those of the Copper Age more closely. Three nearly complete vessels<sup>16</sup> seem to have unusual forms, though it is impossible to make a definite statement. No large vessels were found, but the thickness of some sherds suggests their presence.<sup>17</sup>

The typical ware of the Early Bronze Age is by no means as fine as the intermediate ware. Plant-tempering is much more common than grit-tempering; the firing varies greatly. The slip may be red to reddish buff with dark brown to black designs, or somewhat lighter and more yellowish with designs in dark brown to black and dark red to reddish brown. Some vessels with reddish slip have a cream-colored panel framed with dark brown to black lines and decorated in dark brown and brownish red.<sup>18</sup> On some vessels the reddish slip covering the interior laps over the rim to form a stripe on the exterior, which is covered with a lighter, often whitish, slip.<sup>19</sup> The geometrical designs are somewhat more elaborate than in the intermediate ware and include such elements as spirals and hooks, swastikas, crosses, and even one example of a wheel.<sup>20</sup> The designs were arranged in metope fashion or in bands running around the rims of bowls or the bodies of cups, often with other bands extending to the bottom of the vessel. Jars had all-over designs. Forms include bowls with flat bottoms, definite shoulders, and contracted rims,<sup>21</sup> sometimes with triangular<sup>22</sup> or crescent-shaped handles, the latter lying flat on the rim;<sup>23</sup> cups with short rims curving outward slightly, high handles from lip to shoulder, and pointed or rounded bottoms;<sup>24</sup> cups with high cylindrical necks and handles reaching from the middle of the neck to the shoulder;<sup>25</sup> pitchers with beak-spouts;<sup>26</sup> jars with ovoid bodies, short, outcurved rims, and two or four handles;<sup>27</sup> and jars with longer necks flaring at the top.<sup>28</sup>

<sup>12</sup> *Ibid.* p. 210; *OIP* XXIX 290-92.

<sup>13</sup> *OIP* XXVIII 214; *OIP* XXIX 290-339.

<sup>14</sup> *OIP* XXVIII 230.

<sup>15</sup> *Ibid.* Figs. 232-35.

<sup>16</sup> *Ibid.* Figs. 233-34.

<sup>17</sup> *Ibid.* Fig. 232 1.

<sup>18</sup> *Ibid.* p. 240.

<sup>19</sup> *Ibid.* p. 241.

<sup>20</sup> *Ibid.* Figs. 247-69.

<sup>21</sup> *Ibid.* Fig. 237.

<sup>22</sup> *Ibid.* Fig. 247.

<sup>23</sup> *Ibid.* Fig. 249.

<sup>24</sup> *Ibid.* Fig. 238.

<sup>25</sup> *Ibid.* Fig. 239, No. c 1007.

<sup>26</sup> *Ibid.* Fig. 241; several fragments of such spouts were found.

<sup>27</sup> *Ibid.* Figs. 242-43.

<sup>28</sup> *Ibid.* Fig. 244.



A few pieces are of the same general character as the typical Early Bronze Age ware but are much finer.<sup>29</sup> The brown to black geometric design, often in shiny finish, is carefully applied on a highly polished red slip. I am inclined to consider these pieces as imports from a neighboring pottery center. Many specimens of this ware are known from Kültepe.<sup>30</sup>

#### SMALL OBJECTS

The small objects found in the cultural deposits of this period at Alişar differ very little from those of the Copper Age, except for the pottery "whorls,"<sup>31</sup> which are entirely different in form; however, both pottery and stone "whorls" of Copper Age type persisted in the Early Bronze Age levels. Pottery andirons, which had begun to appear in the Copper Age, were more numerous here.<sup>32</sup> Of particular interest is a fragment of a very fine stone ax (e 1369)<sup>33</sup> which was found at the northern gateway of the Hittite city wall in a refuse layer containing Copper Age and Early Bronze Age sherds. Small objects typical of the period of the Hittite Empires appeared in the upper level of the Early Bronze Age deposit. No small objects from other excavated sites are definitely of the Early Bronze Age.

#### BURIALS

Only three earth burials and one pot burial could be definitely attributed to this period, though another pot burial probably belongs here. All the bodies were flexed. There is no difference between these burials and those of the preceding Copper Age.<sup>34</sup>

#### EXTENT, ORIGIN, AND ASSOCIATIONS OF THE EARLY BRONZE AGE CULTURE

As stated above, the situation of the Early Bronze Age deposits at Alişar is very peculiar, and the *sondages* or excavations of other sites do not assist us in any way. On the citadel mound at Alişar the well defined last building level of the Copper Age is followed by the rather thick Early Bronze Age deposit with its two building layers. As far as we can see now—in only a few small areas on the citadel have excavations progressed beyond the depth of the oldest Post-Hittite-Phrygian layer—the citadel reveals no clearly defined building layer of the period of the Hittite Empires. The later building level of the Early Bronze Age and the thick refuse layer covering it, in both of which cultural remains of the Early Bronze Age and of the period of the Hittite Empires are mixed, seem to have been followed immediately by the first Post-Hittite-Phrygian building level (4c M; cf. Pl. I). On the city terrace, however, the thick Copper Age deposit is followed in only a few places by scant building remains of the Early Bronze Age; in most areas only a thin film of Early Bronze Age sherds separated the Copper Age deposit from the even more prominent building layers of the period of the Hittite Empires. The latter were followed by rather scant remains of the Post-Hittite-Phrygian period. Such a distribution of remains on the citadel mound and the city terrace (Pl. XIII B) is very puzzling, and I see for it only two possible explanations: (1) The destroyers of the Copper Age culture, that is, the bearers of the Early Bronze Age culture, settled on and fortified the citadel mound. Some time later another people with a superior culture came and settled around this fortress, submitting to the rule of the Early Bronze Age element. (2) The destroyers of the last settlement of the period of the Hittite Empires, the Post-Hittite-Phrygian people, destroyed and then leveled completely the entire building level of the Hittite period on the citadel mound, thus creating the refuse deposit in which remains of the Early Bronze Age and of the period of the Hittite Empires were mingled. The first assumption seems to me obviously improbable;

<sup>29</sup> E.g. *ibid.* Fig. 240.

<sup>30</sup> E.g. H. de Genouillac, *Céramique cappadocienne* (Paris, 1926) II, Pls. 3 bis, No. AO 9445, and 31-31 bis, Nos. CA 1656 and CA 1391; *OIC* No. 8, Fig. 14 B; *TTAED* I (1933) 70 (KT 2), 71 (KT 28), and 72 (KT 105).

<sup>31</sup> *OIP* XXVIII, Figs. 273-76.

<sup>32</sup> *Ibid.* Fig. 278.

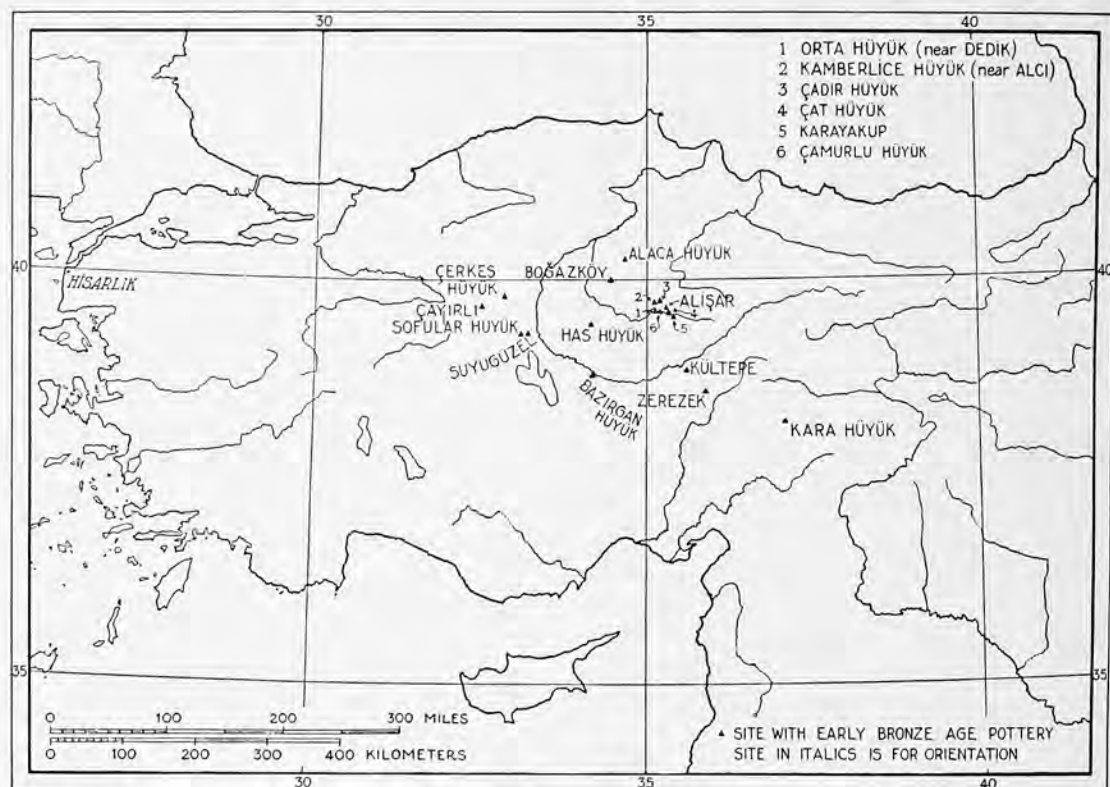
<sup>33</sup> *Ibid.* Fig. 271.

<sup>34</sup> *Ibid.* pp. 223-30.



for if a people who used the potter's wheel had arrived very much before the end of the Early Bronze Age, we should expect some painted wheelmade ware. Furthermore, the Early Bronze Age people seem to have been decidedly in the minority as compared with the people who used the monochrome wheelmade ware. Hence, although we have no evidence for the second assumption—perhaps only because the excavations at Alishar have not progressed far enough—this assumption seems to me far more probable.

The distribution of this Early Bronze Age culture seems to have been limited to the very center of Anatolia (Map XVII). Typical Early Bronze Age pottery has been found at the following sites: Alaca Hüyük,<sup>35</sup> Bazırgan Hüyük,<sup>36</sup> Boğazköy,<sup>37</sup> Çadır Hüyük,<sup>38</sup> Çamurlu



MAP XVII.—DISTRIBUTION OF SITES WITH EARLY BRONZE AGE POTTERY IN CENTRAL ANATOLIA.

SCALE, 1:10,000,000

Other sites with similar pottery are Şamıramaltı and Anau, for location of which see Map XV.

Hüyük, Çat Hüyük, Çayırh, Çerkes Hüyük, Has Hüyük,<sup>39</sup> Kamberlice Hüyük (near Alci), Kara Hüyük in the Elbistan plain,<sup>40</sup> Karayakup, Kültepe,<sup>41</sup> Orta Hüyük (near Dedik), Sofular

<sup>35</sup> Hâmit Zübeyr Koşay's forthcoming report in *TTAED* III.

<sup>36</sup> Sherds in the Archeological Museum on the Hisar at Ankara, collected by Bay Cemal.

<sup>37</sup> Cf. p. 427, n. 10.

<sup>38</sup> Sherds from this and all the other sites here listed, except as otherwise indicated, were collected by the Anatolian Expedition of the Oriental Institute.

<sup>39</sup> Cf. p. 427, n. 5; sherds were collected by the Anatolian Expedition of the Oriental Institute also.

<sup>40</sup> Grothe, *op. cit.* I, Pls. XVI 5-6 and 8 and XVII 1-2 and 6.

<sup>41</sup> Chantre, *op. cit.* Pls. VIII 1, IX 3-4, X 4, XI 3, XII 1-2 and 4, XIII 1, and XIV 3; Grothe, *op. cit.* I, Pls. XV 5, XVI 7, XVII 5, and XVIII 5-7; Genouillac, *op. cit.* I, Pls. 1, Nos. 9821b and 9807; 2, No. 9819; 3, No. 9766; 13, No. 9749; and 17, No. 9822; *ibid.* II, Pls. 5 bis, AO 9446 and AO 9451; 22, AO 9470; 30, AO 9444 and AO 9446; 31, AO 9451; 32, AO 9445; 35, AO 9443; and probably most of the other pieces of this ware in that volume.

Hüyük west of Kaman, Suyugüzel, and Zerezek.<sup>42</sup> At Kültepe several vessels and sherds,<sup>43</sup> and at Alaca Hüyük one sherd,<sup>44</sup> of the finer Early Bronze Age ware represented by Alishar No. c 2143<sup>45</sup> have been found. From Kültepe come also a number of vessels and sherds which, though closely related to the typical Early Bronze Age ware of Alishar, are probably local variants<sup>46</sup> (cf. p. 446). Intermediate ware likewise is known from Kültepe<sup>47</sup> and Alaca Hüyük.<sup>44</sup>

Almost no connections with the culture of western Asia Minor during this period can be recognized. We have to assume that Troy II culture and its later developments (Troy III–VI) persisted through and beyond the time of the Early Bronze Age culture in central Anatolia (cf. also p. 440). The only features which the two cultures seem to have in common are the typical Early Bronze Age pottery “whorls,” which have been found in Kültepe,<sup>48</sup> Alaca Hüyük,<sup>44</sup> Alishar,<sup>49</sup> Zerezek,<sup>50</sup> Gâvurkalesi,<sup>51</sup> Bozüyük,<sup>52</sup> and Hisarlık,<sup>53</sup> and some stone axes like No. e 1369 (cf. p. 429). In Hisarlık several such axes were found, supposedly in the third building period of Troy II.<sup>54</sup> Unfortunately the Alishar ax was found in such mixed refuse that we cannot be certain of its period; it could belong to the Copper Age or to the period of the Hittite Empires instead.

A very faint resemblance to the typical Early Bronze Age ware of central Anatolia may be recognized at Eutresis,<sup>55</sup> Korakou,<sup>56</sup> several sites in Macedonia,<sup>57</sup> and in Sicily (Siculan I).<sup>58</sup> These later faint similarities can scarcely be considered as being of great importance, especially in view of the probable origin of this culture as set forth below.

A stone ax of the above mentioned type has been found at Thermi;<sup>59</sup> four others come from Sesklo,<sup>60</sup> Zerelia,<sup>61</sup> and Hagios Mamas<sup>62</sup> on the mainland. One is known from Delphi.<sup>63</sup> Such axes appear frequently in Thrace and Bulgaria also.<sup>64</sup>

Though deductions based on such scanty and unsatisfactory material as we have here are dangerous, I would offer the following tentative view with regard to the origin and duration of the Early Bronze Age culture in central Anatolia. I can no longer uphold my former theory that the Early Bronze Age culture was a further development of the Copper Age culture,<sup>65</sup> even in spite of the fact that nearly all of the small objects of the Early Bronze Age deposit closely resemble, or are identical in form with, those of the Copper Age. For though certain pottery forms have been taken over from the Copper Age ware and developed further (e.g. the cups

<sup>42</sup> Grothe, *op. cit.* I, Pls. XV 1–4, XVI 4, and XVII 3, 7, and 9.

<sup>43</sup> Cf. p. 429, n. 30.

<sup>44</sup> In the Ethnographical Museum at Ankara.

<sup>45</sup> OIP XXVIII, Fig. 240.

<sup>46</sup> Genouillac, *op. cit.* II, Pls. 33, AM 1521, AM 1524, and AM 1526, and 34, top row.

<sup>47</sup> *Ibid.* Pl. 30, AO 9454.

<sup>48</sup> E.g. TTAED I (1933) 75–76, KT 19, 24, 39, 53, 76, 83, 85, 115, 119; also Genouillac, *op. cit.* I, Pl. 20, Nos. 10036–38.

<sup>49</sup> OIP XXVIII, Figs. 273–76.

<sup>51</sup> OIC No. 14, Fig. 83, GK 25.

<sup>50</sup> Grothe, *op. cit.* I, Pl. XX 17–18.

<sup>52</sup> MDAL XXIV (1899) Pl. I 3–5.

<sup>53</sup> H. Schmidt, *Heinrich Schliemann's Sammlung trojanischer Altertümer* (Berlin, 1902) Pls. I–IX.

<sup>54</sup> W. Dörpfeld, *Troja und Ilion* (Athen, 1902) Figs. 320–27.

<sup>55</sup> H. Goldman, *Excavations at Eutresis in Boeotia* (Cambridge, Mass., 1931) pp. 115–86 and 229 f.

<sup>56</sup> C. W. Blegen, *Korakou, a Prehistoric Settlement near Corinth* (Boston and New York, 1921) pp. 4–14, esp. Fig. 17.

<sup>57</sup> W. A. Heurtley in ABSA XXVIII (for 1926/27) 158–94, esp. p. 189.

<sup>58</sup> E. von Duhn, art. “Sikuler” in ERV XII 142–44.

<sup>59</sup> ABSA XXX (for 1928–30) 42 (Fig. 14, 30/4).

<sup>60</sup> C. Tsountas, *Αἱ προϊστορικαὶ ἀκροπόλεις Διμηγίου καὶ Σέσκλου* (Athens, 1908) Pl. 41, No. 9; cf. A. J. B. Wace and M. S. Thompson, *Prehistoric Thessaly* (Cambridge, 1912) p. 70.

<sup>61</sup> Wace and Thompson, *op. cit.* p. 164, Fig. 111 h.

<sup>62</sup> W. A. Heurtley in ABSA XXIX (for 1927/28) 147 f., Figs. 26, No. 3, and 27, No. 4, respectively.

<sup>63</sup> École française d'Athènes, *Fouilles de Delphes. V. Monuments figurés, petite bronzes, terres-cuites, antiquités diverses*. Texte par P. Perdrizet (Paris, 1908) Fig. 7.

<sup>64</sup> *Bulletin de l'Institut archéologique bulgare* VII (1932/33) 359, Fig. 110.

<sup>65</sup> OIC No. 11, p. 157.

and flat bowls), the pottery of the Early Bronze Age is in general essentially different in technique and style from the typical Copper Age ware. Furthermore, the skeletal remains indicate a change in physical type (cf. pp. 216-25). Hence I think we must assume that the Early Bronze Age culture was brought to central Anatolia from the outside by a new ethnic element.

As stated above, sites with pottery typical for this period are thus far known only from central Anatolia; from the western part not one piece is known. On the other hand, I saw in the art market in Paris a vessel similar to Alishar No. a 1072<sup>66</sup> and said to have come from the region of Lake Van. According to Bittel, such ware has been found in Şamiramaltı also.<sup>67</sup> Mr. R. A. Martin of Field Museum, Chicago, has informed me that during his travels in the South Caucasus region in 1934 and 1935 he found on many sites, and saw in several local museums, vessels and sherds of this type. Mr. E. B. Reilly, of the University of Ankara, showed me sketches of similarly decorated vessels from Nakhichevan. Assuming that the bearers of the Early Bronze Age culture (handmade painted ware) were foreign to Anatolia, I can therefore well imagine that they came from the northeast, through Armenia, from somewhere east of the Caspian.<sup>68</sup>

A. Götze would like to see in the bearers of this culture the Hittites of the Old Empire, entering Anatolia from the west.<sup>69</sup> The difficulty with this assumption lies in the chronological and cultural relationships of the bearers of the Early Bronze Age culture to the bearers of the culture characterized by the monochrome wheelmade ware, which we know persisted in Anatolia from the very beginning of the Old Hittite Empire to the end of the New Empire. According to the archeological evidence from Alishar and (if one can accept it as conclusive) from Has Hüyük, the bearers of the handmade painted pottery appeared first, at least at these two sites. Therefore, if one accepts Götze's assumption, one has to adopt the first explanation offered for the cultural sequence at Alishar (cf. pp. 429 f.), namely that the bearers of the handmade painted pottery (Götze's Hittites of the Old Empire) destroyed the Copper Age culture and settled on the citadel mound but soon lost their own culture and accepted the higher culture of a later intrusive ethnic element, while yet retaining their political supremacy.<sup>70</sup>

As stated above, this explanation seems unsatisfactory to me, and—until we have new and clearer evidence—I would explain the cultural sequence as follows:

The last Copper Age city at Alishar was conquered by the users of the handmade painted ware, in whom I am inclined to see an ethnic element from the northeast, which entered Asia Minor before the Hittites. Being a small group, the conquerors settled only the citadel mound. On the city terrace the conquered Copper Age people—perhaps the Proto-Hattians—continued to exist as subjects of the rulers on the citadel. The little material which we have from other sites, as well as the relatively small number of sites where the handmade painted ware has been found, seems to bear out such an explanation. Nowhere have we an actual city representing this culture unless perhaps it be Kültepe. Wherever handmade painted sherds have

<sup>66</sup> OIP XIX, Fig. 257.

<sup>67</sup> Bittel, *Prähistorische Forschung*, p. 94, n. 1, No. 22. [Recently I too have seen some sherds from Şamiramaltı which undoubtedly resemble the typical Early Bronze Age ware of Alishar.]

<sup>68</sup> In South Russia axes similar to No. e 1369 from Alishar (cf. p. 429) have been found (Bittel, *op. cit.* p. 44, on basis of *Trudy V. Arch. Sjezda ve Tiftisje*, 1881, Pl. 1, No. 6; *Eurasia septentrionalis antiqua* II [1926] Fig. 48, No. 5), and one comes from Borodino in Bessarabia (M. Ebert, *Südrußland im Altertum* [Bonn und Leipzig, 1921] pp. 67 f.).

<sup>69</sup> Götze, *Kleinasien*, pp. 40 and 47 f.; cf. also Bittel, *op. cit.* p. 118. For my reasons for deriving the founders of the Old Hittite Empire from the northeast see pp. 446 f.

<sup>70</sup> Certain vessels and sherds showing a transition between the Early Bronze Age and Hittite Empire cultures are discussed in the next section (p. 446).



been found they were far less common than other wares. It therefore seems quite possible that this culture belongs to a relatively small group of people who made some conquests in central Asia Minor but never conquered large areas, or certainly never settled them. They became only locally important, while in central Anatolia as a whole the Copper Age culture continued until the advent of the Hittites—the bearers of the monochrome wheelmade ware. If the handmade painted ware culture is of only local importance, it is not surprising that we usually find the Copper Age deposits followed directly by the cultural deposits characterized by the monochrome wheelmade ware. Such a situation would also account for the persistence of any Copper Age forms which Bittel is inclined to see in the culture of the Hittite period, without necessitating cultural interdependence.<sup>71</sup>

As for the significance of the intermediate ware, I have only the following suggestion to make. We find painted ware at the end of our Copper Age. Is it not possible that the intermediate ware is actually a local, Central Anatolian offshoot of the latest phases of the Copper Age culture? The few forms which we know in the intermediate ware show in many respects a great resemblance to those of the Copper Age.

The arrival of the Early Bronze Age people in Asia Minor must be placed some time before the 2d millennium B.C., as by then the monochrome wheelmade ware was already firmly established there. They may have arrived in the 24th century B.C. How far they penetrated westward we do not know. Possibly the destruction of Troy II was due to one of their raiding parties. That they never actually settled there seems to be indicated, as on the whole west coast there is no evidence of such culture except the “whorls” and stone axes. The cultural development there continued uninterrupted until the Sixth City when Mycenaean influence asserted itself.

The end of the Central Anatolian Early Bronze Age culture likewise cannot be dated definitely. With the appearance of the monochrome wheelmade ware this culture seems to have tapered out; it may even have continued locally, but without any great significance, until the end of the Old Hittite Empire.

### THE PERIOD OF THE HITTITE EMPIRES

This had been designated in 1927, after the first season at Alişar, as “Period II.”<sup>71</sup> After the seasons of 1928 and 1929 Dr. E. F. Schmidt attributed the pottery of this period to the Assyrian merchants in Cappadocia, that is, to the 20th century B.C.<sup>72</sup> The excavations of 1930 indicated that this pottery was rather of the time of the Old Hittite Empire.<sup>73</sup> The excavations at Alişar in 1931<sup>74</sup> in combination with the first post-war German excavations at Boğazköy<sup>75</sup> left no doubt that this pottery belonged to a period including both the Old and the New Hittite Empire.<sup>76</sup> Previously “Period IV” had been assigned to the time of the New Hittite Empire.<sup>77</sup>

<sup>71</sup> That I cannot see in the culture of the Hittite period a further development of the Copper Age culture is set forth below (pp. 444 ff.).

<sup>72</sup> *OIP* VI 244 f. and 265–75 (No. 3279 belongs not to this period but to the Copper Age) and Pl. V.

<sup>73</sup> *ADAI*, 1929, col. 366.

<sup>74</sup> *ADAI*, 1932, cols. 219–22; *OIC* No. 14, pp. 44–47.

<sup>75</sup> *ADAI*, 1930, cols. 467–72; *OIC* No. 11, pp. 157–58.

<sup>76</sup> *MDOG* Nr. 70 (1932) pp. 18–23.

<sup>77</sup> Corroborative evidence for the correctness of this dating now seems to come from Ra's al-Shamrah in Syria (*Syria* XVII [1936] 122).

<sup>78</sup> *OIP* XIX 213. This attribution was based especially on the common belief that the wheelmade painted ware, particularly that with stag and concentric ring designs, was the typical pottery of Boğazköy and was therefore presumably Hittite. But the post-war German excavations at Boğazköy showed in the first season that the painted ware occurred in a shallow building layer above the deposits of the Hittite period, which latter was characterized by monochrome wheelmade ware.



In Alishar Cappadocian tablets, which should be dated in the 20th century B.C.,<sup>8</sup> appeared in the second main building level of this cultural period,<sup>9</sup> associated with the first monochrome wheelmade ware of central Anatolia. One Cappadocian tablet was found at Boğazköy in 1931,<sup>10</sup> and another has since been reported.<sup>11</sup> Boğazköy has likewise yielded tablets dating from the later part of the New Hittite Empire, which ended in the 12th century B.C., definitely associated with monochrome wheelmade ware and other cultural remains typical for this entire period.<sup>12</sup> The find circumstances of the Cappadocian tablets at Alishar permit the assumption that this culture had been established there for some time before the 20th century B.C. In other words, this culture must have been present in central Anatolia before the establishment of the Old Hittite Empire, which seems not to have been in existence at the time of the Assyrian merchants. Nevertheless, since this culture continued throughout the Old and New Empires, I prefer to assign it to the "period of the Hittite Empires."

Systematic excavations yielding sufficient material of this period have been conducted only at Alishar, Boğazköy, and Alaca Hüyük. At Ahlatlıbel only scanty pottery remains were found above the Copper Age settlement.<sup>13</sup> Other sites where such material has been found either on the surface or during *sondages* are enumerated on pages 438-39.

#### CULTURAL ASPECTS

##### ARCHITECTURE

Next to the Copper Age settlement, the settlement of the period of the Hittite Empires was the most important in the cultural sequence of Alishar. We could distinguish two main building levels, each with several sublevels. Already in the first level the settlement was strongly fortified by a city wall (Pl. XIV). The wall consisted of earth-filled boxes arranged in saw-tooth fashion;<sup>14</sup> two gates<sup>15</sup> and a postern<sup>16</sup> were unearthed. As far as we can judge, the buildings in the interior had been arranged according to a plan; radiating from the citadel mound, streets and passages led toward the city wall, along the inside of which ran a wall street. The building remains were very complex, and no actual house plan could be discerned.

The old city wall seems to have been re-used until the final destruction of the Hittite city. The alterations during the second main building level included another gateway on the east side.<sup>17</sup> The problem of the settlement of the citadel mound during this entire period has been discussed already in the section on the Early Bronze Age (pp. 429 f.). Although the excavated parts of the Alishar mound suggest that the city of the second main building period was not as densely populated as the older one, we found here remains of a rather imposing building<sup>18</sup> which was probably either a Hittite royal residence (cf. p. 438) or that of a provincial governor or feudal lord. To the same building level belong the remains of a large gateway<sup>19</sup> showing

<sup>8</sup> *OIP* XXVII 8 f.

<sup>9</sup> *OIP* XXIX 108-10

<sup>10</sup> This tablet, found on the Büyük Kale, is identified as Cappadocian by I. J. Gelb (*OIP* XXVII 10), although H. Ehelolf, while differentiating it from those of the Hittite state archives, had for paleographic reasons considered it later than the Cappadocian tablets (*MDOG* Nr. 70, pp. 27 f.). A new examination by B. Landsberger leaves no doubt that it is a real Cappadocian tablet, corroborating Gelb's statement.

<sup>11</sup> Found south of the city in 1935 (*MDOG* Nr. 74 [1936] p. 7). Bittel, though he at first attributed all the remains unearthed on the Büyük Kale to the New Hittite Empire, now seems inclined to attribute the fourth building level to a time before the New Empire.

<sup>12</sup> *MDOG* Nr. 72, pp. 15-16. Until the excavations at Boğazköy in 1935 Bittel had been inclined to attribute the monochrome wheelmade ware and the associated small objects from there to the New Hittite Empire only (*MDOG* Nr. 72, pp. 8-10).

<sup>13</sup> Hâmit Zübeyr Koşay in *TTAED* II (1935) 27.

<sup>14</sup> *OIP* XXIX 4.

<sup>15</sup> *Ibid.* pp. 7 f.

<sup>16</sup> *Ibid.* pp. 18-20.

<sup>17</sup> *Ibid.* pp. 8 f.

<sup>18</sup> *Ibid.* p. 5.

<sup>19</sup> *Ibid.* pp. 9 f.

the same dimensions and form as the lower west gate at Boğazköy. It is noteworthy that this gateway does not appear to have any connection with a defense wall. Remains of a similar gateway, likewise lacking apparent connection with a defense wall, were discovered on the Kuşaklı Hüyük.<sup>20</sup>

At Boğazköy we now seem able to recognize a typical house plan of the older period ("Bauschicht IV").<sup>21</sup> We are rather well informed also as to its later secular buildings and temples.<sup>22</sup> The most imposing architectural feature of Boğazköy is its fortification, which Bittel is inclined to date to the beginning of the New Hittite Empire.<sup>23</sup> This date may furnish an explanation for the entirely different fortification technique observed at Alişar. While the wall at Boğazköy, like that at Alişar, is built in the box technique, we find at Boğazköy not a saw-tooth arrangement but towers and curtains. Furthermore, a second, smaller wall, also with towers, was built in front of the main defense wall.<sup>24</sup> Only in the shape of the gateway structures<sup>25</sup> and in the use of posterns<sup>26</sup> is the fortification technique the same as that at Alişar. The method of constructing the postern differs. The postern at Alişar was built with false vaults;<sup>27</sup> at Boğazköy keystones were used. A test excavation made in 1930 at Gâvurkalesi had revealed another case of false vaulting, this time over a door-chamber.<sup>28</sup> Although most of the small objects found at Gâvurkalesi belong to the Post-Hittite-Phrygian period, it is evident that the site was originally a temple or place of worship during the period of the Hittite Empires.<sup>29</sup> Upon the south face of a limestone cliff may be seen reliefs representing a seated goddess approached by two figures. Platforms before the rock façade were reached from a processional road by two ramps. Similar platforms have been found before the sanctum of Yazılıkaya near Boğazköy, a site which belongs to the end of the New Hittite Empire.<sup>30</sup> In the following period the cliff and the platforms at Gâvurkalesi were surrounded by the fortress walls of a Phrygian feudal lord.

The building remains at Alaca Hüyük were much more imposing than those at Alişar. Especially important are parts of a large temple or palace in the last building level of the period of the Hittite Empires. This building was probably contemporaneous and in some way connected with the unfinished sphinx gate. A postern was found at Alaca Hüyük also.<sup>31</sup>

#### POTTERY

In Alişar the typical pottery of the Hittite period is wheelmade and monochrome, the paste being grit-tempered and usually buff in color.<sup>32</sup> The majority of pieces are wet-smoothed; some are carefully polished. Often a reddish yellow or yellowish red wash extends from the rim to the widest part of the body. Some of the ware is covered with a fine buff slip, often containing enough mica to give a silvery or golden sheen. Other pieces have a yellowish red to red slip, polished but usually not as lustrous as the red-slipped ware of the Copper Age (cf. p. 421). A few examples of wares with gray<sup>33</sup> or whitish buff slip<sup>34</sup> were found. Painted decoration is very rare,<sup>35</sup> but fragments with well executed figures of human beings or animals in

<sup>20</sup> E. Forrer in *MDOG* Nr. 65 (1927) p. 33; *OIC* No. 6, Figs. 31-32.

<sup>21</sup> *MDOG* Nr. 74, pp. 7 f.

<sup>22</sup> Bittel and Güterbock, *Boğazköy. Neue Untersuchungen in der hethitischen Hauptstadt* (*APAW*, 1935, Nr. 1 [Berlin, 1935]) pp. 7-19 and 25; *MDOG* Nr. 74, pp. 33-45; O. Puchstein unter Mitwirkung von H. Kohl und D. Krenker, *Boghas-köi; die Bauwerke* (*WVDOG* XIX [Leipzig, 1912]) pp. 93-172.

<sup>23</sup> *MDOG* Nr. 72, pp. 8-10.

<sup>24</sup> O. Puchstein, *op. cit.* pp. 36-61.

<sup>25</sup> *Ibid.* pp. 62-80.

<sup>26</sup> *Ibid.* pp. 38 and 83-86.

<sup>27</sup> *OIP* XXIX 7 f.

<sup>28</sup> *OIC* No. 14, pp. 69-73.

<sup>29</sup> *Ibid.* pp. 60-77.

<sup>30</sup> *MDOG* Nr. 74, pp. 49-54.

<sup>31</sup> *MVAG* XIII (1908) 178.

<sup>32</sup> *OIP* XXIX 110 f.

<sup>33</sup> E.g. d 2414 (*ibid.* Fig. 194).

<sup>34</sup> E.g. d 1096 (*ibid.* Fig. 201).

<sup>35</sup> *Ibid.* p. 111.

relief occur more commonly.<sup>36</sup> Handles and spouts representing heads of animals or monsters are numerous.<sup>37</sup> Several fragmentary rhytons were found,<sup>38</sup> many of which were very well modeled. Stamped designs appear on some handles<sup>39</sup> or on the bodies of large jars; a design common in the latter position is the so-called "royal" symbol.<sup>40</sup>

Typical forms include bowls with pointed or rounded bottoms;<sup>41</sup> bowls with V-shaped handles;<sup>42</sup> cups with tubular spouts;<sup>43</sup> bell-shaped cups;<sup>44</sup> jars with more or less ovoid body and straight rim<sup>45</sup> or with greatest diameter sharply accentuated and rim flaring slightly;<sup>46</sup> pitchers with clover-leaf orifices,<sup>47</sup> beak-spouts,<sup>48</sup> or lateral tubular spouts;<sup>49</sup> medium-sized storage jars with flaring rims and ovoid bodies, often decorated on the upper part with a wash or a carelessly painted geometrical design;<sup>50</sup> two-handled vessels with pedestal bases and sometimes with four-lobed orifices;<sup>51</sup> and rhytons.<sup>52</sup>

The only distinctive handles are the V-shaped handles of bowls and large jars.<sup>53</sup> Pointed bottoms,<sup>54</sup> sometimes ending in a button,<sup>55</sup> and pedestal or semi-pedestal bases<sup>56</sup> are fairly common. On many pieces there is a sharp break at the greatest body diameter.<sup>57</sup>

At Boğazköy the pottery is very similar.<sup>58</sup> Dr. Bittel is inclined to subdivide this pottery into an older and a later phase. While it is quite possible that such a differentiation may be worked out at Boğazköy, it cannot yet be done at Alishar. Nevertheless, it may well be that the use of pedestal and semipedestal bases, for example, came only in the later period; for at Alishar occur highly developed forms<sup>59</sup> as well as rather crude prototypes without pedestal or semi-pedestal bases.<sup>60</sup> Such vessels as Nos. b 1670, b 1676, and c 2734<sup>61</sup> may well belong to the later part of the New Hittite Empire; they show affinities to western kantharoi.<sup>62</sup> In Boğazköy several fragments of such kantharoi were found in deposits of the 15th-13th century,<sup>63</sup> and a similar piece is known from Öküzlühisar (near Niğde).<sup>64</sup> The use of heads of animals or monsters for spouts and handles is well attested from Boğazköy<sup>65</sup> as well as from Alishar. The

<sup>36</sup> *Ibid.* Figs. 153-56 and 157 4. Cf. No. d 2996 (Fig. 156) with the sherd from Kültepe shown in *Syria* VIII (1927) Pl. IV 4.

<sup>37</sup> *OIP* XXIX, Figs. 158-65.

<sup>38</sup> *Ibid.* Figs. 208-14.

<sup>39</sup> *Ibid.* Figs. 157 1-3 and 252 (c 2634).

<sup>40</sup> *Ibid.* Fig. 257; cf. also Bittel and Güterbock, *op. cit.* pp. 41 f.; *MDOG* Nr. 74, pp. 62 f.

<sup>41</sup> *OIP* XXIX, Figs. 166-67.

<sup>42</sup> *Ibid.* Figs. 169-71.

<sup>50</sup> *Ibid.* Figs. 195-98.

<sup>43</sup> *Ibid.* Fig. 174, upper two rows.

<sup>51</sup> *Ibid.* Fig. 201.

<sup>44</sup> *Ibid.* Fig. 174, lower three rows.

<sup>52</sup> *Ibid.* Figs. 208-14.

<sup>45</sup> *Ibid.* Fig. 175, top.

<sup>53</sup> *Ibid.* Figs. 169-71 and 219-21.

<sup>46</sup> *Ibid.* Figs. 175, bottom, and 176-77.

<sup>54</sup> *Ibid.* Figs. 167 (top row) and 183.

<sup>47</sup> *Ibid.* Figs. 179-82.

<sup>55</sup> *Ibid.* Fig. 185.

<sup>48</sup> *Ibid.* Figs. 183-88.

<sup>56</sup> *Ibid.* Figs. 187-88 and 192 (d 2267).

<sup>49</sup> *Ibid.* Figs. 190-92.

<sup>57</sup> *Ibid.* Figs. 170-71, 177, 182, 187-88, and 201.

<sup>58</sup> E. Chantre, *Recherches archéologiques dans l'Asie occidentale. Mission en Cappadoce 1893-1894* (Paris, 1898) Pl. III 8 and 11; H. de Genouillac, *Céramique cappadocienne* (Paris, 1926) I, Nos. AO 10097-98; *ADAI*, 1931, col. 617, Fig. 4; *MDOG* Nr. 70, pp. 19-20; *MDOG* Nr. 72, pp. 29-31; Bittel and Güterbock, *op. cit.* pp. 33-36; *MDOG* Nr. 74, pp. 11-18.

<sup>59</sup> E.g. *OIP* XXIX, Nos. c 272 (Fig. 167), c 1508 (Fig. 171), d 2934 (Fig. 177), e 877 (Fig. 186), e 29 (Fig. 187), e 30 (Fig. 188), and d 2267 (Fig. 192).

<sup>60</sup> E.g. *ibid.* Nos. 1626 (Pl. IV), c 2456 (Fig. 169), c 1232 (Fig. 175), d 2434 (Fig. 183), and c 2524 (Fig. 190).

<sup>61</sup> *Ibid.* Pl. VI.

<sup>62</sup> H. B. Hawes, B. E. Williams, R. B. Seager, and E. H. Hall, *Gournia, Vasiliki, and Other Prehistoric Sites on the Isthmus of Hierapetra, Crete* (The American Exploration Society. Excavations of the Wells-Houston-Cramp expeditions 1901, 1903, 1904 [Philadelphia, 1908]) p. 56, Fig. 40, No. 5, and p. 60, Pl. C, Nos. 1-3.

<sup>63</sup> *MDOG* Nr. 72, pp. 30 f.

<sup>64</sup> Götze, *Kleinasiën* (München, 1933), p. 42 and Pl. 5, upper right.

<sup>65</sup> *MDOG* Nr. 72, p. 31.



ware of this cultural period at Alaca Hüyük is much the same as that at Alişar. At Alaca Hüyük the finds seem to indicate that the gray ware of the Hittite period had its roots in the gray ware of the Copper Age (cf. p. 407).

#### SMALL OBJECTS

The small objects found in great variety at Alişar show in their forms a definite break with those of the previous periods. Especially noteworthy are the many well executed bone pins.<sup>66</sup> Bone arrowheads were numerous also.<sup>67</sup> The awls<sup>68</sup> are now mostly made of metatarsals of horses or asses. While the stone objects show but little change, attention should be called to two dagger pommels.<sup>69</sup> Metal objects appear in large quantities, the majority made of bronze or copper. The axheads with lugs,<sup>70</sup> which now make their first appearance at Alişar, deserve special mention. A great quantity of small lead rings<sup>71</sup> was found; they were probably used as currency. Iron was very scarce.<sup>72</sup> Glass, used in beads, appears at Alişar for the first time in this period (cf. p. 345).

Many styles of figurines were found. Most characteristic for this period were flat lead idols<sup>73</sup> and pottery figurines of horses.<sup>74</sup>

Seals show a great variety of forms and engravings.<sup>75</sup> Cylinder seals appear, some of which were surely imported from Mesopotamia,<sup>76</sup> while others were undoubtedly of local origin.<sup>77</sup> In addition to old stamp seal forms known from the Chalcolithic and Copper ages, there is a new type with a conical handle ending in a perforated knob.<sup>78</sup> A few seal impressions show "Hittite" hieroglyphs.<sup>79</sup>

The finds of the same period at Boğazköy<sup>80</sup> are very much like those at Alişar, except that in addition one impression of a Nuzi-type cylinder seal on a letter from Hanigalbat<sup>81</sup> and several impressions of bilingual stamps<sup>82</sup> were found there.

#### BURIALS

For Alişar we are rather well informed with respect to the burial customs.<sup>83</sup> While the old custom of depositing the body in a flexed position either in a large jar or directly in the earth still persisted, we find also the custom of burying the dead in an extended position, covered by either two or three large vessels or placed in a stone box. Mortuary gifts are common and are sometimes rather rich. In 1935 several burials of this period were found in Boğazköy; Bittel attributes all of them to the Old Hittite Empire.<sup>84</sup> According to his description they all seem to have been found in flexed positions. But he mentions also the possibility of disposal of the dead in large vessels during the period of the New Hittite Empire. Whereas all the burials found at Alişar and the older burials at Boğazköy were intramural, some burials of the New Hittite Empire in Boğazköy were possibly extramural.<sup>85</sup>

<sup>66</sup> OIP XXIX, Figs. 266-68.

<sup>68</sup> E.g. Nos. d 40, d 646, d 533, d 834, and d 1180 (*ibid.* Fig. 265).

<sup>67</sup> *Ibid.* Fig. 270.

<sup>69</sup> Nos. c 1419 and d 2876 (*ibid.* Fig. 261).

<sup>70</sup> Nos. c 1093, c 1648, and c 1741 (*ibid.* Fig. 286).

<sup>71</sup> *Ibid.* Fig. 297.

<sup>72</sup> *Ibid.* p. 273.

<sup>73</sup> *Ibid.* Fig. 230.

<sup>74</sup> *Ibid.* Fig. 235.

<sup>75</sup> *Ibid.* pp. 205-23.

<sup>76</sup> E.g. Nos. c 1036, c 350, d 2199, and d 2235 (*ibid.* Fig. 246).

<sup>77</sup> *Ibid.* pp. 209-10.

<sup>78</sup> E.g. Nos. c 666 and d 2222 (*ibid.* Fig. 249).

<sup>79</sup> Nos. c 1456 and c 2589 (*ibid.* Fig. 254) and a 86 and d 1526 (*ibid.* Fig. 255).

<sup>80</sup> Bittel and Güterbock, *op. cit.* pp. 28-45.

<sup>81</sup> *Ibid.* Pl. 28, No. 5. In Alişar a Nuzi-type cylinder was found in a refuse deposit of the Post-Hittite-Phrygian period (d 1912, OIP XXIX, Fig. 479).

<sup>82</sup> Bittel and Güterbock, *op. cit.* pp. 62-73 and 77.

<sup>84</sup> MDOG Nr. 74, p. 10.

<sup>83</sup> OIP XXIX 84-85.

<sup>85</sup> *Ibid.* p. 11.



## WRITTEN RECORDS

From the earlier part of this period come the first written records known thus far from Alishar. Here<sup>86</sup> as well as at Boğazköy<sup>87</sup> and Kültepe<sup>88</sup> records of Assyrian merchants written in cuneiform characters on clay tablets have been found. These so-called "Cappadocian" tablets, which may with reasonable certainty be dated to the 20th century B.C.,<sup>89</sup> bear witness to great commercial activity and also give some indications of the social structure. The whole of central Anatolia seems, at least at the beginning of the Hittite period, to have been divided into small independent principalities, which then slowly amalgamated to form the first large state organization there, the Old Hittite Empire. Statements in the Alishar tablets make it seem quite possible that our site was then known as Ankuwa. Elsewhere we learn that the Hittite kings maintained at "Ankuwa" a winter residence.<sup>90</sup>

In Alishar we found no other cuneiform records. But in Boğazköy was unearthed a large part of the state archives of the New Hittite Empire, also written in cuneiform;<sup>91</sup> these records date from the 14th/13th century down to the destruction of the Hittite Empire.

It is now fairly well established that the so-called "Hittite" hieroglyphs first appeared during the time of the New Hittite Empire. As Dr. Ignace J. Gelb kindly informs me, the monuments with "Hittite" hieroglyphic inscriptions at Boğazköy, Emirgazi, Fıraktın, Karakuyu, Sirkeli, and Taşçı can now be attributed with certainty to the New Hittite Empire (cf. p. 450). There is also no doubt in my mind that the rock relief at Gâvurkalesi belongs to this period.

EXTENT, ORIGIN, AND ASSOCIATIONS OF THE  
CULTURE OF THE HITTITE PERIOD

We are not yet very well informed as to the extent of this culture (Map XVIII). Pottery of the Hittite period has been found at Aflak,<sup>92</sup> Ahlatlıbel,<sup>93</sup> Akçakoyunlu,<sup>94</sup> Alaca Hüyük,<sup>95</sup> Bazırgan Hüyük,<sup>92</sup> Beşiköz,<sup>96</sup> Budaksahip,<sup>92</sup> Çadır Hüyük, Çat Hüyük, Çatal Hüyük,<sup>97</sup> Çayırhan,<sup>98</sup> Çerkes Hüyük, Cihanbeyli,<sup>93</sup> Domarica, Düğer, Gelingülü, Gemerek, Gölhisar, Has Hüyük,<sup>99</sup> a *hüyük* near Mersin, a *hüyük* north of Baraklı,<sup>100</sup> a *hüyük* northeast of Bişik,<sup>100</sup> a *hüyük* northeast of Gemerek, a *hüyük* southeast of Horla,<sup>92</sup> Kanlıca, Kara Hüyük in the

<sup>86</sup> OIP XXVII 19-54; OIP XXIX 108-10.

<sup>87</sup> OIP XXVII 10; MDOG Nr. 74, p. 7.

<sup>88</sup> B. Hrozný in *Syria* VIII (1927) 1-12; OIP XXVII 7 f. In nearly every European and American museum with oriental remains there are tablets from Kültepe.

<sup>89</sup> OIP XXVII 8 f.

<sup>90</sup> *Ibid.* pp. 9 f.

<sup>91</sup> H. Winckler in *OLZ* IX (1906) 621-34 and in *AO* XIV 3 (1913) pp. 21 f. and 28-32; MDOG Nr. 35 (1907) pp. 1-59; MDOG Nr. 70, pp. 25-29; MDOG Nr. 72, pp. 37-52; MDOG Nr. 73, pp. 29-34; MDOG Nr. 74, pp. 65 f. The Boğazköy texts are published in several series, of which the following are the most important: Berlin, Staatliche Museen, *Keilschrifturkunden aus Boghazköi* (Berlin, 1921-35); *Die Boghazköi-Texte in Umschrift* (WVDOG XLI-XLII [Leipzig, 1922-26]); *Keilschrifttexte aus Boghazköi* (WVDOG XXX and XXXVI [Leipzig, 1916-23]); Götze, *Verstreute Boghazköi-Texte* (Marburg, 1930).

<sup>92</sup> Sherds in the Archeological Museum on the Hisar at Ankara, collected by Bay Cemal.

<sup>93</sup> According to Bittel, *Prähistorische Forschung in Kleinasien* (Istanbul, 1934) pp. 93 f.

<sup>94</sup> Sherds from this and all the other sites here listed, except as otherwise indicated, were collected by the Anatolian Expedition of the Oriental Institute.

<sup>95</sup> Cf. pp. 407 and 436 f.

<sup>96</sup> Sherds collected by Dr. Danyal Bediz.

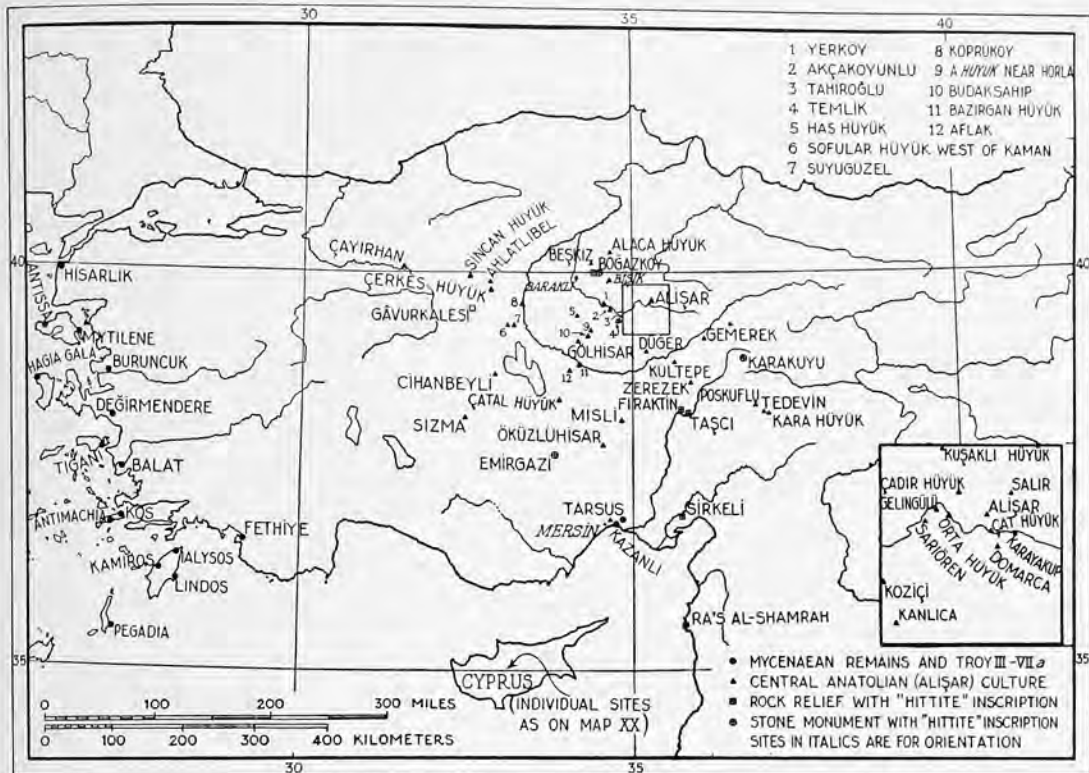
<sup>97</sup> Götze, *Kleinasien*, p. 42, n. 6.

<sup>98</sup> *ADAI*, 1932, cols. 230-33.

<sup>99</sup> Material in the museum of Kayseri.

<sup>100</sup> Götze in *AOF* IV (1927) 24-25.

Elbistan plain,<sup>101</sup> Karayakup, a site opposite Köprükøy, Koziçi, Kültepe,<sup>102</sup> Kuşaklı Hüyük, Misli, Öküzluhisar (near Niğde),<sup>103</sup> Orta Hüyük (near Dedik),<sup>104</sup> Poskuflu, Sahr, Sariören, Sincan Hüyük, Sızma,<sup>93</sup> Sofular Hüyük west of Kaman, Suyugüzel, Tahiroğlu, Tedevin, Tem-



MAP XVIII.—DISTRIBUTION OF CULTURES DURING THE PERIOD OF THE HITTITE EMPIRES.  
SCALE, 1:10,000,000

lik, Yerköy, and Zerezek. Many vessels and sherds of unknown provenience, most of them probably from Kültepe and Boğazköy, have been published.<sup>105</sup>

<sup>101</sup> H. Grothe, *Meine Vorderasienerexpedition 1906 und 1907* I (Leipzig, 1911) cclxxxiv and Pl. XIX 11 (but listed on his p. cclxxxi under Kültepe also!)?

<sup>102</sup> E. Chantre, *op. cit.* Pls. VII 1-2, VIII 3, IX 6-8, XIV 6, XV 1-11, XVI 1-11, XVII 3-9 and 11, XVIII 5-9 and 12-17, and XIX 5, 7, and 11. H. de Genouillac, *op. cit.* I, Figs. 82 and 82 bis, also Pls. 3, No. 9993; 5, Nos. 9996-97 and 10002; 6, Nos. 10004, 10022, and 10027-28; 13, Nos. 9750 and 9752; 14, No. 9755; 15, Nos. 9795-9801; 16, Nos. 9802-6; 20, No. 10016b. Grothe, *op. cit.* Pls. XVIII 3 and XIX 11 (cf. n. 101). B. Hrozný in *Syria* VIII (1927) Pls. III 3 and IV 2-5.

<sup>103</sup> Götze, *Kleinasien*, Pl. 5.

<sup>104</sup> Chantre, *op. cit.* p. 66, Fig. 43.

<sup>105</sup> Genouillac, *op. cit.* II, Pls. 1-2, AO 7414; 15, CA 1395a; 16, CA 1356, CA 1398c, CA 1473b; 17, CA 1383c, e, CA 1395c, e, f, and CA 1398e; 18, CA 1395b, g, CA 1396d, and CA 1397b; 19, CA 1383a, CA 1395d, h, i, CA 1396c, and CA 1397a; 20, AO 9419-24, AO 9429, AO 9431, AO 9434-35, and AO 9438; 24-24 bis, AO 9468; 25, AO 9471-73; 30, AO 9415 and AO 9465; 32, AO 9453; 34, CA 1476; 35, AO 9448 and AO 9455; 36, AO 9477; 37, AO 9418, AO 9425-26, AO 9430, and AO 9432-33; 38, S 76 and S 1767; 39, AO 7656; 40, CA 1395e, f, h, and CA 1473b; 41, AO 7630-31, AO 7632a-b, AO 7633a-b, and AO 7658; 42, AO 7647 and AO 7649; 43, AO 9461; 52, AO 10212; 53, AO 10186, AO 10186b, and AO 10197; 54, AO 10186, AO 10188, and AO 10193; 55, AO 10187a-b and AO 10190-93. Eduard Meyer, *Reich und Kultur der Chetiler* (Berlin, 1914) Fig. 45 (Kültepe?) and Pl. V, cup with lateral spout in second row. A. A. Zakharov, "Cappadocian pottery," *Archiv orientální* II (1930) 255-61, Pls. XXXII 7, XXXIII 10-17, XXXIV 18-23, XXXV 24-29, XXXVI 32, and XXXVII 34-37. H. Frankfort, *Studies in Early Pottery of the Near East* II (London, 1927) Pl. XII 5-6 (Boğazköy?).

Pottery like that characteristic of the Hittite period at Alishar is not known from Troy.<sup>106</sup> In Tarsus likewise the pottery is decidedly different from that at Alishar, although some Central Anatolian influence on the forms of vessels is noticeable.

A flat lead idol typical of the Hittite period at Alishar was found in Hisarlık (Troy V).<sup>107</sup> Several such figurines or molds for them are in various museums in Europe, but the provenience of many of them is not assured. Nevertheless, such figurines seem to have been well distributed during this period over Asia Minor, where they probably originated, and even into North Syria and Mesopotamia.<sup>108</sup>

It is surprising that we have from this period, commercially active as it was, few cultural remains which bear witness to intercourse with other lands. The only imported pieces at Alishar are a few fragments of Assyrian glazed frit vessels,<sup>109</sup> two fragmentary Ishtar figurines of the same material,<sup>110</sup> and several cylinder seals.<sup>111</sup> Recently evidence has come to light in Ra's al-Shamrah of probable imports from Asia Minor.<sup>112</sup> In Boğazköy an Egyptian "alabaster" vase was found.<sup>113</sup>

We must assume that again during the period of the Hittite Empires there were at least two principal cultures in Asia Minor: one in the west, comprising the succeeding phases of Troy II culture (Troy III-V) and the culture of Troy VI and VII a,<sup>114</sup> with strong Mycenaean influence; the other in the central part, as represented by Alishar and Boğazköy. From the 15th century on, approximately from the beginning of Troy VI, there was a cultural influx from the Greek mainland to the west coast of Asia Minor, connected with the advance of the Achaeans; but this western cultural element never penetrated very far into the interior. The Hittite kings of the Old Empire in turn seem to have had no control, and those of the New Empire very little control, over the west coast.<sup>115</sup> For Cilicia we have as yet no material that would permit us to judge what culture was predominant during the period of the Hittite Empires. Miss Hetty Goldman's excavations at Tarsus will doubtless throw some light on this ques-

<sup>106</sup> In deposits of Troy VI several spouts, handles, or handle attachments in the shape of animal heads (e.g., H. Schmidt, *Heinrich Schliemann's Sammlung trojanischer Altertümer* [Berlin, 1902] Nos. 3251-79 and 3285) and several two-handled bowls (e.g. *ibid.* Nos. 3068 and 3102) were found which remotely resemble the typical animal-head spouts and handles of Alishar and the Alishar bowls with two V-shaped handles such as Nos. e 280 and d 2983 (*OIP* XXIX, Pl. IV). But on the whole the contemporaneous pottery of Hisarlık (Troy III-V, which developed out of Troy II, and Troy VI and VII a, which show strong Mycenaean influence) is entirely different from the Central Anatolian pottery.

<sup>107</sup> W. Dörpfeld, *Troja und Ilion* (Athen, 1902) Beilage 44, No. V.

<sup>108</sup> D. Opitz, "Altorientalische Gussformen," *Aus fünf Jahrtausenden morgenländischer Kultur. Festschrift Max Freiherrn von Oppenheim zum 70. Geburtstag gewidmet . . .* (AOF Beiband I [Berlin, 1933]) 179-215.

<sup>109</sup> *OIP* XXIX 111.

<sup>110</sup> *Ibid.* p. 193.

<sup>111</sup> E.g. Nos. e 1036, e 350, d 2199, and d 2235 (*ibid.* Fig. 246).

<sup>112</sup> Cf. *Syria* XVII (1936) 122.

<sup>113</sup> *MDOG* Nr. 70, Fig. 10. In 1932 several alabaster statuettes of seated figures (Figs. 281-84) were purchased at Kültepe; they are certainly imported pieces. All were said to have been found together, and they may well have come from the deposit of the Hittite period. They are now in the museum at Ankara (*TTAED* I [1933] 82-85). Another type of alabaster idol known from Kültepe (Fig. 285) shows close affinities to idols from the Cyclades (cf. *Syria* VIII [1927] 193-200; *Syria* X [1929] 311-13; *TTAED* I [1933] 80-82; *RHA*, 5. année [1935] pp. 63-66), but these too cannot be definitely attributed to any cultural period, as they were purchased. In some respects they seem to be related to the Copper Age "Scheibenidole" (see Fig. 269, left-hand column under Copper Age). On the other hand, several seem to represent the same trinity as does our mold d 154 (Fig. 269; *OIP* XXIX, Fig. 230) of the Hittite period.

<sup>114</sup> According to the latest chronology of C. W. Blegen, Troy VII a, not Troy VI, was the Homeric Troy, i.e., the one destroyed during the Aegean migration (*AJA* XXXIX [1935] 550-51). [After a visit to Troy Dr. von der Osten states that in architecture Troy VI shows some similarities with Alishar (saw-tooth wall, drainage at postern), Boğazköy (houses with pillars), and Alaca Hüyük (drainage).—Edron.]

<sup>115</sup> Although there are as yet no definite proofs, I would like to attribute the rock monuments on Mt. Sipylus and at Karabel to the period of the Hittite Empires.

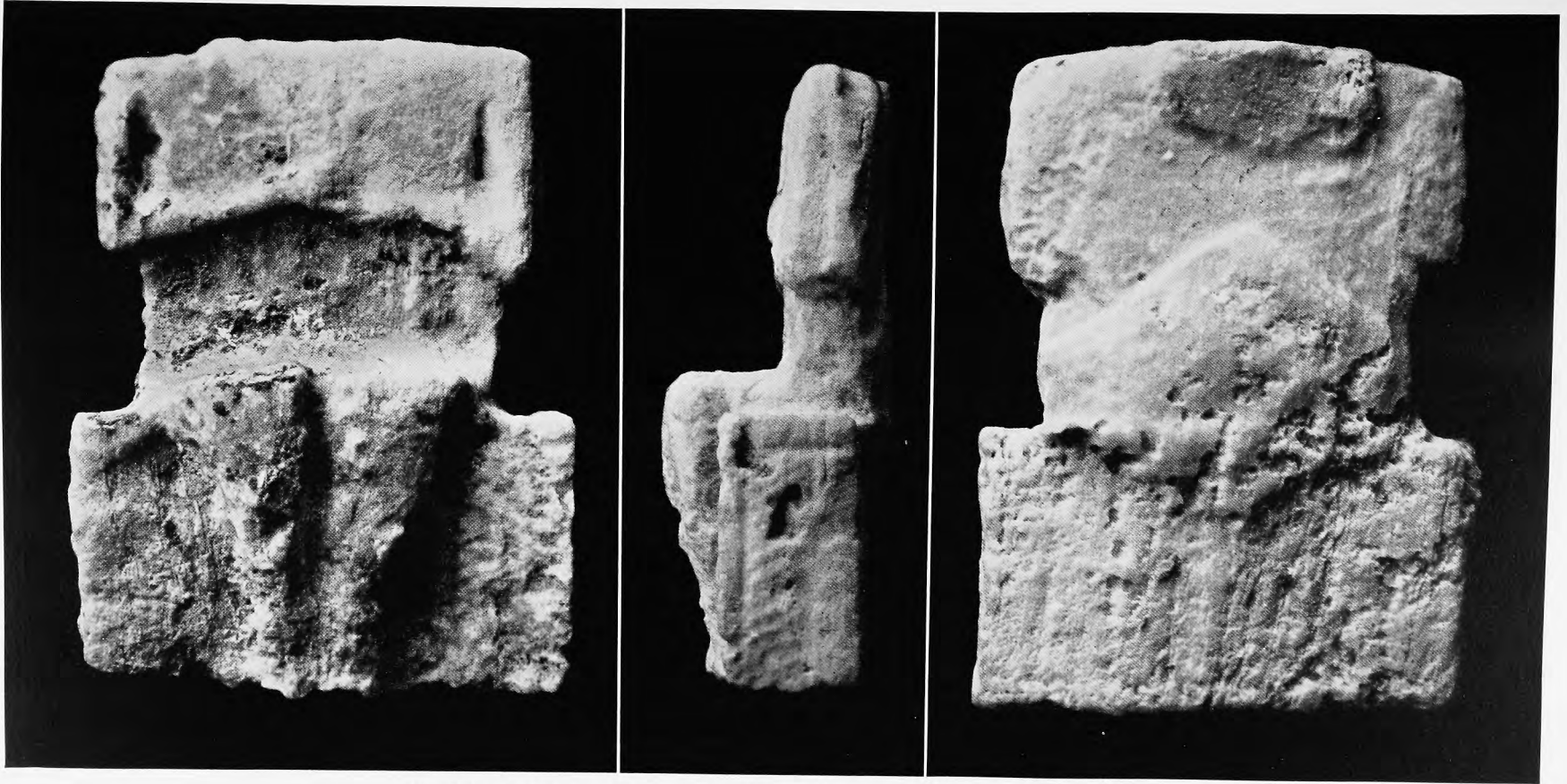


FIG. 281.—ALABASTER STATUETTE OF A SEATED FIGURE FROM KÜLTEPE. ACTUAL SIZE





FIG. 282.—ALABASTER STATUETTE OF A SEATED FIGURE FROM KÜLTEPE. ACTUAL SIZE



FIG. 283.—ALABASTER STATUETTES OF SEATED FIGURES FROM KÜLTEPE. ACTUAL SIZE

tion. Of the material found there thus far only two vessels<sup>116</sup> and one seal impression<sup>117</sup> show connections with central Anatolia. It would not be at all surprising if more material of this sort were found, considering the important role which Cilicia played in the time of the Hittite Empires.

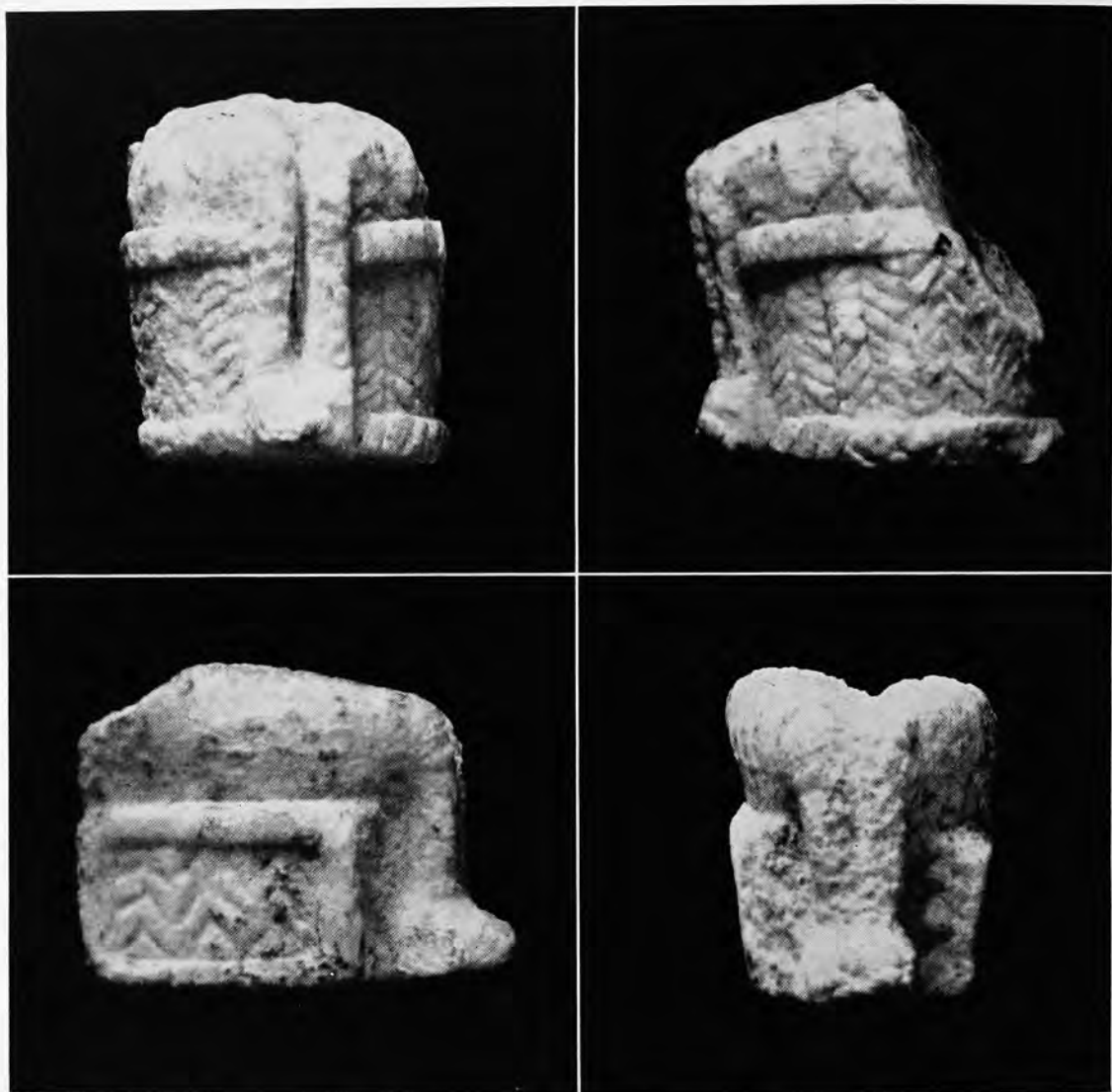


FIG. 284.—ALABASTER STATUETTES OF SEATED FIGURES FROM KÜLTEPE. ACTUAL SIZE

In looking for a possible origin of the Central Anatolian culture of this period we are so far entirely at a loss. Dr. Bittel wants to see in it a further development of the Anatolian Copper Age culture;<sup>118</sup> but in the present state of our knowledge I am unable to follow him in this. At Kültepe were found some handmade beak-spout pitchers<sup>119</sup> which might be prototypes of the wheelmade pitchers of the Hittite period; some were covered with a well polished red slip.

<sup>116</sup> *AJA* XXXIX 538, Figs. 22-23.

<sup>117</sup> *Ibid.* p. 536, Fig. 18.

<sup>118</sup> Bittel, *Prähistorische Forschung*, pp. 95 and 118, and in *AOF* XI (1936) 47.

<sup>119</sup> E.g. *OIC* No. 8, Fig. 15; cf. p. 413, n. 92, as to the genesis of this particular form.

Two plain handmade pitchers with lateral tubular spouts from Kültepe<sup>120</sup> resemble No. c 2524 from Alişar.<sup>121</sup> But aside from these I do not know of any transitional forms which would corroborate Bittel's explanation. At Alişar and at Boğazköy the culture of the Hittite period appears in a fully developed state. The vessels are wheelmade, different in form and finish, and decidedly different in stylistic expression, from those of the Copper Age. The small objects



FIG. 285.—ALABASTER IDOLS FROM KÜLTEPE. ACTUAL SIZE

also show a pronounced change from the earlier forms. Typical “whorls” of the Copper Age, however, are common in all deposits of the Hittite period.<sup>122</sup> The skeletal material from Alişar points to a culture brought from outside, for the Copper Age people were long- to middle-headed, whereas the people of the Hittite period were roundheaded (cf. pp. 216–25).

The relation of this culture at Alişar to the preceding culture, that of the Early Bronze Age, is very uncertain (cf. pp. 429 f.). The excavations at both Alişar<sup>123</sup> and Has Hüyük<sup>124</sup> show an Early Bronze Age cultural deposit preceding a deposit of the Hittite period. But on the citadel at Alişar we find remains of both cultures intermingled in the higher Early Bronze Age level,

<sup>120</sup> Genouillac, *op. cit.* I, Pl. 13, No. 9754, and *Syria* VIII (1927) Pl. IV 5 (left).

<sup>121</sup> *OIP* XXIX, Fig. 190.

<sup>123</sup> *OIP* XXVIII 208–9.

<sup>122</sup> *OIP* XIX 124–26; *OIP* XXVIII 185–89 and 198.

<sup>124</sup> Bittel, *Prähistorische Forschung*, p. 15.



suggesting that the two cultures were contemporaneous for a time. According to the little evidence we have thus far, the Early Bronze Age culture seems to be represented only in central and eastern Anatolia and occurs sporadically even there. At Alaca Hüyük and Boğazköy the sequence appears to be the same as that on the terrace at Alishar: the Copper Age deposit is followed almost directly by that of the Hittite period, with only a few Early Bronze Age sherds intervening. What seems to me the most likely explanation of these facts has been given in the preceding section (pp. 432 f.).

A few finds of pottery combine Early Bronze Age decorative technique with forms of the Hittite period. From Kültepe comes a large pitcher with three handles and a beak-spout,<sup>125</sup> closely resembling in form Nos. b 2738 and e 683 from Alishar;<sup>126</sup> but on the red-slipped or red-washed upper part of the body appears a white panel with brownish black painted decoration. In the Antiquarium in Berlin are two pitchers with lateral tubular spouts, similar in form to No. c 2524 from Alishar,<sup>127</sup> each completely covered with a creamy white slip on which decoration



FIG. 286.—SHERD FROM KÜLTEPE. ACTUAL SIZE

appears in blackish brown;<sup>128</sup> their provenience is not assured, but they probably came from Kültepe. Two sherds from a vessel with similar decoration were found at Kültepe during Grothe's excavations.<sup>129</sup> A similar sherd is published by J. L. Myres,<sup>130</sup> and another was purchased in 1932 from villagers at Kültepe and is now in the Ethnographical Museum at Ankara (Fig. 286).<sup>131</sup>

The only pieces found at Alishar which could be compared with this ware are a few animal heads (e.g., b 1249, e 1962, and e 1995),<sup>132</sup> probably parts of vessels; they are similar to two lions in the Louvre<sup>133</sup> and to a lion and a bull in the Antiquarium at Berlin.<sup>134</sup> Animal heads of the same ware are well known from finds at Kültepe.<sup>135</sup>

Those found at Alishar came from the lowest building layers of the Hittite period. The ware could therefore be considered as transitional between that of the Early Bronze Age and that of the Hittite period. Some handmade beak-spout pitchers from Kültepe<sup>136</sup> with typical Early Bronze Age decoration (cf. Fig. 276) could likewise be prototypes of the pitchers of the Hittite period.

According to our present knowledge, the monochrome wheelmade ware seems to extend from the Anti-Taurus westward to the upper part of the Sakarya basin, and from the Taurus northward to the south slopes of the mountain ranges along the Black Sea. Though we cannot yet trace the origin of this culture, there are indications that it came from the east and expanded westward, where it came into contact with the culture based on Troy II. Since the

<sup>125</sup> Frankfort, *Studies* II, Pl. XII 1.

<sup>126</sup> *OIP* XXIX, Pl. V.

<sup>127</sup> *Ibid.* Fig. 190.

<sup>128</sup> Frankfort, *Studies* II, Pl. XII 2 and 7.

<sup>129</sup> Grothe, *op. cit.* I, Pl. XVI 1-2.

<sup>130</sup> *JRAI* XXXIII = n.s. VI (for 1903) 385, Fig. 10.

<sup>131</sup> Frankfort, *Studies* II, Pl. IX 2-3; *TTAED* I (1933) 69, KT 1; another piece, unpublished, is in the museum at Kayseri.

<sup>132</sup> *TTAED* I (1933) 74, KT 89.

<sup>133</sup> *OIP* XXIX, Figs. 164-65.

<sup>134</sup> Genouillac, *op. cit.* II, Pls. 8, AM 1517, and 9, AO 9412.

<sup>135</sup> Frankfort, *Studies* II, Pl. XI.

<sup>136</sup> E.g. Genouillac, *op. cit.* II, Pl. 10.

Central Anatolian culture of this period appears suddenly and in a highly developed state and has so far no traceable connections with the older cultures of Asia Minor (except for the hand-made pitchers from Kültepe, which may well be peculiar to that site, and the typical Copper Age "whorls" in the Hittite deposits at Alişar), it can hardly have originated in Anatolia. It seems obvious to me, furthermore, that this culture did not come from Europe, the Aegean, North Syria, or Mesopotamia. To my mind, this leaves as the only possible way of entrance the Armenian highlands, to which it may have come from or over the Caucasus. Whether we should look for its origin in the Caucasus, in the southeastern plains of Russia, or in Turkestan, only further explorations and excavations will tell. At present only this seems clear, that the direction of migration was from the northeast. The evidence for this may be briefly stated thus: The early Hittite kingdoms are found in Cappadocia only, and the Hittite Empire, while conquering parts of North Syria and northwestern Mesopotamia, seems never to have effectively occupied western Anatolia. For what it is worth, it may also be pointed out that linguistic evidence tends somewhat in the same direction. It is generally recognized that the Hittite language has a number of characteristic features which differentiate it from normal Indo-European and have led some scholars to classify it as a descendant from an assumed parent language from which Indo-European also was derived.<sup>137</sup> The Hittite language is by some scholars held to retain many archaic features which distinguish it from the later Indo-European languages and suggest for it a closer connection with the parent language. These features might therefore indicate that the Hittites were one of the first groups to leave the original "home of the Aryans" and move westward.

We know from historical sources that a great political break occurred during the Hittite period: the fall of the Old Empire and the rise of the New. At Alişar we cannot yet recognize a corresponding break in the cultural sequence; whether this will be possible at Boğazköy is another question. The destruction of the Old Hittite Empire may have been connected directly or indirectly with the great movement of peoples which brought the Hyksos to Egypt. Actual vestiges of the Hyksos, however, have not yet been found in Anatolia, unless we interpret stone dagger pommels found at Alişar<sup>138</sup> and Boğazköy<sup>139</sup> as such; for R. M. Engberg informs me that such pommels are typical for the Hyksos period in Megiddo.<sup>140</sup> Furthermore, Mr. Engberg points out that the bone inlay typical for the Hittite period at Alişar<sup>141</sup> appears for the first time in Megiddo in burials of the Hyksos period. The Hyksos movement affected Asia Minor probably only politically, not culturally. In the 15th century B.C. we see a revival of the Hittite Empire, but under a new Indo-European dynasty which had come from the west. In addition to the cuneiform writing,<sup>142</sup> "Hittite" hieroglyphs, presumably the writing system of the ruling Indo-European-speaking minority (cf. p. 450), now appear. But otherwise the new rulers seem to have accepted completely the then existing culture of the Central Anatolians. The New Hittite Empire with its culture was swept away entirely by the Aegean migration in the 12th century B.C.

<sup>137</sup> E. H. Sturtevant, *A Comparative Grammar of the Hittite Language* (Philadelphia, 1933) pp. 29-31.

<sup>138</sup> *OIP* XXIX, Fig. 261, Nos. c 1419 and d 2876.

<sup>139</sup> Bittel and Güterbock, *op. cit.* p. 30 and Pl. 6, Nos. 10-11.

<sup>140</sup> See Megiddo Expedition, *Megiddo Tombs, 1925-32* (*OIP* XXXIII) Pl. 118, No. 2. Similar dagger pommels have been found in layers of Troy II-V (Dörpfeld, *op. cit.* Figs. 353-55).

<sup>141</sup> *OIP* XXIX, Fig. 275 (upper part), and *OIP* XIX, Fig. 225.

<sup>142</sup> On the origin of the cuneiform writing system of the Boğazköy tablets cf. E. Forrer, *Die Boğazköi-Texte in Umschrift* I (*WDOG* XLI [Leipzig, 1922]) 1-3, and A. Götze in *Zeitschrift für Assyriologie* XL = n.F. VI (1931) 72 f.

## THE POST-HITTITE-PHRYGIAN PERIOD

The former attribution of the cultural remains of "Alishar IV"<sup>1</sup> to the time of the New Hittite Empire<sup>2</sup> (ca. 1500-1200 B.C.) is now seen to be untenable, especially in view of the excavations carried on at Boğazköy since 1931.<sup>3</sup> The excavations there have shown in the layer above the destroyed buildings of the New Hittite Empire a complete cultural correspondence with "Alishar IV," thus indicating that "Alishar IV" does not represent the New Hittite Empire in distinction from the Old but was deposited *after* the destruction of the New Hittite Empire. In line with this the excavations on the citadel mound at Alishar in 1932 have definitely shown that the finer ware of "Alishar IV" resembles, or is identical with, Phrygian ware as found at Gordion,<sup>4</sup> a residence of Phrygian kings till its destruction by the Cimmerians about 680 B.C. Although a certain difference is evident between the pottery of the oldest building level of this period on the citadel mound (Level 4c M) and that of the latest level (4a M),<sup>5</sup> there are overlaps, and the vessels of Level 4a are decidedly due to development from the pottery of Level 4c and not to a new cultural element. Hence we now call "Alishar IV" the Post-Hittite-Phrygian period.

It is now possible also to give approximate dates for the beginning and the end of this period. In the débris of the New Hittite Empire at Boğazköy were found parts of the Hittite state archives.<sup>6</sup> These ceased some time in the 12th century B.C. The Post-Hittite-Phrygian period at Boğazköy will therefore have begun within the 12th century B.C., and we may presume that it began about the same time at Alishar. Its end date may be deduced approximately on the basis of the pottery; for since the finer Alishar pottery of this period (especially that from its later part) closely resembles some of the pottery from Gordion, which was destroyed by the Cimmerians about 680 B.C.,<sup>7</sup> we may reasonably assume that Alishar was struck by the first advance of this great Cimmerian flood. Pouring in from the northeast toward the end of the 8th century and overflowing most of Asia Minor, the first Cimmerians appear to have so weakened the power of the Phrygian kings that they had to leave their eastern possessions, including Alishar, a prey to the Cimmerian hordes. Alishar will therefore have been destroyed some time before the fall of Gordion.<sup>8</sup>

But who were the people in Anatolia whose culture the Cimmerians destroyed? What were their racial relationships? All indications are that they had come into Asia Minor as a part of the great Aegean migration, a movement which appears to have begun about the 15th century B.C., reached its climax in the 12th century, and ended in the 10th century.<sup>9</sup> The first

<sup>1</sup> *OIP* XIX, chap. vii. In *OIP* VI 257-60 vessels of this period are assigned to "Period III, Middle." For a correlation of the various designations of periods see Fig. 289.

<sup>2</sup> *OIP* XIX 213.

<sup>3</sup> *MDOG* Nr. 70, pp. 14 f.; *MDOG* Nr. 72, pp. 31-36; K. Bittel and H. G. Güterbock, *Boğazköy. Neue Untersuchungen in der hethitischen Hauptstadt* (APAW, 1935, Nr. 1 [Berlin, 1935]) pp. 52-58. F. Schachermeyr in his review of *OIP* VI (*AOF* VII [1931-32] 201) suggested the attribution of part of the ware of "Middle Period III" to the Phrygian period; cf. also R. Dussaud's review of the same volume (*Syria* XI [1930] 293-97).

<sup>4</sup> Cf. *OIP* XIX, Pls. XXVIII (b 1685) and XXXIII-XXXIV, and *OIP* XXIX, Figs. 404, 407, 410, 412, 414, etc., with G. and A. Körte, *Gordion; Ergebnisse der Ausgrabung im Jahre 1900* (K. Deutsches archäologisches Institut, *Jahrbuch. Ergänzungsheft* V [Berlin, 1904]) pp. 54-67 and Pls. 2-4.

<sup>5</sup> *OIP* XXIX 306-8, 323, and 350.

<sup>6</sup> *MDOG* Nr. 72, pp. 37 ff.

<sup>7</sup> Cf. p. 367, n. 54.

<sup>8</sup> A. T. Olmstead, *History of Assyria* (New York and London, 1923) p. 266.

<sup>9</sup> For a general discussion of the Aegean migration see F. Schachermeyr, *Etruskische Frühgeschichte* (Berlin und Leipzig, 1929) pp. 27-57; F. Bilabel, *Geschichte Vorderasiens und Ägyptens vom 16.-11. Jahrhundert v. Chr.* ("Bibliothek der klassischen Altertumswissenschaften," hrsg. v. J. Geffcken, III 1 [Heidelberg, 1927]) pp. 231-44; W. J. Phythian-Adams, "Hittite and Trojan allies," *BBSAJ* I (1922) 3-7; *idem*, "Philistine origins in the light of Palestinian archaeology," *BBSAJ* III (1923) 20-27; J. D. S. Pendlebury, "Egypt and the Aegean in the Late Bronze Age," *Journal of Egyptian*



large wave of which we have evidence seems to have been largely deflected from Asia Minor and in the 13th century reached Egypt, where the invaders, allied with the Libyans, were routed by Merneptah.<sup>10</sup> Apparently, however, small groups of this first wave infiltrated into western Asia Minor and into Cilicia. Some time later, in the 12th century, another wave, coming through the Balkans, entered Asia Minor, overthrew the New Hittite Empire, and ushered in our Post-Hittite period. The repercussions of this movement were felt both in Egypt and in Assyria. In Egypt Ramses III broke its advance in a naval and in a land battle.<sup>11</sup> From the annals of Tiglathpileser I (*ca.* 1100 B.C.) we learn that he routed a Muški army of 20,000 men under five kings, which had invaded northern Mesopotamia<sup>12</sup> and which probably constituted a detachment of one of the peoples involved in the Aegean migration. This is the meager historical information thus far available with regard to the events and peoples connected with the destruction of the New Hittite Empire and the beginning of the Post-Hittite period.

For the following 200 years historical data are lacking. In the 9th century B.C., however, the Assyrian texts again mention Muški. This time the reference is probably to the people we know as the Phrygians.<sup>13</sup> Were they newcomers, representatives of a third wave of the Aegean migration, or descendants of those who had entered two centuries before? We do not know. At any rate, by the 8th century the Muški or Phrygians had consolidated and formed a state on the débris of the Hittite Empire in Asia Minor.<sup>13</sup> In the second half of the 8th century we learn of campaigns of the Assyrian kings against the Phrygians, who had allied themselves with the Urartaeans.<sup>14</sup> Toward the end of the century the Cimmerians, ravaging and plundering, broke into Asia Minor<sup>15</sup> and deprived the Phrygian state of its eastern possessions. A second Cimmerian wave early in the 7th century swept away the last vestiges of the Phrygian state in western Asia Minor. Yet there were Phrygian princes at Gordion, for example, later in the 7th century, and Phrygian cultural elements persisted even into the late classical period.

*Archaeology* XVI (1930) 75-92; J. A. Wilson, "The Libyans and the end of the Egyptian Empire," *AJSL* LI (1934/35) 73-82. My reasons for not limiting the period of the Aegean migration to the 13th/12th century B.C. but extending the time of its duration from the 15th to the 10th century are both historical and archeological. In my opinion, the founders and rulers of the New Hittite Empire were a new influx of Indo-Europeans, who will have entered Asia Minor from the west no later than the 15th century B.C. They appear to have been related to the peoples who composed the main wave of the 12th century migration which destroyed the New Hittite Empire; they may, therefore, well be considered as an advance troop of this subsequently more fully developed migration. The Luka, enumerated as allies of the Hittites in the Battle of Kadesh (*BAR* III § 309), may have entered soon after. It is not, however, until the second half of the 13th century that we have historical evidence of the first large wave of the Aegean migration. At that time Tuthaliya IV and Arnuwanda III of the New Hittite Empire had to defend their western frontier against Ahhiyava (Achaeans). This first large wave was thus deflected from Asia Minor and ultimately reached Egypt in the time of Merneptah, not, however, without leaving small groups behind in western Asia Minor and in Cilicia. The appearance of the Sherden as mercenaries in the al-Amarna letters (J. A. Knudtzon, *Die el-Amarna-Tafeln* [Leipzig, 1915] I, Nos. 81, I. 16; 122, I. 35; 123, I. 15), taken in conjunction with the appearance of Ekweš (Achaeans?), Luka (Lycians), and others as allies of the Libyans against Merneptah (*BAR* III §§ 579, 588, 601), seems to me to be best interpreted in the language of Dr. Breasted (*BAR* IV § 59) as "the premonitory skirmishing-line of a more serious and more general movement." This movement, the Aegean migration, seems to have reached its peak in the 12th century in the invasion of those Indo-European-speaking groups that brought on the destruction of the New Hittite Empire. A later wave, in the 9th century, may have brought in the Phrygians, called Muški in the Assyrian annals because they had taken over the territory of the Muški encountered by Tiglathpileser I and were probably also related to them racially.

<sup>10</sup> *BAR* III §§ 569-617.

<sup>11</sup> *BAR* IV §§ 59-82; W. F. Edgerton and J. A. Wilson, *Historical Records of Ramses III. The Texts in Medinet Habu Volumes I and II Translated with Explanatory Notes* (SAOC No. 12 [1936]) pp. 53-56.

<sup>12</sup> D. D. Luckenbill, *Ancient Records of Assyria and Babylonia* I (Chicago, 1926) §§ 221 and 276; *Syria* XIII (1932) 39-40. In view of the weakness of Assyria during the period preceding Tiglathpileser I, it may be possible that these Muški people dominated or even had settled in the northern part of the old Assyrian realm (Olmstead, *op. cit.* p. 63).

<sup>13</sup> H. Winckler, *Altorientalische Forschungen*, 2. Reihe (Leipzig, 1901) pp. 131-37.

<sup>14</sup> Olmstead, *op. cit.* pp. 221-28. <sup>15</sup> Winckler, *Altorientalische Forschungen*, 1. Reihe (Leipzig, 1897) pp. 484-96.



## CULTURAL ASPECTS OF THE EARLIER PHASE

## HIEROGLYPHIC WRITING

Like the historical information, the cultural remains of the Post-Hittite-Phrygian period in Asia Minor are very scanty, and much of what we have is still far from being understandable. For the older phase of the period in central and eastern Anatolia large groups of material are known from Alishar and Boğazköy only. As might be expected, the cultural remains—pottery and small objects—at both sites are entirely different from those of the preceding period. There is one significant exception: the “Hittite” hieroglyphs.

In Alishar several “labels” or stoppers with impressions of seals bearing “Hittite” hieroglyphs were found in deposits of the Hittite period.<sup>16</sup> In Boğazköy several seal impressions of kings of the New Hittite Empire, often with legends in both hieroglyphic and cuneiform,<sup>17</sup> were found; a few tablets of the archives also bear crudely incised hieroglyphs.<sup>18</sup> Near-by Yazılıkaya also,<sup>19</sup> which surely was built during the period of the New Hittite Empire, has hieroglyphs; and it seems certain that the inscriptions on the *nişantaş*<sup>20</sup> and on other monuments from Boğazköy,<sup>21</sup> as well as on the monuments of Emirgazi,<sup>22</sup> Karakuyu,<sup>23</sup> Sirkeli,<sup>24</sup> Taşçı,<sup>25</sup> and Fıraktin,<sup>26</sup> are of the same period<sup>27</sup> (Map XIX). As a result of the accumulated evidence we may now assume definitely that the “Hittite” hieroglyphs made their first appearance in Asia Minor about the middle of the 2d millennium B.C.<sup>28</sup> and that they were introduced by the Indo-European-speaking dynasty which, as a ruling minority, founded the New Hittite Empire on the débris of the Old.

But we know also that many of the “Hittite” hieroglyphic inscriptions belong to the time after the destruction of the New Hittite Empire in the 12th century B.C.<sup>29</sup> At Alishar, in the deposits of the Post-Hittite-Phrygian period, there was a relatively large number of seals bearing hieroglyphs,<sup>30</sup> and two sherds had incised hieroglyphs.<sup>31</sup> At Boğazköy the attribution

<sup>16</sup> OIP XXIX, Fig. 254, Nos. c 1456 and c 2589, and Fig. 255, Nos. a 86 and d 1526.

<sup>17</sup> Bittel and Güterbock, *op. cit.* Pls. 24, 26, 28–31; MDOG Nr. 74, Figs. 50–53; E. O. Forrer, *Die hethitische Bilderschrift* (SAOC No. 3 [1932]) Figs. 10 and 33; Götze, *Kleinasien*, Fig. 12; AOF IV (1927) 135, Figs. 1–2, and 136, Fig. 3. During excavations in Tarsus in 1935 a similar seal was found which cannot yet be dated (AJA XXXIX [1935] 536, Fig. 18).

<sup>18</sup> Hieroglyphic legends on Boğazköy tablets have been published by Sayce in *Journal of the Royal Asiatic Society of Great Britain and Ireland*, 1912, pp. 1029–38 (republished in Götze, *Verstreute Boghazköi-Texte* [Marburg, 1930] No. 87), and in KUB VII 1; VAT 7766, unpublished, is mentioned in Bittel and Güterbock, *op. cit.* p. 78, n. 5.

<sup>19</sup> K. Bittel, *Die Felsbilder von Yazılıkaya* (“Istanbuler Forschungen” V [Istanbul, 1934]); cf. also OIP V, Pls. X–XXII.

<sup>20</sup> A. T. Olmstead, B. B. Charles, and J. E. Wrench, *Travels and Studies in the Nearer East* (Cornell Expedition to Asia Minor and the Assyro-Babylonian Orient) I. Part II. *Hittite Inscriptions* (Ithaca, N.Y., 1911) Pl. III; Bittel and Güterbock, *op. cit.* Pl. 25; H. T. Bossert, “Nischan-Tepe und Nischan-Tasch,” AOF IX (1933–34) 172–86.

<sup>21</sup> MDOG Nr. 35 (1907) Figs. 6–7 (two column-bases); Bittel and Güterbock, *op. cit.* Pl. 27 (a stela).

<sup>22</sup> L. Messerschmidt, “Corpus inscriptionum Hettiticarum,” 2. Nachtrag (MVAG XI 5 [Berlin, 1906]) Pls. XLIX–L; also Sayce in PSBA XXVII (1905) 21–31 and XXX (1908) 215–19.

<sup>23</sup> OIC No. 14, Fig. 118.

<sup>24</sup> J. Garstang in AAA XXIV (1937) 64–68 and Pls. XVIII–XIX.

<sup>25</sup> G. de Jerphanion in PSBA XXX (1908) Pl. II (opp. p. 44).

<sup>26</sup> Messerschmidt, “Corpus inscriptionum Hettiticarum” (MVAG V 4 [Berlin, 1900]) Pl. XXX.

<sup>27</sup> I am indebted for this information to Dr. Gelb, who is preparing a new edition (OIP XLV) of most of these texts.

<sup>28</sup> Recent finds at Boğazköy suggest the possibility that “Hittite” hieroglyphs were known there in the 16th century. For arguments in favor of a still earlier date see A. Götze, “Philological remarks on the bilingual bulla from Tarsus,” AJA XL (1936) 210–14.

<sup>29</sup> H. H. von der Osten, “Four sculptures from Marash,” *Metropolitan Museum Studies* II (1929/30) 112–32; F. W. von Bissing, “Zur Datierung und Entstehung der chetitischen Bilderschrift,” *Filologu biedribas raksti* X (Riga, 1930) 67; V. Christian, “Untersuchungen zur nordsyrisch-hettitischen Kunst,” AOF IX (1933–34) 1–34.

<sup>30</sup> OIP XXVII 73–75 and Pls. LII–LVII; OIP XXIX, Figs. 476–77.

<sup>31</sup> OIP XXVII, Pl. LI; OIP XXIX, Fig. 472.

Additional sites off the map are Assur, Babylon, Baisān, Hīnes, Kedabey, Khorsabad, Nineveh, Shaikh Sa'd, Tell al-Fāriḥah, and Toprakkale. At all of these except Shaikh Sa'd "Hittite" hieroglyphic inscriptions have been found.







MAP XX.—DISTRIBUTION OF CULTURAL REMAINS OF THE POST-HITTE-PHRYGIAN PERIOD. SCALE, 1:4,000,000

Additional sites off the map are:

Fortresses with rock-cut tunnels: Kemah (in Armenia) and Uplistsykhe (in Georgia).

Find-spots of "Hittite" hieroglyphic inscriptions: Assur, Babylon, Baisan, Hines, edabey, Khorsabad, Nineveh, Tell al-Fāriah, and Toprakkale.

Post-Hittite stone monument: Shaikh Sa'd.





of seals with hieroglyphs to the Post-Hittite-Phrygian period is not yet assured.<sup>32</sup> On the other hand, to it may be attributed the monuments with "Hittite" hieroglyphs found at the following places: Andaval,<sup>33</sup> Aslantaş,<sup>33</sup> Aslantepe,<sup>34</sup> Bohça,<sup>33</sup> Bor,<sup>35</sup> Boybeyipınarı,<sup>33</sup> Bulgarmaden,<sup>33</sup> Çalapverdi,<sup>33</sup> Darende,<sup>36</sup> Erkilet,<sup>33</sup> Eğrek,<sup>33</sup> Eğriköy,<sup>33</sup> Gürün,<sup>33</sup> Hisarcık,<sup>33</sup> İspekçür,<sup>37</sup> İvriz,<sup>38</sup> Izgın,<sup>39</sup> Karaburna,<sup>33</sup> Kayseri,<sup>33</sup> Kötükale,<sup>33</sup> Kültepe,<sup>10</sup> Kurubel,<sup>33</sup> Maraş,<sup>41</sup> Niğde,<sup>33</sup> Palanga,<sup>42</sup> Samsat,<sup>33</sup> Sultanhanı,<sup>33</sup> Tekirderbent,<sup>33</sup> Vellisa,<sup>33</sup> Yağır,<sup>33</sup> and all such sites in North Syria<sup>43</sup> (Maps XIX-XX). Most of the "Hittite" monuments in North Syria that are without inscriptions and the sculptures from Zincirli and Tell al-Ḥalaf (not of course those from Jabalat al-Baidā) I am now inclined to date within this period.<sup>44</sup>

Besides the monuments at these places there are some which cannot yet be assigned to either the New Hittite Empire or the Post-Hittite-Phrygian period, namely those at Alaca Hüyük, Beyköy, İmamkulu, Kara Dağ, Karapınar, Karga, Köylütolu Yayla, Lamas, and Suvasa (Map XIX). Garstang<sup>45</sup> reports a "Hittite" inscription from Küçük Yapalak and another from Şilkin. Map XIX lists all sites that are at present known to contain "Hittite" inscriptions, regardless of date. The symbol for stone monuments has been used also for the few cases where seals, bullae, clay tablets, pots, sherds, and rings bearing "Hittite" hieroglyphs have been found. Sites in Syria which have yielded seals with "Hittite" hieroglyphic writing are Çatal Hüyük, Deve Hüyük, Abū Kalkal, Ra's al-Shamrah, Tell al-Judaidah, and Tilbeşar. At Baisān in Palestine a cylinder seal with a possibly "Hittite" hieroglyphic sign was discovered, and at Tell al-Fāri'ah, near Gaza, two silver rings with possibly "Hittite" signs were found. On Map XX only those sites have been included where inscriptions were found that are datable with fair certainty to the Post-Hittite-Phrygian period.

The monuments with apparently "Hittite" hieroglyphs at Kedabey<sup>46</sup> and at Toprakkale<sup>47</sup>

<sup>32</sup> Bittel and Güterbock, *op. cit.* p. 58. There are two large storage vessels with impressions of hieroglyphic seals in the Ethnographical Museum in Ankara and two more in the Asarî Atika Müzeleri in İstanbul which resemble in form and technique the large storage vessels of the Post-Hittite-Phrygian period at Alışar (e.g. Nos. 976 and a 1068-69 in *OIP* XXIX, Pl. XI). These vessels are said to have been found in the large temple at Boğazköy, which, to judge from the excavations of 1935 in the smaller temple, is undoubtedly of the New Hittite Empire.

<sup>33</sup> Further information on these sites, including bibliography, will appear in Dr. Gelb's forthcoming publication of "Hittite" hieroglyphic inscriptions (*OIP* XLV).

<sup>34</sup> H. H. von der Osten in *AJSL* XLV 83-89; Delaporte, "Une ville datant du XIII<sup>e</sup> siècle avant Jésus-Christ. Une visite au palais du roi Souboumili, souverain d'Assyrie," *Le monde illustré* (Paris, 8. avril, 1933) pp. 218 f.

<sup>35</sup> Messerschmidt, *MVAG* V 4, Pl. XXXIII, and XI 5, Pl. XXXIII; also J. Garstang, *The Hittite Empire* (London, 1929) Pl. XXXIII.

<sup>36</sup> *OIC* No. 14, p. 138.

<sup>37</sup> Olmstead, Charles, and Wrench, *op. cit.* p. 36.

<sup>38</sup> Messerschmidt, *MVAG* V 4, Pl. XXXIV, and XI 5, Pl. XXXIV.

<sup>39</sup> *MVAG* V 4, Pl. XIX.

<sup>40</sup> Fragment of a stela with "Hittite" hieroglyphic inscription now in the museum of Kayseri.

<sup>41</sup> H. H. von der Osten, "Four sculptures from Marash"; S. Przeworski and A. A. Zakharov, "Antiquités de Marash à Moscou et à Tiflis," *Syria* XV (1934) 222-25; S. Przeworski, "Notes d'archéologie syrienne et hittite. III. Quelques nouveaux monuments de Marash," *Syria* XVII (1936) 32-44.

<sup>42</sup> Messerschmidt, *MVAG* V 4, Pl. XX, and XI 5, Pl. XX; also Garstang, *op. cit.* Pl. XXXIX.

<sup>43</sup> I am indebted to Dr. Gelb for this information as well as for generous help in constructing maps XVIII-XX. Map XIX may well be considered his map; on Map XX he assumes responsibility for naming the sites which have yielded "Hittite" inscriptions of the Post-Hittite-Phrygian period.

<sup>44</sup> For a discussion of the many conflicting views regarding the age of the Tell al-Ḥalaf sculptures see E. Herzfeld, "Aufsätze zur altorientalischen Archäologie. III. Der Tell Halaf und das Problem der hettitischen Kunst," *Archäologische Mitteilungen aus Iran* VI (1934) 111-223.

<sup>45</sup> *The Hittite Empire*, pp. 213 and 312.

<sup>46</sup> Messerschmidt, *MVAG* V 4, Pl. I 1.

<sup>47</sup> *Ibid.* Pl. I 2.

may be examples of Armenian pictographic writing, of which very little is as yet known, though it is possible that it may be related to "Hittite" hieroglyphic writing.<sup>48</sup>

Viewed in this context, the Indo-European-speaking group which had founded the New Hittite Empire would seem to have entered Asia Minor as an advance troop of the subsequently more fully developed Aegean migration which later overwhelmed and destroyed the empire, and therefore to have been related to one of the peoples forming that avalanche. This ruling minority (see p. 450) appears to have completely accepted the then existing culture of Anatolia but retained the use of its own writing system for such personal things as seals and royal monuments.

#### OTHER FEATURES

The pottery of the older phase of the Post-Hittite-Phrygian period at Alishar (Level 4c M) is mostly of medium ware, grit-tempered and well made.<sup>49</sup> Most of the ware is painted, although plain ware also appears. The decoration is in reddish brown or blackish brown on a buff slip of varying shades. The typical motives, besides "tongues"<sup>50</sup> and various geometric designs, are stags in combination with concentric rings and trees,<sup>51</sup> often arranged in panels and seldom covering more than the rim, neck, and upper part of the body. Typical forms are flat bowls with either thickened<sup>52</sup> or flaring rims;<sup>53</sup> cups with high handles, flaring orifices, and pronounced demarcation between neck and body;<sup>54</sup> and large jars with sharply profiled rims, orifices about as large as the greatest body diameter, and two or four handles.<sup>55</sup> Most of the handles show a sharp break at the top, which is often emphasized by a ridge slightly thickened and somewhat concave at the ends.<sup>56</sup> Published sherds of this ware—as far as I can make out from the publications—and fragments which I have collected or seen come from Aflak,<sup>57</sup> Akalan(?),<sup>58</sup> Alaca Hüyük,<sup>59</sup> Araph,<sup>57</sup> Aslantepe,<sup>60</sup> Boğazköy,<sup>61</sup> Bolus,<sup>62</sup> Budaksahip,<sup>57</sup> Çalapverdi, Çamurlu Hüyük, Çıkırıkçı, Dedeli,<sup>57</sup> Hacısefaath, Hacılar, Has Hüyük, Karayakup,<sup>63</sup> a site opposite Köprüköy, Kültepe,<sup>64</sup> Kuşaklı Hüyük, Orta Hüyük (near Dedik),<sup>65</sup> Sahr, Sarıhamzalı, Sincan Hüyük, Topaklı, and Zile<sup>66</sup> (indicated by triangles on Map XX).

<sup>48</sup> With the exception of the statement regarding the monuments at Zincirli and Tell al-Halaf, the information given above has been contributed by Dr. Gelb.

<sup>49</sup> *OIP* XXIX 350.

<sup>52</sup> *Ibid.* Figs. 432-33.

<sup>50</sup> E.g. *ibid.* Fig. 450.

<sup>53</sup> *Ibid.* Figs. 434-39.

<sup>55</sup> E.g. *ibid.* Figs. 421-23.

<sup>51</sup> E.g. *ibid.* Figs. 458-62.

<sup>54</sup> E.g. *ibid.* Figs. 408-10.

<sup>56</sup> E.g. *ibid.* Figs. 441-42 and 453-55.

<sup>57</sup> Sherds in the Archeological Museum on the Hisar at Ankara, collected by Bay Cemal.

<sup>58</sup> *MVAG* XII 4 (1907) Pl. X, 3d piece in top row. I saw in the Asarı Atika Müzeleri in İstanbul several fragments of this ware said to have come from Akalan and resembling closely the ware from Alishar.

<sup>59</sup> Sherds from this and all the other sites here listed, except as otherwise indicated, were collected by the Anatolian Expedition of the Oriental Institute. At Alaca Hüyük the gray ware of the Copper Age and of the Hittite period persists; it closely resembles the Minyan ware found in Greece.

<sup>60</sup> L. Delaporte, "Malatia. Céramique du Hittite récent," *RHA* II (1932-34) 257-85 and Pls. M 14, No. 9; M 17, Nos. 1 and 3-4; M 18, Nos. 4-7; and M 19, Nos. 1-7 and 9.

<sup>61</sup> E. Chantre, *Recherches archéologiques dans l'Asie occidentale. Mission en Cappadoce 1893-1894* (Paris, 1898) Pl. III 1, 3-4, and 9; *MDOG* Nr. 70, Fig. 6; *MDOG* Nr. 72, Fig. 16; Bittel and Güterbock, *op. cit.* Pls. 9, No. 5; 16, Nos. 4-7; 17, No. 9; 18, Nos. 9 and 11; 19, Nos. 12-13; *MDOG* Nr. 74, Figs. 23-25; H. de Genouillac, *Céramique cappadocienne* (Paris, 1926) I, Pl. 10, Nos. 10077 and 10086-88; A. A. Zakharov, "Khettskaia keramika iz Bogaz-keia i nekotor'e zakavkazskie paralleli," in *Izvestiia o-na issledovaniia i izucheniia Azerbaïdzhana*, No. 5 (Baku, 1927) pp. 144-52.

<sup>62</sup> J. L. Myres in *JRAI* XXXIII = n.s. VI (for 1903) Pl. XL 2-6, 14-15, 17, and 23.

<sup>63</sup> *Ibid.* Pl. XL 10 and sherds collected by the Anatolian Expedition of the Oriental Institute.

<sup>64</sup> Chantre, *op. cit.* Pls. X 2-3 and XIII 2; Genouillac, *op. cit.* I, Pls. 1, No. 9808, and 2, No. 9821a; and sherds collected by the Anatolian Expedition of the Oriental Institute.

<sup>65</sup> Genouillac, *op. cit.* I, Pl. 21, Nos. 10053 and 9740; and sherds collected by the Anatolian Expedition of the Oriental Institute.

<sup>66</sup> *JRAI* XXXIII, Pl. XL 1 and 7.

New types of small objects appear besides the well known older types. Thus at Alişar we found in the deposits of this period the first fibulae.<sup>67</sup> Three-winged bronze or copper arrowheads with socket attachment<sup>68</sup> and lance- or spearheads with two barbs and a long tang are common.<sup>69</sup> A rather stubby bronze or copper axhead with lugs<sup>70</sup> was similar to one found at Boğazköy in a post-Hittite deposit.<sup>71</sup> Noteworthy also is the common appearance of iron. Three large iron axheads with lugs<sup>72</sup> were found, and especially interesting was a long iron sword in a wooden scabbard decorated with bronze.<sup>73</sup> A new type of stone "whorl" appears.<sup>74</sup> In addition to older forms, discoid seals with hieroglyphic inscriptions on one or both sides are common.<sup>75</sup> The small objects of this period from Boğazköy are very similar.<sup>76</sup> From other sites not much material of this period is known or published.<sup>77</sup>

Neither at Alişar<sup>78</sup> nor at Boğazköy have any burials of this period been found. The burials were now probably extramural. We know also that the custom of cremation came to Asia Minor at the time of the Aegean migration; but we have as yet no earlier evidence of this custom in central Anatolia than the Phrygian tombs at Gordion and Ankara.<sup>79</sup>

From Alişar we know that agriculture (cf. p. 333) and cattle-raising (cf. p. 295) were practiced.

Little can be said as yet about architecture. In the older phase of this period Alişar was primarily a fortress, with a few small houses scattered over the city terrace. The houses inside the fortress<sup>80</sup> and on the terrace<sup>81</sup> were all rather primitive, and no typical house plan could be recognized. At Boğazköy likewise the house remains were scanty and primitive,<sup>82</sup> and no typical plan could be distinguished. The only imposing structure was the citadel at Alişar, which was, of course, mostly the older fortification re-used with slight remodeling.<sup>83</sup> In Boğazköy also part of the older, Hittite, fortification was re-used.<sup>84</sup> Our short test excavation at Gâvurkalesi revealed the residence of a presumably Phrygian feudal lord built on the platform of the temple of the Hittite period and surrounded by an outer defense wall.<sup>85</sup> Another fortified seat of a feudal lord of this period is Akalan, west of Samsun.<sup>86</sup>

## CULTURAL ASPECTS OF THE LATER PHASE

### FEATURES KNOWN FROM ALIŞAR

The contents of the upper two layers (Levels 4a-b M) deposited during this period at Alişar are so similar that we feel justified in referring to them together as the "later phase" of the Post-Hittite-Phrygian period. As stated above, some pottery of this later phase resembles,

<sup>67</sup> The finds at Alişar seem not to agree with the typology of Christian Blinkenberg, *Fibules grecques et orientales* (København, 1926). Interesting as the problem is, we cannot discuss here the possible origins or the sequence of the Alişar fibulae. But it may be reiterated that all the attributions of the fibulae found at Alişar are made on the basis of careful stratigraphic observation (cf. table on p. 110).

<sup>68</sup> OIP XXIX, Fig. 496, top row.

<sup>72</sup> OIP XXIX, Fig. 501.

<sup>69</sup> *Ibid.* bottom row.

<sup>73</sup> *Ibid.* Fig. 500.

<sup>70</sup> *Ibid.* Fig. 497, No. d 2135.

<sup>74</sup> *Ibid.* Fig. 484.

<sup>71</sup> Bittel and Güterbock, *op. cit.* Pl. 10, No. 2.

<sup>75</sup> OIP XXIX, Figs. 476 and 477, top row.

<sup>76</sup> E.g. Bittel and Güterbock, *op. cit.* Pl. 10, Nos. 2 and 7-10; also Pl. 11, Nos. 16-17 and 24-26.

<sup>77</sup> On the Kerkenes Dağ a few of the three-winged arrowheads typical of this period were found (*AJSL* XLV [1928/29] 269, Fig. 69, Nos. K 64 and K 87).

<sup>78</sup> OIP XXIX 347.

<sup>79</sup> F. Schachermeyr, "Materialien zur Geschichte der ägäischen Wanderung in Kleinasien," *MDAI* XLI (for 1916 [1926]) 387-90.

<sup>80</sup> OIP XXIX 302-6.

<sup>81</sup> *Ibid.* pp. 339-41.

<sup>82</sup> Bittel and Güterbock, *op. cit.* pp. 25 f.; *MDOG* Nr. 74 (1936) p. 28.

<sup>83</sup> OIP XXIX 290-300.

<sup>85</sup> OIC No. 14, Fig. 56 and pp. 77-82.

<sup>84</sup> *MDOG* Nr. 72 (1933) pp. 11-12.

<sup>86</sup> *MVAG* XII 4 (1907) 167-75.



and in part is identical with, the ceramic of the Phrygian royal residence of Gordion. This is a very fine ware which in these upper layers at Alishar is mingled with the coarser ware of Level 4c M. While the forms are actually the same as those of the coarser ware, they are more perfectly made.<sup>87</sup> The decoration too becomes finer and now sometimes covers the whole body.<sup>88</sup> Geometrical patterns prevail, although we have from Alishar four vessels and several fragments of this finer ware showing the typical stag and concentric ring design of the older phase.<sup>89</sup> In the later phase occurs also a fine gray- or brown-slipped, highly burnished, undecorated ware<sup>90</sup> which is likewise characteristic for Gordion.<sup>91</sup> Similar fine wares, both plain and painted, have been found at Boğazköy<sup>92</sup> and at other Anatolian sites also (see Map XX, inverted triangles). As far as I can recognize from the publications, or have myself seen or collected sherds, these sites are: Akalan,<sup>93</sup> Alaca Hüyük,<sup>94</sup> Aslantepe,<sup>95</sup> Bolus,<sup>96</sup> Çalapverdi,<sup>94</sup> Çamurlu Hüyük,<sup>94</sup> Çıkrıkçı,<sup>94</sup> Fuğla,<sup>97</sup> Gâvurkalesi,<sup>98</sup> Göllü Dağ,<sup>99</sup> Hacısefaath,<sup>94</sup> Has Hüyük,<sup>94</sup> Kaleboynu,<sup>94</sup> Karayakup,<sup>100</sup> Kerkenes Dağ,<sup>101</sup> Kırıkkale,<sup>102</sup> Kültepe,<sup>103</sup> Kuşkale,<sup>104</sup> Lâdik,<sup>105</sup> the Midas city,<sup>105</sup> Öküzlühisar,<sup>94</sup> Orta Hüyük (near Dedik),<sup>94</sup> Sahr,<sup>94</sup> Topaklı,<sup>106</sup> Turhal,<sup>107</sup> and Zile.<sup>94</sup> From Carabulus a fine-ware cup with painted decoration is known.<sup>108</sup>

At Alishar a much disturbed layer contained an omphalos bowl decorated on the inside with four painted animals.<sup>109</sup> Although, according to the finds at Alishar, this style of decoration became common only in the following period (cf. p. 21), the shape of the bowl is characteristic of the late Phrygian period. Several bronze vessels of the same type have been excavated at Ankara.<sup>110</sup> A bronze bowl without omphalos, in repoussé work, was found associated with Phrygian pottery in Tumulus IV on the Kerkenes Dağ.<sup>111</sup> A similar bowl, from an uncertain

<sup>87</sup> E.g. *OIP* XXIX, Figs. 404, 410, 412, and 424 (e 1113 and e 2319).

<sup>88</sup> E.g. Nos. e 1346 and d 2000 (*ibid.* Figs. 410 and 412).

<sup>89</sup> E.g. *ibid.* Figs. 410 (e 1343), 415 (e 284), 424 (e 1113 and e 2319), 458 2, 461 9 and 14, and 462 3, 7, 9, 11-12, 14, and 18.

<sup>90</sup> E.g. *ibid.* p. 350. A vessel similar to No. a 1064 (*OIP* XIX Fig. 325) was found at Boğazköy in 1935 (*MDOG* Nr. 74, Fig. 25).

<sup>91</sup> For the Gordion ware see G. and A. Körte, *Gordion*, Figs. 18-43, 99-105, and 120-22.

<sup>92</sup> *MDOG* Nr. 72, Fig. 15; Bittel and Güterbock, *op. cit.* Pls. 12, Nos. 2 and 6-12; 13, No. 3; 15, Nos. 3 and 5; 17, Nos. 3-4; *MDOG* Nr. 74, Fig. 22; Genouillac, *op. cit.* I, Pl. 9, Nos. 10079-81.

<sup>93</sup> *MVAG* XII 4 (1907) Pl. X.

<sup>94</sup> Sherds collected by the Anatolian Expedition of the Oriental Institute.

<sup>95</sup> *RHA* II (1932-34) Pls. 13, Nos. 3-4 and 6-7; 14, Nos. 1, 4, and 6; and 15-16.

<sup>96</sup> *JRAI* XXXIII = n.s. VI (for 1903) Pl. XL 11 and 24.

<sup>97</sup> *ABSA* XVI (for 1909/10) 7.

<sup>98</sup> *OIC* No. 14, Fig. 82, Nos. GK 1:8, GK 1:1, and GK 10:1.

<sup>99</sup> *RHA*, 5. année (1935) p. 140; Remzi Oğuz Arık, "Türkiye Cumhuriyeti Kültür Bakanlığı adına yapılan: Gölüdağ hafriyatı üstüne," *TTAED* III (1936) 3-20.

<sup>100</sup> *JRAI* XXXIII, Pl. XL 10, and sherds collected by the Anatolian Expedition of the Oriental Institute.

<sup>101</sup> *AJSL* XLV 267, Fig. 63.

<sup>102</sup> *JRAI* XXXIII, Pl. XL 19.

<sup>103</sup> Chantre, *op. cit.* Pls. XII 5 and XIV 2-3; Grothe, *op. cit.* I, Pl. XVII 4; and sherds collected by the Anatolian Expedition of the Oriental Institute.

<sup>104</sup> *OIC* No. 8, p. 37.

<sup>105</sup> *OIC* No. 8, p. 132.

<sup>106</sup> According to Bittel and Güterbock, *op. cit.* p. 90.

<sup>107</sup> *JRAI* XXXIII 379, No. 10.

<sup>108</sup> Frankfort, *Studies in Early Pottery of the Near East* II (London, 1927) Fig. 18. Götz, *Kleinasiens*, p. 46, mentions the presence of Post-Hittite-Phrygian ware in the Dazimonitis (i.e., at Turhal), on the basis of J. G. C. Anderson, *Studia Pontica* I (Bruxelles, 1903) 71, and probably in Aëtos on the Kogamis, on the basis of Anderson in *JHS* XVIII (1898) 84. Bittel, in Bittel and Güterbock, *op. cit.* p. 90, lists Phrygian pottery from Binbirkilise and Üç Hüyükler.

<sup>109</sup> No. 3278 (*OIP* XXIX 352 and Fig. 407).

<sup>110</sup> Hâmit Zübeyr Keleş, "Ankara Gazi Orman Fidanlığında bulunan eserler," *TTAED* I (1933) 5-21, esp. Nos. 4-5 on pp. 11 f.

<sup>111</sup> *AJSL* XLV 272 f., Figs. 73-74.

deposit, was excavated in Boğazköy,<sup>112</sup> and another similar piece is known from Toprakkale east of Lake Van.<sup>113</sup>

The small objects so far obtained from Alişar cannot be subdivided into an earlier and a later group as can the pottery.

In the second and third building levels of the Post-Hittite-Phrygian period (Levels 4b and 4a M) the fortress itself was settled.<sup>114</sup> The one complete house complex excavated on the citadel mound was again rather primitive.<sup>115</sup> The old citadel wall was remodeled and the gateway structure changed.<sup>116</sup> At this time a lower fortress was added on the west, with a strong outer defense consisting of towers and curtains (Pl. XV); in two places a curtain shows a saw-tooth break.<sup>117</sup> It is noteworthy that the settlement of the lower fortress appears to have been planned and laid out rectangularly.<sup>118</sup>

#### INSCRIPTIONS AND MONUMENTS ELSEWHERE

The later phase of the Post-Hittite-Phrygian period at Alişar may definitely be called "Phrygian." The Phrygian culture in Asia Minor, especially in the west, is characterized not only by its pottery but by inscriptions in an alphabet derived from the Greek and by the disposal of the dead in rock tombs—often with elaborately hewn façades—or in tumuli.

Most of the Phrygian inscriptions (marked × in Map XX) are from the Midas city and its vicinity;<sup>119</sup> they generally appear on rock tombs. Others found elsewhere in Asia Minor consist of graffiti on sherds at Gordion<sup>120</sup> and Boğazköy,<sup>121</sup> four inscriptions on stone blocks<sup>122</sup> and one on a large lion<sup>123</sup> at Alaca Hüyük, one inscription at the base of a rock-cut altar or divine seat on top of the Kalehisar a little north of Alaca Hüyük,<sup>124</sup> and one on a stone block at Öküzlühisar.<sup>125</sup> Herzfeld has announced the discovery of a tablet with a Phrygian inscription at Persepolis.<sup>126</sup>

Uninscribed Phrygian monuments have been found at Ankara,<sup>127</sup> Etimesut,<sup>128</sup> Faharet Çeşme,<sup>129</sup> Fıdanlık (tree nursery of the Gazi Çiftlik at Ankara),<sup>130</sup> Göllü Dağ,<sup>131</sup> Kalaba,<sup>132</sup> and Yalıncak.<sup>132</sup> At Bulumaşlı<sup>133</sup> and Öküzlühisar<sup>134</sup> I found sculptures in the round representing large eagles similar to the eagle of Yemliha;<sup>135</sup> all of them may be Phrygian.<sup>136</sup> A similar eagle of unknown provenience is in the museum of Kayseri (Fig. 287).

<sup>112</sup> Bittel and Güterbock, *op. cit.* Pl. 21, No. 2.

<sup>113</sup> Lehmann-Haupt, *Armenien einst und jetzt* (Berlin, 1931) p. 506 ("geriefelte Bronzeschale mit hetitisierender[?] hieroglyphischer Inschrift").

<sup>114</sup> *OIP* XXIX 308–26.

<sup>115</sup> *Ibid.* pp. 319–21.

<sup>116</sup> *Ibid.* Fig. 321.

<sup>117</sup> *Ibid.* pp. 327–35.

<sup>118</sup> *Ibid.* pp. 337–39.

<sup>119</sup> Johannes Friedrich, *Kleinasiatische Sprachdenkmäler* (Berlin, 1932) pp. 125–28, Nos. 1–9, 11–12, and 18.

<sup>120</sup> Friedrich, *loc. cit.* Nos. 16–17.

<sup>121</sup> Bittel and Güterbock, *op. cit.* pp. 84–87. [Dr. Hâmit Zübeyr Koşay kindly informs me that part of a pottery vessel with incised Phrygian inscription has recently been found at Cıkhasan.]

<sup>122</sup> Friedrich, *loc. cit.* Nos. 10 and 13–15.

<sup>123</sup> *OIP* V, Pl. VII. A cast of the inscription is now in the Asarî Atika Müzeleri in İstanbul.

<sup>124</sup> *ZE* XXXIII (1901) 205 and *ibid.* "Verhandlungen," p. 476; *OIP* V, Pl. VIII.

<sup>125</sup> Friedrich, *loc. cit.* No. 19.

<sup>126</sup> *JHS* XIX 45–48; *OIP* V, Pl. XXIII B.

<sup>127</sup> *Archaeologische Mitteilungen aus Iran* VIII (1936) 13.

<sup>128</sup> *OIP* V, Pl. V B.

<sup>129</sup> *TTAED* I (1933) 20, No. 25.

<sup>130</sup> *TTAED* I 20, No. 24.

<sup>131</sup> *RHA*, 5. année (1935) p. 140.

<sup>132</sup> G. Perrot and C. Chipiez, *Histoire de l'art dans l'antiquité* IV (Paris, 1887) 713; *JHS* XIX 45–48. It is very probable that the reliefs found at Ankara, Etimesut, Fıdanlık, and Kalaba all came from the same building.

<sup>133</sup> *OIP* V, Figs. 132–34.

<sup>134</sup> *OIC* No. 8, p. 170 (four eagles); three of these I had previously mentioned in *OIP* V 53. A fifth eagle at Öküzlühisar is published by Hrozný in *Archiv orientální* II (1930) 299 and in *AOF* VI (1930–31) 142.

<sup>135</sup> J. Garstang, *The Hittite Empire* (London, 1929) Pl. XXVII.

<sup>136</sup> But cf. Bittel in *AOF* XI (1936) 52–56, where he gives evidence that these eagles are all of the Roman period.

The Phrygian rock tombs are located near the Midas city with the exception of those at Deliklitaş and Gökçekısıık.<sup>137</sup> Tumuli are to be found over the whole of Asia Minor,<sup>138</sup> but as few of them have been investigated, it is impossible to say how many belong to the Phrygian period. So far none can be dated before the Aegean migration. The excavated tumuli at Gordion<sup>139</sup> and Ankara<sup>140</sup> and at least one on the Kerkenes Dağ<sup>141</sup> are surely Phrygian. The custom of disposing of the dead in tumuli remained in use for a long time in Asia Minor, for the necropolis at Karalar is to be dated in the 2d century B.C.<sup>142</sup>

Other typical features of Phrygian culture are rock-cut altars and cult places.<sup>143</sup>



FIG. 287.—BASALT EAGLE IN THE MUSEUM OF KAYSERİ

Near the Midas city there are several fortresses with rock-cut tunnels. Such fortifications are distributed throughout central and eastern Asia Minor,<sup>144</sup> but not, as far as we know, in the western part. Although we have as yet no definite proof, it seems quite possible that these for-

<sup>137</sup> The Phrygian rock tombs have been published comprehensively by Perrot and Chipiez, *op. cit.* V (Paris, 1890) 81-145; F. von Reber, "Die phrygischen Felsdenkmäler. Untersuchungen über Stil und Entstehungszeit," in *AAWM*, hist. Classe, XXI (1898) 529-98; and E. Brandenburg, "Neue Untersuchungen im Gebiet der phrygischen Felsenfassaden," *ibid.* XXIII (1906) 633-716.

<sup>138</sup> Cf. F. Schachermeyr, "Materialien zur Geschichte der ägäischen Wanderung in Kleinasien," *MDAIA* XLI (for 1916 [1926]) 376-90.

<sup>139</sup> G. and A. Körte, *Gordion*, pp. 36-145.

<sup>140</sup> Th. Makridi, *Maarif Vekâleti Mecmuası* No. 6 (1926); *OIP* V 46-49; *ADAI*, 1930, cols. 479-82.

<sup>141</sup> E. F. Schmidt in *AJSL* XLV 252 f. (Tumulus IV).

<sup>142</sup> *TTAED* II (1934) 164 f.

<sup>143</sup> E.g. Perrot and Chipiez, *op. cit.* V 146-59; *OIP* V, Pl. VII.

<sup>144</sup> R. Leonhard, *Paphlagonia* (Berlin, 1915) pp. 232-41; *OIP* V 123-36; G. de Jerphanion, "Mélanges d'archéologie anatolienne," *Mélanges de l'Université Saint-Joseph* XIII (1928) 24-40; Giulio Jacopi, *Dalla Paflagonia alla Commagene* (Roma, 1936) pp. 9 and 14 and Pls. I and VII 23, also a third tunnel, at Kılışkaya, still unpublished but with his kind permission indicated on our Map XX.



treasures are related to the Phrygian rock architecture, especially as they appear in those regions which we may assume to have been under Phrygian control. The relative density of such fortresses in northeastern Asia Minor is significant. We must assume that in that mountainous region various tribes, either marauding elements connected with the subsiding Aegean wave or newcomers from the Caucasus, endangered the Phrygian realm and that these fortresses were constructed to meet the danger of invasion. A few fortifications of this type appear in Armenia also. This is not surprising, since the kings of Urartu were allied with the kings of Phrygia in their struggle against Assur and, even if there was no ethnic relationship, might well have accepted from their Phrygian allies such an efficient means of defense.

The rock architecture of Asia Minor has always been considered very old,<sup>145</sup> but I know of no cave, tomb, or other rock monument made by human agency (with the probable exception of the obelisk in the Elbistan plain [cf. p. 405, n. 14], one in the Cilician plain [cf. *ibid.*], and the possibly "megalithic" monuments near Malatya [cf. p. 406]) which can be definitely dated before 1500 B.C. Some rock reliefs with "Hittite" hieroglyphic inscriptions can be attributed to the New Hittite Empire (see p. 450). The dates of the "thrones" in Lydia<sup>146</sup> and of the "giant steps"<sup>147</sup> in Phrygia, Paphlagonia, and Pontus are not assured. There is, of course, a possibility that rock architecture was known in Asia Minor before the beginning of the Aegean migration and that the people forming this movement accepted an indigenous technique and developed it. But since no examples can yet be definitely dated before 1500 B.C., I am inclined to see in the people of the Post-Hittite-Phrygian period at least the distributors, if not the originators, of rock architecture in Asia Minor. That this "building" technique extended far down into the Christian era is proved by the rock monasteries,<sup>148</sup> rock churches, and rock dwellings of the Roman-Byzantine period in Cappadocia.<sup>149</sup>

It is probable that Paphlagonia and Pontus had been for a time under Phrygian hegemony. The only datable rock tombs in Paphlagonia and Pontus<sup>150</sup> (indicated by solid squares in Map XX) are of the Hellenistic period, but they seem to have continued the Phrygian rock tomb tradition. For although the rulers and the aristocracy bear Iranian names from the beginning of the 5th century to the Christian era and even beyond, and although their religion is definitely Iranian, it may be assumed that the rock technique of the older population survived here.

Another group of rock monuments was found in Lycia.<sup>151</sup> No datable rock tomb there is earlier than the Achaemenian period. The unique architecture of these tombs indicates that in adopting the new and foreign rock technique the Lycians merely applied to it the indigenous form used in their wooden houses.

The presence in Urartu of fortresses with rock-cut tunnels has been mentioned above; many other rock monuments also are found there.<sup>152</sup> It is a question whether these other rock monuments in Urartu are in any way related to the monuments of Asia Minor, for in the Zagros Mountains rock sculptures occur before 2000 B.C.<sup>153</sup>

<sup>145</sup> E. Brandenburg, "Die Denkmäler der Felsarchitektur," *AO* XXIX 3 (1931) p. 5.

<sup>146</sup> Perrot and Chipiez, *op. cit.* V 39-81; the Greek legends imply a fairly early date.

<sup>147</sup> E.g. Leonhard, *op. cit.* pp. 232-41. <sup>148</sup> E.g. *OIP* V 149-54.

<sup>149</sup> G. de Jerphanion, *Une nouvelle province de l'art byzantin: les églises rupestres de Cappadoce* (France. Haut-Commissariat de la République Française en Syrie et au Liban. Service des antiquités et des beaux-arts. Bibliothèque archéologique et historique, t. V-VI [Paris, 1925-34]) chaps. i-ii and Pls. 1-28; A. Costa in *Illustrated London News*, Nov. 3, 1934, pp. 685-87 and 689.

<sup>150</sup> Leonhard, *op. cit.* pp. 242-87; Jerphanion, "Mélanges d'archéologie anatolienne," *Mélanges de l'Université Saint-Joseph* XIII (1928) 5-23; A. Struck, "Die Königsgräber von Amassia," *Globus* LXXII (1900) 169-74.

<sup>151</sup> Perrot and Chipiez, *op. cit.* V 361-84. <sup>152</sup> Lehmann-Haupt, *Armenien einst und jetzt*, pp. 453-686, esp. pp. 640-77.

<sup>153</sup> E. Herzfeld, *Am Tor von Asien* (Berlin, 1920) pp. 3-6; B. Meissner in *AO* XV (1915) Fig. 42.



THE CULTURE OF THE WEST COAST

The scanty material available indicates that the west coast of Asia Minor had an entirely different culture during the Post-Hittite-Phrygian period. There older cultures had apparently persisted, of course with certain modifications, until the 13th or 12th century B.C. In Hisarlık we find a cultural break only with Troy VII *b*, which had a culture clearly related to and derived from the late Mycenaean. According to Blegen's latest view<sup>154</sup> the Sixth City, previously considered the Homeric Troy, probably came to an end through a severe earthquake not long after 1300 B.C. The Homeric city is probably Troy VII *a*, which was destroyed early in the 12th century. Troy VII *b*, which followed, had a culture characterized by the continued use of Trojan monochrome ware in association with a certain type of Mycenaean ware and with *Buckelkeramik*. Whether this culture continued till the period of Greek influence or was modified by other influences we cannot yet say.

A few Mycenaean sherds have been found at Buruncuk.<sup>155</sup> Scattered finds of similar material have been made at other sites along or near the west coast, among them Bodrum,<sup>156</sup> Degirmendere,<sup>157</sup> Fethiye,<sup>158</sup> Foça,<sup>159</sup> Milas,<sup>160</sup> and Balat (Miletus).<sup>161</sup> Gjerstad reports finds of such pottery ("Helladic" and "Hellado-Cilician") from several mounds in Cilicia.<sup>162</sup> In this connection should be mentioned several fragments of painted clay reliefs found at Cıkhasan.<sup>163</sup> They show definite affinities with the early Ionic style and may go back to the 9th or 8th century B.C. Together with finds from Buruncuk, Gordion, and Akalan, they open a new vista for the explanation of the possible origin of the so-called "orientalizing Greek archaic style."

SUMMARY

A study of Maps XIX-XX bears out the conclusions reached in the foregoing pages. On Map XIX are indicated all known monuments bearing "Hittite" hieroglyphs and all stylistically related monuments without hieroglyphs. Their greatest density is on either side of the Taurus and Anti-Taurus Mountains. A few in the group northwest of the Taurus-Anti-Taurus area can be attributed to the New Hittite Empire. The distribution suggests that the people who used the hieroglyphs entered Asia Minor from the west as a contingent of the Aegean migration and were pressed onward into southeastern Asia Minor and North Syria by other contingents who presumably occupied central and western Anatolia, thus blocking them off from the west, while expansion into northern Mesopotamia was halted by Assyrian resistance.

Map XX shows the distribution of the cultural remains of Asia Minor known to belong to the period between the downfall of the New Hittite Empire and the destruction of the Phrygian Empire. Monuments with "Hittite" hieroglyphic inscriptions and stylistically related uninscribed monuments which can be definitely assigned to this period are indicated, as well as sites yielding pottery which can be associated with these monuments. At present no site with

<sup>154</sup> *AJA* XXXIX (1935) 550 f.

<sup>155</sup> Unpublished; cf. Bittel, *Prähistorische Forschung*, p. 92, n. 2, No. 8.

<sup>156</sup> *AJA* III (1887) 161 f.; *MDAIA* XIII (1888) 278-80; W. R. Paton, "Excavations in Caria," *JHS* VIII (1887) 64-82, esp. Figs. 5 and (for decoration) 8-9.

<sup>157</sup> *AJA* XXVII (1923) 67 f.

<sup>158</sup> *CR*, 1921, p. 122.

<sup>159</sup> Bittel, *loc. cit.* No. 7.

<sup>160</sup> *MDAIA* XII (1887) 230.

<sup>161</sup> Bittel, *loc. cit.* No. 4.

<sup>162</sup> E. Gjerstad, "Cilician Studies," *RAr.*, 6. sér., III (1934) 176-77. In 1929 a few sherds of similar ware were picked up on two mounds in Cilicia by the Anatolian Expedition of the Oriental Institute.

<sup>163</sup> Now in the Archeological Museum on the Hisar at Ankara.

remains of this kind is known from west of the Kızıl Irmak, and the majority of such sites lie south of the Taurus and Anti-Taurus Mountains.

The strictly Phrygian remains are centered in Phrygia proper. The distribution of Phrygian monuments and pottery would indicate that the extreme western part of Asia Minor was not settled by the Phrygians, whereas they seem at one time or another to have occupied the rest of Anatolia up to the Taurus-Anti-Taurus barrier. In the Kızıl Irmak basin occurs an overlapping of the strictly Phrygian remains and those of the bearers of the "Hittite" hieroglyphs.

In my opinion the course of events before and during this period was as follows: The New Hittite Empire was established in the 15th century B.C. by a new Indo-European-speaking minority which had entered Asia Minor at about the same time that the Achaeans, pushed presumably by the bearers of the Mycenaean culture, had destroyed Minoan Crete. It is therefore tempting to see in the entrance of the Indo-European-speaking group into Asia Minor and in the southward movement of the "Mycenaeans" a close connection—the beginning of the first important wave of the great Aegean migration which later reached Egypt as the Sea Peoples. From that time onward the west coast of Asia Minor was constantly exposed to inroads of similar peoples. Boğazköy texts of the 14th and 13th centuries mention the Ahhiyava, who, under constant pressure from the "Mycenaeans," attempted to enter Asia Minor from the west coast but were largely deflected by Hittite resistance and proceeded by sea to Cilicia, Cyprus, and North Syria. The New Hittite Empire with its culture was swept away in the 12th century by a second wave, which also came ultimately from the Balkans.<sup>164</sup>

In Asia Minor small principalities arose on the debris of the New Hittite Empire. On both sides of the Taurus and Anti-Taurus, where the invaders perhaps mingled with the remnants of the Hittites, such principalities are well known to us through their own archeological remains and also through Assyrian records. That at least some of the invaders were related to

<sup>164</sup> [The foregoing interpretation is questioned in the following statement kindly sent to the author by Dr. H. G. Güterbock:

"Die Annahme, dass die Könige des Neuen Hethitischen Reiches ein neues indogermanisches Element darstellen, kann aus folgenden Gründen angefochten werden:

1. Während man die ausdrückliche Anknüpfung an die alte hethitische Dynastie allenfalls als eine politische Fiktion für wertlos halten könnte, gibt es in der gesamten Kultur doch Dinge, die eine wirkliche Kontinuität beweisen. Es ist dies vor allem die politische Struktur des Staates. Die Erbfolgeregelung, die der letzte bekannte König des Alten Reiches, Telepinu, erlassen hat, war auch im Neuen Reiche noch gültig, und in beiden Perioden finden wir das System, unterworfenen Länder durch Angehörige der königlichen Familie verwalten zu lassen. Auch ein Staatsvertrag ist jetzt aus der Zeit des Telepinu, wenigstens durch die Erwähnung seines Titels (*MDOG* Nr. 73 [1935] S. 33), bekannt.
2. Die im Neuen Reiche mit Keilschrift geschriebene indogermanische Sprache ist ebenfalls als offizielle Sprache des Alten Reiches bekannt. Daneben kommt dann im Neuen Reiche die mit Hieroglyphen geschriebene Sprache vor, die, wenn die Lesungen richtig sind, ebenfalls indogermanisch ist.
3. Die Hieroglyphenschrift scheint nach Vorkommen hieroglyphischer oder hieroglyphen-ähnlicher Zeichen auf älteren Siegeln vor den Beginn des Neuen Reiches zurückzugehen.

"Selbst wenn man in den Gründern des Neuen Reiches eine neue indogermanische Welle sieht, so ist damit noch nicht gesagt, dass die Völker, die um 1200 v. Chr. das Hatti-Reich zerstört haben, mit dieser früheren Welle verwandt sind. Der Gebrauch der Hieroglyphenschrift in der Zeit nach 1200 könnte auch als Weiterleben der hethitischen Hieroglyphen des Neuen Reiches erklärt werden.

"Die Siegelform, die in Alişar in der nachhethitischen Schicht gefunden worden ist, war in Boğazköy vielleicht schon in der Zeit des Neuen Reiches bekannt, denn unter den Siegelabdrücken auf Tonplomben aus sicher hethitischen Schichten hat ein grosser Teil konkave Abdruckflächen, was zu den konvexen Flächen der Alişarsiegel passen würde. Auch die gleichen kursiven Hieroglyphen scheinen vorzukommen. Endgültiges kann darüber aber erst nach einem eingehenden Studium des reichen Siegelfundes der Boğazköy Kampagne von 1936 gesagt werden.

"Man braucht also nicht anzunehmen, dass die Einwanderer von rund 1400 und die von rund 1200 diese Schrift aus einer gemeinsamen ausserkleinasiatischen Heimat mitgebracht hätten."

the ruling class of the New Hittite Empire is indicated by their continued use of the "Hittite" hieroglyphs, which, as we know, had already appeared in Asia Minor in the 15th century B.C. with the beginning of the New Hittite Empire.

What the situation was in western Asia Minor during this period we do not know. We know only that by the 9th century a state had arisen which seems to have embraced the whole of Anatolia, with the exception of the west coast, to the Taurus and Anti-Taurus Mountains. This was the Phrygian Empire. The arrival of the Phrygians in Asia Minor is not certainly dated; but it may have had a connection with the last Indo-European wave to enter Greece, in fact the last wave of the Aegean migration, the Dorians. The Phrygian Empire, allied with Urartu, struggled against expanding Assyria. On the west coast another people, the Lydians, seems to have been established, perhaps under the hegemony of the Phrygian kings; but in the southwest earlier elements, such as the Lycians and the Carians, preserved their independence. Northeastern Anatolia was likewise probably not under actual Phrygian rule. In the Pontic mountains other tribes, either parts of the Aegean wave or peoples infiltrating from the north-east, seem to have been independent or only loosely connected with the Phrygian government. The Phrygian Empire was destroyed by the Cimmerians.

Until the very end of this turbulent period the Cilician plain seems to have been entirely cut off from Anatolia and to have had a cultural development of its own based on Mycenaean cultural elements. By the beginning of the reign of Ashurbanipal (668 B.C.) the Cilicians, whom Homer pictures in the Troad at the time of the Trojan War,<sup>165</sup> were leaving southern Cappadocia, where the Assyrians had known them as the *Hilakku* and where their name survived in that of the classical *strategia* of Cilicia,<sup>166</sup> for the plain of *Ḳue*, which itself was to become part of a province called Cilicia.<sup>167</sup> Except in the Cilician plain<sup>168</sup> and along the west coast (sites marked with solid circles in Map XX) the Mycenaean culture appears to have had no great influence in Asia Minor.

## THE SECOND HALF OF THE FIRST MILLENNIUM B.C. AND THE LATER PERIODS

After the destruction of the last Phrygian settlement on the Alishar mound the site was of no importance for at least six or seven hundred years. The only traces of this whole period are remains of humble villages, with the exception of a possibly fortified settlement of the 2d century B.C. on the western extension of the citadel mound.<sup>1</sup> The site saw a certain revival in the late Roman-Byzantine period; according to the coin finds (cf. p. 317) it was most flourishing in the 4th and 6th centuries. The site was apparently abandoned completely in the 7th century, probably as a result of the Sasanian invasions. From the Turkish period we have only a few poor house ruins of perhaps the 16th or even the 17th century, some pottery fragments, and a few small objects (cf. chap. iii).

On the whole the architectural remains of these later periods at Alishar are uninteresting and by no means as extensive as those at many other Anatolian sites. But the pottery and small objects have a certain interest, especially the pottery of the Hellenistic and Roman-Byzantine

<sup>165</sup> *Iliad* VI 397 and 415; cf. PW, art. "Thebe," No. 5.

<sup>166</sup> Ramsay, *The Historical Geography of Asia Minor*, pp. 303-8 and 337.

<sup>167</sup> Olmstead, *History of Assyria*, pp. 125 and 420.

<sup>168</sup> The whole cultural situation in Cilicia is still very vague; it is hoped that Miss Hetty Goldman's excavations in Tarsus will solve some problems. The study by Theodore Burton Brown on "Achaean pottery" (*AAA* XXI [1934] 51-66), while drawing far-reaching conclusions, is based on insufficient material.

<sup>1</sup> Pp. 1-2 and *OIP* XXIX 334 f. and 337.



periods, because thus far we have for these later periods but little knowledge of the culture of the small inland towns. In considering the pottery of the second half of the first millennium B.C., one is astonished at the great variety of wares (chap. i). Unfortunately the excavations at Alişar did not permit us to subdivide them chronologically, and excavations at other sites do not clarify the sequence.

Historically we know that after the destruction of the Phrygian Empire the Cimmerians probably roamed over this part of Asia Minor. From Alişar we have no remains which can actually be ascribed to the Cimmerians; but it is quite possible that the two-winged arrowheads with socket attachment and one barb (e.g. d 67 and c 2485, Fig. 107)<sup>2</sup> are of Cimmerian origin. Forrer has suggested the possibility that the city on the Kerkenes Dağ may have been the capital of the Cimmerians.<sup>3</sup> While such an interpretation is very tempting, we have as yet no real proof for it; however, the pottery and small objects found there seem on the whole to be of post-Phrygian types.<sup>4</sup> The settled population of this period was probably descended from the remnants of Phrygian and earlier occupants. The Alişar pottery resembling Post-Hittite-Phrygian ware (cf. p. 20) may well belong at the beginning of this period. We know that after the destruction of Gordion a strong Phrygian element continued to live there.<sup>5</sup>

Starting with the 6th century B.C., after the Cimmerian period, Iranian influence must have been strong; at least members of the ruling class of the Pontic and Cappadocian regions nearly all bear Iranian names. It is therefore surprising that we have not found at Alişar any material remains which show Iranian influence.<sup>6</sup> Remains from the following period of Greek domination, first under Alexander the Great and then under the various Diadochi, are very scanty. Some few sherds are of ware imported from the Greek mainland (cf. p. 76), and a few fragments of painted ware suggest Rhodian influence,<sup>7</sup> but the bulk of both pottery and small objects must be considered as local products.

The Diadochi were followed by the independent kingdom of Cappadocia. It was during the time of this kingdom that the invasion of the Galatians took place. A certain type of pottery has been attributed, we are not sure how correctly, to this people<sup>8</sup> (cf. pp. 21-22 and 36). After the pacification of the Galatians, and especially after the region around Alişar had submitted to the Pax Romana, we find some signs of prosperity, as witnessed by the denser settlement on the city terrace (cf. pp. 126-43) and by a considerable amount of imported pottery, most of it coming from other Anatolian sites but influenced by Roman wares (cf. pp. 80-88). But, even though a certain degree of prosperity returned to Alişar, many other sites in the vicinity must have been much more important, for Alişar has not yet yielded from any stratum a single architectural piece of wrought marble such as the column bases and capitals of the classical period which we know exist in near-by villages.

After desertion of the site, probably due to Sasanian inroads, the mound remained unoccupied for six or seven hundred years. During the Seljuk period Turkoman nomads apparently

<sup>2</sup> Found also on the Kerkenes Dağ (*AJSL* XLV 269, Nos. K 41 and K 59).

<sup>3</sup> *MDOG* Nr. 65 (1927) pp. 38 f.

<sup>4</sup> E. F. Schmidt in *AJSL* XLV (1928/29) 254-60; Tumulus IV, however, is Phrygian.

<sup>5</sup> G. and A. Körte, *Gordion*, pp. 26 and 214 f.

<sup>6</sup> In the Ethnographical Museum at Ankara there are some gold objects from Çayırseyhi (Akdağ), one of which shows a typical Achaemenian representation of the bust of a god within a crescent; in the same museum there is an Achaemenian stamp seal from Bodrum. But Asia Minor has so far produced relatively very few archeological remains of Iranian character.

<sup>7</sup> E.g. *OIP* XX, frontispiece and Figs. 45 and 46 (a 824).

<sup>8</sup> R. Zahn in *ADAI*, 1907, cols. 225 ff.



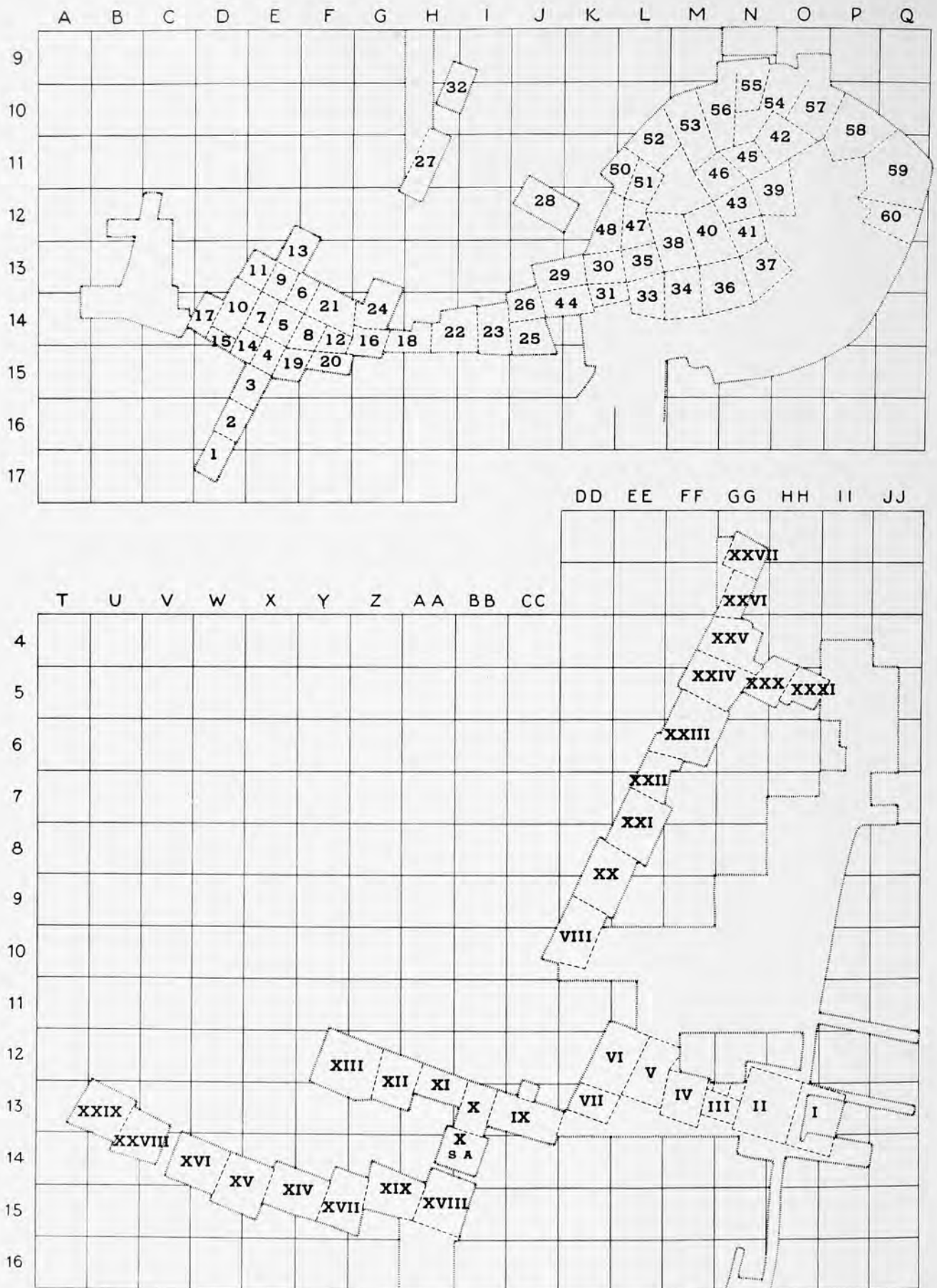


FIG. 288.—CORRELATION OF THE PLOTS OF 1927 WITH THE LATER NET

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roamed over the whole vicinity, and the Seljuk and Dānishmand rulers probably had no more than nominal control here. With the establishment of the Osmanli Empire conditions again became safer, and there was once more a small settlement at Alişar.

APPROXIMATE DATE*	OIP XXVIII-XXX AND OIC No. 14			OIC No. 11 AND OIP XIX-XX	OIP VI-VII
	Periods	Levels†		Periods	Periods
		Mound	Terrace		
11th to 18th century	Turkish {Osmanli Seljuk	1	1	VII {Osmanli Seljuk	Osmanli and Seljuk
0 to 11th century	Byzantine and Roman		2-3	VI {Byzantine Roman	Byzantine and Roman
7th century B.C. to 0	Hellenistic (including independent kingdom of Cappadocia and the Galatian invasion) and Medo- Persian	2-3	4-7	V {Hellenistic Medo-Persian Phrygian	Late III
12th to 7th century B.C.	Phrygian Post-Hittite	{ 4a 4b 4c }	8-9	IV: Hittite Em- pire	Middle III
End of 3d millennium to 12th century B.C.	Hittite Empires (including Meso- potamian merchants)		10-11	II: aliens	II
Extends into 2d mil- lennium B.C.	Early Bronze Age (overlapping be- ginning of first Hittite Empire)	{ 5 5-6 }	12	III: Early Hit- tites	Early III
Ends in 24th century B.C.	Copper Age	{ 7-9 10-11 }	13-14	I: Early Ana- tolians	I
	Chalcolithic§	12-19			

\* For details cf. OIP XXX.

† The mound levels agree in all reports. On the terrace Dr. Schmidt started his numberings with "Level 1" in each individual area.

§ Called "Neolithic" in OIC No. 14.

FIG. 289.—TABLE CORRELATING DESIGNATIONS OF LEVELS AND CULTURE PERIODS IN THIS REPORT WITH THOSE USED IN PREVIOUS REPORTS OF WORK AT THE ALIŞAR MOUND



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E-F 12-13 48	P 26-31 49-50, 52, 96, 126-27, 152, 166, 192	V-CC 24 48-50, 143, 149, 192
E-J 8 1, 49-50, 52, 91, 127, 149, 152	P-Q 12 91, 93	W-Y 14-15 195
F 14 110	P-Q 28-29 127, 192	X 19 52
H 12 93	P-U 26-31 2; <i>see also</i> P 26-31, P-Q 28-29, Q 27-31, Q-R 30, R 26-31, R-S 27, S 27-31, T 27-31, T-V 29-30, <i>and</i> U 26-30	Z 12 193, 195-204, 209
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Turkish words and names are spelled in Turkish fashion (cf. p. xxiii). Of other names, a few are rendered here more exactly than in the text; that is, more diacritical marks have been added. Transliterations of Arabic are based on A. A. Brux, "Arabic-English transliteration for library purposes" (*AJSL*, Oct., 1930, Part 2); those of Persian, on a treatise prepared by the same author but not yet published. With all except the best known place names outside of Turkey the country also is indicated.

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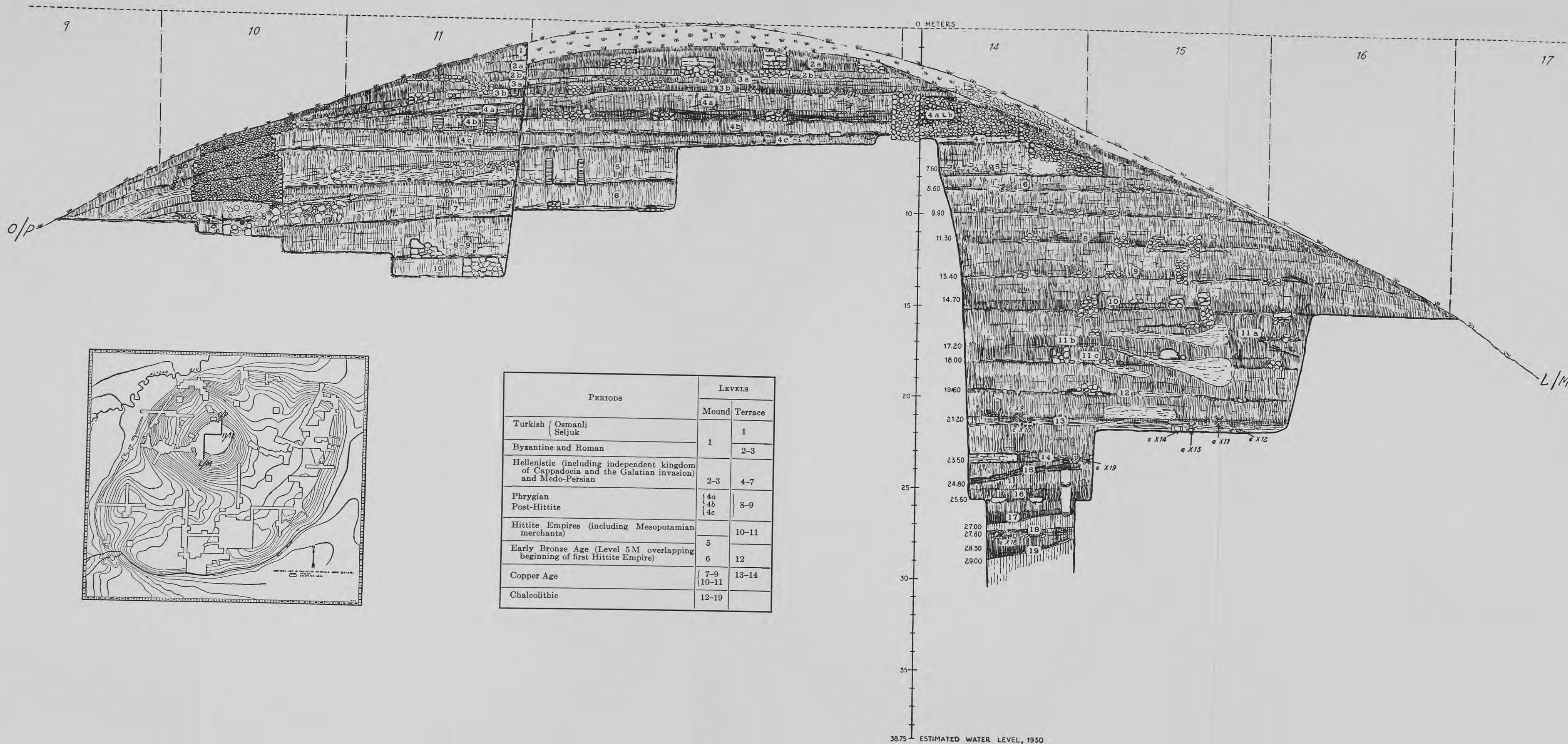
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PLATES I-XV







NORTH-SOUTH CROSS-SECTION OF THE CITADEL MOUND: EASTERN PROFILES OF O9-11 AND L12-16, SHOWING LEVELS 1-19. SCALE, 1:200



THE SITE OF ALIŞAR AND THE SPRINGS OF THE ALIŞAR ÖZÜ. IN MIDDLE DISTANCE AT LEFT IS THE MODERN VILLAGE OF ALIŞAR, IN BACKGROUND THE SUMUK SIVRISI





A



B

A. THE COMPLEX OF 1931 FROM NORTHEAST. B. THE COMPLEX OF 1931 FROM SOUTHWEST



PLATE IV

All except No. 7 are of medium ware.

1. Reddish buff paste; light reddish buff slip with red decoration.
2. Fragment of pitcher (cf. d 321, Pl. IX); grayish buff paste; dirty buff slip with brownish red and reddish brown decoration.
3. Fragment of pitcher (cf. b 664, Pl. IX); buff paste; creamy white panel with reddish brown and brownish black decoration.
4. Reddish buff paste; buff slip with reddish brown and red decoration.
5. Reddish buff paste with gray core; pinkish buff slip with brownish black and red decoration.
6. Neck fragment of small pitcher; brownish buff paste with gray core; light brownish buff slip; creamy white plane with blackish brown decoration.
7. Neck fragment of small pitcher; fine ware; reddish buff paste; buff slip with reddish brown decoration.
8. Buff paste; buff slip with red and faded reddish brown decoration.



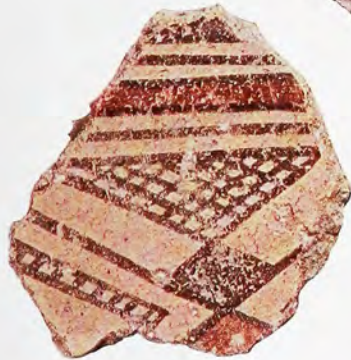
1



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4



6



5



7



8

POTSHERDS OF THE SECOND HALF OF THE FIRST MILLENNIUM B.C. ACTUAL SIZE

PLATE V

All are of medium ware.

1. Fragment of pitcher (cf. b 664, Pl. IX); reddish buff paste; reddish buff slip; creamy white panel; blackish brown decoration.
2. Neck piece of pitcher; reddish buff paste; light reddish buff slip with purplish red and purplish brown decoration.
3. Reddish buff paste with gray core; buff slip; creamy white panel with blackish brown and brownish red decoration.
4. Fragment of jar (cf. 3254 or d 2676, Pl. X); reddish buff paste with gray core; creamy white panel with red decoration.
5. Rim piece of bowl; buff paste; creamy white slip with reddish brown and brownish red decoration inside and outside.
6. Fragment of pitcher (cf. d 2357, Pl. X) or jar (cf. 3254 or d 2676, Pl. X); reddish buff paste with gray core; reddish buff slip; cream-colored panel with blackish brown decoration.
7. Neck piece of pitcher; reddish buff paste; reddish buff slip; creamy white panel with brownish red and brownish black decoration.





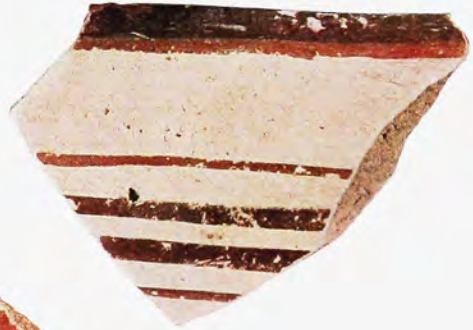
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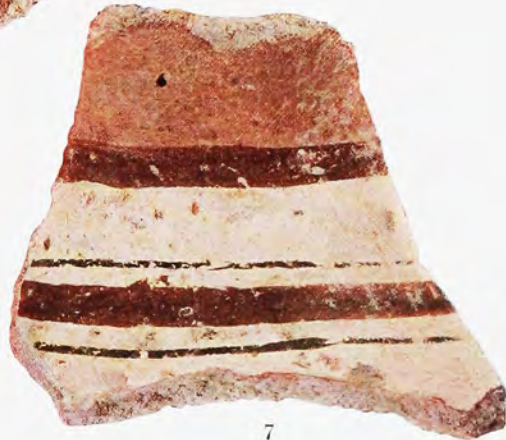
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7

POTSHERDS OF THE SECOND HALF OF THE FIRST MILLENNIUM B.C. ACTUAL SIZE



PLATE VI

1. Fragment of jar (cf. d 2676, Pl. X); medium ware; buff paste; creamy white panel with brownish red and reddish brown decoration.
2. Medium ware; buff paste; discolored reddish buff slip; creamy white panel with purplish red and blackish brown decoration.
3. Fragment of pitcher (cf. d 2357, Pl. X) or jar (cf. d 2676, Pl. X); medium ware; reddish buff paste with gray core; creamy white panel with purplish red decoration.
4. Medium ware; reddish buff paste; buff slip with lustrous black decoration.
5. Fragment of bowl; fine ware; buff paste; creamy white slip with blackish brown and purplish red decoration inside and outside.
6. Neck piece of pitcher; fine ware; reddish paste; creamy white panel with brownish black and red decoration.
7. Medium ware; reddish buff paste; buff slip with gray and red decoration.
8. Fine ware; buff paste with gray core; buff slip with lustrous purplish brown decoration.



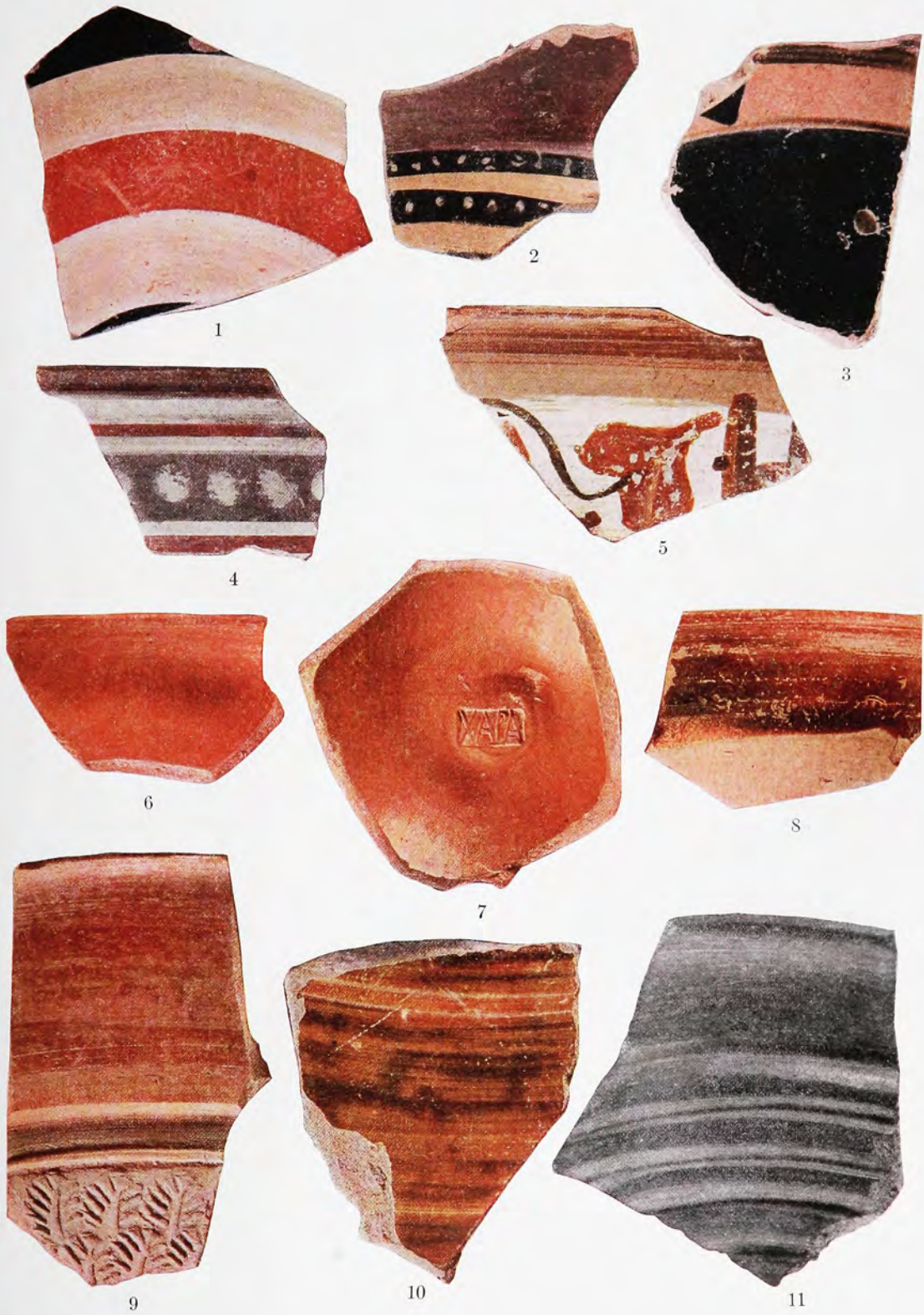
POTSHERDS OF THE SECOND HALF OF THE FIRST MILLENNIUM B.C. ACTUAL SIZE

## PLATE VII

All are of fine ware.

1. Fragment of bowl (cf. 276, Pl. IX); reddish buff paste with gray core; white slip on outside with striped decoration in brownish black and red; similar stripes on inside in black, brown, red, and white (from top to bottom); polished; inside shows marks of a burnishing tool.
2. Fragment of small pitcher (cf. d 1631 and e 1553, Pl. IX); reddish buff paste; purplish brown slip; buff panel with brownish black decoration and creamy white dots.
3. Reddish buff paste; buff slip with black "glaze" (Hellenistic, 5th–4th century B.C.).
4. Rim piece of bowl (cf. e 2200, Pl. IX); reddish buff paste; buff slip on inside; creamy white panel on outside with red, brownish red, and gray decoration.
5. Rim piece of bowl; reddish buff paste; buff slip with reddish brown stripe on rim; creamy white panel with reddish brown and brownish red decoration.
6. Rim piece of bowl; red-"glazed" ware, almost orange.
7. Bottom piece of bowl, with stamp; red-"glazed" ware, almost orange.
8. Rim piece of bowl; brownish red "glaze" with a silvery metallic luster.
9. Rim piece of molded bowl (cf. e 1276a, Pl. IX); reddish buff paste; yellowish red slip on upper part; molded ornamentation below (2d–1st century B.C.).
10. Buff paste; yellowish brown mottled slip.
11. Rim piece of bowl; grayish paste; gray slip.





POTSHERDS OF THE HELLENISTIC, ROMAN, AND BYZANTINE PERIODS. ACTUAL SIZE



# PLATE VIII

All are fragments of bowls. Nos. 3 and 5-10 are of fine buff to reddish buff paste covered with a white slip on which the decoration is painted or in which it is scratched (sgraffito) and then covered with a thick, yellowish, translucent glaze.

1. Turquoise blue glaze on interior; turquoise blue glaze with black painted decoration covered by translucent glaze on exterior (Fig. 227 2).
2. On interior, painted pattern in black and manganese purple on a white ground, covered by translucent glaze; bluish green glaze on exterior.
3. Ocher with sgraffito decoration on interior; exterior (base of vessel) unglazed.
4. On interior, painted pattern in black, cobalt blue,<sup>1</sup> and green on a white ground, covered by translucent glaze; bottle green glaze on exterior.
5. On interior, yellow stained with light green and ocher; sgraffito decoration; light green glaze on exterior.
6. Light yellowish green with sgraffito decoration on interior; light green glaze on exterior.
7. Bottle green with sgraffito decoration on interior; bottle green on exterior and lip, with a painted brown stripe on lip and another just below it.
8. On interior, white slip stained with bottle green and ocher; sgraffito decoration; slip and glaze end a little below rim on exterior.
9. Green with sgraffito decoration on each side.
10. Light green glaze on lower part of exterior; above, painted slip decoration in brown and light green; on interior, light green with sgraffito decoration near rim.
11. Fine reddish buff paste; reddish buff slip with creamy white decoration.

<sup>1</sup> Although the color plates were carefully checked with the original objects, the blue reproduced in No. 4 is unfortunately more purple than that on the sherd itself.



1



2



3



4



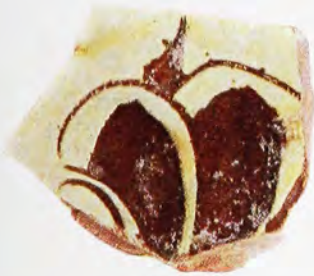
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7



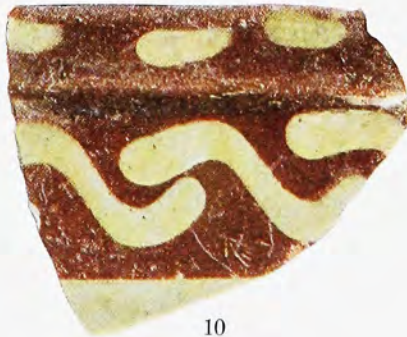
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9

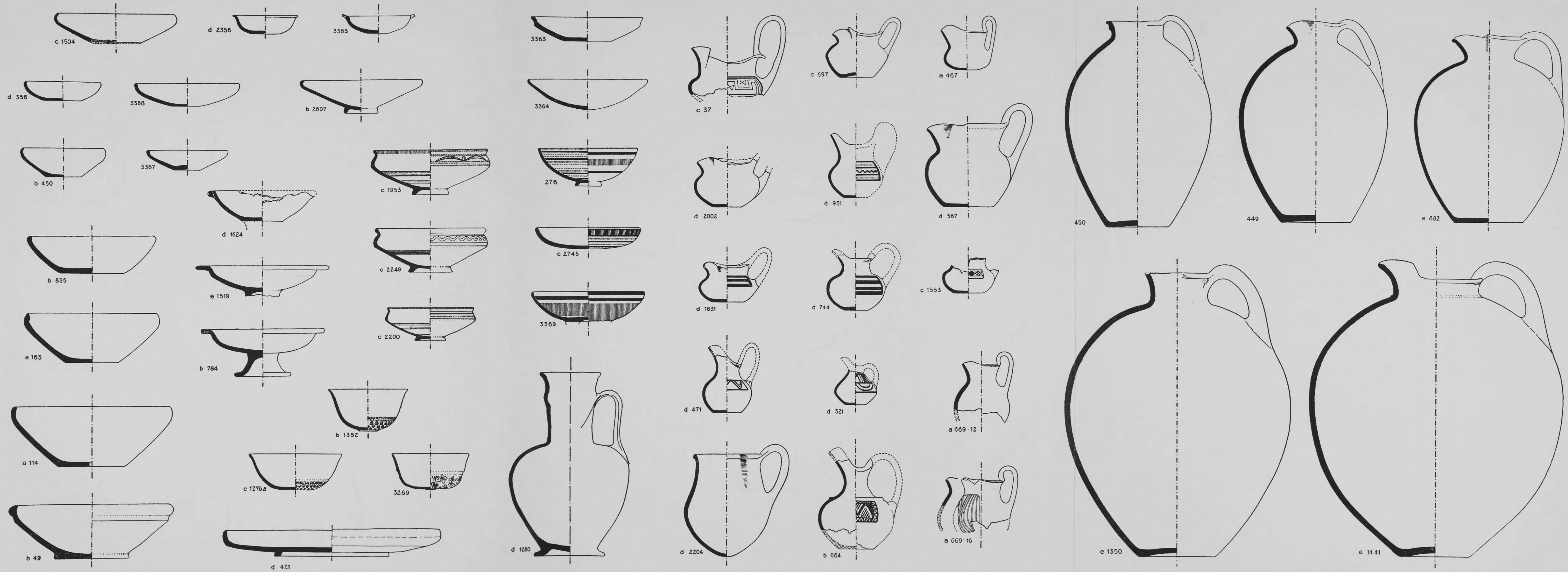


10



11



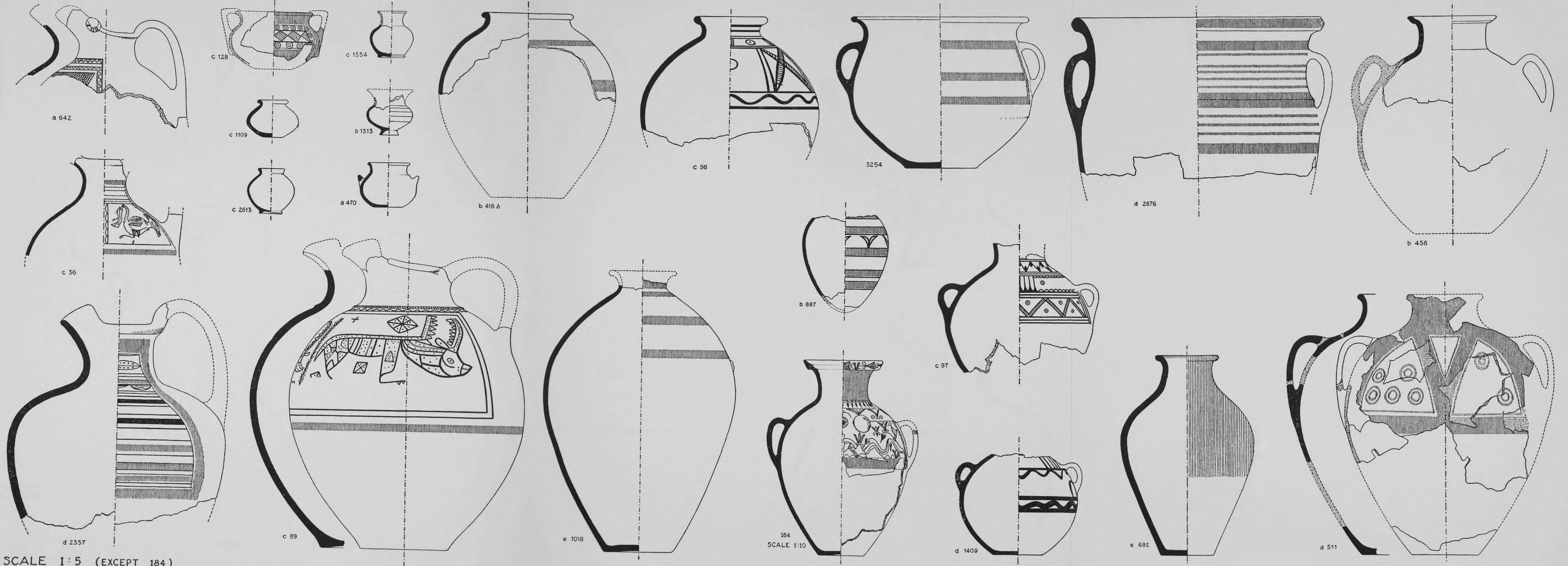


SCALE 1:5

FORMS OF VESSELS OF THE SECOND HALF OF THE FIRST MILLENNIUM B.C. SCALE, 1:5

W.W.R.



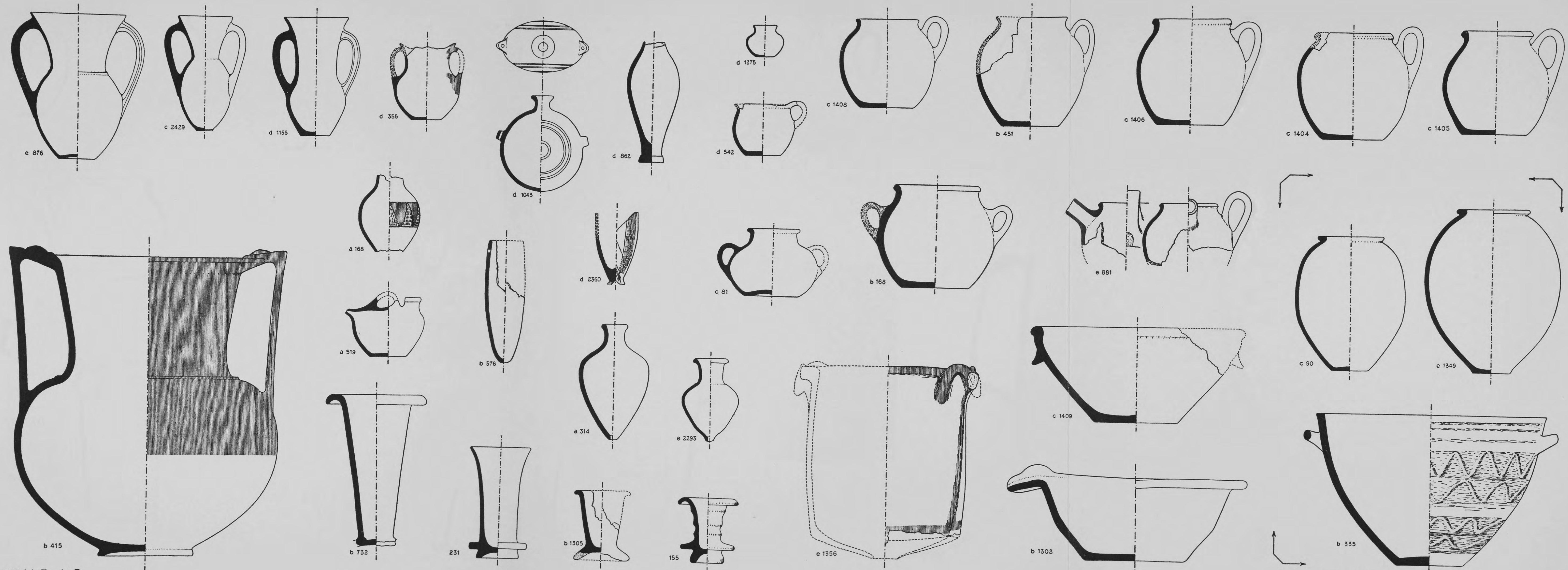


SCALE 1:5 (EXCEPT 184)

FORMS OF VESSELS OF THE SECOND HALF OF THE FIRST MILLENNIUM B.C. SCALE, 1:5 (EXCEPT 184, SHOWN 1:10)

W.W.R.





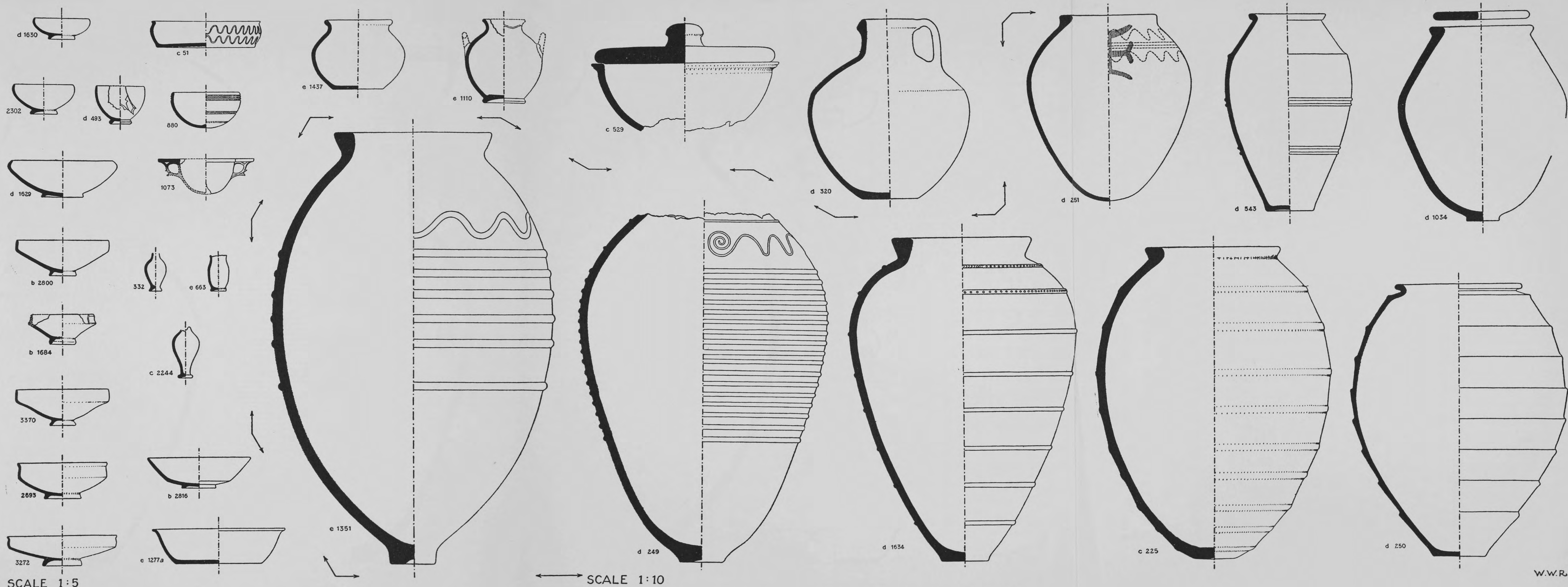
SCALE 1:5

SCALE 1:10

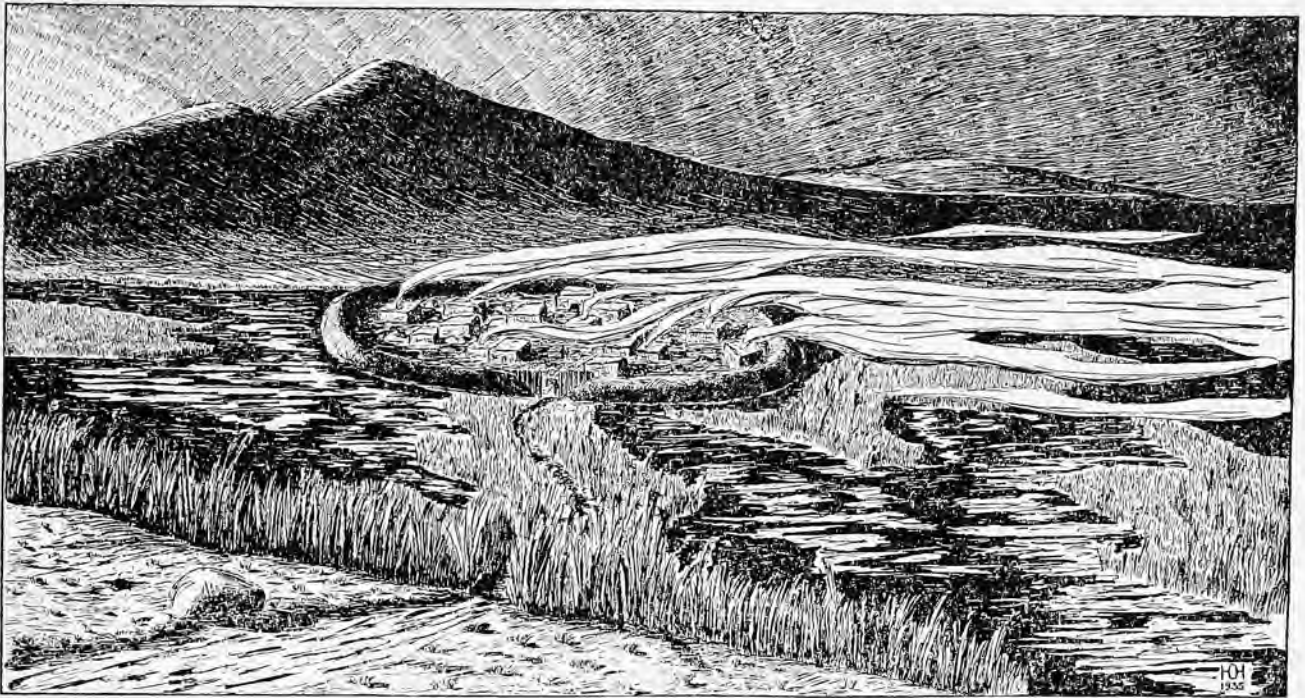
W.W.R.

FORMS OF VESSELS OF THE SECOND HALF OF THE FIRST MILLENNIUM B.C. SCALE, 1:5 (EXCEPT b 335, c 90, AND e 1349, SHOWN 1:10)

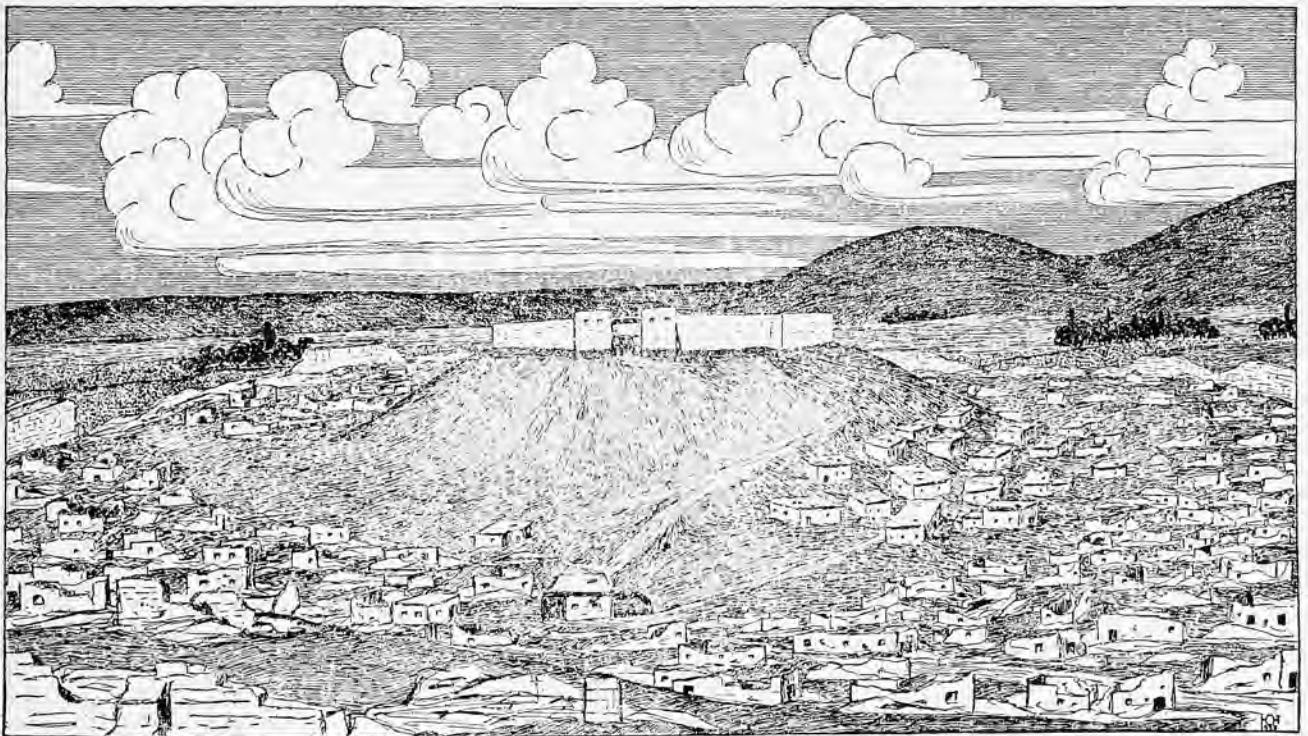




FORMS OF VESSELS OF THE ROMAN-BYZANTINE PERIOD. SCALE OF SMALL VESSELS, 1:5; OF LARGE STORAGE VESSELS, 1:10



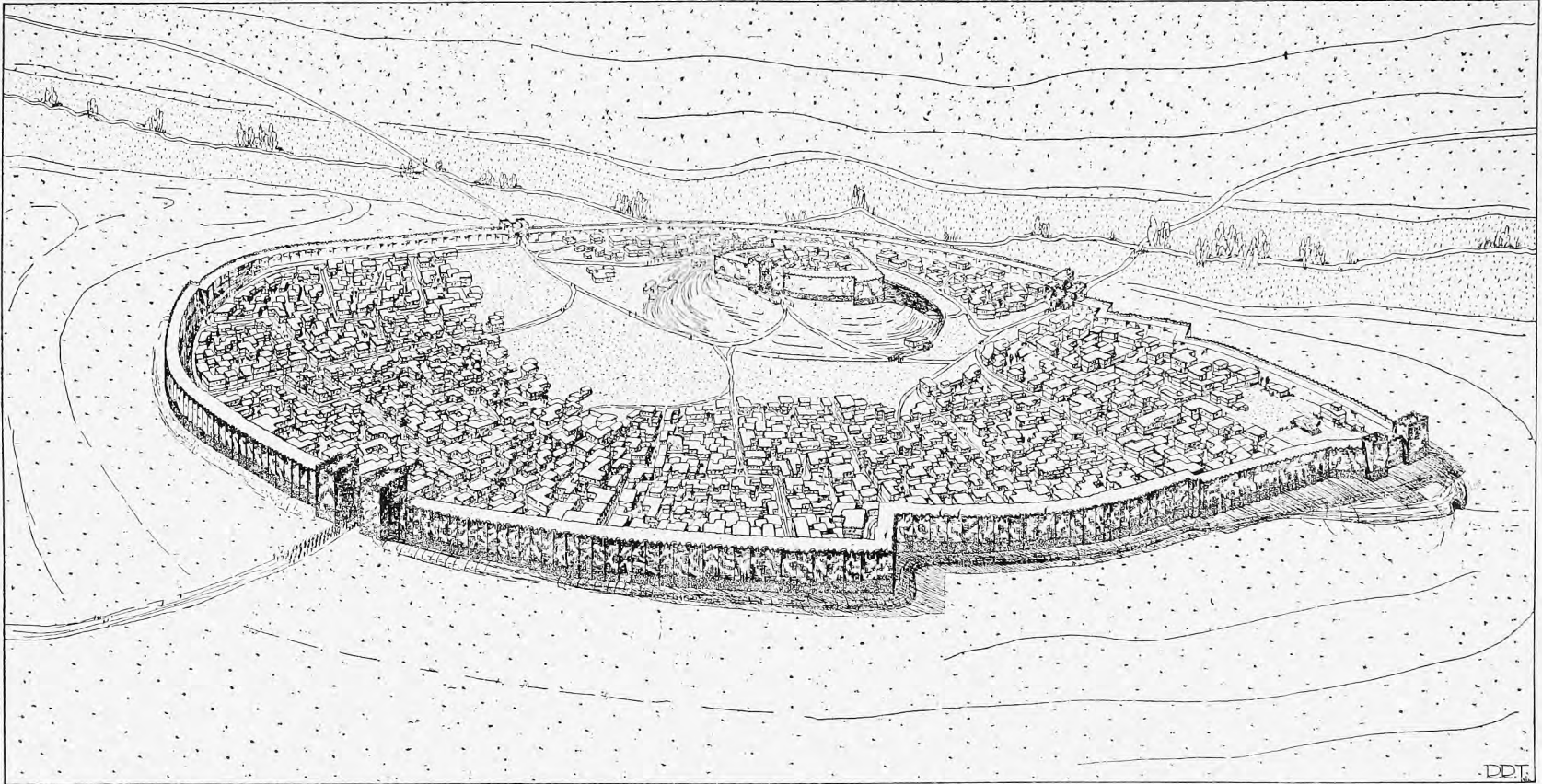
A. THE CHALCOLITHIC SETTLEMENT AT ALIŞAR



B. THE EARLY BRONZE AGE CITADEL AT ALIŞAR SURROUNDED BY THE RUINS OF THE COPPER AGE SETTLEMENT

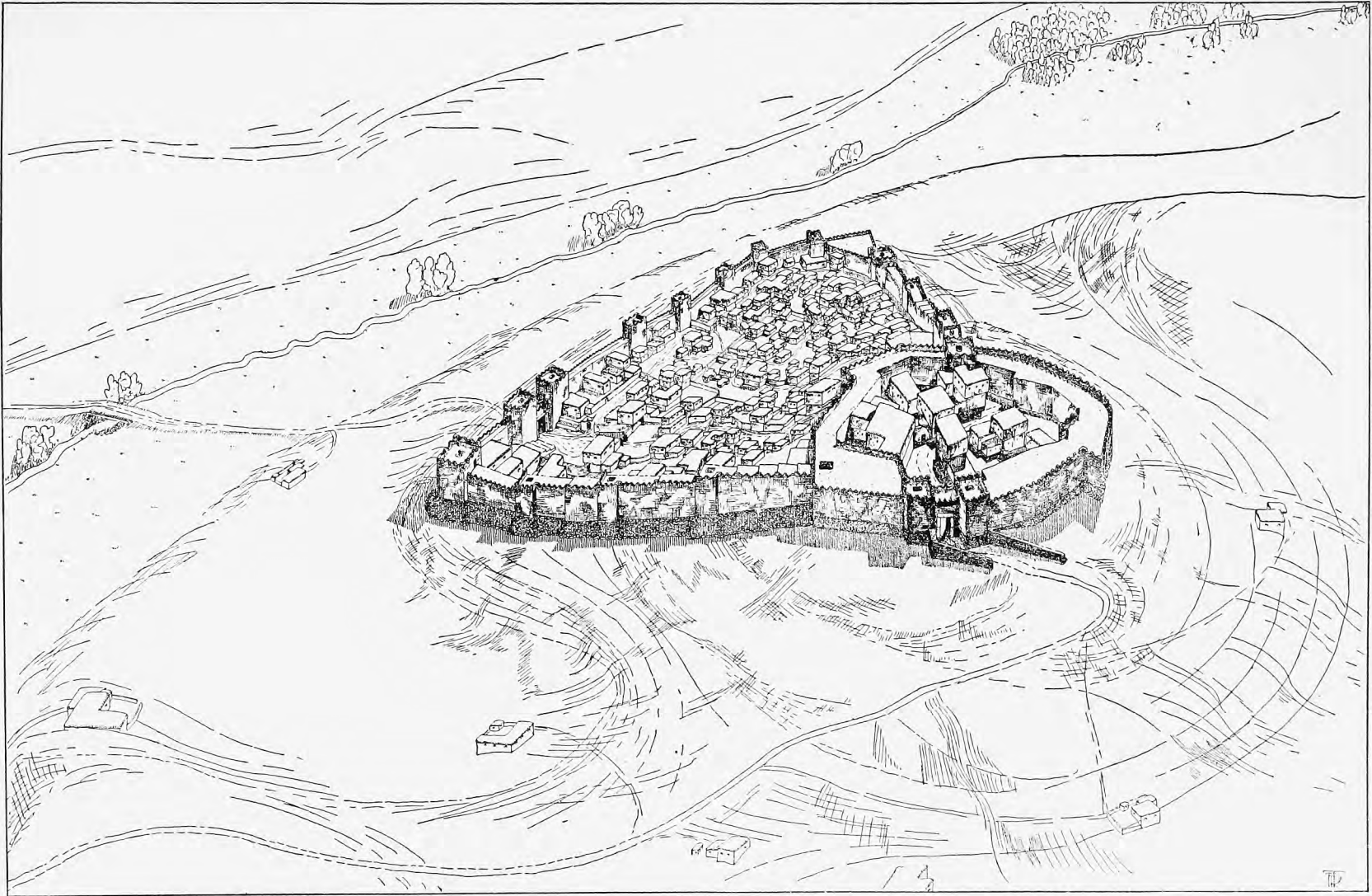
TENTATIVE RECONSTRUCTIONS





THE SETTLEMENT OF THE PERIOD OF THE HITTITE EMPIRES AT ALIŞAR. TENTATIVE RECONSTRUCTION





ALIŞAR IN PHRYGIAN TIMES. THE SETTLEMENT IS BUILT WITHIN THE LOWER FORTRESS ADJOINING THE CITADEL. TENTATIVE RECONSTRUCTION