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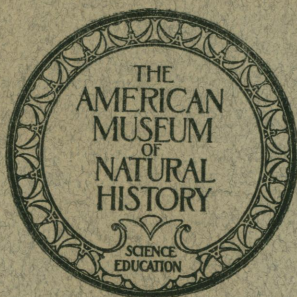
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VOLUME XXXII, PART I

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EXCAVATIONS AT ZACATENCO

BY GEORGE C. VAILLANT



BY ORDER OF THE TRUSTEES  
OF  
THE AMERICAN MUSEUM OF NATURAL HISTORY  
NEW YORK CITY  
1930



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#### VOLUME XXXII

- I. Excavations at Zacatenco. By George C. Vaillant. Pp. 1-197, 54 Plates, 4 Maps. 1930. Price \$2.00
- II. (In preparation)



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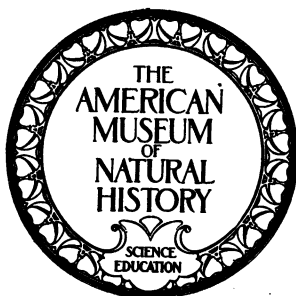
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*Frontispiece*

Head, Type Di, from Trench D, Cut IX, near the Bottom of an Early Period Deposit (30.0-6956).



EXCAVATIONS AT ZACATENCO  
By GEORGE C. VAILLANT





## PREFACE

The pleasantest duty in completing a task is the acknowledgment of one's many debts to others. Mr. Clarence L. Hay, Trustee of the Museum and Research Associate in Middle American Archæology, sponsored the excavations and collaborated in the preparation of this report. Only his modesty prevented his name from appearing on the title page as co-author, for, without him, this work could never have been accomplished. To Doctor Clark Wissler, Curator-in-Chief of the Division of Anthropology, the writer is deeply indebted for sanctioning the work and for gracious counsel and stimulating criticism.

The Department of Archæology of the Ministry of Public Education of the Mexican Government not only consented to this project but forwarded it in every way. Its attitude exemplifies the ideal in international scientific relations. The writer is under a profound obligation to Ing. José Reygadas y Vertiz, the director of the Department and Sr. Eduardo Noguera of the departmental staff, for their courteous supervision and inspection of the writer's work and their readiness to aid him.

The generous cooperation of Madame Zelia Nuttall, of Mr. Robert Weitlaner, and of Mr. C. C. James, residents of Mexico City who gave the writer freely of their knowledge and allowed him the use of their collections, helped him to familiarize himself with the problem immediately, both materially and topographically, and in innumerable personal ways he is indebted to them for more than he can ever repay.

Acknowledgment is due for assistance, criticism, and guidance on the part of Professor A. M. Tozzer of Harvard University and Doctor S. K. Lothrop of the Museum of the American Indian, Heye Foundation, who gave ready access to material, both published and unpublished. Doctor A. V. Kidder, who trained the writer in field archæology, exerts his influence constantly throughout these pages, practically and philosophically, and his excavations at Pecos, New Mexico, are the model for this humble imitation of his masterly field methods.





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Deposit

*Frontispiece*

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## PART I

### INTRODUCTION

Archæology has two chief aims, the reconstruction of the life of people in the past and the arrangement of this life into an historical development. It is not always possible, however, to find sites suitable for carrying out both purposes simultaneously, nor are the technical problems involved precisely the same. The stressing of the former aspect of archæological research carries a body of information that is readily transmissible to people with a non-technical training, while the communication of the actual steps of historical sequence by means of variation in the material culture often demands a technical participation in the research that is beyond a general professional interest. The chief causes for this division of the results of archæological research into sacred and profane categories are that the backbone of most of the New World chronologies is variation in pottery types and that the arrangement of a tribal ceramic into chronological divisions is not only very technical but also highly interpretive and impressionistic. While the purpose of the research at Zacatenco is frankly archæology for the archæologist, I have presented in Part I, first, an introduction to show the reasons for our work during the seasons 1927-1928 and 1928-1929, secondly, a general archæological description of the work done at Zacatenco during 1928-1929, and finally, in Part II the details of classification that, while of interest to a specialist on the early cultures in Middle America, are not essential to the student for a general comprehension of Middle American archæology.

The literature describing the pre-Columbian inhabitants of Mexico is probably more extensive than that for the aboriginal inhabitants of any other modern political division of Middle America. From the description of Spanish eyewitnesses, a student is able to create a clear picture of the customs and other social possessions, material and intellectual, of the conquered peoples; and native historians, writing a generation later, like Ixtlilxochitl, add a political history to the Spanish accounts of things seen and heard. In addition, there are native histories recording the dates of ceremonies and events, written on maguey paper or deerskin or graven upon stone. These comprise generally a succession of events and their dates, without a descriptive text. Many architectural monuments still exist, and utilitarian and ceremonial examples of the

material culture of the original Mexicans, crowd the museums. Upon these material remains is published a wealth of commentary, not only from the point of view of the written political histories, but also describing the finds objectively without the background of the literature. Yet, despite the fullness of this record at the time of the Conquest, our knowledge of the prehistory of Central Mexico is sketchy and full of gaps.

Several difficulties obstruct the re-creation of the history of a people. In modern times we emphasize the political aspect with social and economic changes as correlatives; the arts, both fine and utilitarian are put into a somewhat different category. However, when the contemporaneously written record of events is dimmed we begin to shift the historical emphasis from individual man to his group activities and to his products. As inscriptions fail and myths grow vague, the material remains reflect social groups and phases of time with increasing clarity until finally, for the purposes of pedagogy, we virtually study, instead of the history of man, that of his tools even as, in last analysis, we do in European prehistory.

In the twilight of the beginnings of contemporaneously recorded history, the student therefore is inclined to swing to either one of the two extremes: to work from archives on the social life of man, thus giving him a shorter life span, or to excavate and to reduce history to the shifts in style of pottery or stonework. Formerly, the tendency in Mexican archæology, which has an extensive literary background, was to consider a specimen as the product of the tribe which inhabited the region of its source at the time of the conquest. The aspect of time was carried partly by mythological traditions which went back to about a thousand A.D., and partly by the Maya calendar which, by manuscript records and, earlier, by inscriptions on monuments, gave a continuous series of dates from the coming of the Spaniards back to a little before the Christian era. In recent years Doctor Gamio worked out a stratification in the Valley of Mexico in which Aztec remains overlay those of the Toltec whose traditional date was at the backward projection of the Mexican chronology.<sup>1</sup> But under these Toltec remains, were found another style of material which tied in roughly with objects found underneath a lava flow just south of Mexico City. Taking into consideration all these manifestations of time, Mexican and Maya myths, the Maya calendar, and the Azcapotzalco stratification, Doctor Spinden worked out a development of Middle American culture which expresses marvelously well the general outline of the history of the region.<sup>2</sup> This sketch

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<sup>1</sup>Gamio, 1912; 1912-1913.

<sup>2</sup>Spinden, 1928.



gives any general reader all the information he could conveniently assimilate as well as the spirit and the tenor of the unfolding of New World culture. With the increase of knowledge of remains in Mexico, it became clear, however, that the nomenclature in general use was not sufficient to cover the different manifestations of local culture to be encountered. The technical student began to find that Chichen Itza which was formerly supposed to be conquered from the Maya by the Toltec, yielded a pottery completely different from that found by Gamio at Teotihuacan or in his second layer at Azcapotzalco and that the architecture was very different from the former site.<sup>1</sup> Vera Cruz which was supposed by former students to have been inhabited by Maya, Totonac and Huastec, produced material divisible into six groups of which no one was classifiable as Maya, and four were therefore nameless.<sup>2</sup> The earliest culture in the Valley of Mexico is characterized by types of figurine, technically distinct from Aztec or Toltec, that seemed to resemble other clay figure from different localities in Middle America. Doubts arose that these sculptures belonged to a single culture phase, since their chief resemblance lay in their technique of being hand-modeled and not in homology, and since they were often associated with different kinds of pottery. In the criticisms and counter criticisms on archaeological method that arise, it becomes clear that a technical archaeology based on ground conditions is needed, if further research is to go on in Mexico, and that a background of specific data ought to supplement the attributive classifications based on the written histories.

Immediately, in this connection, one calls to mind the conspicuous success of the archaeology of the Southwest where there has been worked out by technical methods a history that gives not only a general cultural development but also one in chronological steps, with all the implications of tribal movement. In this study the stratification of pottery types was utilized extensively. Kidder and Nelson, followed by Morris, Judd, and a host of others, showed that, with a shaky mythology as the only previous time medium, it was possible by "dirt" archaeology to bring out a history rich and full, instructive to the layman, as well as to the specialist within the field.<sup>3</sup> To date, the field technique evolved by Kidder is the most useful and rewarding yet devised. His methods are being applied in all parts of the New World and ceramic stratigraphy has become to the archaeologist as much an article of faith as evolution was to the universal scientist of the middle part of the last century.

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<sup>1</sup>Vaillant, 1925-1926, 1927; Spinden, 1913; Gamio, 1922.

<sup>2</sup>Strebel, 1885-1889, 1904; Joyce, 1920.

<sup>3</sup>Kidder, 1924.

Stratigraphy of pottery types is often viewed as a science on account of the number of potsherds found in débris and their susceptibility to mathematical treatment. It is vulgarly considered as something easy to find and, if found, self-explanatory. Such conceptions are very distorted. Comparatively few places exist where one may extract inductively a typology from the ceramic stratigraphy. More generally, the stratigraphy works out deductively from a knowledge of types acquired either from one period sites or by absolute comparison of styles. The soil, moreover, requires much study to interpret the deposition of remains. Furthermore, there are several kinds of stratigraphy of variable value. It may be a geological sealing up of remains as at Copilco<sup>1</sup> by lava or as at Cerro Zapote in Salvador by volcanic ash.<sup>2</sup> It may be a three culture accumulation as at Azcapotzalco, with considerable time involved in the accretion. It may be a superposition indicative of consecutive chronological periods during a long period of time as at Pecos, New Mexico. Finally, it may be a mere stratification of floors and building periods which indicate order of construction rather than prolonged lapses of time, as, let us say, at Chichen Itza. None the less, stratigraphy is the most reliable method we have of determining the relative age of remains, as there is little more elusive in archæology than the determination of the chronological position of objects through qualitative considerations.

Another factor of importance in the reconstruction of Middle American history is the possibility of following the Southwestern system of putting every reliance on pottery as an indicator of time and culture. The Southwest was especially favorable for such a method as the people were simple in their culture. Pottery making received, as it were, a tribal stress, so that it became a universally practised art, psychologically strongly controlled by the group. At the same time, it was neither a specialized fine art nor the product of a guild of artisans. Thus socially conserved it would tend to change more from whim of fashion than individual vagary. The relatively standardized technique of house building and stone work throws pottery into strong relief as the one cultural element in which changes would produce a time sequence otherwise difficult of detection.<sup>3</sup>

Mexico, however, offers much less favorable circumstances for the reduction of history to ceramic formulæ. The conditions for preservation in the arid Southwest are much better than in Mexico's tropical low-

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<sup>1</sup>Gamio, 1920; Lozano, 1925.

<sup>2</sup>Lothrop, 1927; Lardé, 1926.

<sup>3</sup>Kidder, 1924.

lands where humic acids, alternating wet and dry seasons, and forest fires, accidental or for the clearing of the land, destroy surface sherds, thereby making reconnaissance difficult. On the Highland, denudation by torrential rains following the destruction of the forest in Colonial times cuts down possible heaps of deposit. In Central Mexico, in general, there also does not seem to have been the same tendency to occupy one place continuously, as in Southwestern towns like Zúñi and Pecos. In the big ceremonial sites like Chichen Itza and Uaxactun the pavements surrounding the temples were left clean. There also was not the likelihood of a heavy accumulation of débris around a temple precinct that there would be around a densely populated village site. Moreover, the Maya towns are little known. A conjectural condition not yet considered is how far volcanic activity on the Highlands might have influenced deposits by destroying early sites through convulsions of the ground.

Other drawbacks to study exist in the nature and function of Middle American pottery. In Southwestern archæology, although there is a decorated and an undecorated pottery, both are made for general use. There is not the wide separation that there is in the high civilizations of Middle America between the storage pottery, the pottery for the service of food, and the artistic, perhaps ceremonial, pottery. The pottery for daily use seems in some cases, as among the Aztec, to have been manufactured as a trade and not a domestic craft. In Chichen Itza examination of the pottery collected from the excavations of the Carnegie Institution yielded virtually no specimens commensurate with the splendor of the architecture. Those that were of artistic or technical merit were almost certainly traded in from elsewhere, most probably Central Vera Cruz.<sup>1</sup> In the Maya area, furthermore, the ceremonial system as evinced by the stelæ and architecture, coupled with the linguistic unity, forms a coherence that is belied by the pottery. Copan, the Peten, and the Yucatan peninsula, all yield regional types.<sup>2</sup> One is pressed to decide which constitutes the true ethnos, ceramics or the ceremonial system of stelæ and temples. Is pottery the true guide to social groups and do the monuments represent a religion? Is the social group one thing and the dominant aspects of the culture another?

Whatever position pottery holds in respect to civilization, it is nevertheless the most responsive criterion to show time and culture which we now possess. But we must not lose sight of the fact of the exceptionally favorable conditions in the Southwest which embrace typology,

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<sup>1</sup>Vaillant, 1925-1926.

<sup>2</sup>Vaillant, 1927.

preservation, and occurrence of material. The apparent pressure of the nomadic tribes, coupled with restricted arable land, made some Pueblo groups tend to reside in localities which they had found reasonably secure and this circumstance leads to an accumulation of the detritus consequent to protracted occupation. Besides, in those Southwestern sites where perishable remains are preserved we can see that it was the pottery and not the weaving technique or wood carving which, after Post Basket Maker times, epitomized chronology, the social factors of tribal organizations, and the qualitative value of the group, for the best pottery, except in the Mimbres Valley, paralleled the best architecture.<sup>1</sup>

Such conditions lead one into the assumption that all pottery must be as historically reflective as that of the Pueblo area, and that once having worked out the pottery for a given period one may adduce great truths of human development. To date, the study of ceramics from the point of view of sequence is the factor the most sensitive to time and tribe that we have; but archæological technique is in its swaddling clothes. It is only comparatively recently that we have discarded stonework as the most important formula for ethnic interpretation.

Several conditions not present in the Southwest hinder a reduction of Mexican culture to a ceramic formula. But since pottery displays its greatest utility in the interpretation of lower culture groups, it is probably the most subtle medium for segregating into ethnic relationships and time periods the remains of those people unchristened by Spanish reference or undefined by the artistic distinction of their fine arts. Even if ceramic conditions are less favorable in Mexico than in the Southwest, the spirit of the archæological research in the Pueblo area, in the arrangement of data, and in their technical acquisition is perfectly applicable to Mexican problems.

The preceding discussion of the stratigraphy of ceramic types bears directly on the research undertaken by the Division of Anthropology of the American Museum of Natural History in the Valley of Mexico. Considerable work is being done on the specialized civilizations of Mexico, like the excavations of the Department of Archæology of the Mexican Government at Teotihuacan, the Toltec center, and Tenayuca, an Aztec pyramid, and like the work of the Carnegie Institution of Washington at Chichen Itza. For some years, however, no formal work has been undertaken in Mexico on the earlier cultures from which must have branched out the civilizations of the Maya, Zapotec, Toltec, Totonac, Aztec, and other advanced peoples.

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<sup>1</sup>Kidder, 1924.

Yet the earlier populations have been the subject of much discussion and a résumé of the nature of the research and its literature may be of some utility in comprehending why the Department of Anthropology chose this field to commence its investigation.

The interest in the pre-Toltec remains in Mexico began with Madame Nuttall's discovery in 1907 of figurines of a new type under the Pedregal.<sup>1</sup> Holmes in 1885<sup>2</sup> and the French Commission of 1853 had discovered early remains, but made no sort of ethnic interpretation. Later Doctor Gamio began his researches<sup>3</sup> and discovered the stratification mentioned above that transcended mere superposition of objects by indicating also geological changes.<sup>4</sup> His discovery was rightly hailed as of great importance in giving chronological depth to the existent classification of material culture as well as to the mythological accounts of tribal history. Professor Boas brought out an album, illustrating surface finds, without archaeological data, which is the fullest corpus to date of sherds and figurines from the early cultures of the Valley.<sup>5</sup> There followed in 1917 Gamio's work at Copilco where figurines stylistically connected with the bottom floors at Azcapotzalco were encountered under a deep volcanic flow to the south of Mexico City.<sup>6</sup> Grouping these figurines found at Azcapotzalco, under conditions of undoubted antiquity, with other apparently similar examples found elsewhere in Middle America, Doctor Spinden evolved his theory that there was a unit culture underlying all the civilizations of Middle America and that this "Archaic" culture was the bearer of those elements which were later transformed into specialized civilizations like the Maya and Zapotec.<sup>7</sup> Professor Cummings in 1923-24 carried out extensive excavations, which have not yet been fully published, at the pyramid of Cuicuilco underneath the Pedregal.<sup>8</sup> Up to this point, the recognition and the definition of the "Archaic" culture had been confined to figurine types. The first attempt at a serious study of the figurines was made by Mr. C. L. Hay, who evolved a tentative classification that he withheld from publication until supplementary field data should appear. In 1925, Professor Kroeber published a study of the ceramics of these early cultures with a statistical segregation of the pottery, site by site, into four periods.<sup>9</sup> In 1926, Doctor Lothrop brought out his publication of Costa Rica

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<sup>1</sup>Gamio, 1920, 127.

<sup>2</sup>Holmes, 1885.

<sup>3</sup>Gamio, 1919.

<sup>4</sup>Gamio, 1912, 1912-1913.

<sup>5</sup>Boas, 1911-1912.

<sup>6</sup>Gamio, 1920; Lozano, 1925.

<sup>7</sup>Spinden, 1928.

<sup>8</sup>Cummings, 1923, a, b.

<sup>9</sup>Kroeber, 1925.

pottery wherein he doubted the validity of the "Archaic" theory as stated by Doctor Spinden.<sup>1</sup> This report was followed by one on Guatemala in which he developed an early phase of stone sculpture.<sup>2</sup> Finally, in 1927, appeared a short report on Salvador, wherein he described figurines and pottery found under volcanic ash near the city of San Salvador.<sup>3</sup> In the same year, Doctor Gamio published his researches on the Highlands of Guatemala.<sup>4</sup>

In December, 1927, during the meetings of the American Anthropological Association at Andover, Doctor Spinden, Doctor Lothrop, and the writer discussed the so-called "Archaic Problem." This conference established two points of view which formerly were very confused. Doctor Spinden held that there was a more or less unified cultural development preceding the specialization of culture into such manifestations as Aztec, Toltec, Maya, Zapotec, et al. Doctor Lothrop and the writer argued that by a definition of specific traits from area to area there were found differences of a sort that would forbid such a conception. Although Doctor Spinden's position was philosophically and artistically secure on the basis of the knowledge at hand, Lothrop and the writer believed that it did not give a true picture from the point of view of the field archæologist, the tribal historian, or the technical student. Both sides showed very clearly that the specialized civilizations had their roots in a material culture by no means primitive and probably of no tremendous antiquity.

In 1928 and 1929 the excavations of Doctor Ricketson and Mr. Amsden of the Carnegie Institution at Uaxactun brought to light pottery and figurines that although pre-Maya are not at all allied to the ceramics of the early cultures of the Valley of Mexico.<sup>5</sup>

An examination of the literature shows that the material from no one site has been completely described or classified. The corpus of specimens comprises material:—

- a. From sites sealed in by geological deposits,—Copilco, Cuicuilco, Azcapotzalco, San Juanico, Valley of Mexico; Cerro Zapote, Salvador.
- b. Collected in the open and similar to *a*,—Tetelpan, Zacatenco, Ticoman, Cerro de la Estrella, etc., Valley of Mexico.
- c. Collected in a stratigraphical position underlying material of known cultural affinity,—Azcapotzalco, Valley of Mexico; Holmul, Uaxactun, Peten, Guatemala.

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<sup>1</sup>Lothrop, 1926a.

<sup>2</sup>Lothrop, 1926b.

<sup>3</sup>Lothrop, 1927.

<sup>4</sup>Gamio, 1926-1927.

<sup>5</sup>Ricketson, 1929; Vaillant, 1927-1928.



- d. Collected in the open and similar to *c*, although qualitatively higher than *a* or *b*,—Finca Arevalo, Guatemala.
- e. As an influence showing itself as an unclassifiable, residue among material of known cultural position,—Salvador, Guatemala, Vera Cruz, Ulua Valley.<sup>1</sup>

By a process of attribution, interpretation, and classification, there seem to be two main currents at least, a set of material, homogeneous by technique, heterogeneous by typology, occurring under conditions of definable antiquity, and secondly, a group of recurring ceramic traits that have a wide distribution, and occur under conditions *c*, *d*, *e*. The former group is best exemplified by the early cultures of the Valley of Mexico, the latter is found throughout the Lowlands and the Southern Highlands of Middle America, the influence being tentatively denominated by Doctor Lothrop and the writer, as influence *Q*. But the Cerro Zapote material ties in with it. Back of both groups there is a long stretch of development unrepresented by specimens, between a stage equivalent to the Basket Maker and these manifestations which are on a par, more or less, with the best Pueblo groups. It is also clear that these middle cultures contain the seeds of the high civilizations. But until the earlier background is understood, however much be known of the high civilizations, the history of the fundamental relationships of tribes and cultures in Mexico will not be half-told. From the material at hand, there is a considerable diversity of types from one geographical area to another, even as the study of Kroeber and the Album of Boas show variation between virtually adjoining sites.

It is clear then from the appraisal of the very excellent work already done that what material has been found is too scanty, or has been insufficiently published, or has occurred in such a way that its provenience is uncertain. Moreover, heretofore there has been no time sequence established within the early cultures, although Professor Kroeber certainly blazed the way toward one. Both he and the writer recognized that in the Valley of Mexico, the pottery fell into two groups, neither of which was affiliated very closely with the ceramic manifestations of the "*Q*" group, and Doctor Kroeber, on statistical and stylistical grounds, showed in a series of four steps that one of these Valley potteries was later than the other.<sup>2</sup>

The officials of the American Museum of Natural History, Doctor Clark Wissler, Curator-in-Chief of the Division of Anthropology, and

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<sup>1</sup>Vaillant, 1929*a*.

<sup>2</sup>Kroeber, 1925; Vaillant, 1929*a*.

Mr. Clarence L. Hay, Trustee of the Museum and Research Associate in Middle American Archæology of the same Division, decided that a study of these early cultures was essential and that the place to begin was the Valley of Mexico. The greatest number of specimens collected, the greatest amount of work done, and the closest relationship between the early and the later cultures exist in that region. An excavation that would yield a stratigraphy within the early culture phases and that would acquire a collection illustrative of the possessions of the people, would also give a stepping-stone to other stratigraphical studies, and a fixed point for a comparative typology connecting the later civilizations with these earlier remains and perhaps projecting the latter further into the past. Doctor Wissler and Mr. Hay entrusted the writer with the selection of a site and the details of its excavation. Our first problem was to find a site easy of access, possessing deep beds of débris, and securely belonging to the unspecialized culture group. We especially wanted one not sealed in by lava or deep flood deposits so that there would be a minimum of digging unproductive of data. The season of 1928 was devoted to such a search and the most likely place proved to be a hill at Zacatenco, near Guadalupe Hidalgo, a suburb of Mexico City. This site had been discovered by Professor Boas, and he had published a collection of specimens from it in his Album.<sup>1</sup>

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<sup>1</sup>Boas, 1911-1912.

## PHYSICAL COMPOSITION OF ZACATENCO

The archæological site of Zacatenco is at the eastern entrance to the town of that name, situated north of Guadalupe Hidalgo on the line of the old Spanish Colonial aqueduct that runs along the base of the hills from Tlalnépantla to Guadalupe. It is easily accessible by automobile from Guadalupe, being about two and a half miles from that place on the road which borders the aqueduct and a little less than two miles by the direct road to Ticoman, the next village west of Zacatenco (Map II).

A spur jutting out from the range of hills that separates this branch of the lake from the main body of Lake Texcoco gives a first indication that here is a favorable site for human occupation. Coming nearer one sees that such an assumption is correct, for the southeastern slopes of this rocky peninsula are thickly covered with potsherds. At the top of the hill and on a flat depression near the summit there are no pottery fragments at all; the western slopes are equally barren. The lake was drained fairly early in the Spanish occupation, but floods during the rainy season made the aqueduct and road builders keep to the firm foundation of the rocky hills bordering the reclaimed land, so that a wide cut is opened through the *débris*. Fortunately for the excavator, the earth was not thrown out to either side of the cut, thus confusing the depositions of *débris*, but was carried out along the road in either direction to make an easy grade across the hill, or perhaps to facilitate its removal by carriage over the lowest possible gradient. In recent years the town authorities wished to connect their town with a newly constructed highway from Guadalupe Hidalgo to Ticoman and Cuauhtepc which follows a dike on a bee-line through the east side of the Valley. They cut into the *débris* beds to a depth of about twelve feet for an area of an acre to find material for a causeway to link the old road along the hills with this new highway. Two vertical banks formed by this excavation exposed the heart of the hill, and the lenses of *débris* deposition were laid bare for inspection. The writer, recognizing this as the deepest bed of continuous early culture *débris* he had seen up to that time, immediately decided to trench it (Map III; Pl. L, Figs. 1-3).

It was obvious that the fierce showers of the rainy season had caused much erosion and displacement of strata. Clearly, the Colonial builders of the aqueduct and the road had created a considerable disturbance. A closer inspection of the site revealed an Aztec structure on the edge of the *débris* mound. To lay the floors of this building, there must have been some leveling off of the hill. Furthermore, owing to the presence

in the vicinity of mounds of dirt, the detritus from the salt works that have existed in the Valley from Aztec times to the present day, it was suggested that we did not have a village site at all but one of these dumps. However, our analysis, confirmed by the opinion of the villagers, revealed that the salt mounds had a different texture in that there were no lenses of débris, as in the exposed faces at Zacatenco. Nor does vegetation grow on a mound formed by salt making, whereas the hill at Zacatenco had been cultivated for years. Once the authenticity of human habitation was established, two agencies militated against the immobility of strata, which is essential to such a study as ours; first, the cultivation of the ground which, after all, affected only the surface, and secondly, digging for treasure.

The myth of a green light burning over treasure after dark is common to Mexico and is strongly believed at Zacatenco. The light here appears on the night of the third of May and marks the position of a pot of gold. The viewer must mark the spot and dig alone, without help, else the treasure will disappear or turn into charcoal. Fortunately for us, the light had been seen only near the Aztec floors and the tremendous disturbance which ensued was confined to an area rejected as unsuitable for excavation, owing to the previous grading work of the Aztec salt-workers.

In spite of these many undesirable features, other considerations made Zacatenco most suitable for stratigraphical research. When a preliminary trench (B), dug downward from the floor of the pit whence the causeway material had been removed, revealed bottom more than three meters below, it was clear that this site showed a greater depth of débris of occupation than any other early culture site in Mexico hitherto observed (Map IV, Section I). Even if one had no sure geological demarcations of strata, at least with such depth one could arrange time periods from the different styles of artifacts found at various levels. If the rainy season washed the upper strata down over the lower in later times, it must have done the same each year in early times, so that although the original position of the débris might be altered, it would nevertheless preserve an equivalent deposition on its new bed (Map IV, Sections I-IV). It is theoretically possible, however, to have, through such agencies, a reverse stratification, i.e., when the successive removal of strata by erosion presents the original layers reversed in the new accumulation. A pit dug into normal strata may produce this phenomenon in the excavated dirt. Actually, this latter condition has been observed only once in the writer's experience, when Doctor A. V.

Kidder, at Pecos, New Mexico, found that detritus from an excavation for a kiva showed the fragments of pottery chronologically reversed, but that underneath the excavated dirt the sherds held their normal sequence. The possibility of a reverse stratification must be considered, but, for several reasons it can only superficially affect the interpretation of a site. Ideally reverse stratification by means of erosion through natural causes could only occur where a bed of *débris* accumulated above a cliff and terminated in a vertical face while the ground at the foot of the cliff remained clear of *débris*. It would then be possible for the top stratum to be washed first to the ground at the foot of the cliff and be followed successively by the underlying strata, until the lowest stratum at the top of the cliff was the top one at the bottom. In actuality, contemporary erosive factors like wind and rain would form a stratigraphy, at the foot of the cliff, duplicating that which lay at the top. Later erosions might create a reverse stratification above this lower series of depositions, but it would be very obvious that the lower strata represented the true sequence. Partial reversals are likely, particularly when the *débris* washes off down a slope, but the stratigraphical sequence would be affected only at the foot of the declivity. At some point on the slope one could detect the interlaminations of the strata and derive therefrom a true picture of past conditions.

The first week's excavation gave an indication of the plan of campaign. The accompanying map and the sections indicate how the great accumulations of *débris* lie at the south of the road on a gently sloping bottom, while north of it the rock rises very steeply and the rubbish beds grow shallow. The upper slopes ought, therefore, to contain habitations, since it is unlikely that any people would dispose of waste against gravity. Thus we decided to peel the deep deposits, layer by layer, in a series of steps, B-D trench system, to see how time affected the material culture and also how much the material was affected by redeposition. The northern trenches, A, C, and E trench systems, were designed to find the source of the *débris*, the habitations, the contour of the hill, and the original zone of occupation. The second week's excavation disclosed at the head of Trench A of the upper trench series a low cliff against which the *débris* had accumulated. The top layer of the south trench, D, did not show any buildings; and the pottery and figurine types were fairly uniform, although there was some admixture by erosive deposition of earlier types (Map III; Map IV, Sections I-IV).

However, it was evident from the first two weeks' work that there was no possibility of extracting a very complicated time sequence.

Erosion by rain wash was great from the beginning. Strata were cut by miniature arroyos and these in turn were filled again by fresh deposits. The original inhabitants seemed to have been concerned at the fugitive quality of their living surface. Traces remained of rough terraces revetted by boulders. (Map IV, Section I.) Even adobe was utilized to bank up the earth and keep the surfaces level. Burials occurred in the débris and even these were sometimes washed out and the bones scattered. Burrowing animals, probably after human occupation ceased, made their homes in the deposits.

The strata then are not distinctive in a geological sense. Reliance had to be placed on the objects themselves and constant care exerted to extract them in their relative positions. Working against a hillside absolute depth meant little. The variability of the strata made it impossible to work by peeling off layers; and the material occurred more often in lenses than in prolonged depositions. To keep some relative control of the position of the objects, we moved into the deposits on a series of floors. Later, when the trench was opened completely, we could trace the débris lenses and fix the position. By recording the daily progress of excavation in section and plan it was subsequently quite easy to compare a digging level and the objects which it yielded on any given day with the actual deposition of lenses, which could not be understood until after complete excavation of the trench. Except to begin a trench, no digging was ever done straight down. We worked against a vertical face in front, so that three faces, the front and the sides of the trench, were always exposed; and control was thereby established on dips in the strata.

We have shown how Trench D was to carry the purely stratigraphical work of the excavation (Map IV, Section II). The first cut ran on more or less a dead level from the edge of the bank west to the Aztec floors. About five meters east of these floors early material began to occur and from previous experience we knew that underneath there must be an outcrop of rock which caused Middle Period material to appear so near the surface. While Early and Middle material occurred all through the top cut it seemed coincident with sand areas which marked former gullies and washed zones. A month had been spent on this first cut, and, realizing the lack of time, we began to peel the second layer which was characterized by much washed material. In the third layer we encountered, at the outset, a series of revetments and a deep pit of sherds which contained many large pot fragments. The material was homogeneous and of what we subsequently called the Late Period.



The next three cuts (Cuts IV-VI; Map IV, Section II; Pl. L, Fig. 2; Pl. LI, Fig. 1), again disclosed fairly horizontal strata, but the sherd lenses had increased in number, alternating with a quantity of sand lenses indicative of accumulation through wash. There were few figurines, and most of these were in the sixth cut, the last of this series, which looked like an accumulation by primary deposit. Here there were many animal bones and potsherds (Pl. LI, Fig. 2).

The bottom four cuts, Cuts VII to X, (Map IV, Section I; Pl. LI, Figs. 3-4), ran through soil that contained a large admixture of clay. A strip of sand roughly separated them from the cuts above. The sherd strata more or less paralleled the rock bottom of the trench, which rose slowly to the north and west. The potsherds of the upper layers had a cheesy, flaked appearance, as if from having been under water. Figurines of another type than those of Cuts I-VI were common. Burials (Map I) occurred in the south of the trench. The bodies were interred from a surface below the sand layer, at a depth of between a meter and a meter and a half. One of these (No. 14) contained a tiny fragment of textile preserved in its skull. The graves lay south of two revetments, one higher than the other, which represented apparently two successive constructions for grading or preserving subsequent living surfaces. They were built right into the débris, the slopes of which were more nearly horizontal behind the walls than in front of them. The impression is given of the stones having been set into the soft soil and the detritus being permitted subsequently to pile up behind and over them. These lowest layers are undoubtedly a primary deposition for there are ash beds and burials, and some of the figurines still retain a surface paint so soft that it can be rubbed off with the finger. Any movement by erosive agency would certainly have destroyed the paint.

Summing up briefly the conditions to be seen in Trench D, the first deposits as seen in the lowest four cuts were heavy masses of débris of occupation, potsherds, figurines, bones, and tools. Presumably to keep some sort of level space, rows of boulders were set up from time to time. These low revetments were quickly covered up and in this débris the Zacatencanos buried their dead. For a time, as indicated by Cuts IV to VI, the mound seems to have been abandoned, but its accretion continued from rubbish beds that existed further up the slope. The types of figurines and pottery tended to change. When one part of a slope is washed down upon another, the steepness tends naturally to level out. In the top part of the mound, Cuts I to III, we find revetments again and lenses of débris that are definitely primary. The top

layer shows erosion after the site was abandoned, with the redeposition of a few objects washed down from the upper part of the hill (Map IV, Sections I and II).

Being unable to prolong Trench D northward since the road and the aqueduct are still used (Map III), we opened on the other side of them, Trench E (Map IV, Section I, Pl. L, Fig. 1) designed to supplement the northward extension of D by following the highest contours of the hill until archæologically sterile soil was reached. This trench was run in two divisions. The first cut dropped straight to bottom. Later, the trench was prolonged east (Trench E South) and then north (North) up the hill to a wall of slabs. The slope had a laminated appearance, as if covered by adobe laid on in coats. To make sure that this adobe was not a construction, we cleaned the coats carefully, finding that they ran on irregular levels and had very little depth. The most natural assumption then was that the adobe represented wash from structures northward up the hill like series of the slab structures in Trench C, north extension. The trench was dug in six cuts. Each of the top four cuts showed at the outset, adobe wash and, as each worked into the slope of the hill, gravely washed deposits. The top cut did not show any primary depositions until about five meters from the objective it disclosed lenses which were nearly vertical. These tilted over a vertical bank of débris resting on a rock outcrop, the surface of which must have been smoothed and shaped by the hand of man (Pl. LII, Fig. 3). The second cut met a revetment wall of loosely piled boulders on the other side of which lay the lenses of débris which were beginning to spread out from their former vertical position, tilting in southerly and easterly directions. This second cut terminated in the vertical rock face. The next two cuts, III and IV, yielded many more sherds, for the floors more nearly paralleled the sherd deposits which were now nearly horizontal, although still retaining a southeasterly slope. The presence of a low cliff was clearly indicated as more was revealed of the rocky face terminating the trench (Pl. LII, Fig. 3). The bottom cuts, V and VI, laid bare the complete section of the deposit, disclosing the situation. Trench E met the ledge just east of an angle, the arms of which run southwest and northeast. The original source of débris must have been from settlements along a rocky ledge that separated the steep ascent to the top of the hill from the gentler slopes at its foot. Against this angle the first layers accumulated, tilting, naturally, south and east, but deposited mainly from the southwest. The succeeding deposits came more strongly from the northern part of the ledge and filled in the angle, extending at the same time

beyond it. There must have been always, as now, an intense and constant erosion. Virtually no late material occurred. Only one or two figurines of the type of the bottom layers of D were present. Almost all the objects from Trench E belong to the same type as those yielded by Cuts IV to VI, Trench D, which are probably redepositions of E débris. The sherds in the lowest layers of Trench E presented an appearance even more flaky and rusty than the fragments from the bottom layers of Trench D. No traces of buildings were discernible in the lower strata. From the appearance of the sherds and the absence of building one suspects the presence of water, perhaps marshy shallows. It is fairly certain that the living surface at the time of deposition was on the ledge and the refuse was thrown over the side. Some fragmentary human bones and the disturbed skeletons of an adult and a child were encountered here.

Although Trench E was one of the latest trench systems undertaken at Zacatenco, its function was to connect data, gleaned from Trench D, with the information yielded by the other hillside trenches of the A and C systems. To facilitate description, we have included Trench E here, before passing to the following consideration of the A-C trenches. The original trench, A, (Map IV, Section IV, Pl. L, Figs. 1, 3) was started east of Trench E, simultaneously with the first cut made in Trench D. It began on a level with the road and, at a depth of a little more than a meter, reached undisturbed soil below several redeposited layers of pottery. In this zone of redeposition lay a washed out skeleton (No. 1). A large stone that looked like part of a revetment lay near the bottom. North of this wall the layers of sherds took on the appearance of primary deposits. The top layers were eroded from the down slope, but were in position as we worked up toward the summit of the hill. When at last we hit a vertical cliff of bed rock, it was possible to draw some conclusions as to the sources of material (Pl. LII, Fig. 2). In the bottom layers at the foot of the trench occurred a few figurine types like those of the lowest deposits of Trench D. Their source of deposit lay on the rock bottom near the face of the cliff. The greater part of the refuse in the trench, however, was banked against the vertical wall of the outcrop. Separated from the first deposits by a thin layer of washed sand were spread largely redeposited strata containing material that corresponded to the top three cuts of Trench D. These laminations of sherds extended up over the rock.

In such a spot as the right angle formed by a ledge of rock with the glacis extending from its base, one would expect to find primary deposits.

Therefore we ran a trench on two levels along the edge of the wall making constant stratigraphical tests to determine changes in the percentage of types from cut to cut (Map IV, Section III). The workmen on the upper level (Trench C, West Extension) drifted into the hill with the head of their trench some meters in advance of the lower level, Trench A, West Extension (Pl. L, Fig. 3; Pl. LII, Figs. 1, 2). We observed shortly a strong easterly tilt to the strata and soon the upper level produced early material. It then became apparent that the Late Period strata were redeposited by water erosion. Almost coincidentally with this observation we struck rock bottom and ended the trench with the discovery of low walls based on  $1\frac{1}{2}$  meters of débris. The lower level trench presented increasingly tilted strata, and the smooth vertical rock face on the north gave way to a steep ascent of laminated rock. Eventually, at the point where rock bottom was reached on the upper level, the lower trench was blocked by a southward projection of the ledge. The completed section disclosed the Middle Period débris being deposited from the west down over the laminated outcrop and at the north from the top of the ledge. In the angle the material tended to level out. The Late material had accumulated on the slope above the ledge, but had been washed down hill into thick deposits, while the upper reaches of the hill lay comparatively bare.

The presence of walls on the high ground at the head of C, West Extension, indicated that we had reached living quarters. Hence we sent one man to explore the walls, Trench C, North Extension Upper (Map IV, Section I), while the others began the Trench E previously described, which had the two duties of connecting Trench C, North Extension with the D system, south of it, and of controlling the studies made upon the débris in Trenches A, C, and A, West Extension.

The heavy deposits at the foot of the hill and the gullies formed by recent rains prepared us for an increasingly heavy denudation as we worked up the hill (Pl. L, Fig. 1). The ridge, which was our objective, showed itself to be formed by a succession of revetments which, in still continuing their function of preventing wash by rain, preserved the original structure of the depositions to a certain degree. From a glance at the map, coupled with the preceding descriptions, it is evident that a ledge ranging from three to four meters in height ran sinuously around the hill, dividing the rise of its crest from the more gently sloping glacis at its foot (Map III). Débris from the houses above the ledge filled in the rectangle formed by it and the glacis (Map IV, Section I).

Our exploratory probes in Trench C, North Extension, revealed a series of walls that certainly were not those of houses and that were far too irregular to have composed a single effort at construction. The fragments left seemed to parallel the irregularities of the ledge and, higher up, the irregularities of the hill. When the rubbish was deepest at the edge of the rock face, the walls were best preserved, although none were founded on rock. Further up the hill the deposits successively grew thinner and we began to find walls set on the original bed rock. On the crest of the hill there were, as we have said, no traces of human occupation (Map IV, Section I; Pls. LII, Fig. 4; LIII-LIV).

There were four classes of construction encountered in Trench C, North Extension. None of them was demonstrably the foundations of houses. Toward the ledge small rocks piled up at a slight batter, occasionally with feeble buttresses, were most common (Pl. LIII, Fig. 1). Rows of large rocks of which only one course remained held the earth back farther up the hill. These resemble the constructions in Trench D (Pl. LI, Figs. 1, 3). Probably the size of the rocks used in the constructions are not indicative of time. The revetting was carelessly done with material nearest at hand. Large stones were found where the bed rock protruded through the turf. In building over deep beds of detritus, the large rocks would not be accessible near at hand, and their weight would render them inconvenient to transport. At several points it looked as though dumps had been leveled off into living surfaces, and the vertical face thus formed on the down slope side mudded up and smoothed into a terrace (Pl. LIII, Fig. 2). The fourth type of construction was the use of roughly oblong slabs taken from the ledge. These either were set like a palisade to face up terraces or were arranged in parallel rows. The function of these rows is inexplicable. We observed three. The first was about two meters long and was covered and paved (Pl. LIV, Fig. 1). It was closed at the uphill end and filled with clean dirt. The obvious interpretation was a cist, but for what? Overlapping and overlying this was another double row of slabs higher at the down hill end (Pl. LIV, Fig. 1). It was not paved at the base, but the down hill portion contained a deposit of thin layers of mud left most probably by a succession of puddles. At first glance this construction would seem to be a drain, but a drain ought to have a bottom which would not absorb water and certainly ought to follow the normal water shed. A third such structure underlay and overlapped the second (Pl. LIV, Fig. 2). This ran for two meters north and south like the other and then swung east at a right angle. In this eastern section the lower, or southern,

side was made of slabs and the upper of piled up boulders. No cross walls extended from this parallel row to lend credence to a belief that they acted as splatter boards to wattle and daub house walls. The only structure remotely similar is the long double row of stones at the base of the pyramid of Cuicuilco, but these stones are much larger, are set widely enough apart to walk between with comfort, and are arranged in reference to a monolith that seems to have some religious purpose.

The upper layers around the construction were almost entirely composed of washed adobe which contained the casts of leaves, possibly corn shucks, or else twigs. This condition might indicate the use of adobe, or adobe and wickerwork constructions. The vast accumulation of earth, very largely composed of adobe, found in all the deposits, would tend to support this interpretation. These walls are constructed upon Middle Period *débris* which in places banks up against them or is cut by them. While most of the construction in Trench C, North Extension is attributable to the Middle Period, no walls are demonstrably of the latest or the early phase of occupation. Middle Period pottery predominates, with pockets of Late Period material, near the surface. Only sporadic fragments of Early Period culture were found. Burials occurred in some cases under revetments (No. 11), in one case sunk through one (No. 15) and near buildings (Nos. 10, 17). These were presumably contemporary with the Middle Period *débris*. (Map I)

Trench F was a short cut into the bank of *débris* between Trenches A and C. It yielded Late and Middle Period material which had been subjected to much redeposition.

We had arrived early in the work at a recognition of three main types of material, Early, Middle, and Late. The actual lenses of the sherds were not continuous, nor were there sterile layers segregating the different strata one from the other. Hence, it was not possible to isolate groups of material with the assurance of absolute contemporaneity. The constant washing down of elements left us the only alternative of deductive stratification on the most common occurrence of types of figurines and pottery.

The earliest deposits lay in the bottom strata of Trench D (Map IV, Section I) where the objects were not subject to very much movement from wash. The presence of paint subsequent to firing on the figurines, the occurrence of burials, ash beds, and revetment walls, and the thickness of the sherd lenses, all prove that condition. In the trenches along the glacis at the foot of the ledge these early remains are much less frequent and do not appear as a distinct layer. Above the ledge there

is almost no definitely early material. One draws the conclusion then that the early people lived in the lower slopes of the hill on the borders of the lake which was very much lower then than in Aztec times. As their refuse beds increased, the inhabitants utilized them as living surfaces, terracing the soft banks with large boulders.

The succeeding period shows heavy primary deposits banked against the rock ledge and extending down the upper slopes of the hill (Map IV, Sections I-IV). An early phase of this intermediate occupation is to be seen in Trench E South at the west end of the east-west extensions at the south of Trench E. But this material from the tilt of the lenses has its source on higher ground to the west. In this general region the sherds have a curious flaky appearance as if rotted by water or the roots of lacustrine plants. This condition is observable in the upper strata of the Early Period deposits in Trench D. The walls that may be associated with the Middle Period are set on bottom up the hill, but downward toward the ledge they rest on successively higher beds of coeval *débris*, until the southernmost walls are set beyond the ledge on the thick deposits accumulated against it. The material from this epoch in the middle Cuts, IV-VI, of Trench D appears to be redeposited from the Middle Period beds explored in the C and E trench system. One is tempted to assume that the rise of the lake forced the inhabitants of Zacatenco back to the high ground above the ledge. As the *débris* accumulated on the shores, the Zacatencanos built out over the most level sections of the deposit. It is curious that, should the rise of the lake have taken place at this time, it would have been coincident with the change of figurine type and the introduction of new pot forms.

When the last occupation commenced, the ledge had disappeared under refuse deposits so that the hill ran in gradual slopes out into the lake. The latter inhabitants seem to have kept on the high ground, but carried on the same habits in terracing and revetting the hill as did their predecessors. The accumulation of soil on the lower part of the hill was increased by the torrential storms of the rainy season. In this way the remains of the Late Period are transferred largely to the lower slopes, and save for pockets remaining behind the fragmentary revetments, the upper part of the hill shows no traces surely attributable to these last comers. Heavy beds, redeposited to some extent, of Late *débris*, occur on the edge of the rock face and spread east where they are cut by Trenches A, C, and F.

The hill must have been very much in its present state when the Aztec came. Turf probably formed on the more level spots while *arroyos*



carried away the surface water in more or less regular channels. The rise and fall of the lake in periods of rain and drought affected only the outer borders of the mound. Yet fresh periods of torrential disturbance must have occurred every time the turf protecting the hill was removed, as in the construction of the Aztec buildings, the aqueduct, the road, and during the almost continual punching of the hill for treasure. The great removal of earth for the building of the causeway did not affect the mound as the drainage lay away from the vertical banks.

## ARCHÆOLOGICAL COMPOSITION OF ZACATENCO

### THE EARLY PERIOD

We have dwelt at great length upon the accumulation of *débris*, since our classification of material is based on its study. We have shown how the constantly changing surfaces make it impossible to form surely more than three great periods of occupation, but although we have mentioned differences in material culture, we have not described of what elements those variations consisted (Map IV, Sections I-II).

The mass of the imperishable remains comprised pottery vessels, figurines, and other objects of baked clay. In succession of frequency followed stone, bone, antler, and shell. One fragment of textile was recovered (Table I).

The pottery of the bottom layers of Trench D may be grouped into four major wares, on the basis of their slip color; red-brown or bay, black, white, and red (Table II).

The ware most commonly made was bay ware. In the lower levels it comprises more than ninety per cent of all the pottery manufactured. It is made of a coarse clay, lightly kneaded and tempered with a coarse sand that contains large crystalline particles. Vessels are slipped with apparently a more finely treated mixture of the base clay. They are built up in several units, first the bottom, then the body, and, in ollas, finally the neck. The walls are thin and so far as observable the coil method is used. The slip extends over the complete exterior of the body and the inside of the neck.

Bay ware vessels were for everyday use. Ollas presumably, for the storage of water and grain are wide at the mouth; necks of varying height merge gradually into sloping shoulders; the walls are globular, but cut sharply in at the bottom. Very rarely, handles, plain or incised to resemble human hands and arms, are attached to low-necked ollas. The olla forms are not sharply differentiated from deep bowls with wide mouths and receding sides. In fact, some forms could fall into either category with equal reason, for rim fragments belonging to ollas with low necks are almost indistinguishable from those of deep bowls or cajetes. Thick rounded rims are most common on the bottom levels of the low cuts, while toward the top, flaring rims become more usual. A characteristic form of large bowl has a constricted mouth which is reinforced by the addition of a collar of clay. In the top test cut, Cut VI, of the early stratum a number of bowl rims appeared flattened on top (Pl. I, Fig. a, e, k-d').

A variant of this bay ware is russet in color and consists, in the main, of bottles with tall or short, but always constricted, necks. Sometimes the lip is painted white. (Pl. III, w.)

There are, properly speaking, no pot forms that have received a formal attention like the purely ceremonial vessels of some peoples, where is brought into play the summation of the artistry of the potter's craft. But there are a number of fragments that belong to vessels showing a greater technical mastery of the art than those of the bay ware group. Such bowls might well have been used in the actual serving of food.

Black ware is made of a base clay not dissimilar to bay ware, but more finely kneaded and employing smaller particles in the tempering. The clay is doubtless no different from bay ware, but the firing was carried out by smothering the flame, thereby preventing oxidization, and turning the clay black. The shapes are almost entirely bowls with flat or slightly curved sides that recede to a rounded bottom. Decoration is rare; occasionally, simple grooves or incisions. Some of the vessels are made very thin and their frequency increases gradually in the upper cuts of the stratum, until in the top cut of the early occupation nearly forty per cent of this class have thin walls, decorated by a considerable use of incision. There is also a tendency for the chord of these concave walls to approach the vertical (Pl. I, Figs. b-d, f-j).

White ware runs a very low percentage in the early cuts, but higher in the later ones. The base clay seems closely related to those just described, but in addition, a chalky slip is flowed over the vessel within and without. The shapes are mainly shallow dishes with round sides, occasionally supported by three teat-shaped legs. The lips are generally flattened. Decoration consists of parallel lines incised through the slip to the base clay, and is confined to the top of the lip, as a rule. Very rarely at first, but increasing toward the top cuts of the lowest stratum occur vessels decorated by the use of burnished red paint on the slip, sometimes with the addition of incision. The paint sometimes covers the lip and sometimes depicts simple serpentine or angular patterns. The lip tends to become more convex and the external border sometimes swells out in short arcs widely separated from one another (Pl. II, Figs. a-b, d-f).

In the same Cut VI of the Early Period deposit where the débris of the Early and the Middle occupations merge, we find other wares with white slips but with a different base clay. Yellow-white ware is composed of finely kneaded yellow clay with well grounded tempering material. The slip is hard and varies in color from yellow-white through

cream to a deep brown yellow. The clay is well fired. Shapes are, almost without exception, bowls of simple silhouette and nearly hemispherical but for the slightly incurved rim. This ware is never decorated. It was under one per cent of the total sherds. Distinct enough in the mass to form another class, but with transitional compositions bordering on yellow-white ware is yellow-white ware *b*. The base clay is ill-kneaded and shows flaky laminations in cross-section. The slip is hard and, in contrast to the basal paste, gives a little the relative impression of a lacquer. This ware is not as well-fired as yellow-white ware *a*. Some sherds, however, might be cast into either category. The difference seems to lie more in the treatment than in the chemical composition of the clay. The shapes are mainly wide-mouthed bowls with straight sides receding to a rounded bottom. The frequency is lower than that of the other yellow-white ware. One or two sherds come from the bottom cuts (Pl. VI, Figs. h-m).

Common among white wares at the close of the Early Period is granular white ware (Pl. II, Fig. p; Pl. VI, Fig. e). The paste is very well-kneaded and is made into thin-walled bottles with constricted low necks. These vessels are slipped in a dead white wash that sometimes shows a yellowish or bluish fish belly tone. Around the lip a band, or on the upper wall of the body, streaks or scrolls in maroon paint are applied. This ware only occurs in Cut VI. In the tables of sherd frequencies, its fragments are as common as red-on-white ware but whole vessels may be very much rarer, for the friability and size of the bottles produce very small sherds in relatively large numbers.

A few sherds of a ware with a well-burnished blue-white slip are attributable probably to trade relations. An extremely sophisticated sherd which bore on its polished white slip a complicated design in orange and red came from a low cut (Pl. II, Fig. c). It would never be attributed on typology to an early culture horizon, but it occurred under unmistakable conditions of contemporaneity with the ceramics under discussion.

White-on-red ware is very characteristic of this early occupation. To visual inspection the base clay is identical with bay ware. The vessels which have flaring mouths and walls receding with a gentle in-curve to a low rounded bottom, receive a brown or bay slip. Always on the inner, generally on the outer side of the walls is laid a red paint having the quality of a secondary slip. Designs are laid on in white depicting generally variations on a chevron motif. Occasionally one encounters crescents. Sometimes the paint is laid on thickly and takes a

burnish. This ware is the most common service pottery in the lower cuts, but it decreases toward the zone of transition into the Middle Period (Pl. II, Figs. g-o).

The pottery of this lower layer is on a par with the common wares of any New World culture. It has variety of shape, but paucity of decoration. Aesthetic considerations hardly enter the ceramics of this period, but at the same time the pottery is by no means crude or undeveloped (Pls. I-II).

The second most common, but certainly the most striking, output of the potter at Zacatenco was the small clay figurine. Head, trunk, and limbs were constructed separately of a clay, burning from red to a light tan color, generally well-kneaded and lightly tempered, and smoothed on the exterior, but not slipped. By the addition of fillets of clay and by the employment of some small blunt tool, the details of feature and costume were added. Painting the figurines in black and red after the clay had been fired afforded additional embellishment. The former color was employed for stripes on the legs and body. Red more generally covered the face, hands, and feet. One example shows the black paint employed in stripes over the red face of a figurine. The paint is very perishable and fades upon exposure to the light. The figurines fall into two groups, called, for convenience, C and D, the first two letters of the alphabet being reserved for the "classical" forms found underneath the lava at Copilco, upon which the classification of early culture figurines is based. Type C may be roughly characterized by long legs, an abbreviated, often well-modeled, trunk, short projecting arms, and an elongated head with filleted features, surmounted by a turban (Pl. X-XVII). Type D possesses a body treatment similar to C, and the head is craned forward, as is often seen in Type C. While pellets of clay are added in the formation of features, modeling by the fingers and by tools controls the presentation of the face (Pls. XVIII-XX). This type was brought to public notice by Madame Zelia Nuttall, who with Mr. Wm. Niven encountered it in the deep gravel pits at Azcapotzalco, where the specimens came out much waterworn, but with a beautiful patina. The charm of this type, according to European æsthetic ideals, has brought it considerable attention, and it is known vulgarly as the "pretty lady" type.

Type C, although receiving little attention in the literature, is the type most commonly encountered in collections of early culture figurines from the Valley of Mexico. One figurine closely resembles another, but at the poles stand distinct groups. What constitutes the core of such a group depends upon the personal equation of the classifier, and this same

criticism by and large is applicable even to the broader divisions chosen by Mr. Hay and the writer as types. In contrast to the dull uniformity of the pottery, the figurines, by their variability, indicate more potential worth as determinants of time. The details of classification offered here are frankly tentative. The student must maintain a precarious balance between the two stools, relative invariability of the pottery and variability to the point of atypical individualities in the figurine; he must strive to coordinate the two.

From an absolute standpoint, there are common at Zacatenco in Type C three classes of figurine, based on head form, but there are five additional groups found in other parts of the Valley. The crudest, type Ci, is characterized by being chinless, due to the pinching forward of the head into a cusp which receives the mouth fillet. At the same time, details of hair, headdress, turban arrangement, and adornment receive elaborate attention. The features, mouth, eyes, and nose, occupy an area greater than the smooth surfaces of the face (Pls. X-XI, XXIV). Type Cii presents modeling of the chin, reduction of the size of the features approximating more nearly a realistic relationship between them and the smooth surfaces of the face (Pl. XII). Type Ciii indicates smooth surfaces or planes with a three-dimensional instead of a two-dimensional presentation of the head (Pl. XIII). Type Civ is a regional variant absent from Zacatenco, but common to the northeast of the Valley (Pl. XIV). Types Cvi-viii are also absent from Zacatenco (Pls. XVI-XVII). Type Cv combines Cii and Ciii, it is rare to the point of absence at Zacatenco, but is more common at the southwest of the Valley and is known to occur under the lava at Copilco (Pl. XV). All these types may be traced back to Ci, which has a wide distribution, but which, although appearing in the Azcapotzalco gravels does not occur at the two sites, Copilco and Cuicuilco, where material is found sealed in by lava.

Type D we have seen resembles, in body form, Type C (Pls. XVIII-XIX). The treatment of the head is a tremendous refinement of previous techniques. But the wide distribution of the form, together with the individuality of the specimens, shows that these figurines are not the work of a single artisan. The rude gouging and appliqué work of Type C contain the germs of the vitality and expressiveness of the Type D specimens which follow the same technique of manufacture. In position of the body, Type C shows much less conservatism than D.

A curious specimen (30.0-7138) came from Cut VIII, the third from the bottom in Trench D. It was heavier and thicker than the run of Type C specimens and seemed to be a prototype of group L (Pl. XXXI, middle row, Fig. 4).

The function of the figurines is problematical. While generally female, they do not seem standardized sufficiently to be representations of a goddess. It is stretching interpretation a little far to associate them with fertility rites, since they are rarely shown in pregnancy and their common occurrence in débris of occupation would seem to contradict their having been used to increase the crops in the fields. Were they equivalents to the Roman Lares and Penates, one would expect standardization again. They are too well-made to be toys, too uniform to be portraits, but their frequency in common house débris shows them to be, little valued. That the figurines were beneficent equivalents of the manikins used in European witchcraft has no ethnological parallel to my knowledge. The writer excavated a grave in Chupicuaro, Guanajuato where figurines were placed about the head of a young girl, but the grave was certainly of much later date than the Early Period at Zacatenco. The burials at Zacatenco yielded, moreover, no evidence of such a practice. Yet figurine making is customary from Zacatecas to Panama. In the later periods of Middle American history use of a mould creates standardization and the facile recognition of divinities. Perhaps the early people in the Valley put all their inventiveness into reproducing by means of figurines their gods who had not yet been defined by theological laws into undeviating presentations of form and attribute.

A number of forms occur that do not fit into standard types and that may be attributed with some confidence to fancy. Such are the representations of the puppy, snake, and monkey shown on Pl. XVI. A curious grotesque is the miniature pot with three legs and clumsily executed features in relief upon the side (Pl. XVI). A peculiar group are the scuti-form discs with human features on the convex side. Several are painted like the figurines in the same black and red paint. They might be pot covers, but there are no bowls sufficiently small for them. They might be gorgets, but there are no holes for suspension. Their purpose then remains problematical (Pl. XXXIX).

Other uses of baked clay comprise whistles, balls, and the re-working of sherds into gaming discs or into spindle whorls. The one sure whistle fragment, of uncertain provenience in the lower occupation floors, was in the effigy of a flying bird of indeterminable species (Pl. XXXVIII). A fragment of a hollow spherical object may have been part of another. Balls of pottery occurred in Cut IX. They were small, unslipped, and in most cases, unfired. They may have been used in gambling, less probably for blowgun missiles. A ring of pottery in unsized black clay, with indented fillets on the exterior, might have served as a finger ornament

(Pl. XLI). Discs made from potsherds were perhaps gambling paraphernalia, to be used in some game like "odd and even" (Pl. XXXVIII). A disc with a hole in its center and the fragment of another are spindle whorls beyond doubt (Pl. XXXVIII).

In proportion to the number of pottery specimens recovered, the relatively small quantity of stone makes a contrast. The commonest kinds of stone used as tools are lava, obsidian, and quartz. Lava is confined almost entirely to the fabrication of manos and metates. The metates are quadrangular and are supported on three short legs. An edge surrounds the grinding surface. The outer planes of the legs are in line with the outer surface of the wall. The manos resemble an acute triangle in cross-section, the wide surfaces composing the grinding planes. The shapes do not differ from those of the succeeding epochs. The occurrence of their fragments is rare, but as the greatest frequency is near known living surfaces, and as we worked in the rubbish instead of the actual zone of occupation, the scarcity may be due to this cause (Pls. XLVI-XLVII).

Obsidian from the early occupation occurs in three ways, as shaped tools, as blades, and as flakes discarded in the fabrication of other tools. The tools are arrowheads, chipped probably by pressure into a leaf form. From an upper cut comes a long lance-head. The blades are produced by detaching from a conical core, by pressure or a sharp blow, an oblong sliver, in cross-section like a truncated pyramid. The ends are sometimes retouched. The size ranges from small broken pieces a centimeter or two in length to long complete specimens of ten centimeters. The blades were probably intended for razors or knives. The flakes seem to show that after the core of obsidian was too small to produce blades of requisite length, it was then broken up and the fragments were chipped into arrowheads (Pls. XLII-XLIII).

Quartz appears only in cores and flakes. We have no complete tools. The cores are apt to be roughly circular. Pebbles, waterworn and emanating from some ancient stream or lake bed, commonly occur in the débris. Some may well have been informal tools useful in smoothing down a pot. We found a curious ornament made from a stalactite (Pl. XLI). The natural cylindrical form was utilized and the perforation does not seem to have been made by man. Red paint, like the ocher ornamenting the figurines, covered the exterior.

Bone is a substance of great utility to peoples who have not reached the point of making metal tools for perforation. The lower cuts of the early stratum produced no specimens and the upper cuts yielded only an



antler tool and the end of an awl made from bird bone. This scarcity might well have arisen from unfavorable conditions for preservation. The dampness of the ground destroyed, in all probability, any evidence of the use of wooden tools, but their employment by the Zacatencanos may be confidently assumed (Pls. XLVIII-XLIX).

Textiles were probably extensively used. In one or two graves a whitish substance was found lining the sides that looked like the remains of matting or perhaps a bast or maguey fiber blanket. In an upper cut occurred concentric rings of this same white substance, probably the cast of a large coiled basket. A small fragment of woven material was encountered, preserved miraculously in the brain of a skeleton whose bones had rotted completely. It seems not to be cotton, but some fiber more like henequen. The figurines show a variety of uses for textiles in the complicated turbans of the C group. One could hardly conceive of a bast fabric having sufficient resiliency folded and twisted into such a variety of shapes. Figurines actually wearing clothing are most rare throughout the entire Valley of Mexico, and the few examples show simple knee length shirts fitting tightly around the hips, or strips of cloth pendent from a girdle (Pls. XXIV, XXXVII). It is possible that the difficulty of portraying draperies caused the absence of body clothing on the figurines. The pottery spindle whorls and one of loose volcanic tufa further substantiate the use of textiles (Pl. XXXVIII).

Nearly every figure wears considerable ornament, like earplugs, necklaces, bracelets, and anklets. Some even have headdresses in the form of bird heads. Such headdresses are naturally far too perishable to be found, but aside from the piece of stalactite no adornments come from the early occupation floors. These ornaments might possibly have been fashioned from shell, which disintegrated after long subjection to the damp of the rubbish beds (Pls. X-XVII).

We have no data on house types, but the rarity of stones, the tiny fragments of charcoal, coupled with the amount of dirt in the rubbish, hints at some sort of adobe construction. If the people lived in jacales of wood and reeds, there would have been constant danger of fire, and excavation would yield the charred remnants of dwellings thus destroyed.

The eating habits of the early occupation may be inferred from the bones found, which indicate a considerable consumption of the flesh of birds and deer. Corn the Zacatencanos must have had, as the presence of manos and metates attest. Fish bones did not obtain, but they are very rarely preserved under humid conditions of terrain. Until a burned granary is discovered, we must be in ignorance of a large part of the diet

of these people, for the charred kernels would indicate the kinds of vegetables cultivated. Dog bones and rare representations of people carrying dogs indicate the domestication of that animal and perhaps its consumption as an article of diet. There seems to be no change from this fare in the succeeding periods at Zacatenco.

Of the social and ceremonial life of the people we have little other information than is contained in the preceding discussion and interpretation of the remains. Burial customs in the Early Period consisted of digging a shallow grave, about a meter and a half in depth, as near as one can judge from the shafts. The body was wrapped in bark or bast, although it is possible that the white substance found in the graves is decayed organic tissue. The legs of the corpse were generally extended, but the arms were flexed in different positions for convenience in interment. There is no evidence of binding the limbs. Orientation does not exist. Bodies are more generally prone than supine or on one side, but all positions exist (Map I, Figs. 1-4).

It must be quite evident in considering the remains surviving from the original occupation of the hill of Zacatenco that the people were by no means primitive, in the sense of standing on the threshold of the arts. From a purely utilitarian point of view, pottery and tools of stone and bone have developed almost as far as any of the cultures of Mexico known to us from archæological remains alone. Centuries must have elapsed to produce this proficiency in manufacture. However, the elaborate ceremonial and decorative manifestations of the High Civilizations in the Valley of Mexico make this Zacatenco culture appear crude and fundamental, whereas it is really only simple in not having its theological aspect materially complicated. There is very little variation between the household wares of the Aztec and Toltec and these people. They are superior ceramically to the populations of the Southwestern United States in the manufacture of more kinds of pottery and in their plastic arts as shown by the figurines. They are inferior to the latter in their feeble development of design.

#### THE MIDDLE PERIOD

The Middle Period, it will be recalled, occurs in heavy deposits at the foot of the ridge around the hill of Zacatenco and is extended by secondary depositions out over the Early Period dumps. The greater part of the data on ceramic frequency is taken from test cuts in the Trench D system where successive sherd lenses could best be probed, owing to the more nearly horizontal position of the deposits.

Bay ware shapes in the Middle Period show few differences from the Early. The rim shapes show the same soft merging of the neck and the shoulder. There is a tendency for the necks to be straighter than in the Early Period, but this trait is detectable only in large masses of sherds. A few new forms of neck, straight, with the lips developed by thickening, or by flattening on top, occur toward the top of the three cuts, as do necks that flare sharply outward from the body. Change is visible, on the whole, only in the new types of rim. Variations in the styles occurring in both Early and Middle Periods, are vaguely visible when one has at hand representative groups from the two periods, but are not distinct enough for positive identification when a single group is examined (Pl. III, Figs. k-v).

The same vague variation occurs in cajete shapes. All the old forms carry over into the Middle Period. Vessels with reinforced rims decrease in frequency but bowls with the top of the lip flattened increase. In the later cuts one observes a use of red paint on flattened lips, that may be produced also by some treatment in the firing or else in a thickening of the slip. A sporadic use of bowls with composite silhouette occur, i.e., the profile of the wall is broken into two planes while the bottom is modeled as a simple curve (Pl. III, Figs. x-b').

Another decorative style holding over from the Early Period is the application of small demi-lunes of clay with the convexity upward, along the upper surface of ollas and bowls; and handles also obtain. (Pl. I, Figs. a, r, Pl. VII, Fig. a-1).

Russet ollas and bowls decrease slightly in frequency. The color tone is en masse more red than in the Early Period, but individual specimens cannot be diagnosed. White-on-brown sherds probably fall into this group, as white paint is still employed in olla mouths occasionally (Pl. III, Figs. h, j, w).

Physical demarcation between the Low and Middle Period strata is indistinct, and the line is drawn arbitrarily. Naturally, one would find characteristic pottery types of the Middle Period having their inception in the Early Period and one would discover styles diagnostic of the latter persisting in the Middle Period. It seems unwise, in a preliminary classification based on a single excavation, to subdivide periods into details of transition, until studies at other sites check the results of the season's digging at Zacatenco.

The white wares illustrate the transitions between one period and another very well. Chalky white ware is strongly represented in the bottom one of the three Middle Period cuts, Cut VI from the top. In-

cised rims reach their peak in frequency. The ware then falls off successively in the remaining two cuts, while the shape tends to change from flat-lipped dishes to bowls with incurved rims.

Red-on-white ware, which was growing increasingly common in the later stages of the Early Period, until it was the commonest white ware division at the end of the era, is second only to granular white at the beginning of the Middle Period. At the same time red-on-white produces in Cut VI the base of the Middle Period, nearly double the sherds of Cut VII, the top of the Early Period *débris*. The succeeding stages of the Middle Period show red-on-white dwindling away with the flat-lipped dish transformed into simple bowls with thick walls and interiors slipped in red or in the brown of the base clay. The decorative patterns, almost coincidently with the shift in pot form, change from continuous bands or stripes into panels with interlocking saw teeth or nested open triangles. Both paint and slip lose their characteristic burnish until the surface is often rough, the design indistinct and thinly painted (Pl. V; Pl. VI, Figs. f-g). Yellow-white, which first appeared in the last cut of the Early Period, is most common in the second cut of the Middle Period. Its hemispherical shape remains constant. The companion ware, yellow-white *b*, characterized by its hard slip, flaky face clay, and shape of straight walls and round bottom, parallels this development, but it is never so common as yellow-white ware. (Pl. VI, Figs. h-m). Granular white ware reaches its maximum development in the lowest cut in the Middle Period deposits. More than half of the white ware sherds in this cut are made of that composition, a quantity too great to be disregarded on the grounds of friability. In the same ware, but with a smooth slip, egg-shell brown in color, occur a few olla sherds, decorated with maroon paint disposed in insignificant designs. Granular white ware dwindles in the second cut to a very low representation, rising slightly in the top layer (Pl. II, Fig. p; Pl. VI, Fig. c).

The heavy black ware bowls do not vary in shape or quantity from the Middle Period. The color tone is more brown, however, in the Middle Period. Ovate vessels with channels parallel to the rim appear sporadically and dishes resting on high annular bases with tall "basket" handles come in. Sometimes this last form is slipped in white. Both these latter forms also occur under the lava at Copilco (Pl. IV, Figs. e-g, and m).

Thin black ware, which begins to appear in the top cut of the Early Period, rises in frequency as the Middle Period *débris* accumulates. The basal paste becomes more finely kneaded. The walls of the bowls become thinner and the chords of the wall approach the vertical. The

slip color ranges more to brown than black. The whole class then undergoes a refinement in shape and in paste. Decoration, as is almost inevitable with a dark-colored clay, is by incision. The cuts penetrate to the body paste and the imprecise designs comprise rapidly executed grecques or frets that look as if the stylus had never left the pot to begin a fresh stroke. In a ceramic with so rudimentary a development of design, it is paradoxical to find a cursive delineation of pattern. Modeling is another method of decoration, either gadroons or horizontal ribbing being the characteristic modes and still another form of adornment is the cuneiform method, first described and named by Professor Tozzer.<sup>1</sup> The bottom of the bowls, the walls of which are generally left unadorned, are covered with gouges made by a pointed instrument held at an angle to give a raking stroke. There can be little reasonable doubt that these gouges are decorative, for were they to serve some utilitarian purpose, like holding the vessels upright in the ground, the treatment would be more widely used and not confined to vessels of this nature. This style is known also at Copilco. Fairly thick by reason of their size and brownish in color, are deep beakers with funnel-shaped walls and rounded bottom. They occupy a classificatory position midway between the two black wares (Pl. III, Figs. e-g; Pl. IV, Figs. c-d, h-l, o-q).

White-on-red ware, represented by a few worn sherds, makes its final appearance in the lowest cut of the Middle Period in Trench D. It is practically absent in the deposits banked against the ledge in the A-C and E trench systems.

Polished red ware occurs scatteringly throughout, but with no great frequency, and so far as the Middle and Early Periods at Zaca-tenco are concerned, has no chronological significance. One or two specimens show incision. The shapes are mainly simple silhouette bowls with strongly incurved rims, on which appear occasionally crudely drawn designs (Pl. IV, Fig. n; Pl. V, Fig. f).

A ware that is distinctly diagnostic of the Middle Period is red-on-yellow ware. The base clay is finely ground as to clay and temper and is built into thin walled bowls. The slip receives a dull burnish by rubbing with a stick or stone. The clay is lightly fired, and besides being extremely friable, has a tendency to flake. The vessels are wide mouthed, simple silhouette bowls, supported on low ring bases. Decoration is confined generally to a simple serpentine on the interior of the bowl. Occasionally appear more pretentious treatments of alternating panels of triangles set off by vertical frames. Decoration is rarely on the

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<sup>1</sup>Tozzer, 1921.

exterior. The ware is easily distinguishable from yellow-white ware by the porous soft surface in contrast to the hard shiny slip of the latter. The color is more a dun than a yellow, while there is no hint of brown in yellow-white ware. It was never made in any quantity and may even have been traded in to Zacatenco (Pl. IV, Figs. a-b).

Orange "lacquer" ware is a development of yellow-white *b* ware. The vessel shapes are the same but the contrast between the hard slip and the soft flaky gray body paste is much more marked. The walls are straight, sloping inward to a low rounded bottom. Lips are everted and tend to be flattened. Decoration is rare and is carried out by fine incisions made perhaps after firing, as they do not penetrate the slip. The designs are simple parallel curves. The slips of this ware are sometimes a blackish-brown in color, due to probable differences in firing treatment. This ware occurs in such small quantity that its presence must be due to trade. The only other locality known to the writer where it is present in quantity is a brickyard in San Juanico, south of the railroad tracks. Orange lacquer is associated there with a hard, well kneaded, orange ware to be described in the following paragraph, with tripod bowls of thick red-on-yellow ware like a style of the Valley of Toluca, and with plumbate ware (Pl. VI, Figs. b-d).

Fine orange ware is composed of a well-kneaded clay that contains, as part of the tempering, whitish opaque particles. The slip is thinly applied and receives a high polish. The whole pot is well fired. Shapes are hemispherical bowls of simple silhouette. So far as paste, slip, and firing are concerned it is technically the best ware that we have. The ware is less common than orange "lacquer," but is associated with it in the San Juanico site, where it appears to be a local manufacture. The lack in Zacatenco of the red-on-yellow style characteristic of San Juanico may indicate that the sites are not contemporaneous, but that the origin of orange "lacquer" and fine orange wares was relatively early (Pl. VI, Fig. a).

Scattering sherds of a red-on-brown ware and a red-on-black, probably a firing variant of the former, occur sporadically. The sherds appear to be made of a local clay, but coming from olla bodies, they lack distinction.

In summing up the Middle Period pottery one may say that the storage vessels, like bay ware, remain in the Early Period tradition, and en masse show a greater variation in rim shape than in the earlier phases of the occupation. Cajetes show minor changes in their rims by the favoring of some forms and by the showing of less partiality to others.

It is not until we consider the decorative wares that any significant change appears and, at that, the presence and absence of wares in the two periods is as significant as morphological variation. Red-on-white reaches its peak at the beginning of the Middle Period and then falls off in frequency as it deteriorates technically. The actual patterns become more sophisticated, nevertheless, and show a greater decorative sense. The same condition applies to plain white ware, its finish becoming chalkier and the shapes simpler. Granular white ware reaches its most common use at the commencement of the Middle Period and is then gradually discarded. Yellow-white ware becomes the dominant form and the variant yellow-white ware *b* also becomes numerically much stronger in the Middle Period than in the Early. Black ware, which in the beginning of the Early Period was confined to the manufacture of wide-mouthed bowls of composite silhouette, began to change at its close. Vessels began to be made with thinner walls and straighter sides; more complete firing tended to reduce the tone to brown; and incised decoration appeared occasionally on the body walls, together with an occasional decorative treatment of the bottom. New shapes, like the ovate bowls and bowls on tall annular bases, and deep vases come in. White-on-red ware virtually disappears. Two new wares, fine orange and orange "lacquer", come in at the close of the period, presumably as trade from another source. It is possible that yellow-white ware *b* is a local imitation of orange "lacquer". Red-on-yellow ware appears for the first time and is useful as a diagnostic of time (Table II).

With the definition of the Middle Period ceramics at Zacatenco we note strong similarities to the pottery found underneath the lava at Copilco. While the burning of the earth at Copilco makes it difficult to compare the colors of wares, we find all the bay ware rim forms reproduced. The black ware shapes are likewise identical. From the low representation of red-on-white at Copilco, we should judge that site to be coeval with the latter part of the Middle Period at Zacatenco.

Three main figurine types occur in the Middle Period at Zacatenco; a round face type with fat lips and a squat body, Type A; a flat type with the features in very low relief, B; and a crude, amorphous class, Type F. Types A and B are the most common classes of figurine at Copilco and thus confirm the cultural similarity and probable contemporaneity of the Zacatenco Middle Period with Copilco.

Type A figures are composed of a coarse clay that has evidently received little attention before modeling. There are generally two principal elements, the head and the body, but the torso occasionally is

divided into breast and stomach elements. In some specimens these portions are partially hollowed to give lightness and perhaps to allow for contraction and expansion. The arms and legs are stubby excrescences, generally, but sometimes are shown folded by means of fillets of clay, or holding children or animals, so roughly made as merely to hint at the form. Without exception, the figurines are in a seated position, although the legs may make an obtuse instead of a right angle with the body. The diagnostic feature of Type A is the modeling of the head and features. The true planes of the face are followed. Although the head is flattened, the face is built into a fat prognathic type. The lips are fillets sunk into a depression gouged out between the cheeks, which is sometimes extended to include the nose. The eye is made by two deep transverse gouges sometimes cut into a fillet applied to the face. Often the space between the gouges is deeply punctured to give the effect of the iris. Details are carefully smoothed over and the effect is a subtly vital one, defining perhaps a racial type rather than representing a stylized human being. Ornament is confined to earplugs or very rarely ornaments under the nose that might represent equally well a noseplug or a labret. Necklaces are very rare. The headdress seems to be a conventional representation of a turban made by a couple of heavy folds of textile caught by a brooch. Ornaments are sometimes shown pendent from the headdress, but there is no evidence of their material. The curious feature of these Type A figurines is that they do not derive from the plastic styles of the Early Period (Pl. XXI).

Type B figurines, on the other hand, are connected with Type C, the chief style of the Early Period figurines, by transitional forms. In contrast to the gray to red granular clays that compose Type A, Type B is made from a fairly fine grained chalky material, a dirty white in tone. The figurines are very flat and relatively broad and the head and body are made separately before being joined. Bodily contours are indicated in very low relief on the front of the torso and the arms and legs are extended, for the figure is generally erect. The size ranges from 18 cm. to 9 cm. Occasionally, figures are shown seated with the legs extended at right angles to the body or else folded. One of our specimens shows an amorphous baby resting on its mother's lap. The face contains very little modeling, the nose and mouth being simple fillets of clay. The eye is indicated by two shallow ploughs of a flat blunt instrument. Earrings, as in the classes previously described, are indicated by perforated clay discs. The headdress is depicted by fillets of clay applied on the surface of the forehead, but there is little of the realism of Types



C, D, and A. Sometimes the face is striped in red or black (Pls. XXII-XXIII, XXIV).

The types transitional between B and C retain the body modeling, the prognathism, and the scrupulous representation of the turban from Type C, but approach B in the tendency to flatness, in the shallow wide eyes, the erect carriage of the head, the white body paste, and the stiff posture. Several of these transitional figurines occur in the earliest deposits of the E and the A trench systems (Pl. XV).

Type F is the worst executed group in the entire Zacatenco plastic, but it is a distinct class and not a drawing together of all crude figurines. It appears to originate in the Early Period where occur one or two specimens of small size, made from a coarse reddish-yellow clay, with thick bodies and small heads, having features reduced to a large incised mouth and large fillet eyes. It becomes definite as a class through its occurrence in the heavy Middle Period deposits, against and above the ledge which separates the hill proper from the glacis at its foot. The clay is gray and granular. The body is presented in two positions, standing and seated. Standing, the figure has thick legs, somewhat spread, and arms filleted to the body. One specimen carries on her hip a child that is made in the same style. Seated figures have no bodies, the head being set directly on the segment that forms the legs, to which the arms are filleted. The head is the chief diagnostic for the type. It is lentoid in shape with the long axis horizontal from ear to ear. There is no headdress treatment. The nose is filleted, but the mouth is cut directly into the original mass of the head. The eye is formed by two gouges set at an obtuse angle. On purely typological grounds, one would put Type F earlier than A or B or even C, in spite of the associations. But we have a seated Type B figure that wears a human headdress made in the Type F manner, the strongest possible proof of contemporaneity, not to speak of the stratigraphical association of Types B and F (Pl. XXIII, top row, Fig. 9; Pl. XXV). Also there seem to be Early period archetypes (Pl. XXV).

A broken head was found in the fourth cut of Trench E that suggested connections with a group called L. The nose was modeled and the nares formed by perforations. The lid and brow of the eye were well modeled. Two perforations at each corner of the mouth doubtless gave vitality of expression. It seemed to be in the same tradition as 30.0-7138, from Cut VIII, Trench D, Early Period, and 30.0-7244 of the Late Period in Trench A. Another fragment of the jaw and lower lip of a large hollow figurine, fell into no particular category (Pl. XXXI, middle row, Figs. 3-5).

Bird heads are made from the same chalky clay as Type B figurines. They are rare. Advantage is taken of the flat technique to show the heads in profile. Eyes are made from perforated discs of clay. No bodies have been found, but it is possible that they may have been part of effigy-whistles. Another form presents the head with the contours more rounded. Several fragments are found of the spherical bodies of whistles and occasionally mouth pieces which are generally flat with an oblong aperture. A rectangular incision at the shank permits the sound to escape. No specimens are complete enough to show the presence or absence of stops. One tiny specimen, less than three centimeters long, bears a ring for suspension. Another is shaped like a bird and comes from Trench C, West Extension (Pls. XXX, XXXVIII-XL).

Handles of ladles appear from time to time. The bowls are shallow and circular. Pottery balls lightly fired and often without slips appear fairly commonly in the débris. They appear to be made of a paste similar to bay ware, but very coarsely kneaded. Some examples are slipped and polished however (Pl. XXXIX). Another new form of ceramic development is a solid shank terminating in the broken edges of what seemed to have been a hollow sphere. It is probably part of a rattle (Pl. XXXVIII, middle row, Fig. 1). Discs are still fairly common and one fragment of one from Trench D shows a perforation in the center, almost certainly part of a spindle whorl (Pl. XXXVIII, middle row, Fig. 7). A very remarkable reworked sherd came from a low cut in Trench D, Middle Period; it is highly polished, with a brown inner slip and an outer slip in black and tan and marking not unlike tortoise shell (Pl. XXXVIII, bottom row, Fig. 1). It comes from the body of a bowl and its edges are nicely smoothed. Its use is problematical, but the writer has seen beggars in Mexico tapping rhythms with a wooden implement of similar shape, held against the cheek to give resonance. Like the ornate sherd that came from one of the low strata in the Early Period deposits (Pl. II, Fig. c), this suggests that somewhere outside the Valley there were in existence cultures very much superior to the Zacatenco development. Pottery earplugs, of which only four appeared, are gray clay hollow cylinders flaring at one end (Pls. XL, XLI). They do not occur in sufficient quantity to account for the universal use of earplugs displayed by the figurines. Another early plug is made of highly polished thin black ware (Pl. XL). The inner surface of the tube is incised in tiny crescents.

The Middle Period deposits yielded a great many fragments of metates and manos as well as a number of complete specimens. Such

utensils are so simple and at the same time so specialized that once satisfactory types are reached, little change is desirable. Such additional utensils as heavy pestles come in. The metates continue to possess ridged sides on their long axes, while the short sides naturally continue the curve of the grinding surface, to facilitate the use of the mano. Manos retain their Early Period shapes with the addition of some oblong forms (Pls. XLVI, XLVII).

Obsidian arrowheads begin to appear in greater numbers than in the Early Period, and the types become more complicated, often being made with a stem to facilitate attachment to a shaft. Scrapers for graining hides and large flakes transformed by retouching also begin to come in. An especially fine specimen comes from the bottom cut of Trench E, a drill the haft of which, after the point broke, was retouched into a scraper (Pls. XLII, XLIV). Blades of obsidian occur more frequently in the Middle Period deposits, but this may be due more to the greater cubic content of the Middle Period dumps. There seems to be a more common practice of retouching the end of the blade (Pl. XLIII).

Quartz cores and fragments, which begin to appear at the close of the Early Period, are much more frequently seen in the Middle Period deposits. Knives of retouched flakes occur in small quantity. Limestone is used most commonly to make balls which range from 2.5 cm. to 7 cm. in diameter, and whose surface is brought to a smooth, even a polished, finish. Such implements are perhaps too heavy to be used in a blowgun, a function suggested for the pottery spheres, and, in that several of the larger specimens have a flattened surface, they might have been used as bolas missiles. According to Doctor Lothrop, the bolas of South America have a flat surface or a depression. Doctor Kidder suggested a comparison with the stone club heads of the Plains Indians which are flattened to facilitate attachment to the shaft of the club by means of a rawhide cover sewn over both elements. Most probably, however, these balls were used in games (Pl. XLV).

Trachyte balls occur, but they are very rare. They do not take so smooth a finish as the limestone examples. A few balls are made from basalt and porphyry and many from pumice. These last are pecked round, but are not polished (Pl. XLV). One specimen of flint appeared in the digging. It was a sort of awl. Its point, doubtless owing to difficulties in the flaking, was at an angle to the long axis of the specimen (Pl. XLV, top row, Fig. 3). Other stone objects included a ring made from a stalactite, a soapstone bead, an amulet or pot polisher of limestone (Pls. XL, XLI).

Two specimens of jade appeared. One was a celt from Trench D, Cut VI, and the other an exquisitely finished pendant, curved and polished, from Trench E, Cut III. Both of these examples suggest specimens found in Oaxaca and Guerrero, and doubtless were traded from that region (Pls. XL, XLV).

Many more specimens of bone and antler were recovered from the Middle Period deposits than from the earlier strata. The well-drained condition of the former accumulations was much more likely the reason for this increase in occurrence than a greater proficiency in manufacture, since the damp of the Early deposits would tend to destroy bone or antler. Antler tools fall into several classes. The simplest form was a prong broken off the antler and used without further shaping than the smoothing of irregular surfaces of wear. Sometimes the trunk of the antler was cut down and used as a pestle or a rubbing tool. Another shape utilized the trunk of the horn, and resembled a chisel in having one end worked down into a blade of varying width. The relative fragility of the specimens made improbable their employment as wedges or gouges for stone or wood work and their smooth surfaces showed no abrasions. More likely the tools with wide blades might have served for graining hides while the narrower implements might have been serviceable in flaking obsidian tools by pressure (Pl. XLVIII).

The bone tools, in contrast to the bluntness of those of antler, are almost entirely pointed. The commonest form was a thick-shanked awl made from the proximal end of the lower leg bone of a deer. These might have been used in weaving baskets, but the workmen conceived of them as used to remove corn kernels from their cobs. One specimen had been broken and the distal end shaped into a convex blade. Two flat bodkins made from the shaft of leg bones were perforated at the proximal end. These seemed too broad for the sewing of garments and might have been used for weaving or less likely for sewing leather. Other specimens were unperforated, but might have been used in weaving. Made of a fragment from the shaft of a deer bone, an oblong tool the surface of which was well polished by handling, offered no explanation for its use except perhaps as a scraper. Another implement of deer bone was a sort of spatula, both the blade and the shank showing signs of long use. Other bones were occasionally brought to a point and used as perforating tools (Pl. XLIX).

Three bits of shell came out of the trenches of the E system. Dr. Willard G. Van Name of the Department of Marine Life of this Museum kindly identified one as probably *Neritina Picta*, and another as a piece of

pearl oyster. Both of the species are distributed along the west coast of Middle America. The example of *Neritina Picta* is perforated at its base and was undoubtedly a necklace element. The fragment of oyster shell is too worn to predicate any specific function. The third is *orthalicus zebra* which also comes from Mexico (Pls. XL, XXXVII, bottom row, Fig. 2).

Other perishable substances like shell left no traces in the deposits of the Middle Period. Outside of the evidence offered by the figurines we found no textiles. Implements of wood had likewise disappeared. The house type still remained problematical, but we found, especially in Trench C North Extension, constructions of stone and of adobe. Their function probably was to make level living surfaces and to counteract erosion during the rainy season. There are four types, adobe bank, large stone construction, small stone construction, and slabs.

The adobe bank occurs in the southern portion of Trench C North Extension. The adobe was laid without any hearting of stone upon a sloping bank of débris in front of a stone wall. The edge between the vertical face and the horizontal side is rounded and covered with many coats. The adobe is gray in color (Pl. LII, Fig. 4; Pl. LIII, Fig. 2). At the very edge of the cliff, at the head of Trench E, there is a vertical face to the débris. In this case adobe is not used, but the bank of rubbish is smoothed into a vertical face (Pl. LII, Fig. 3). Naturally of both these constructions little remains. One finds it difficult to conceive of them as either useful or ornamental.

Large stones set in single rows comprise the second group. They do not differ from the walls in the Early Period. Assiduous following of these constructions reveals no cross walls. The amount of wash destroyed, however, any surface that might have been formed in connection with these terraces. None of them continue for any great distance as they are cut constantly by tiny gullies. Examples occur in Trench E, and in Trench C North Extension, Trench D Cuts, III, V, VIII, IX (Pl. LI, Figs. 1, 3; Pl. LII, Fig. 3; Pl. LIV, Fig. 2; Map IV).

The third type of construction consists of small stones laid up in adobe and plastered over. When this method of building was encountered first in Trench C, North Extension it seemed certain that here were houses. A jog in one of the walls, which was buttressed, apparently added confirmation. Further excavation produced no cross walls, no floor, no trodden surface; and the débris lay in vertical bands with none of the convexity of layers to be seen ordinarily in abandoned and ruined houses. One wall occurred above the adobe floor mentioned as the first type of construction. It

was built of small slabs of stone, but instead of dropping the wall into and against the débris, the masons had leveled off, with small slabs, the space between the wall top and the ground rising behind it. A variant of this method of construction was found to the north of Trench C North Extension when a low slab wall is built in, if not as an architectonic part, at least in connection with a heap of loosely piled boulders. The feeblest stone construction was encountered just north of the small stone walls encountered at the south of Trench C North Extension: a rudely smoothed bank of débris was studded or veneered with rocks (Pls. LII, Fig. 4; LIII, Figs. 1, 2; LIV, Fig. 2; Map IV).

From the foregoing outline of types of stone construction, it is fairly clear that not even erosion could shift house foundations into the formless heaps of boulders uncovered in Trench C North Extension. The walls moreover were set at every angle above and before one another. Following their faces required consummate care, as the surrounding earth was almost pure adobe and stone. It required at times considerable study to decide whether we were dealing with an embankment or an accidental group of stones. It appears that this revetting was an everlasting process due to the continual washing away of the hillside during the rainy season. It was apparently easier for the Zacatencanos to go about continually plugging gaps in their terraces than to undertake the extensive building of thick walls founded on rock bottom, which alone would guarantee an unshifting living surface.

The fourth type of building did not have the aspect of a terrace. It utilized large slabs from the hill, in formal alignment. The first example we encountered was an oblong cist, made of rows of slabs, which apparently lined an excavation. The bottom was paved with slabs and two fragments of metates. The top was covered by slabs. The dirt within contained no objects. A few stones extended south to a rough wall at right angles to them, and at right angles to this latter wall, but not producing the line of the row of stones, was another single course wall that faded away. More subject to comment than this baffling masonry were two rows of slabs which overlapped and overlay the cist. Small rocks set above the slabs at either side looked like a curb. Fine laminations of mud between the slabs on the downhill or south end undoubtedly were deposited by puddles of standing water. Uphill this slab construction disintegrated gradually into a mass of wall stubs and a short section of other parallel walls of slabs and small stones indiscriminately used. The most natural inference in view of the layers of mud was that the slabs lined a drain. On the other hand, the bottom of the

rows did not maintain a uniformly downward slope. The apparent turning of the walls at right angles militated further against this assumption. Moreover, there was no particular relationship between these slabs and the terraces. It seemed highly unlikely that the slabs were a splatter board to a wattle and daub wall or a foundation to a stone wall. At Cuicuilco, rows of large stones occurred; but they were larger, the aisle between was wider, and they were arranged in some ceremonial agreement to a large monolith. There seems to be no unraveling of this tangle. Ground conditions prevent it. The only explicable use of slabs occurred near the junction of Trench E with Trench C West Extension, where they were the foundation to a terrace of small stones (Pls. LII, Fig. 4; LIV, Figs. 1, 2; Map IV). The chronological position of these different types of structure is not earlier than the Middle Period; but some might possibly be of the Late Period. Sherds were relatively scanty but they almost overwhelmingly represented the Middle Period. A few pockets of Late Period *débris* occurred. So far as one can judge, the Late Period deposits have slipped off down the hill with a consequent destruction of all architectural remains.

Burials are flexed and unflexed in the Middle Period, with the former position much more common than in the Early Period. The position of burials is controlled often as much by the difficulty of sinking the shaft as by a ritualistic disposition of the body. The more east-west orientation is caused probably by the north-south slope of the hill at the point of our trenching (Map I, Figs. 5-13, Pl. LIII, Fig. 3; Pl. LIV, Fig. 3).

To sum up the Middle Period, there seems to have been a normal development out of the Early Period culture. In respect to pottery, wares like white-on-red are abandoned with red-on-white taking their place only to disappear in turn. Bay ware is relatively stable, only a few minor changes marking the passage of time. Black ware improves mightily in the Middle Period. Yellow-white ware is developed possibly into two groups, and granular white ware appears in the early part of the period. Trade we see by fine orange, orange "lacquer," and the mottled worked sherd from Trench D. (Table II, Pls. III-VI).

Figurine Types B and F, the flat and the ugly types respectively, might well have developed from Types C and D of the Early Period. Stabilization in representation would doubtless lead to crudeness displayed in their manufacture. Type A, however, is manifestly not to be associated with these local groups, for there is nothing in the Early Period plastic either in transitional forms or technique of composition to indicate an autochthonous development. Yet, the specimens are too common not to have been manufactured locally. (Table I).

It would be tempting to assume that the Copilco people moved over to Zacatenco and introduced new styles. To such an assumption there is some supporting data. Copilco must have been abandoned before the lava flow, since the same flow covers the pyramid of Cuicuilco, a site yielding later material. Moreover, the lava does not cover the pyramid proper but its débris of disintegration, which overlies heavy refuse of occupation. Hence Cuicuilco, too, must have been abandoned long before the flow and it follows that some different cause must have forced the people out of Copilco. From the distribution of débris at Copilco, the site covered hummocks which must originally have protruded from marshy ground.<sup>1</sup> If there is evidence of a rise in water level at Zacatenco, more or less coeval with the appearance of Type A figurines, it is not stretching our hypothesis too far to assume that such a condition might have caused the abandonment of Copilco. Furthermore, we find San Juanico and San Miguel Amantla, both sites yielding figurines of Types A and B, sealed in by heavy, loamy deposits perhaps lacustrine in source. Outside of El Arbolillo and Ticoman the two other sites known to the writer as producing Types A and B are Tetelpan and Contreras, both of which are situated on high ground north and southwest respectively of Copilco. If our assumption be true that the clogging of sluggish stream beds caused lakes to form and drove the valley settlements back to the hills, then we have a fine situation bordering a lake for the pyramid of Cuicuilco. Naturally, until we have a series of levels for Type A and B sites around the valley, such a supposition of a flood is only a convenience for adducing movements of population. The most pertinent problem is ignored, nevertheless, for we are as far as ever from the source of the Type A plastic (Pl. XXI). Indeed, the only specimen in our collections from outside the Valley comes from Vera Cruz (Pl. XXXIII). Such a composition, in view of the almost certain development of B (Pls XXII-XXIV) and F (Pl. XXV) from C (Pls. X-XVII) and the equally probable derivation of Middle Period pottery from Early, indicates an imported rather than an invented style. If, then, Type A is imported, what people in what place created the form and transmitted it to the Valley?

Bone, and especially stone, we have observed developing technically rather than ethnically. There is not as yet a corpus of sufficient size to deduce regional affiliation. Changes are due partly to a predictable increase of mastery of technique and partly perhaps to a large cubic content of débris better preserved than the Early Period detritus which

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<sup>1</sup>Kroeber, 1925.



would almost certainly yield a greater variety of specimens. The increase in numbers of metates and manos arises from our trenching near house sites. The manufacture of stone balls and the utilization of baked clay for rattles, ornaments, and the like, again suggest the growth of forms after continued manufacture (Pls. XXXVIII-XLIX; Table I).

Some data obtain on trade relations. The usual provenience of jade on the Highland of Mexico lies toward the west coast of Guerrero or Oaxaca (Pls. XL, XLV). The probable west coast source of the shell ornaments (Pls. XL, XXXVII) strengthens the consideration of these southwestern Mexican states as a trade source. Against this western trade for stone and shell the two trade sherds, one with red and orange on white and one with tortoise shell marking have probably an eastern source, for the uniform tendency of west Mexican pottery is toward forms eschewing painted decoration. (Pls. II, Fig. c; XXXVIII, bottom row, Fig. 1). In neither east nor west Mexico does there exist a qualitative or quantitative time sequence, but the pottery and the jade indicate that there were very much higher civilizations outside the Valley than within.

How much time elapsed in the growth of the Zacatenco culture is as yet an imponderable problem. No method of measuring years by depth of deposit has been evolved, for too many factors like density of population, erosion from geological depositions or from débris, and the like, affect the scheme. Yet the depth of continuous deposition in these early cultures is considerable. The Early Period strata are over four meters deep in Trench D and the Middle Period layers, accumulated probably by redeposit, occupy another three meters. The source of the latter material is the thick débris bed extending over the ledge exposed by the A, C, E trench system, of which the average depth near the ledge is nearly four meters. In view of the restricted surface which yields potsherds, there does not seem to have existed an area sufficiently great to contain the dwellings of a very large population. Thus the most natural inference to draw is that the Early and Middle Periods of Zacatenco occupied a very long time.

#### THE LATE PERIOD

The Late Period refuse, it may be recalled, lay in the upper three cuts of Trench D, along the slopes cut by Trenches A, C, and F, and in pockets of Trench C North Extension (Map IV, Sections I-II). These deposits, being the latest, would have been the most subject to wash, during the long lapse of time after the abandonment of Zacatenco. Some

sections of the site, like Trench E, were denuded completely down to the strata of the Middle Period. It is even possible that there may have been more than one time aspect to the Late Period at Zacatenco. As we have shown, however, the condition of the ground was such that the creation of a stratigraphy of more than three periods would have been too inferential to be sound. We contented ourselves, therefore, with sure ground conditions.

The pottery showed differences that are quite distinct from the Early Periods. The variance indicated the introduction of new ideas rather than a normal autochthonous development. Bay ware, while being made in the same manner as in the preceding periods, showed strong changes in rim form. The necks and shoulders of the ollas were developed into two entities, in contrast to the Middle Period manner of continuing the body in a concave curve through the neck to the lip. Besides the usual thickened lip of the Middle Period which still persisted, we found in vogue three other ways of fashioning the mouth. The commonest method was to fashion a lip flaring directly from the body or above a low constricted neck. Another characteristic style was marked by a concave neck with a nearly vertical chord, and by a projecting lip, flat on the under surface, but convex or flat on the upper, that made a right angle with the chord of the neck. A third type, distinct for the period, was a heavy rounded lip, surmounting a curved somewhat vague neck (Pl. VII, Figs. a, c-g, i-t').

Bay ware cajetes virtually disappeared from the Late Period cuts. Scattering sherds of all types were present but in such small quantity that it indicated wash from earlier deposits rather than continuance of manufacture. There was, however, a fairly common manufacture of bowls of simple silhouette with a few correlated examples of flat-bottomed bowls in outline like inverted truncated cones. Another sub-type of this ware had, however, a tremendous development of the bottom portion of the wall. The wall was reduced to a recurved rim which sometimes became an acute angle in silhouette. This last composite silhouette type was made of finer clay and was difficult to distinguish at times from polished brown ware bowls with the same profile. Russet bottles still appeared in small quantity. There was the same occasional practice of painting the lips white. White-on-brown bowls occurred in Cut III of the Late Period and olla bodies in Cuts II and III (Pl. VII, Fig. h; Pl. VIII, Figs. n, s-u).

A notable feature of Late Period ceramics was the complete abandonment of the chalky-white and yellow-white ware groups, and the ces-

sation of fine black ware, all of which potteries were so characteristic of the Middle Period. Fulfilling the function of service pottery were several new wares. Three of them may have had some connection with Middle Period pottery, but it is probable that whatever people inhabit a given site, they utilize the same beds as their predecessors for pottery clay. One might observe then in such a ceramic an appearance of local development that would be belied by the true sequence of successive groups of potters who brought their own tribal styles.

The three wares at Zacatenco which suggested connection with the Middle Period were dun or dirty-white, late black-brown, and polished brown wares. Dun ware was made of a coarse chalky clay into flat dishes with shallow concave bottoms and wall elements forty-five or more degrees from the vertical, and perhaps a tripod support. It is indistinct and may be a variant by firing, of one of the yellow wares to be considered later. On the other hand, ollas of standard shapes for the period were also made in this ware (Pl. VII, Fig. f; Pl. VIII, Fig. i). Late black-brown ware was composed of coarsely kneaded clay; its slip was thicker and more polished than the fine black ware of the Middle Period, but in the same color range; and the shapes were like those of dun ware. But the composition also seemed to shade off into polished brown ware, even if the shapes were dissimilar, so that we are probably dealing with the opposite poles of the same class. Polished brown ware vessels, as we have seen, connected vaguely with the finer composite silhouette bowls of bay ware. They were slipped inside and out over a well kneaded base clay. There were two main forms, deep bowls with a conical base and strongly incurved mouth supported on three hollow legs, or deep bowls differing from the first class in having a composite silhouette by the termination of the vessel in a recurved rim. The tripod support consisted of legs like hollow cones or globes, or else made by the superposition of one globular element on another. The rim treatment and high burnish were the chief decorative modes, but there were also found incised or perforated patterns, mainly triangles or gadroons, or a "cuneiform" treatment of the lower body. Variant shapes of this ware comprised little bottles modeled and gadrooned into melon-shaped bodies surmounted by flaring rims, deep bowls with conical bottoms, and one or two forms with effigy spouts (Pls. III, Figs. a-d; VIII, Figs. a-c, l-o, q; XXXIX, top row, Figs. 10-11).

A new class of yellow ware made its appearance in the Late Period. It was always decorated and takes its class designation from the decoration used. The base clay was bluish in color, roughly kneaded, and

tempered with coarse quartz-like particles. The characteristic yellow color may have been due to the use of another clay or slip or may simply have resulted from the reaction of the clay to fire. The slip was applied within and without, but often the exterior was left unpolished. This ware resembled little in shape or composition the flaky red-on-yellow of the Middle Period but it may have been derived from it, as in Trench D, Cut III was encountered an advanced type of the latter ware (Pl. VIII, Fig. d). The shapes were wide-mouthed bowls with flat or convex lips tending toward the horizontal, while the body of the vessel was deeply curved. Tripod support was the rule, with the leg forms similar to polished brown ware. Decoration lay in designs of red paint, often outlined by incisions, probably after sun drying, for the outline of the painted pattern was often vague and overlapped the incision, as if the pigment ran in the firing. Occasionally, the red paint made a background for an incised design. Simple geometric designs obtained almost exclusively. The design fields of bowls were confined almost exclusively to the inside of the rim or lip. A few sherds occurred of small ollas and bottles the ornamentation of which fell obviously on their exterior. Red paint was very rarely applied to the legs. Some red-on-black sherds may have resulted from the misfiring of red-on-yellow (Pl. IX, Figs. a-g, j).

A number of examples of polychrome pottery from Zacatenco are figured in the Boas Album, and others are preserved in the collections of the Peabody Museum of Harvard University and the University Museum of the University of Pennsylvania. Polychrome sherds in those collections present a higher frequency than in our collections from Zacatenco. This polychrome pottery is a development out of late red-on-yellow ware. The red paint was applied more thickly to the yellow base clay so that it did not have the tendency to run, as in red-on-yellow, or red-on-yellow incised. The outlines of the design were then picked out in white paint. The shallow plate forms, the dishes with flaring rims, and another form the rim of which approached the vertical were thus decorated. On the last form the decoration lay on the exterior. The globular feet of some examples of this shape bore a polished red slip (Pl. IX, Figs. h, k).

Polished red ware occurred as a distinctive service pottery in the top cut of Trench D. On a base clay like that of late yellow ware, a heavy red paint over the entire interior and the upper part of the exterior was brought to a high polish by burnishing. While a very few of the vessels were bowls with the flaring walls of late red-on-yellow,

the great majority had the shapes of polished brown ware, bowls with conical bodies and violently incurved rims, or else the composite silhouette type of bowl with the wall reduced to a recurved rim. Another characteristic shape was a short, incurved rim with a rounded, thickened lip. The slip was frequently applied to the globular legs, of which one example, a double globe, had the upper portion in red and the lower in white. Occasional small vase and olla forms were encountered. Polished red ware vessels were sometimes ornamented by incising simple arcs through the slip of the outer rim, and very rarely indeed by applying white paint (Pls. VIII, Figs. e, g, j, k, o, p, r; IX, Fig. m).

Scattering examples obtained, of vessels too few in number to be classified as standard wares, but lacking an appearance extraneous enough to define them as trade pieces. They suggested a potter playing with his technique to create fresh forms. Among such vessels were two or three conical vases slipped in shiny white and decorated in red, a double globular leg, a square vessel of dun color adorned by horizontal flanges and having two horizontal horns projecting from the base, effigy bowls of red ware with limbs, human and grotesque, modeled on the side, a shiny white vessel threaded like a bolt, with grooves made before slipping. These forms may have entered by trade, but there are no available data on this provenience. In the lower two cuts of the Late Period deposits occurred two or three sherds each of orange "lacquer" and fine orange ware, but they had probably been washed down from late Middle Period deposits up the slope (Pls. VIII, Figs. f, h; IX, Figs. i, l; XXXVII, top row, Fig. 10).

Summing up the ceramics of the Late Period, we find its changes from the Middle Period sharper than the differences between the Middle Period and the early. Bay ware is affected by a number of new rim forms, although some of the old ones still continue. The manufacture of cajetes is abandoned with a rise of more sophisticated service forms with incurved or recurved rims. The standard fine black, white, and yellow-white wares disappear, before the entrance of red-on-yellow, red-on-yellow incised, polished red, and polished brown, the last ware, including late black-brown (Table II). In the place of the Middle Period shapes of high wall and shallow bottom elements, the wall now is reduced to a decoratively treated rim and the body is deepened into a cone, which is supported on hollow legs. Similar pottery is known from a variety of hillside sites like Ticoman, El Arbolillo, Cerro de la Estrella, Ixtayopan, but all of these sites will probably show differences of time and place when excavated. Forms similar to red-on-yellow and polished red,

together with equivalent wares, are known from San Cristobal, Santa Maria Zacatepec, and San José Siclaltepec, in the State of Puebla. The pottery of Cuicuilco, upon cursory inspection, is closely related to, but not as yet definitely equated with, the pottery of the Zacatenco Late Period. The succeeding forms to the Zacatenco Late Period are not yet reduced to historical sequence but certainly so far as figurine types are concerned, much of the Cuicuilco material is probably post-Zacatenco. The greater proportion of decorated wares in the surface collections made by Professor Boas' students than in our excavations, might be due to pre-selection of the more interesting sherds, or might arise from the washing away of the earth from later strata, leaving the sherds exposed on the hillside (Table II, Pls. III-IX).

In contrast to the development of pottery in the Late Period from the simple forms of the preceding epochs, was the morphological degeneration but typological expansion of the figurine types. Yet while many types, as we have said, were represented, only two obtained in sufficient quantity to be classed definitely as local. These were Types E and G (Table I).

Type E represented a degeneration of the Type B technique, but lacked the transitional forms indicative of a local metamorphosis. The figurines were made of a well kneaded clay varying from dun to red in color, and were consistently of small size. The main portions were the head and body with limbs and features indicated by fillets. The posture was generally erect, and rarely seated. Both body and head were diagnostic. The head was flat at the back and pinched forward slightly to form the basis for the face. Often without further addition, a gouge for the eye and another across the protuberant face for the mouth were considered sufficient facial expression. Very often, however, the mouth, and occasionally the nose, was built by the additions of fillets. The eye was rarely filleted and, when not made by a simple gouge, was made by two at an obtuse angle. The body was quite well modeled in respect to the contours of the breast and stomach. The sex of this class was very commonly indicated by an incision or a filleted disc with a perforation. Quite elaborate headdress ornamentation was reproduced by incised fillets, the most common style being a sort of fleur-de-lis based on a horizontal band across the forehead. Examples occurred in all of the top three cuts in Trench D, in the Late Period deposits in Trenches A, C, and F, and in pockets in Trench C, North Extension. Similar specimens were bought at Ticoman, where the type is common, from Tetelpan, where it is rare, and from Coatepec, Papalotla, and Tlapacoya near

Texcoco. Many specimens are figured by Professor Seler from Jalapazco in Puebla (Pls. XXVI, XXXVII).

Type G was a very variable class. The clay was yellow and well kneaded and generally covered with a well burnished slip, the postures either erect or seated with the legs folded. The heads were flat in back and pinched forward in front with the features indicated by shallow incisions directly on the clay or occasionally on fillets to make the eye. The eye was generally portrayed by two or even three incisions. The face was very bird-like and in some specimens was clearly portrayed as such. Notable was a seated human figurine with two bird heads from the upper layers of Trench C. A subtype present at Tlapacoya, Tetelpan, and Azcapotzalco, bore features very deeply incised, and evidently human. The bodies were as characteristic as the head. The seated figures were very flat, with the arms folded across the body. In distinction to the crudeness of the head, ornament on the body received assiduous attention on some, like the Azcapotzalco specimen (30.0-4800). A similar specimen turned up in Professor Cummings' digging at Cuicuilco. The erect bodies had stubby arms held away from the body more often than folded across it. The contours of the torso were well modeled. The legs had a distinctive bandy, swollen appearance, and a deep slot defined the buttocks. When the sex was indicated, it was female with one exception. Type G occurred in the top cut of Trench D, in late débris in F and C, and is represented in collections from Ticoman, Azcapotzalco, Tetelpan, Tepetlaostoc, Tlapacoya in the Federal District and San Cristobal, Puebla (Pls. XXVII, XXXVII).

Type H was a complicated and variable style found rarely at Zacatenco. It was subdivided into four divisions. Hi comprised figurines with the same shiny slip as Type G. The heads were flat in back; the face horizontally convex; the mouth and nose filleted; the headdress flat and little developed; the eyes not indicated. No specimens came from Zacatenco, but the neighboring site of Ticoman, and Azcapotzalco, produced examples. Hii was virtually the same as Hi save that the eye was indicated by two arcs inscribing an oval and occasionally a third making an eyebrow. Two specimens were bought from children at Zacatenco, and several other examples occurred at Ticoman, Tetelpan, Tepetlaostoc, and Contreras, while some torsos are present in the Cuicuilco collections. Type Hiii comprised large, shiny figurines, like Hii in facial proportion, but with the eye made by a single fillet, apparently applied before slipping. Examples occurred at Ticoman, Tetelpan, Azcapotzalco, and Cuicuilco. Hiv connected with Hii by

physical proportions. Very few specimens were polished and the great majority had all the features even to eyebrows and hair, depicted by assiduous filleting. Two specimens, either very much degenerated or very primitive, came, respectively, from the late deposits in Trench A and a late pocket in Trench C North Extension. Ticoman, Cuicuilco, Coatepec, Contreras, and Cuernavaca all yield this type. The presence, in quantity, of the H group at Ticoman is very significant since it represents, doubtless, another rung in the ladder of figurine types. The only subtype of sure provenience at Zacatenco is Hiii, which is represented by crude and most probably primitive specimens (Pls. XXVIII-XXIX).

Type I was represented by two small examples from the Late deposits in Trench A. The heads were made of the same highly polished paste and with the same dorsal flattening and horizontal convexity in front as the group called Hii. The features received much more realistic modeling and the eye and mouth fillets were worked back into the base clay. There also existed in other sites large specimens of this group which tie in with Hiii. The general distribution of Type I covers Ticoman, Contreras, Azcapotzalco, Tlapacoya, and Coatepec (Pl. XXX).

One specimen of Type Dii was found in the top cut of Trench D and two were bought from children. The connection with Di is not apparent until one examines the transitional forms from Coatepec, Azcapotzalco, Cuernavaca, and the Dorenberg collection which was made, probably, in the State of Puebla. It seems to have gone through a series of changes outside the Valley proper and returned more or less as an article of trade (Pls. XIX-XX).

A very much waterworn head, lentoid in shape, came out of Trench C North Extension. It tied in with some examples from the Dorenberg collection and a specimen from Ticoman. We have grouped the specimens as Type J. So far, most of the types of hand-made figurines found in central Mexico have had some representation at Zacatenco, by general type if not by sub-type. Type K, a group very common in the State of Morelos, and found at Azcapotzalco, Cuicuilco, and Coatepec, was absent from the figurine fragments exhumed in last season's digging. It is distinguished by frog-like features presented by filleting. It is quite possible that Types J and K are of the Early or Middle Periods (Pl. XVII).

Type L is a tentative creation which includes large coarse figurines distinguishable chiefly by their shiny slips of tan color. Future excavations undoubtedly will expand this class into several divisions. Nose,



eyes, and mouth are indicated by filleting. The headdress is low and much conventionalized. One specimen occurred at Zacatenco low down in the Late débris of Trench A. It was characterized by deep punctuations at either side of a filleted mouth and deep ploughs over each eye fillet. It is by no means clear whether the specimens found in Cut IV of Trench E in the Middle Period dump, and in Cut VIII of Trench D in Early Period, represent the steps preliminary to this plastic. A specimen purchased from a workman who claimed he found it at Zacatenco was much cruder, but of a composition similar to this Trench A head. Several specimens come from Coatepec (Pl. XXXI).

A very interesting body was found in a Trench C North Extension pocket of Late date, the head of which was lost. The body was slipped and polished to a lustrous black. Red paint applied after firing indicated the hands and a necklace. The legs were two short stumps. The specimen is unique in the writer's experience (Pl. XXXI, bottom row, Fig. 1). A fragment of a shiny tan body came from the Late deposits in Trench C of which the general bodily proportion did seem not unlike, although far from identical, with this example in black ware (Pl. XXXVII, bottom row, Fig. 1). An unslipped tiny head of a singing figure with round fillets for eyes, and a turtle-like head were yielded by the top cut of Trench D. Two specimens like the former were purchased, one at Zacatenco, the other at Coatepec (Pl. XVI, bottom row, Figs. 5-7; Pl. XXX, top row, Fig. 4).

Most of the Late figurine types are composed in a manner very different from the Early and Middle Period specimens. Type E alone seemed to carry on the tradition laid down by the development of Types B and F out of C and D (Pls. X-XVII, XXII-XXVI). Yet even with Type E there appeared no definitely transitional types. Ticomán, which is less than an hour's walk from Zacatenco, yielded many of the types which occur sporadically at Zacatenco. The presence there of these types rare at Zacatenco like the H, I, J, K, and L groups, opens up several interesting speculations (Pl. XVII, XXVIII-XXXI). In the first place, it may be that these figurines are later than the E and G groups which are represented strongly enough at Zacatenco to be surely of the Late Period, in which case the rarer figurines must indicate a dwindling off of the population in subsequent periods. In view, however, of the strong representation of these styles at other sites, it might be that they appear as trade articles at Zacatenco. But if trade accounts for the presence of these specimens, then the theory that they are representations of divinities becomes untenable, for it would take a bemused

theology indeed to import such varied representations of its divinities. Syncretism occurred by force of arms and for political reasons in Roman and Hellenistic times, but its practice through commerce is unheard of. What then is the social function of the figurine? The fact remains, however, that a sharper and more varied plastic representation had come in by the Late Period at Zacatenco, with every probability of the establishment of rigid local types in other localities. The figurine change coincides well with the pottery change, and there is thus evidence that the sudden metamorphosis of the ceramic is not an autochthonous development, but an actual intrusion of another people. But the last word is far from pronounced. Many years of investigation must follow to ascertain these points definitely.

The other objects of burned clay found in the Late Period at Zacatenco did not offer so fertile a field for speculation and for discussion as the figurines and the pottery. Pottery balls were common in the Late deposits. They were made of a coarse, ill kneaded clay, and were covered generally by a yellow or a red slip that was polished. Some few specimens were left without an exterior coating (Pl. XXXIX). Rare examples occurred in the top cut of Trench D of the circular pottery discs thought commonly to be earplugs. This scarcity was in no way commensurate with their prevalence at Ticoman, Coatepec, San Cristobal, and San José Sicaltepec (Pls. XXXVII, XLI). A single whistle with flat mouthpiece and globular bowl and the fragment of another appeared (Pl. XXXVIII, top row, Fig. 5). Worked down potsherds in disc form were absent, no specimen occurring in the top cut of Trench D. Ladle handles appeared in the upper cuts of D. A fragment of a cylindrical pipe with a black slip found in the top cut of D may perhaps have had an Aztec origin, although a similar specimen is known from San Juanico (Pl. XXXVIII, middle row, No. 2). A peculiar well-polished hemisphere of brown clay bored at its pole, was presumably an ornament and came from the Late deposit in Trench C (Pl. XL). The most striking aspects of the minor clay artifacts of the Late Period are the increased use of slipped pottery balls, the reduced use of discs made from worked down potsherds, and the appearance of the pottery labret.

Unlike the utensils of baked clay, stone objects reflected little of the changes ushered in during the Late Period. Mano and metate forms in the Late Period exhibited no deviation from the shapes usual in earlier periods. Small oblong rubbers with rounded edges occurred (Pls. XLV-XLVII). Chipped obsidian tools showed more variation than those of *ava*. Four out of five arrowheads recovered from the Late Period

deposits in Trench D were made with notched stems, in contrast to the simple outline generally followed in the earlier periods. One example of a broken drill with tang, possibly showed re-use as a scraper. The long blades made by flaking seemed, in general, a little thinner and finer than in the earlier periods. The finest specimen in the collection came from the second cut of Trench D (Pl. XLIII, bottom row, Fig. 9). Scalpel forms with a hooked point made their initial appearance in the Late deposits of the same trench. Large flaked tools showed, however, no variation. Knives, spoke-shaves, and snub-nosed scrapers, all had their counterparts in the Middle Period, when apparently they were invented (Pls. XLII-XLIV).

Quartz occurred plentifully in spalls and cores, and a notched and hafted arrowhead was found in the top cut of Trench D. A broken arrowhead of similar type, but made of jasper, occurred on the same level (Pl. XLV). A fragment of a jade earplug in the form of a truncated hollow cone came from the bottom of the Late Period deposits in Trench D (Pl. XL). It showed perhaps a continuance of trade relations with the Oaxaca-Guerrero region. A blunted celt, perhaps of jade, likewise indicated commerce, for the celt did not appear at any time in Zacatenco as an indigenous product (Pl. XLV). A fragment of semi-opal again gave testimony of trade relations (Pl. XLI). The fine polished spheres of limestone, porphyry, and basalt were conspicuously absent, although lava and pumice spheres were reasonably plentiful (Pl. XLV; Table I).

Antler tools showed no particular change. No examples of the chisel-like tools of the Middle Period appeared. An ash pit in the bottom level of Trench D yielded two large antlers which seemed to have been used, but were not worked. Another antler was broken, either naturally or intentionally, into a fork, and bore extensive signs of use. The same level produced several bone tools including a bodkin and a sort of spatula. The cut immediately above this deposit contained a long pointed tool worked down from the proximal portion of a deer radius (Pls. XLVIII-XLIX). No perishable or semi-perishable remains were found. Architectonic activity was represented by the two revetments of stones set on edge in Cut III, Trench D (Pl. LI, Figs. 1, 3).

One burial of an adult was found in Cut II. The body was prone with the legs extended and the arms flexed beneath it. The head had been removed by children since it was visible in the vertical face made by excavation for the causeway (Map I, Fig. 14).

The general impression given by Period III is an increased technical facility in pottery, figurine making, and stonework like arrow making. The laborious quality of the Middle Period, as exemplified by Type A figurines and the stone balls, is missing. Obviously, the simple tools of stone and bone would not reflect the change expressed so violently in the pottery and figurines. Trade relations seem to have continued but the existence of high cultures outside the valley is not reflected by trade specimens other than the jade labret and the celt. The development in figurine making of separate evolutions of style in several localities, is very apparent. The Cuicuilco data have not yet been brought out, but specimens in the possession of the Mexican government give a firm basis for the belief that the pyramid site was occupied after the abandonment of Zacatenco. The ceramic affiliations lead east and south to Puebla and Lake Texcoco for the evolution of types since outside of olla forms, the roots of the Late Period pottery do not seem to be contained in the Middle Period ceramic.

## CONCLUSIONS

The work undertaken at Zacatenco from December, 1928, to March, 1929, was a preliminary investigation, the results of which showed the utility of stratigraphical excavation. Further studies must follow to corroborate the data acquired and refinements, both in excavation and typology, are essential to a more complete understanding of the problem of the cultural and chronological position of the early cultures in the Valley of Mexico. Yet no matter how preliminary and how imperfect a piece of excavation, there should be accessible to students not only the results of the work in terms of itself, but also the inferences drawn by the excavator in connecting his researches with previously existing data, and as well, his conception of the general and specific problems to be solved by future research. This latter aspect is speculative and must be so considered, but a frank statement of idea and theory relieves the obscurity of technical detail. We are dealing with history, after all, not science, and generalizations, while looser and more open to dispute than in exact research, are permissible to goad students into fresh interpretative activity.

At the outset of the work this season, objects of undoubted antiquity had been recovered from beneath the lava at Copilco<sup>1</sup> and Cuicuilco,<sup>2</sup> and from the gravels of an old river bed at Azcapotzalco.<sup>3</sup> Somewhat similar material had been collected and rendered accessible in museums from Ticoman, El Arbolillo, Zacatenco, Cerro de la Estrella, San Miguel Amantla, San Juanico, and Tetelpan.<sup>4</sup> Two definite ceramic families had been established; a simple, relatively undecorated group that was observed at Copilco, San Juanico, and Tetelpan; and a style, with a greater range of form and decoration, that occurred at El Arbolillo, Zacatenco, Ticoman, and La Estrella.<sup>5</sup> Professor Kroeber, working on the basis of the proportion between painted and unpainted pottery picked up on the surface of various sites of the early culture had subdivided the pottery into four chronological groups.

Archaic I. Line-incised ware in the majority, all plastic decoration frequent; proportion of color ornamentation low. Red-on-white predominating three color almost lacking. San Angel (Copilco).

Archaic II. The proportion of colored ware approaches half the total of ornamented; red-on-yellow is more frequent, and three-color in noticeable quantity. Zacatenco and El Arbolillo.

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<sup>1</sup>Gamio, 1920; Lozano, 1925.

<sup>2</sup>Cummings, 1923a, b.

<sup>3</sup>Gamio, 1912, 1912-1913.

<sup>4</sup>Boas, 1911-1912; Kroeber, 1925.

<sup>5</sup>Vaillant, 1929a.

Archaic III. The frequency of plastically decorated ware falls still lower, colored constituting more than half. Red-on-yellow exceeds red-on-white. Ticoman, perhaps Estrella, as transitional from Archaic II; and possibly Cuicuilco.

Archaic IV (relation to III not wholly certain). Plastic decoration infrequent, white incised and corrugated lacking, painted ware about nine-tenths; red-on-yellow still prevailing over red-on-white, but four-color and combinations containing brown in use. Pyramid interior (Pyramid of the Sun, San Juan Teotihuacan).<sup>1</sup>

This seriation checks in remarkably with our own findings. Copilco pottery is equatable chronologically with our Middle Period material, which would not tend to appear so frequently on the surface as Late Period sherds. Hence Professor Kroeber's surface collection from Zacatenco was tinged strongly with Late Period types, and consequently he considered the material later than Copilco. The common occurrence at Ticoman of figurine types rare in the Zacatenco Late Period caused us to predict a longer occupation for Ticoman. Professor Kroeber's conclusion then lends additional force to our assumption. Since the cream of the Cuicuilco data is not available, any opinion must be tentative, but from a consideration of figurine and pottery types it probably overlaps Ticoman chronologically. What material we have examined from the cuts made into the Pyramid of the Sun at Teotihuacan indicates a ceramic based on a tradition in form and decoration different from either of the early culture families. The Teotihuacan ceramic may base back on some unknown early culture pottery or there may be developmental stages which are at present missing, growing directly from the Ticoman-Cuicuilco phase. Professor Kroeber, in his search for a sharp line of time distinction, classified on a basis somewhat different from our own, but his results were a brilliant justification of mathematical data handled intelligently.

The figurines of clay received much discussion in the literature on the early cultures, but there existed in print no study comparable to Professor Kroeber's work on the pottery.<sup>2</sup> Mr. C. L. Hay evolved, nine years ago, a classification according to which the specimens collected by Professor Boas and himself were exhibited in the Peabody Museum of Harvard University. The Zacatenco excavations corroborated his typological assignments of specimens, so that his grouping, even to the retention of the letters distinguishing groups, is the basis of this classification of Zacatenco material. Doctor Spinden included all figurines made by hand with the filleting technique of feature presentation in an Archaic Culture Horizon;<sup>3</sup> Doctor Gamio indicated a transitional stage between

<sup>1</sup>Kroeber, 1925.

<sup>2</sup>Kroeber, 1925.

<sup>3</sup>Spinden, 1928.

Toltec and the types collected from early culture sites both on the hills and under lava.<sup>1</sup> For stone, bone, and architecture, Diaz Lozano's report on Copilco gives the fullest conception in print.<sup>2</sup>

We are able to adduce the following positive conclusions on the basis of the work at Zacatenco. The Early Period presents a well made but undeveloped pottery divided into two groups, storage and service. The storage pottery, which is made of clay, bay in color, comprises wide-mouthed ollas with necks merging gradually with the body and large bowls or cajétes made with a wall and a bottom element. The service wares are made of red, black, and white clays. The red ware is decorated in white paint and has walls which are high in relation to the curving bottom. The black wares possess similar shapes and, as time goes on, show increasing refinement in decoration and composition of the clay. The white wares are shallow dishes supported on teat-like tripods. At first with rare incised decoration, at the close of the period they are frequently decorated with red paint (Pls. I-II). The figurines fall into two main types, both of which are found waterworn in the Azcapotzalco gravels, but which are not characteristic of Copilco deposits. The chief of these, Type C, is characterized by a slim body, long extended legs, and heads with the features indicated by fillets applied to a conical face surmounted by an elaborate turban. These heads may be subdivided into a chinless class, a class where the chin is depicted, and a third where the head is large and somewhat oblong in contour. In other localities there exist four additional types showing the long continued manufacture of this form. Type D, which is a refined variation of Type C, is presented rarely with a turban. Filleting is almost absent in the smoothing down of applied bits of clay. This type again shows variable forms in other parts of the Valley of Mexico (Pls. X-XX).

Manos and metates are well developed and have a characteristic shape of tripod support and ridges on the long sides of a convex grinding surface, oblong in section. Obsidian is used commonly. Flakes are common, but chipped tools are relatively rare. Arrowheads are mostly leaf-shaped. Bone tools are in occasional use and some pottery implements. (Table I, Pls. XXXVII-XLIX.) Architecture is confined to rows of boulders revetting the débris (Map IV, Section I). Burials, being interred in soft soil, are more commonly extended (Map I, Figs. 1-4).

The Early Period pottery merges into the Middle in pottery types. The olla and cajete forms exhibit little change. Black ware continues

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<sup>1</sup>Gamio, 1922.

<sup>2</sup>Lozano, 1925.

improvement in shape and design and the customary composition becomes distinguishable as fine black. White-on-red is no longer made, but red-on-white ware had a tremendous vogue at the beginning of the epoch, only to die away toward the close. Yellow-white ware bowls of simple silhouette remain popular throughout the period and yellow-white ware *b* also comes into fashion. Ollas of granular white ware receive considerable attention. Fine orange ware and orange "lacquer" are in use, but there is considerable question as to their being a local manufacture. Pottery tools are also more common than in the preceding period. (Tables I-II; Pls. III-VI, XXXVII-XLIX).

Two figurines, Types B and F develop perhaps out of C. The change is quite abrupt, but some forms may be selected out as transitional. Type B is flat, and filleting is employed for the simplest indication of nose and mouth, in contrast to the elaborate and detailed method of presenting the face shown in Type C. Type F, with its squat roundness of outline and formless face, is more a degeneration of C than perhaps a conventionalization like B. It is quite possible that the steps developing these styles took place elsewhere and the forms were adopted more or less full-fledged by the Zacatencanos. Type A, a characteristic form for Copilco and the Middle Period, shows no connecting links as yet with earlier or later figurine groups. Its distribution is largely confined to the southwestern portion of the Valley of Mexico. It remains apart in technique of manufacture and in morphology (Pls. XV, XXI-XXV).

Manos and metates were recovered in much greater quantity from the Middle and Late Periods than from the Early. This circumstance may represent an increased use of stone but is more probable because our Middle Period excavations were near definite house sites. Tools of obsidian, quartz, and other stone exhibit an increased skill in their manufacture, as well as a branching out in forms. The lightly fired or sun dried pottery balls of the Early Period are replaced by balls well-fired and slipped, or else made from lava, limestone, basalt, or trachyte. The proximity of the Middle Period deposits to house sites accounts, as in the case of the grinding tools, for the number of bone implements unearthed. Shell and jade show trade relationships with the West Coast, but a sherd slipped the color of tortoise shell must have come from the East (Table I, Pls. XXXVIII-L). The figurine, Type A, is in greater harmony with the ideals of the East Mexican plastic than with those of the West. Several types of revetments show the feeble, if extensively practised architectural development and especially curious are the structures of slabs of stone (Pls. LIII, Figs. 1, 2; LIV, Figs. 1, 2.) Burials are usually flexed for



those recovered were found in stony soil. But all positions are known (Map I, Figs. 5-13).

The Bay forms of the Late Period are known in the Middle in scattering examples. They are constant enough to be considered as contemporaneous, as it seems unlikely that they may have been washed from Late deposits and mixed into the preceding débris. Yet, the rise in frequency of such forms as the restricted neck with lip development is strikingly apparent in all Late Period olla series. At the same time the cajete disappears. The service wares of the Middle Period disappear in the Late Period and are replaced by new forms and new compositions of base clays. In the Middle and Early Periods the forms of service wares were in the same general tradition of deep bottom and a wall with a chord generally vertical and rarely more than 30° off vertical. However, in the Late Period the wall is reduced to a rim treated in various types of moulding, while the bottom element is expanded into the vessel proper. The base becomes more conical and tripod support is common, the feet being generally globular or hollow. The actual details of decoration are crude and dimly conceived, but two new principles enter. One is treatment of the slip, where by burnishing a slip of pleasing color as in polished red ware, the lustrous finish becomes a decorative feature. The second is by increasing the surface covered by the decorative paint so that as in red-on-yellow or polychrome ware the ground slip participates in the decorative scheme. Incision on the borders of the paint heightens the contrast despite the tendency of the paint to run. This method of embellishment represents a considerable departure from the methods of the Middle Period where the designs, rudimentary as they were, formed a complete decorative scheme independent of the vessel itself. Pottery tools, though common, are fewer than in the Middle Period (Tables I-II, Pls. VII-X, XXXVII-XLI).

The plastic of the Late Period does not keep pace with the ceramic in skill of modeling, but we have for the first time a burnished slip, as on Type G. Two types, E, characterized by a pointed bird-like face and a human body, and G, which has a shiny slip, buttocks separated by a slot, and also somewhat bird-like features, may be safely called indigenous. But there is, none the less, a numerous representation of specimens that, while defying classification through scarcity of occurrence in Zacatenco, comprise definite groups in other localities (Pl. XXVI-XXXI).

Manos and metates do not differ from Middle Period specimens. Stone balls fall off in frequency and in quality, and seemingly are replaced by a greater use of pottery spheres. The arrowheads, so far as

can be judged, are made in a manner much more sophisticated than heretofore. Bone tools do not exhibit any striking variation from those of the Middle Period (Pls. XXXVIII-XLIX). Trade is to be seen by the presence of a jade earplug. Architecture is little represented (Pl. LI, Figs. 1, 3). A single flexed burial was found (Map I, Fig. 14).

The Middle and Early Periods then, are closely related with changes attributable to time rather than ethnic change. The figurine Type A is surely foreign, but the other types are linked by transitional phases. The Late Period, except for olla forms, exhibits little evidence of indigenous development in the pottery and the figurine types are certainly too different to postulate with certainty a connection with Type B in the absence of transitional forms.

The relationships of the three Zacatenco periods with other areas has received some attention in the preceding sections. The collection of pottery from the surface of sites is a somewhat inaccurate procedure, for in many sections of the Valley the denudation of the soil inextricably mixes Aztec and Toltec with this earlier material. At the same time, in given sites where there was no subsequent Toltec or Aztec occupation, there may be a confusion of time periods, as in the estimates made by Professor Kroeber. Yet Professor Kroeber demonstrated conclusively that one could determine historical trends through surface indications. While we have found three pottery phases at Zacatenco, it is not possible surely to segregate the ordinary surface finds into more than two groups, so far. But these differences are most distinct; later classifications will segregate these into finer categories. Irrespective of time, conditions show two families of pottery. One is characterized by a lack of painted decoration, common occurrence of white and black wares, and ollas with necks vaguely distinct from the body. This family occurs in force at Zacatenco during the Early and Middle Periods, Copilco, Tetelpan, San Miguel Amantla, and San Juanico. In every case, except at Tetelpan, it occurred under thick deposits of loam or, as at Copilco, under lava (Pls. I-VI). The second family is characterized by constricted neck ollas, by polished red ware, red-on-yellow with decoration outlined by incising, polished brown, a little polychrome, the increasingly common use of a tripod support, and the tendency in vessel shapes for the wall to be contracted into a rim. These generic traits obtain at Zacatenco in the Late Period, Ticoman, El Arbolillo, Cerro de la Estrella, Cuicuilco, and in lesser degree at Ixtapoyan, and San Cristobal Tecatepec, Santa Maria Zacatepec and San José Siclattepec in Puebla. In every case, except Cuicuilco, the pottery is found near the surface of the ground.

Yet, in this family, as in the preceding, there must be differences owing to time and to locality (Pls. VII-IX).

To the south, in Guatemala, Salvador, Honduras, and the Maya area, pottery is found under conditions of antiquity. Such forms as vessels supported on four hollow swollen feet, vessels with spouts, vessels in shoe-form, and vessels either channeled or grooved, or adorned with features filleted to the sides, occur in quantity. There is an apparent use of "lost-color" decoration. These vessels are often associated with effigy whistles, with crude stone sculpture, with figurines in pottery often made in moulds. Sporadic examples are to be seen as survivals probably in Western Mexico and Teotihuacan. On the Vera Cruz coast plain the elements are common enough to formulate the conception of a cultural core. These elements have been recognized by Doctor S. K. Lothrop and the writer as a deep rooted cultural phenomenon which bears much the same loose relationship to the high cultures of the southern section of Middle America as do the early cultures of the Valley to Aztec and Toltec. But these Q elements are as subject to definitions by time, tribe, and region as the early cultures in the Valley of Mexico. Superficially similar through simplicity to the early cultures of the Valley, they do not occur in the deposits examined at Zacatenco. The convenience of grouping southern elements under the term, Q, is as misleading as calling all nameless cultures in Mexico "Archaic." One must face for a time the confusion of site nomenclature, rather than deaden one's sense of ethnic individuality by blanket definitions resting on the qualitative contrast of cruder cultures to highly specialized civilizations.<sup>1</sup>

The general ethnological and chronological situation of the figurines is a little more precise than that of the pottery. The small proportion of decorated to undecorated wares makes one hesitant to try to define the pottery of the Valley of Mexico beyond the two groups described, lest one may have overlooked pieces like yellow-white ware that though low in frequency are of chronological importance. With the figurines almost every head may be put into some class. There is not the process, as in studying pottery, of winnowing a very few grains from a great mass of chaff.

The class of figurine numerically most frequent in collections from the Valley is Type C. Groups Ci-iii are more or less arbitrary groupings of the predominant style of the Zacatenco Early Period. They occur in the Azcapotzalco gravels, at Ticoman, and at Coatepec. Grosser variations were found at San Juanico. Some of these groups appear at El

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<sup>1</sup>Lothrop, 1927; Vaillant, 1927; Lothrop, 1926, a, b; Vaillant, 1929a, 1928; Ricketson, 1929.

Arbolillo, Tetelpan, Contreras, Tlapacoya, Papalotla, and Tepetlaostoc, sites where one cannot be sure whether there was a definite Early Period occupation (Pl. X-XIII). Civ, a tall, flat head, with a somewhat conical outline, is, with Ci, the commonest figurine type at Coatepec. Papalotla and Tlapacoya yield specimens, but they are rare from the rest of the Valley (Pl. XIV). The only Type C that is found at Copilco is the "sheep-faced" Cv, and may be associated therefore with the Middle Period. It is known from Contreras, Tetelpan, Azcapotzalco region, Ticoman, El Arbolillo, and even the State of Morelos (Pl. XV). The next groups of Type C, vi-viii, are all characterized by skilful modeling of the face. Cvi which is covered with a burnished slip, is localized at Coatepec, but one specimen comes from San Juanico. Cvii, of unslipped white clay, is known from Tetelpan, Coatepec, and Morelos (Pl. XVI). Cviii, less sophisticated plastically than Cvi or Cvii, and distinguishable by incised eyebrows, and a polished slip, was probably found under the lava at Copilco; it occurs at Tetelpan, the Azcapotzalco region, and several specimens were found by Bishop Plancarte at Tenango, Morelos (Pl. XVII). Cvii and Cviii, although not identical, approach more nearly to a Vera Cruz coast plain type of figurine that is hand modeled (Pl. XXXIII-XXXIV). To sum up: Ci-iii we know to be ancient; Cv occurs at Copilco, and is therefore Middle Period. Civ is of indefinite date and may be a local style developed in the east of the Valley. If a Cviii head really was found at Copilco, probably Cvi and Cvii are Middle Period too. Yet the non-occurrence of so many groups viz., Civ-viii at Zacatenco, and connections like that of Cv with the Middle Period, at Copilco, makes it likely that the C tradition continued long after its abandonment at Zacatenco (Pls. X-XVII).

The continued manufacture of a style abandoned at Zacatenco after the Early Period seems to hold true of Type D. In proportion to Type C it is uncommon at Zacatenco. Its type regions seem to be the Azcapotzalco district where Di is found in the river gravels, Coatepec and the State of Morelos, there being observable in the last named sites a detailed evolution in style. It is also known at Ticoman, Zacatenco, Tetelpan, and Papalotla. A preponderance might be expected at Azcapotzalco, owing to the fancy for type D of collectors who exploited that place to find it; yet as Dii is uncommon there and more common in Morelos and Coatepec, one might assume Di originated near Azcapotzalco, whence it was traded perhaps to Zacatenco and its manufacture subsequently continued to the south and east in Morelos and the Texcoco region. Yet, if the style were continued so long, why should it not have appeared in

trade at San Juanico or Copilco? Its appearance in the Middle Period deposits at Zacatenco is rare, generally at the base of refuse beds, as if left over from an Early Period occupation. One example of Type Dii came from the Late Period, Trench D, Cut I, but the source of provenience was not absolutely certain, since it was near an old arroyo filled with débris washed from Middle Period deposits and mixed in with Late material (Pls. XVIII-XX).

Type F seems to begin with very crude specimens in Early Period deposits, but it is really characteristic of the Middle Period. It is a development away from Ci, or perhaps, Cv. It occurs, however, at Ticoman, El Arbolillo, San Juanico, and at Azcapotzalco but rarely from the gravels. It is commonly associated with Types A or B; but at Coatepec and Tlapacoya it is found without that association, and at Copilco (Pl. XXV) A and B commonly are found without F.

Type B is found always, so far as our present data are concerned, wherever Type A occurs. From the distribution of specimens during the Middle Period at Zacatenco, it is more common than Type A and was introduced somewhat before it. There are a series of transitional specimens that link Type B with Cii or Ciii. Its distribution covers Ticoman, El Arbolillo, and the Azcapotzalco district, Tetelpan, and Contreras. It is a standard type at San Juanico and Copilco. Curiously enough it has not yet appeared in Morelos or the Texcoco region (Pls. XV, XXII-XXIV).

Type A is not obviously connected with any other Valley type. It has, hitherto, been associated with Types B and F during the Zacatenco Middle Period and at San Juanico. At San Juanico, Contreras, and Copilco Cv accompanies A and B. Type A is known at Ticoman, El Arbolillo, the Azcapotzalco region, and Tetelpan. A single specimen came from Cempoala, Vera Cruz, and there is a technical reminiscence of the countersunk lip in some of the figurines from Salvador. But it is virtually absent from Morelos and the east of the Valley, if we except one or two very atypical examples. The absence of Middle Period diagnostic traits from these areas cannot mean necessarily that there was no occupation contemporaneous with the Zacatenco Middle Period, but on the contrary that these plastic styles did not take the fancy of the inhabitants. To balance this lack there is the common occurrence of special developments of the Early Period C and D types (Pls. XXX, XXIII, XXXVI).

The Late Period offers a perplexing number of types and variations of types, most of which are attributable to this Period because of their absence from the Early and Middle Periods at Zacatenco or because of

technical affiliations to types which do occur in the Late Period. Type E is the standard Late Period type at Zacatenco. While technically it might be affiliated to the C-B plastic, transitional specimens are lacking. It must have been introduced contemporaneously with the changes in pottery. The distribution is interesting in that Type E is found at Ticoman, El Arbolillo, the Azcapotzalco district, Tetelpan, Papalotla, Coatepec, Tlapacoya, and at Jalapazco, Puebla. In spite of the prevalence of this type at Jalapazco, almost no examples are to be found in the Dorenberg collection, made chiefly in the State of Puebla. Related specimens are known from the Cuicuilco collections (Pl. XXVI).

Type G, the shiny slipped class with a narrow bird-like head, is fairly common at Zacatenco. Its greatest frequency, so far as collections seen by the author are concerned, is at Ticoman and the Azcapotzalco region. The type is known also at the pyramid of Cuicuilco, and its further distribution covers Tetelpan, Tepetlaostoc, Papalotla, Coatepec, and Tlapacoya. A seated example came from San Cristobal, Puebla (Pl. XXVII).

Hi and Hii tie in perhaps with Type G on body form, but the head is made very differently save for the custom of incising the eyes in Hii. The digging at Zacatenco yielded no examples, but two specimens were purchased on the site. Hi and Hii are the commonest types collected from the surface at Ticoman, they also occur at Azcapotzalco, and Hii is further found at Tetelpan, Tepetlaostoc, and Contreras. Bodies of this type are common at Cuicuilco and many specimens are in the Metropolitan Museum collection. Hiii, the enlarged variant of Hi and Hii, is absent from Zacatenco, but is found at Ticoman, the Azcapotzalco district, and Cuicuilco. Some examples were found at Coatepec and Tetelpan. Hiv, the small unslipped type, with a tremendous development of the filleting technique is represented at Zacatenco by two specimens so degenerate or primitive as to be atypical. Its type forms are common at Ticoman and at Cuicuilco, with Azcapotzalco, Tetelpan, Contreras, Coatepec, Cuernavaca and the State of Morelos, and San Juan del Rio, Queretaro, all being the sources of examples (Pls. XXVIII-XXIX).

Type I, a well-modeled type, with shiny slip evidently connected with Hi and Hii, but bearing some resemblance to Cvi occurred at Zacatenco in the Late Period. It is apparently not so common at Ticoman, however, as at Azcapotzalco. Other specimens come from Tetelpan, Contreras, Coatepec, Tlapacoya, and Tula, Hidalgo. The presence at Zacatenco of a type so close to the H group as Type I is indeed curious, for the

general manufacture of the H group at Ticoman would lead one to believe it subsequent to either G or E (Pl. XXX).

Types E, G, H, and I are quite clearly Late Period and securely date the Pyramid of Cuicuilco as later than Copilco. We have no data of the origins of these types except that they could not have developed at Zacatenco. The absence of the H group at Zacatenco, in view of its frequency at the adjacent site of Ticoman, would give much justification for its being later in date than Types E or G (Pls. XXVI-XXX).

Three types, J, K, and L, offer some ground for discussion. Type J is a horse-faced type of which a single waterworn specimen came from Trench C, North Extension, at Zacatenco. Only roughly similar are some heads from Ticoman, Azcapotzalco, and Coatepec, and possibly one from Cuicuilco. The specimens most nearly homologous in the collections of the Museum came in the Dorenberg and the Metropolitan Museum collections, neither of which have specific proveniences recorded. This is baffling, for of all the types described in this paper, Type J gives us our best lead into western Mexico, but there is a strong possibility that the examples from these two collections may have come from that region. Its chronological position at Zacatenco is insecure in that it is very waterworn, even though it came from a bed of Middle Period débris (Pls. XVII, XXXII-XXXIII).

Type K, the "frog-eyed" type, does not occur at Zacatenco, but it does appear at Azcapotzalco on the surface, and in the river gravels from which most of the material is attributable to the Early Period. Yet specimens were recovered from Cuicuilco, and one less precisely attributable was bought at Coatepec. The type is very common in the State of Morelos. It is possible that as in the C and D groups there is a development of Type K, outside the Valley, that persisted long after its abandonment in the Azcapotzalco region (Pl. XVII).

Type L is a blanket class for all large figurines that are slipped, but possess the filleting elements of earlier periods. The type is rare in the Late Period at Zacatenco, with two very doubtful examples, one from the Early and one from the Middle Period perhaps assignable as archetypes. Outside of the Metropolitan and Dorenberg collections, the type is best represented at Azcapotzalco, Coatepec and Cuicuilco. It is probably a Late type (Pl. XXXI).

Figures of animals are not so subject to time classification. There is more opportunity for freedom from the typological controls of mass production. In the Early Period we found a monkey, a bird, and a puppy. In the Zacatenco Middle Period whistles adorned by bird heads

seem to have been commonly made, and the rattles and whistles from San Juanico seem assignable to the same epoch (Pls. XVI, XXV, XXX, XXXVIII, XXXIX).

Our figurine series, however, is without end or beginning. The steps are lacking toward a connection with the "tipo de transición" of Doctor Gamio, which he thought bridged the gap between the Early and the Toltec cultures. Relationships with western Mexico, the east coast, Salvador, and Guatemala are very doubtful in a direct sense (Pls. XXXII-XXXVI). However basic Type C may seem in respect to types succeeding it in the Valley, it not only is very different from the types outside the Valley, but also is too complicated to be fundamental or original in terms of itself (Pls. X-XVII). The common use of fillets of clay to build up the features of hand-modeled figurines does not seem sufficient to unite ethnically or culturally the varied manifestations of the sculptor's art that so often preceded sculpture in stone and the use of moulds to form clay figures. From the data at hand we are forced to the tentative conclusion that each type will be found to have its separate history in different localities, and the influences and successions in one region will not necessarily be the same in another.

Further speculation is futile until we can further expand our archæology of the Early cultures in time and space, by the amassing of definite data on the provenience of the different remains left by the predecessors of the highly specialized Aztec and Toltec. The great desideratum at the time lies in that direction, namely to connect the pottery and figurines of San Juan Teotihuacan by a series of steps with the Late Period at Ticoman or Zacatenco.

The qualitative aspects of the remains at Zacatenco are certainly far from primitive. They occupy a position midway between the High Civilizations of Mexico and undiscovered primitive developments like the Basket Makers of the Southwestern United States. Although lacking a rich ceremonial art, the inhabitants of Zacatenco give every evidence of a culture that is competently developed, so far as the utilitarian arts are concerned.



## PART II

### INTRODUCTION

The chief value of a paper of this kind, which is designed for reference rather than exposition, must lie in the illustrations. Hence the accompanying descriptive matter contains much repetition of the facts and discussion contained in the preceding pages. So far as is possible, the objects are grouped, first, according to material; second, according to type; and third, according to chronological position. Deviations from this practice are caused by the exigencies of space and the relative importance of individual specimens.

To synthesize the data contained in the preceding pages of text and the following pages of illustration, there is included a table comparing the material found in the three periods of occupation at Zacatenco and one showing the percentage of frequency of pottery types from the ten cuts made in Trench D (Tables I and II).

It seemed confusing to include all of the many tables prepared from special test cuts made at Zacatenco and this Trench D series was completely consecutive, from the beginning of the Early Period to the end of the Late.

Only two pottery vessels were recovered unbroken, but few restorations were attempted unless there were fragments enough to give a cross-section for half the vessel. The drawings are schematic. Vessels are shown with the right half in section and the left half in elevation. Interior decoration is presented on the inside of the cross-section; exterior ornament is shown on the sides of the elevation. Where there is not enough of a fragment remaining to complete a reconstruction, the section is drawn with its exterior to the reader's right. Exterior decoration is extended to the right, interior to the left. Size is indicated for drawings by the fraction in the legend and for photographs by the centimeter scale included with the specimens.

When the provenience of a specimen is given in terms of Trench and Cut, the excavations at Zacatenco are meant, the cross-sections of which may be found on Map III. It is bound to be the case that earlier specimens will be washed into later deposits, but such a circumstance will be found noted in the list of specimens for each Plate. Since our excavation at Zacatenco was a preliminary one, the designation Late, Early, or Middle Period is given only for excavated specimens. The possibility for different sequences at other sites makes one loath to predicate the period of specimens elsewhere than at Zacatenco. To present as full a corpus

TABLE I  
DIGEST OF THE SEQUENCE OF TYPES AND SPECIMENS

a—washed from Early into Middle deposit  
b—washed from Early into Late deposit  
c—washed from Middle into Late deposit  
d—occurring in transitional deposit between the Early and the Middle periods  
e—early form

Figurines	Early	Middle	Late
Ci	38	6d	4b
Cii	16	3d	1b
Ciii	10	3d	
Civ		d?	
Cv	1?		
Cvi			
Cvii			
Cviii			
C (Bodies)	47	10d	3b
Di	4	5d	3b
Dii			4
F	3e	8	
A		23	5c
B		40	7c
B-C	1	6d	1c
E			34
G			10
Hi			
Hii			
Hiii			
Hiv			
I			5
J			2
K		1	
Unc			
L	1e?	1e?	1
Animal figures	3	6	3
Pottery whistles	1	11	2
Pottery discs	5	7	
Pottery earplugs		4	2
Spindle whorls	2	1	
Gorgetts		4	
Rattles		4	
Ladles		10	7
Slipped balls		4	18
Unslipped balls	3	10	9
Unfired balls	5	1	
Lava metates	2	21	11
Lava manos		29	16
Obsidian tools	5	27	18
Obsidian blades	15	73	29
Obsidian flakes	31	75	36
Quartz tools	1	1	1
Quartz fragments	13	45	19
Limestone balls		9	
Trachyte balls	1	8	1
Lava and pumice balls		12	9
Bone tools	1	10	10
Antler tools	1	21	17



TABLE II

## PERCENTAGES OF FREQUENCIES OF POTTERY TYPES IN TRENCH D

	Late Period			Middle Period			Early Period			
	Cut I	Cut II	Cut III	Cut IV	Cut V	Cut VI	Cut VII	Cut VIII	Cut IX	Cut X
Total sherds from cut	1757	786	2040	732	1292	903	3626	1382	4469	692
Total of rim and decorated sherds on which percentages are based	677	178	192	328	468	291	1133	412	845	180
BAY WARE										
Ollas										
"Vague" or early neck	3.1	12.2	35.9	19.0	30.5	20.9	31.7	44.3	45.1	50.7
Simple neck	5.7	11.2	7.3	6.1	5.7	4.6	4.7	3.1	2.6	2.2
Flat lip	21.4	26.9	8.8	6.0	1.0		2.0e	2.4e		
Roll lip	6.7	7.8	12.4	.9			1.3e	1.7e	.1e	
Flare lip	27.3	10.6	1.5	3.9			1.4e			
Cajetes										
Reinforced rim		.56		1.2	1.2	3.3	2.6	3.9	3.5	3.8
Thick rim		1.1		4.5	3.8	2.0	1.7	3.6	2.2	10.5
Flare rim	.3	2.2		5.4	8.6	4.6	6.1	8.0	6.3	4.4
Flat rim	.3	.56		6.4	2.7	1.9	3.4	1.2	1.1	
Body sherds				10.0	13.6	8.6	10.9	8.2	13.1	6.6
Bowls with simple silhouette	.6	5.0	11.9	1.8	.42	4.0	2.2	1.2	3.2	4.4
Bowls with incurved rim				.5	.9		.5			
Russet ware, mainly ollas	3.1	2.2	1.0	3.9	4.0	.3	3.0	4.8	3.0	
White-on-brown variant of russet		1.1	4.6		.4		.2	.4	.6	
White ware				.5	1.5	5.3	2.4	3.1	2.8	2.2
Red-on-white				.5	.4	6.3	3.8	1.2	.7	.5
Granular white	.4			2.4	1.9	14.9	3.0		.1	
Blue white						.3	.2			
Yellow-white, a				2.4	4.5		1.0	.4		
Yellow-white, b				.5	2.3	2.6	.8		.1	.5
White-on-red	1.7L					1.3	1.8	2.4	3.3	1.6
Black				1.8	6.8	7.0	5.2	7.0	9.2	7.7
Thin black			.5	10.6	4.0	5.2	5.3	1.4	3.7	3.8
Dun—dirty white	4.1	5.0								
Red-on-yellow, Early				.6	3.4	.6	.6	.2		
Red-on-yellow, Late	8.5	6.1	4.6							
Red-on-black		.56		.6						
Red-on-brown		2.2	1.0	.6	.2					
Polychrome	1.1	.56	.5							
Polished red	5.3L		.5L	2.4e		1.3e	1.2e			
Late black-brown	8.4	6.6	7.7							
Fine orange			.5	.9		.3				
Orange (black) "lacquer"	.1		.5	4.2	.9	1.3				
Incised brown						1.3	.1			
Fillet brown	.1					.3	.3		.3	

Note: L=late form; e=early form.



of figurines as possible, material has been included from the Dorenberg Collection owned by the American Museum of Natural History and the collection loaned permanently to it by the Metropolitan Museum of Art. This material is not catalogued according to locality, unfortunately, and although much of the Dorenberg Collection was made in the State of Puebla, it is not now possible to distinguish Puebla types from those of the Valley of Mexico. The other figurines represent fairly broadly the range of types, but the localities where they were collected, by no means represent all the sites which yield material attributable to the Early Cultures. Further data on distributions was gained from the Album of the Escuela Internacional de Arqueología y Etnología, 1911-1912, edited by Professor Franz Boas, from the collections of the Peabody Museum of Harvard University, from the manuscript notes of Mr. C. L. Hay on the figurines found at the quarry of Copilco at San Angel, D. F. from photographs of Bishop Plancarte's collection from Morelos, and from the Cuicuilco collections made by Professor Cummings in the possession of the Department of Archæology and Ethnology of the Mexican Government and on exhibition at the University of Arizona.

The writer gratefully acknowledges his indebtedness to Mr. William Baake for the excellence of his drawings of the pottery types, to Mr. H. S. Rice and Mr. Irving Dutcher of this Museum for the success of their painstaking photography, to Mr. Shoichi Ichikawa for his careful preparation of the maps and sections.

# POTTERY

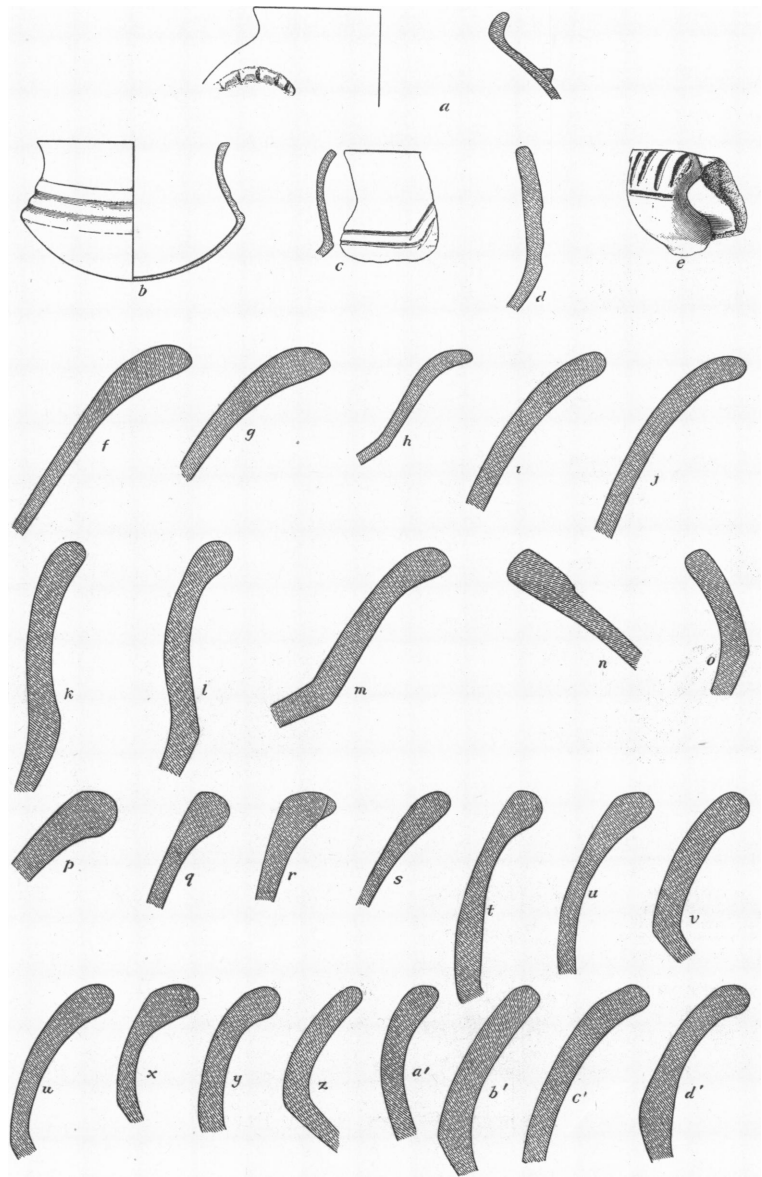
## PLATE I

### UNDECORATED WARES, EARLY PERIOD

This Plate includes rim sections and reconstructions of bay and black ware forms of the Early Period. Bay ware is represented by Figs, a, e, and k-d', black ware by b-d and f-j. Bay ware shows the highest frequency, running about 90 per cent for all periods. The two principal forms are bowls or cajetes, k-r, and ollas, a, e, s-d'. The bowls or cajetes are made in two sections, the bottom and the wall elements (cf. k, l, and m). The lips may be flaring, m, thickened, p-r, or reinforced with an incurve, n. These vessels are all of large size and merge into the olla group. Smaller sizes, like o, are rare. Ollas are characterized by tall, lightly constricted necks that are not sharply defined from the body. The actual mouth is very wide. Handles (cf. e), seldom occur and filleted ornament (cf. a and r), is most uncommon.

Black ware falls into two groups, thin and heavy. The latter (cf. f-j), is very similar in paste to bay ware cajetes and its color may be caused by preventing oxidization. The shapes do not essentially differ from bay ware. The thin black ware (cf. b-d) is made into small vessels, presumably for the service of food, and is often adorned by grooving or incising more or less horizontal channels on the wall of the pot. In b and d the ornamentation was done before slipping, in c the pattern was cut through the slip before firing. The scale is shown by the fraction preceding the number of the specimen and is approximate. Except when indicated in the legend, all complete vessels shown in Pls. I-IX are reconstructions. Exterior decoration is shown on the elevation, interior on the section. When the section only of the pot is shown, exterior decoration is to the reader's right, interior to his left.

- a. Bay olla mouth, applied decoration, Trench D, Cut VII, 1/6, 30.0-7498 (5)
- b. Bowl, thin black ware, modeled decorated, Trench D, Cut VIII, 1/6, 30.0-7455
- c. Bowl section, thin black, incised decoration on exterior, Trench, B, 1/6, 30.0-7458
- d. Bowl section, thin black, channeled decoration on exterior, Trench D, Cut VII, 1/3, 30.0-7498 (14)
- e. Handle, bay olla, Trench D, Cut IX, 1/3, 30.0-7500 (18)
- f. Section, thick black cajete, Trench D, Cut IX, 1/3, 30.0-7500 (19)
- g. Section, thick black cajete, Trench D, Cut VIII, 1/3, 30.0-7499 (7)
- h. Section, thick black cajete, Trench D, Cut, VII, 1/3, 30.0-7498 (12)
- i. Section, thick black cajete, incised interior, Trench D, Cut VIII, 1/3, 30.0-7499 (5)
- j. Section, thick black cajete, Trench D, Cut VIII, 1/3, 30.0-7499 (6)
- k. Section, bay cajete, Trench D, Cut IX, 1/3, 30.0-7500 (9)
- l. Section, bay cajete, Trench D, Cut IX, 1/3, 30.0-7500 (5 and 6)
- m. Section, bay cajete, Trench D, Cut VII, 1/3, 30.0-7498 (9)
- n. Section, bay bowl, restricted mouth, Trench D, Cut IX, 1/3, 30.0-7500 (15)
- o. Section, bay bowl, Trench D, Cut X, 1/3, 30.0-7501 (2)
- p. Section, bay cajete, Trench D, Cut IX, 1/3, 30.0-7500 (14)
- q. Section, bay cajete, Trench D, Cut IX, 1/3, 30.0-7500 (16)
- r. Section, bay cajete, red lip, Trench D, Cut VII, 1/3, 30.0-7498 (13)
- s. Section, bay cajete, Trench D, Cut IX, 1/3, 30.0-7500 (4)
- t. Section, bay olla, Trench D, Cut IX, 1/3, 30.0-7500 (12)
- u. Section, bay olla, Trench D, Cut IX, 1/3, 30.0-7500 (11)
- v. Section, bay olla, Trench D, Cut IX, 1/3, 30.0-7500 (7)
- w. Section, bay olla, Trench D, Cut IX, 1/3, 30.0-7500 (10)
- x. Section, bay olla, simple neck, Trench D, Cut IX, 1/3, 30.0-7500 (8)
- y. Section, bay olla, Trench D, Cut VII, 1/3, 30.0-7498 (10)
- z. Section, bay olla, Trench D, Cut IX, 1/3, 30.0-7500 (1)
- a'. Section, bay olla, Trench D, Cut X, 1/3, 30.0-7501 (1)
- b'. Section, bay olla, Trench D, Cut VIII, 1/3, 30.0-7499 (8)
- c'. Section, bay olla or cajete, Trench D, Cut IX, 1/3, 30.0-7500 (13)
- d'. Section, bay olla, Trench D, Cut IX, 1/3, 30.0-7500 (17)



UNDECORATED WARES, EARLY PERIOD





DECORATED WARES, EARLY PERIOD

## PLATE II

### DECORATED WARES, EARLY PERIOD

The decorated wares of the Early Period fall into two main groups: white wares and red wares. The white wares are represented by Fig. a-f and p. Their frequency is consistently low. In the bottom cuts of the Early Period deposit, relatively shallow dishes like e and f, supported by a teat tripod are the general rule. In the top cuts just before the beginning of the Middle Period depositions, the application of red paint (cf. a and d) comes in as a decorative element. Fig. b is a shallow saucer from the middle of the Early Period. Fig. c is a bowl of white clay ornamented in red and orange. The design is very much more advanced than the styles in vogue in this or any other period at Zacatenco, and the specimen was doubtless traded from some eastern tribe. The rim of an olla made of a thin granular white ware is shown in p. This ware is very characteristic for the close of the Early and the beginning of the Middle Period.

White-on-red ware (Fig. g-o) is common in the bottom cuts of the Early Period, but decreases steadily until it disappears at the beginning of the Middle Period. The base clay is like bay ware. The forms are either bowls with restricted mouths, g-i, or flaring mouths, j, k, o. The former are decorated on the exterior, the latter on the interior. Some rare examples of ollas, l-n, exist. The decoration is surprisingly well executed in a white paint that is usually applied very thick.

- a. Section of bowl, red-on-white, design outlined by incision, Trench D, Cut VII, 1/6, 30.0-7498
- (15) b. Dish, white ware, Trench B, 1/3, 30.0-7457
- c. Bowl, red and orange on white, Trench B, 1/6, 30.0-7456
- d. Section of bowl, burnished red-on-white, Trench D, Cut VII, 1/3, 30.0-7498 (3)
- e. Section, dish, incised white ware, Trench D, Cut VIII, 1/6, 30.0-7499 (4)
- f. Section, dish, incised white ware, Trench D, Cut VIII, 1/3, 30.0-7499 (5)
- g. Section, bowl, red-on-white ware, Trench D, Cut IX, 1/3, 30.0-7500 (3)
- h. Section, bowl, red-on-white ware, Trench D, Cut VII, 1/3, 30.0-7498 (1)
- i. Section, bowl, red-on-white ware, Trench D, Cut VIII, 1/3, 30.0-7499 (3)
- j. Section, bowl, red-on-white ware, Trench D, Cut VIII, 1/3, 30.0-7499 (2)
- k. Section, bowl, red-on-white ware, Trench D, Cut VIII, 1/3, 30.0-7499 (1)
- l. Fragment, olla, red-on-white ware, Trench D, Cut VII, 1/3, 30.0-7498 (4)
- m. Fragment, olla, red-on-white ware, Trench D, Cut IX, 1/3, 30.0-7500 (2)
- n. Fragment, olla, red-on-white ware, Trench D, Cut VII, 1/3, 30.0-7498 (2)
- o. Section, bowl, red-on-white ware, Trench D, Cut VII, 1/3, 30.0-7498 (11)
- p. Section, olla, granular white ware, maroon lip, Trench D, Cut VII, 1/3, 30.0-7498 (16)

### PLATE III

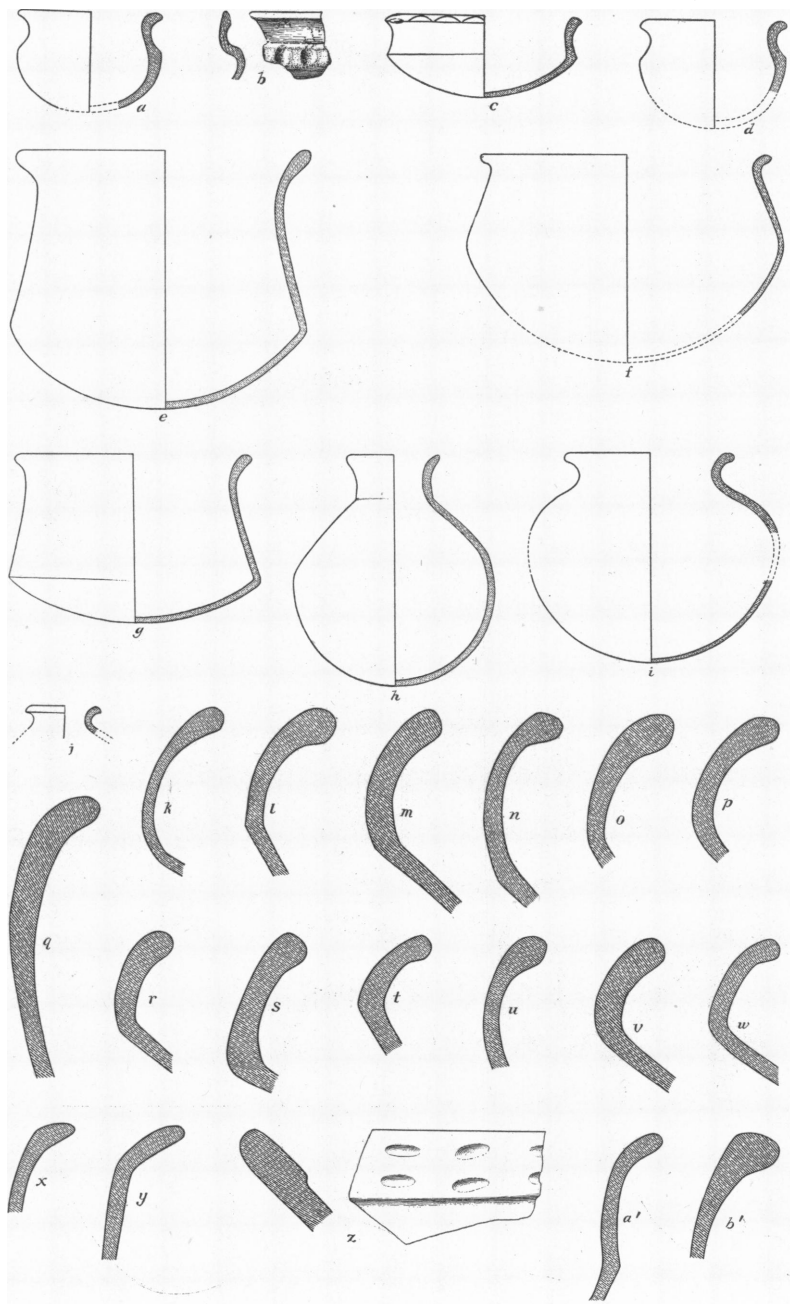
#### UNDECORATED WARES, MIDDLE PERIOD

Bay ware olla rims of the Middle Period (cf. Fig. i and k-u) show little change from those of the Early Period (cf. Pl. I, t-d') except for an almost imperceptible tendency to define the neck from the shoulder of the vessel. Cajetes (cf. x-b') continue in general use. There is a rise in frequency of the thin-walled type (cf. x-y), the flattened rim of which is often painted in red. A bay ware bowl, perhaps better classified as red ware is shown on Pl. IV. Bottles are made in russet ware (cf. h and w) more often than in the Early Period. The necks shown in Fig. j and w also possess characteristic neck forms for this ware.

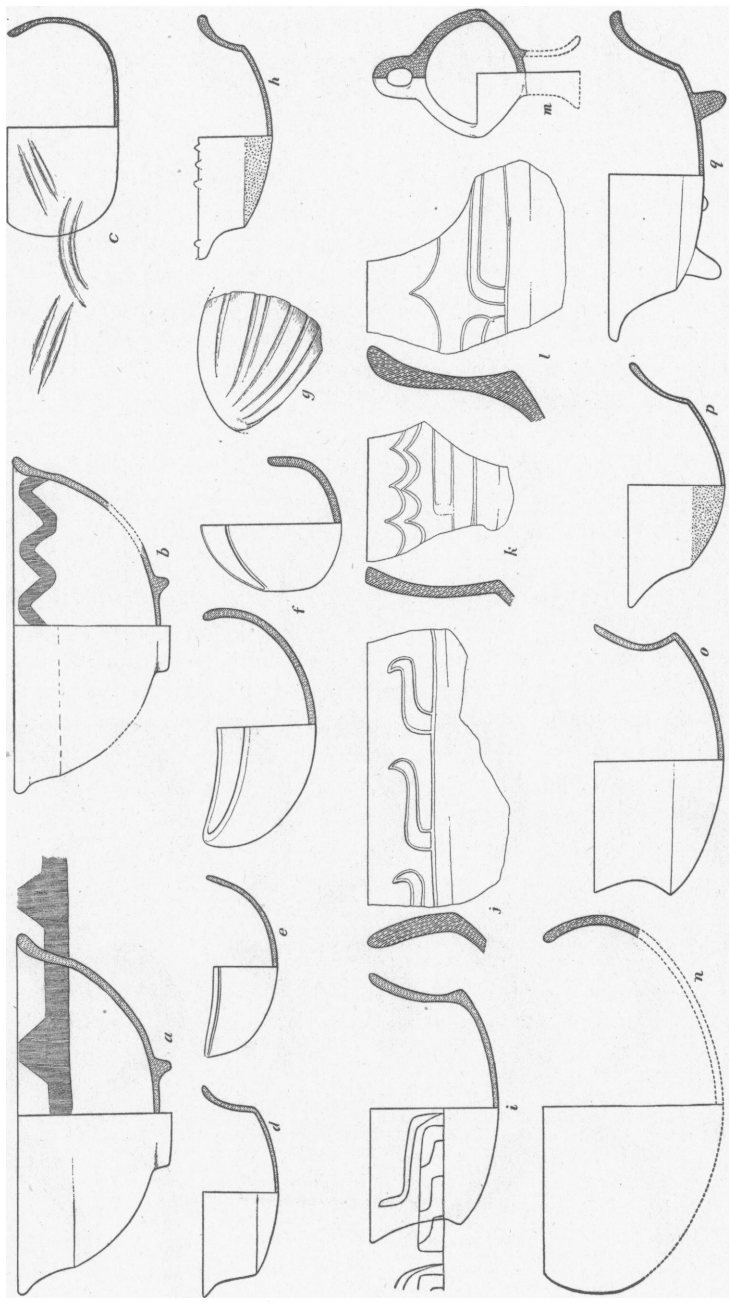
The black wares of the Middle Period (cf. Pl. IV) are usually browner in color than those of the Early Period. Three special forms are shown in Fig. e-g. Fig. e and g are dark brown in color and are best described as olla-bowls. The sides of f slope in more than is usual for the run of Middle Period fine black bowls (cf. Pl. IV).

Fig. a-d are slipped in a richer black than is the rule for the Middle Period. The shapes are, moreover, atypical and fit in better with the Late Period forms shown on Pl. VIII. In that they come from Cut IV, Trench D, which immediately underlies the source of most of the Late Period material, they might be transitional or, more likely, Cut IV contains certain Late Period deposits.

- a. Bowl, late black-brown ware, Trench D, Cut IV, probably Late Period, 1/6, 30.0-7450
- b. Bowl, late black-brown ware, Trench D, Cut IV, probably Late Period, 1/6, 30.0-7495 (6)
- c. Bowl, incised late black-brown ware, Trench D, Cut IV, probably Late Period, 1/6, 30.0-7452
- d. Bowl, late black-brown ware, Trench D, Cut IV, probably Late Period, 1/6, 30.0-7451
- e. Olla bowl, black ware, Trench C, North Extension Lower, 1/6, 30.0-7489
- f. Bowl, black ware, Trench A, West Extension, 1/6, 30.0-7530
- g. Olla bowl, black ware, Trench C, North Extension, 1/6, 30.0-7486
- h. Complete bottle, russet ware, Trench A, West Extension, 1/6, 30.0-7471
- i. Olla, bay ware, Trench C, North Extension Lower, 1/12, 30.0-7491
- j. Neck of russet bottle, Trench A Upper, 1/6, 30.0-7461
- k. Section, bay olla, Trench D, Cut VI, 1/3, 30.0-7497 (8)
- l. Section, bay olla, Trench D, Cut VI, 1/3, 30.0-7497 (7)
- m. Section, bay olla, Trench D, Cut IV, 1/3, 30.0-7495 (3)
- n. Section, bay olla, Trench D, Cut V, 1/3, 30.0-7496 (4)
- o. Section, bay olla, Trench D, Cut IV, 1/3, 30.0-7495 (7)
- p. Section, bay olla, Trench D, Cut IV, 1/3, 30.0-7495 (8)
- q. Section, bay olla, Trench D, Cut IV, 1/3, 30.0-7495 (4)
- r. Section, bay olla, Trench D, Cut IV, 1/3, 30.0-7495 (13)
- s. Section, bay olla, Trench D, Cut IV, 1/3, 30.0-7495 (10)
- t. Section, bay olla, Trench D, Cut IV, 1/3, 30.0-7495 (9)
- u. Section, bay olla, Trench D, Cut V, 1/3, 30.0-7496 (5)
- v. Section, bay olla, Trench D, Cut V, 1/3, 30.0-7496 (3)
- w. Section, russet olla, white lip, Trench D, Cut V, 1/3, 30.0-7496 (6)
- x. Section, bay cajete, red lip, Trench D, Cut IV, 1/3, 30.0-7495 (11)
- y. Section, bay cajete, red lip, Trench D, Cut V, 1/3, 30.0-7496 (7)
- z. Section, bay cajete, reinforced rim, Trench D, Cut VI, 1/3, 30.0-7497 (6)
- a'. Section, bay cajete, Trench D, Cut VI, 1/3, 30.0-7497 (9)
- b'. Section, bay cajete, Trench D, Cut IV, 1/3, 30.0-7495 (5)



UNDECORATED WARES, MIDDLE PERIOD



Decorated Wares, Middle Period

## PLATE IV

### DECORATED WARES, MIDDLE PERIOD

Early red-on-yellow ware is a diagnostic for the Middle Period. Two examples, Fig. a and b, show the characteristic low ring base and the body and rim profile in contrast to the composite silhouette bottom and wall type of i-l. Red paint is applied to the porous, finely kneaded, clay, usually on the interior and occasionally on the exterior. This ware, though constant, is of low frequency.

The usual types of service wares for the Middle Period are thin black (Fig. c-m, o-q), and red-on-white, Pl. V. The form usually comprises a high wall with a nearly vertical chord and a relatively shallow rounded bottom. Along the wall which often shades into brown, patterns are incised, crude and rapidly made (cf. i-l). Occasionally the "cuneiform" decorative style described by Professor Tozzer is incised on the bottom (cf. h and p). Many vessels are undecorated (cf. d and o), and most unusual is the case of tripod support shown in Fig. q. The shape of the bowl with grooved decoration, Fig. c, is equally atypical. The ovate bowls whose two dimensions appear as Fig. f, with e and g as additional examples, are fairly rare. The incision on g doubtless reproduces some vegetable form like a gourd. A few sherds occurred of shallow bowls with handles supported on at a tall annular base (cf. Fig. m). All these black ware forms, with the exception of the tripod support, occur under the lava at Copilco.

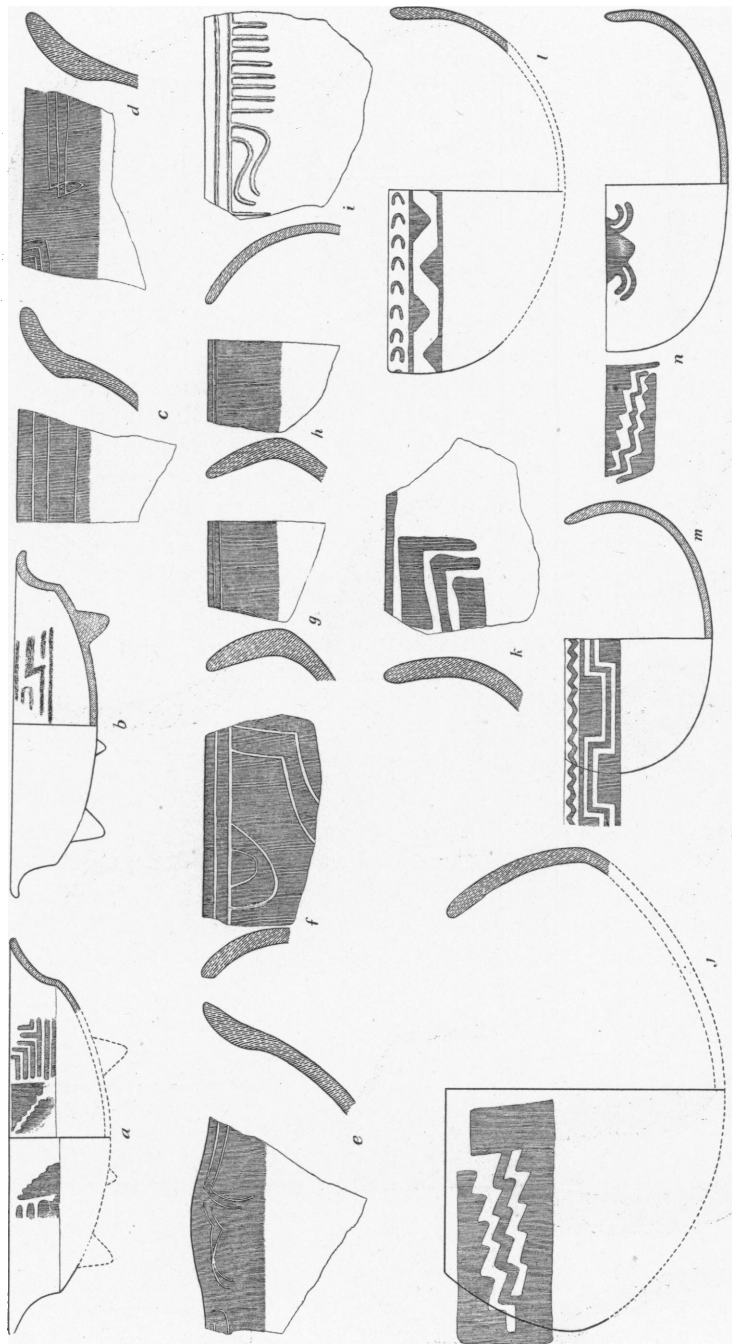
- a. Bowl, red-on-yellow, Trench C, North Extension Upper, 1/6, 30.0-7485
- b. Bowl, red-on-yellow, Trench D, Cut V, 1/6, 30.0-7533
- c. Bowl, fine black ware, grooved, Trench E, Cut III, 1/6, 30.0-7483
- d. Bowl, fine black ware, Trench E, Cut III, 1/12, 30.0-7482
- e. Bowl, ovate, black ware, Trench A Lower, 1/6, 30.0-7466
- f. Bowl, ovate, length and width shown, black ware, Trench A Lower, 1/6, 30.0-7465
- g. Bowl, ovate, incised, black ware, Trench A Lower, 1/6, 30.0-7464
- h. Bowl, "cuneiform" decoration, fine black ware, Trench C, North Extension Upper, 1/6, 30.0-7487
- i. Bowl, incised, fine black ware, Trench A, West Extension, 1/6, 30.0-7472
- j. Section, bowl, incurved rim, incised, fine black ware, Trench D, Cut VI, 1/3, 30.0-7497 (4)
- k. Section, bowl, incised, fine black ware, Trench D, Cut V, 1/3, 30.0-7496 (2)
- l. Section, bowl, incised, fine black ware, Trench D, Cut V, 1/3, 30.0-7496 (1)
- m. Bowl, annular base and handle, black ware, Trench E, Cut II, 1/6, 30.0-7480
- n. Bowl, red ware, Trench A Lower, 1/6, 30.0-7463
- o. Bowl, fine black ware, Trench C, North Extension Upper, 1/6, 30.0-7484
- p. Bowl, "cuneiform" decoration, fine black ware, Trench E, Cut II, 1/6, 30.0-7481
- q. Bowl, tripod support, fine black ware, Trench E, Cut I, 1/6, 30.0-7479

## PLATE V

### RED-ON-WHITE WARES, MIDDLE PERIOD

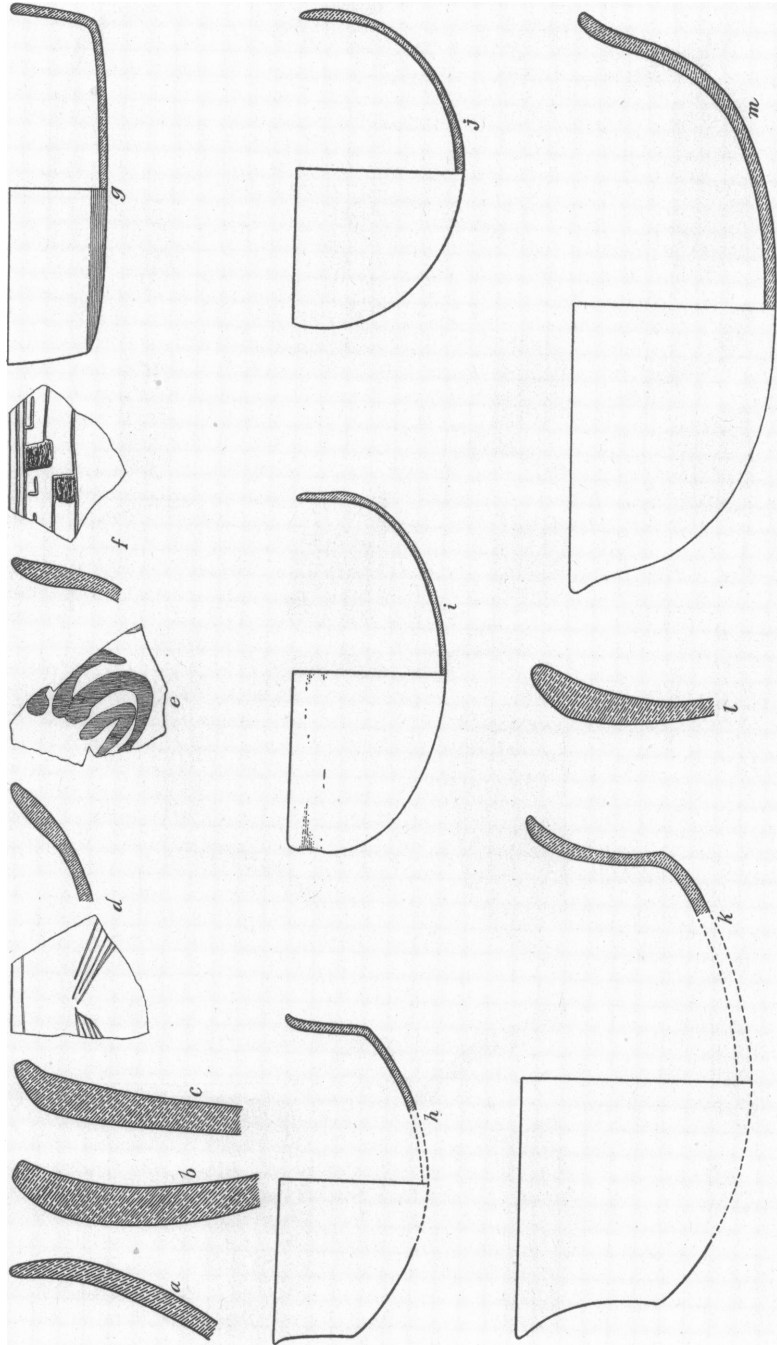
Red-on-white ware in the form of shallow bowls with tripod support begins to appear in the top cuts of the Early Period (cf. Table II), and its frequency increased strongly in the bottom cuts of the Middle Period (cf. a-e). With the rise in fashion for red-on-white, bowls with incurved lips (cf. g-h) are also commonly made. At the peak in frequency the red paint is very thick and sometimes burnished, and occasionally incisions occur. The decoration of the bowls falls, naturally, on the exterior, which is the most visible surface. In the latter part of the Middle Period, when the frequency of red-on-white ware gradually falls off to the point of disappearance, red paint is used more sparingly as to the surface covered, but with a greater sense of design, as in the continuous patterns l-m and the panels j, k, and n. The forms are predominantly simple silhouette bowls with incurved rims and the interior is left in the bay base clay without slipping (cf. Fig. j, l-n). Fig. k is exceptional, being slipped on the interior. An atypical specimen presumably of the Middle Period is shown in Fig. i. This bowl was incised on the exterior before slipping and the interior is slipped in red. Fig. f is an incised red bowl, of which the base clay is like red-on-white, but instead of a white slip the red paint seems to have been used to cover it. It is atypical. Since red-on-white ware is rare at Copilco, the camp site under the lava, and since thin black ware is common, it would seem quite probable that Copilco is contemporaneous with the latter part of the Middle Period at Zacatenco. On the other hand, the high development of red-on-white during the early part of the Middle Period may be a local trait, peculiar to Zacatenco.

- a. Tripod bowl, red-on-white, Trench E, Cut VI, 1/6, 30.0-7506
- b. Tripod bowl, red-on-white, Trench A Lower, 1/6, 30.0-7469
- c. Section, bowl, red-on-white, Trench D, Cut VI, 1/3, 30.0-7497 (5)
- d. Section, bowl, red-on-white, decorated on exterior, Trench D, Cut VI, 1/3, 30.0-7497 (1)
- e. Section, bowl, red-on-white, Trench D, Cut VI, 1/3, 30.0-7497 (2)
- f. Section, bowl, incurved rim, incised red, Trench D, Cut IV, 1/3, 30.0-7495 (2)
- g. Section, bowl, incurved rim, red-on-white, Trench D, Cut VI, 1/3, 30.0-7497 (11)
- h. Section, bowl, incurved rim, red-on-white, Trench D, Cut VI, 1/3, 30.0-7497 (3)
- i. Section, bowl, incised white exterior, red slip interior, Trench A Upper, 1/6, 30.0-7460
- j. Bowl, red-on-white, brown interior, Trench D, Cut VI, 1/6, 30.0-7453
- k. Section, bowl, red-on-white, white slip on interior, Trench D, Cut IV, 1/3, 30.0-7495 (1)
- l. Bowl, red-on-white, brown interior, Trench C, West Extension, 1/6, 30.0-7477
- m. Bowl, red-on-white, red interior, Trench C, North Extension Lower, 1/6, 30.0-7490
- n. Bowl, red-on-white, alternating panels, brown interior, Trench A, Lower, 1/6, 30.0-7468



RED-ON-WHITE WARES, MIDDLE PERIOD





OTHER WHITE WARES, MIDDLE PERIOD

## PLATE VI

### OTHER WHITE WARES, MIDDLE PERIOD

A number of developments from a white ware basis existed during the Middle Period. Fig. f is a section of a white ware bowl like those shown on Pl. V and Pl. II c and f. The complicated incised pattern and the shape make it probably a Middle Period type. Fig. g shows an atypical bowl, the base clay of which is bay and the slip a well burnished bluish white. It may be therefore a variant of red-on-white. Fig. i and j present a bowl of hard yellow-white clay that is common and characteristic during the Middle Period. The bowls are always small in size and of the same simple silhouette as these specimens. There is, however, a class closely allied to yellow-white ware, yellow-white ware *b* (cf. h, k-m), but differing in the softness of the body paste in relation to the hardness of the slip, and in the usual composite-silhouette shape. Yellow-white ware *b* is difficult to classify, for there is another ware, orange "lacquer" (cf. b-c) that is similar in shape to yellow-ware white *b*, but its slip is harder and the paste more flaky. Fig. d represents a variant of orange "lacquer" in having a chocolate slip and the base clay better kneaded. The incisions seem to have been made after firing. Orange "lacquer" occurs in too small a frequency to be a local ware. Fig. a is the rim section of a bowl like Fig. j in shape, but the clay is well kneaded and the slip deep orange in color. This fine orange ware is technically the best pottery found at Zacatenco, but is probably not autochthonous. Both orange "lacquer" and fine orange are found in an adobe pit near the Middle Period site of San Juanico, but the run of other material associated with these wares appears to be later than that epoch. Fig. e is the body sherd from a variant of granular white ware (cf. Pl. II p). This specimen is canary yellow with maroon paint. While granular white ware seems in all likelihood to be local at Zacatenco, this variant may well be a trade piece. The ceramic specimens shown on this Plate and Plate V illustrate very well the growth of the potter's art during the Middle Period and the complexities attendant to classifying these wares which must represent many experiments in the composition of paste.

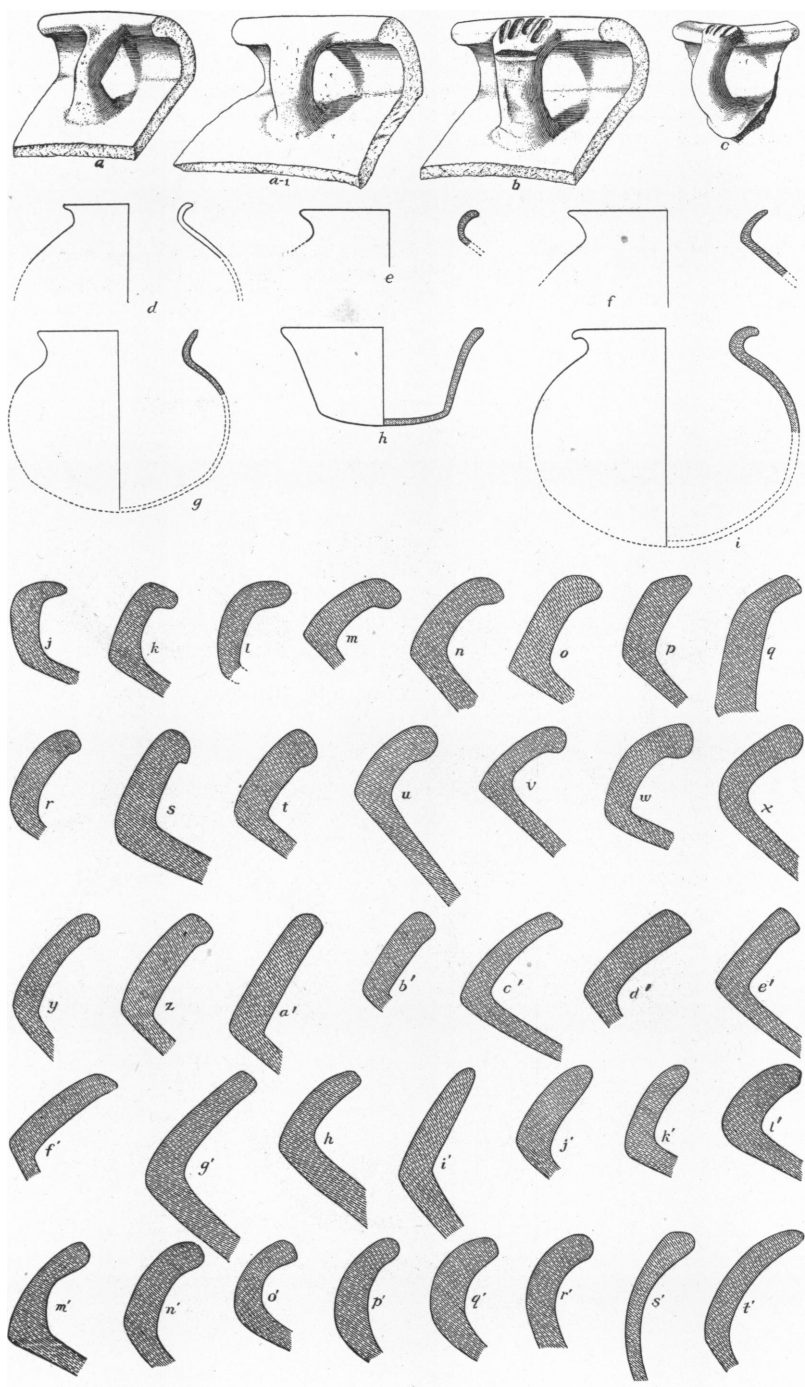
- a. Section, bowl, fine orange ware, Trench D, Cut III, 1/2, 30.0-7494 (7)
- b. Section, bowl, orange "lacquer" ware, Trench A, West Extension, bottom, 1/2, 30.0-7503
- c. Section, bowl, orange "lacquer" ware, Trench D, Cut IV, 1/2, 30.0-7495 (14)
- d. Section, bowl, incised, brown "lacquer" ware, Trench D, Cut VI, 1/2, 30.0-7497 (10)
- e. Fragment, olla, maroon-on-yellow, variant of granular white, Trench D, Cut VI, 1/2, 30.0-7529
- f. Section, bowl, incised white, Trench E, Cut IV, 1/2, 30.0-7505
- g. Dish bluish white on brown base clay, Trench A, West Extension, 1/4, 30.0-7507
- h. Bowl, yellow-white ware *b*, Trench A Lower, 1/8, 30.0-7467
- i. Bowl, yellow-white ware, Trench C, West Extension, 1/4, 30.0-7476
- j. Bowl, yellow-white ware, Trench C, West Extension, 1/4, 30.0-7475
- k. Bowl, yellow-white ware *b*, Trench C, North Extension Upper, 1/4, 30.0-7488
- l. Section, bowl, yellow-white Ware B, Trench D, Cut IV, 1/2, 30.0-7495 (12)
- m. Bowl, yellow-white B, Trench D, Cut VI, 1/4, 30.0-7454

# PLATE VII

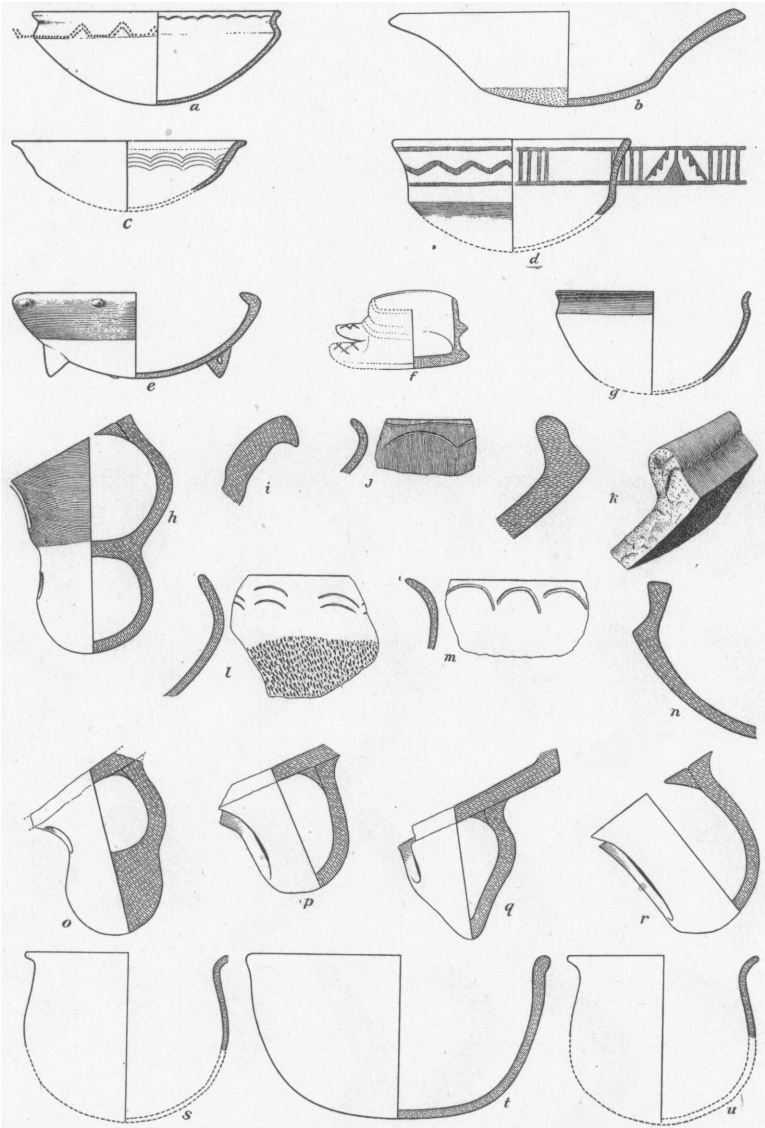
## BAY WARE, LATE PERIOD

Bay ware goes through a great transformation in shape during the Late Period. The cajete or large storage bowl practically disappears and its place is taken by deep bowls (cf. Pl. VII h and Pl. VIII s-u), the forms of which are much simpler in outline than the composite silhouette of wall and bottom elements, which was in vogue during the Middle and Early Periods. The olla neck becomes definitely constricted and in the place of the vague demarcation between neck and shoulder (cf. r'-t', Pl. III, k-w, Pl. I t-d'), the sharp division appears as seen in this Plate j-q'. There are five groups of neck and lip observable, but each merges imperceptibly into the other. The first class, "flat lip" d, j-t, presents a nearly horizontal lip which may be flattened or slightly curved. The second group, "roll lip," s-y, is characterized by a thickening and rounding of the lip and an outward bending of the neck. The overlapping of the figures selected to illustrate types, as in Fig. s-t, is necessary owing to their merging into one another. The third group, "flaring neck," f, g, x-k', has a flaring rim or neck with very little curve to it, which is often left unslipped on the exterior. Some vessels of this and the "roll lip" group are dun in color. The fourth group, "simple neck," e, i, k'-r', is defined by a simple constricted low neck, with little treatment of the lip. It is rare in the Early Period, becomes more common in the Middle, and is most often found in Late times. It is a natural form of neck and lacks ethnic character. It merges into the fifth group (cf. Figs. n' and r'), "vague neck," r'-t', that is the type form for the Middle and Early Periods but relatively rare in the late. Handles are most infrequent and are associated with no particular type, since Fig. a is a "simple lip," a-1, b, a "roll lip" of the Middle Period, and c, a "flat lip" olla rim.

- a. Handle, bay olla, "simple neck," Trench D, Cut I, 1/3, 30.0-7492 (71)
- a-1. Handle, bay olla, "roll neck," Trench A Upper, 1/3, 30.0-7459
- b. Handle, bay olla, "roll neck," Trench A, West Extension, Middle Period, 1/3, 30.0-7502
- c. Handle, bay olla, "flat lip," Trench D, Cut I, 1/3, 30.0-7492 (72)
- d. Mouth of bay olla, "flat lip," Trench F, 1/2, 30.0-7478
- e. Mouth of bay olla, "simple neck," Trench A Lower, 1/12, 30.0-7470
- f. Mouth of dun olla, "flare neck," Trench A Upper, 1/12, 30.0-7482
- g. Olla, bay ware, "flare neck," Trench D, Cut III, 1/12, 30.0-7494 (2)
- h. Bowl, bay ware, Trench D, Cut IV, probably Late Period, 1/6, 30.0-7449
- i. Olla, bay ware, "simple neck," Trench D, Cut II, 1/12, 30.0-7446
- j. Section, bay olla, "flat lip," Trench D, Cut I, 1/3, 30.0-7492 (28)
- k. Section, bay olla, "flat lip," Trench D, Cut II, 1/3, 30.0-7493 (1)
- l. Section, bay olla, "flat lip," simple, Trench D, Cut I, 1/3, 30.0-7492 (15)
- m. Section, bay olla, "flat lip," Trench D, Cut I, 1/3, 30.0-7492 (35)
- n. Section, bay olla, "flat lip," Trench D, Cut I, 1/3, 30.0-7492 (54)
- o. Section, bay olla, "flat lip," Trench D, Cut I, 1/3, 30.0-7492 (4)
- p. Section, bay olla, "flat lip," Trench D, Cut I, 1/3, 30.0-7492 (52)
- q. Section, bay olla, "flat lip," Trench D, Cut I, 1/3, 30.0-7492 (45)
- r. Section, bay olla, "flat lip," Trench D, Cut I, 1/3, 30.0-7492 (26)
- s. Section, bay olla, "flat roll lip," Trench D, Cut I, 1/3, 30.0-7492 (36)
- t. Section, bay olla, "flat roll lip," Trench D, Cut I, 1/3, 30.0-7492 (47)
- u. Section, bay olla, "roll lip," Trench D, Cut I, 1/3, 30.0-7492 (48)
- v. Section, bay olla, "roll lip," Trench D, Cut I, 1/3, 30.0-7492 (53)
- w. Section, bay olla, "roll lip," Trench D, Cut I, 1/3, 30.0-7492 (2)
- x. Section, bay olla, "roll or flare lip," Trench D, Cut I, 1/3, 30.0-7492 (50)
- y. Section, bay olla, "roll or flat lip," Trench D, Cut I, 1/3, 30.0-7492 (1)
- z. Section, bay olla, "flare neck," Trench D, Cut I, 1/3, 30.0-7492 (31)
- a. Section, bay olla, "flare neck," Trench D, Cut I, 1/3, 30.0-7492 (3)
- b. Section, bay olla, "flare neck," Trench D, Cut I, 1/3, 30.0-7492 (56)
- c. Section, bay olla, "flare neck," Trench D, Cut I, 1/3, 30.0-7492 (33)
- d. Section, bay olla, "flare neck," Trench D, Cut I, 1/3, 30.0-7492 (27)
- e. Section, bay olla, "flare neck," Trench D, Cut I, 1/3, 30.0-7492 (55)
- f. Section, bay olla, "flare neck," Trench D, Cut I, 1/3, 30.0-7492 (32)
- g. Section, bay olla, "flare neck," Trench D, Cut I, 1/3, 30.0-7492 (34)
- h. Section, bay olla, "flare neck," Trench D, Cut I, 1/3, 30.0-7492 (46)
- i. Section, bay olla, "flare neck," Trench D, Cut I, 1/3, 30.0-7492 (5)
- j. Section, bay olla, "flare neck," Trench D, Cut I, 1/3, 30.0-7492 (40)
- k. Section, bay olla, "flare simple neck," Trench D, Cut I, 1/3, 30.0-7492 (58)
- l. Section, bay olla, "simple neck," Trench D, Cut I, 1/3, 30.0-7492 (21)
- m. Section, bay olla, "simple neck," Trench D, Cut I, 1/3, 30.0-7492 (18)
- n. Section, bay olla, "simple or vague neck," Trench D, Cut I, 1/3, 30.0-7492 (22)
- o. Section, bay olla, "simple neck," Trench D, Cut I, 1/3, 30.0-7492 (20)
- p. Section, bay olla, "simple neck," Trench D, Cut I, 1/3, 30.0-7492 (16)
- q. Section, bay olla, "simple neck," Trench D, Cut I, 1/3, 30.0-7492 (19)
- r. Section, bay olla, "simple or vague neck," Trench D, Cut I, 1/3, 30.0-7492 (14)
- s. Section, bay olla, "vague neck," Trench D, Cut I, 1/3, 30.0-7492 (17)
- t. Section, bay olla, "vague neck," Trench D, Cut I, 1/3, 30.0-7492 (23)



BAY WARE, LATE PERIOD



SERVICE WARES, LATE PERIOD

## PLATE VIII

### SERVICE WARES, LATE PERIOD

The changes in shape that so affected the bay ware of the Late Period, extended not only to the forms, but also to the composition of the service wares of this epoch. Whereas in the Middle and Early Periods the standard shape for a service bowl consisted of a bottom element and an incurved wall with nearly vertical chord (cf. Pl. IV), in the Late Period the wall is either reduced to a rim (cf. this Plate, VIII, Fig. a, e, g, i-n) with often a hollow tripod support (cf. h, o-r); or else the chord of the wall becomes an angle of 45 degrees (cf. b-c and Pl. IX). The pastes change likewise. For the first time we have a black ware that is ill-fired, light and thick (cf. Fig. a-c, and Pl. III a-d), a brown ware that is polished and reaches at times an almost black tone (cf. l, o and q), red-on-yellow decoration of a special type (cf. Pl. IX), and a yellow ware with a highly burnished red overslip (e, g, j, k, p and r). Fig. d is a red-on-yellow bowl in the Middle Period manner but atypical for either the Late or the Middle Period. Fig. f is an eccentric vessel of dull gray and is unslipped, while i seems made of the same clay but in a standard form like Fig. c. Figs. s-u are bay ware bowls, the shapes of which are distinct from those of the earlier periods, but the style is not numerous enough to be called diagnostic, nor rare enough to be atypical. Fig. h is a hollow foot of a red-on-white bowl in the Late manner (cf. the sherds on Pl. IX, i and l).

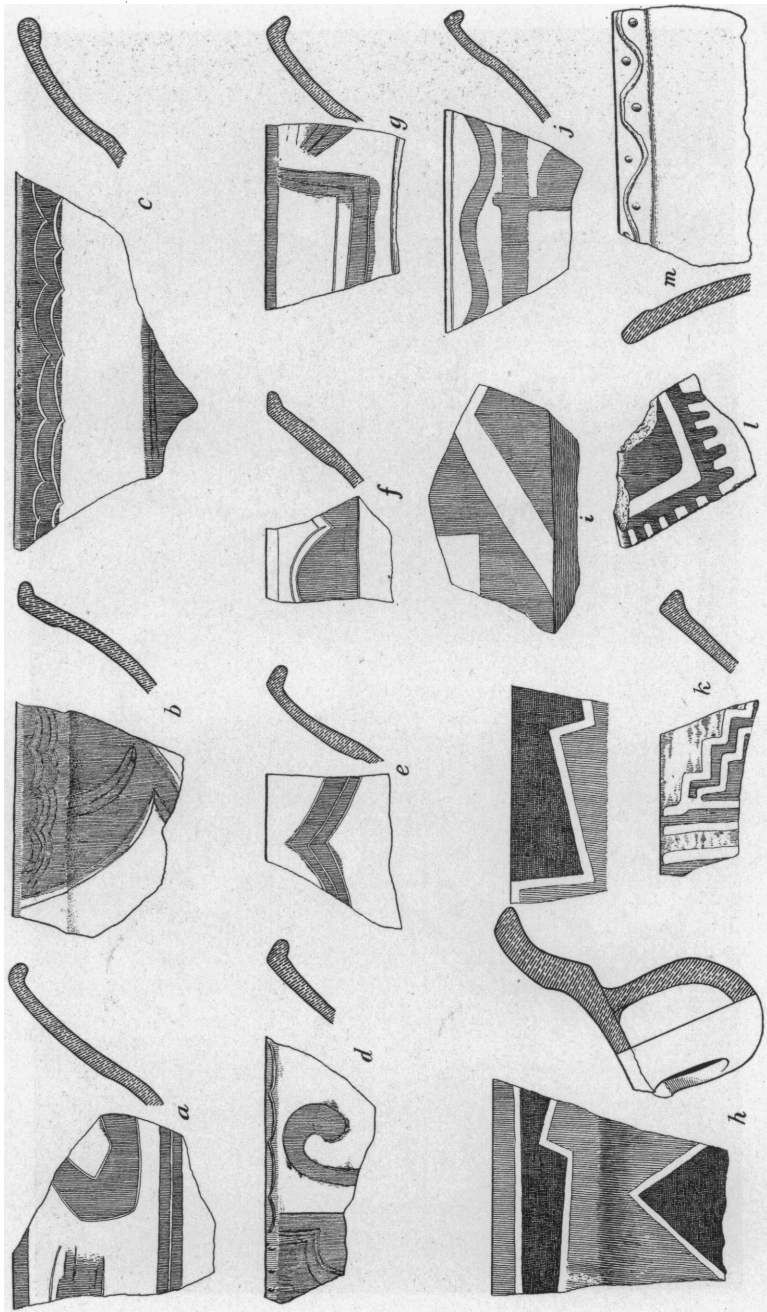
- a. Bowl, black ware, incised interior, punctuated exterior, Trench D, Cut III, 1/12, 30.0-7448
- b. Bowl, Late black ware, "cuneiform" decoration, Trench C, West Extension, 1/6, 30.0-7474
- c. Bowl, Late black ware, incised on interior, Trench D, Cut II, 1/12, 30.0-7445
- d. Bowl, red-on-yellow, atypical, decorated interior and exterior, Trench D, Cut III, 1/12, 30.0-7447
- e. Bowl, polished red, Trench C, East Extension, 1/6, 30.0-7473
- f. Bowl, eccentric, dull dun clay, unslipped, Trench D, Cut I, 1/6, 30.0-7443
- g. Bowl, polished red, Trench D, Cut I, 1/12, 30.0-7437
- h. Foot, red-on-white slip, polished, Trench D, Cut I, 1/3, 30.0-7492 (60)
- i. Section, dun bowl, Trench D, Cut I, 1/3, 30.0-7492 (38)
- j. Section, polished red bowl, incised, Trench D, Cut I, 1/3, 30.0-7492 (64)
- k. Section, polished red bowl, Trench D, Cut I, 1/3, 30.0-7492 (7)
- l. Section, Late brown bowl, "cuneiform" decoration, Trench D, Cut I, 1/3, 30.0-7492 (10)
- m. Section, Late brown bowl, Trench D, Cut II, 1/3, 30.0-7493 (2)
- n. Section, Late brown bowl, Trench D, Cut I, 1/3, 30.0-7492 (37)
- o. Foot, slipped, Late brown bowl, Trench D, Cut I, 1/3, 30.0-7492 (63)
- p. Foot, unslipped, polished red bowl, Trench D, Cut I, 1/3, 30.0-7492 (59)
- q. Foot, Late brown bowl, Trench D, Cut I, 1/3, 30.0-7492 (62)
- r. Foot, slipped, polished red bowl, Trench D, Cut I, 1/3, 30.0-7492 (100)
- s. Bowl, bay ware, Trench D, Cut III, 1/12, 30.0-7494 (4)
- t. Bowl, bay ware, Trench D, Cut III, 1/6, 30.0-7444
- u. Bowl, bay ware, Trench D, Cut III, 1/12, 30.0-7494 (5)

## PLATE IX

### PAINTED WARE, LATE PERIOD

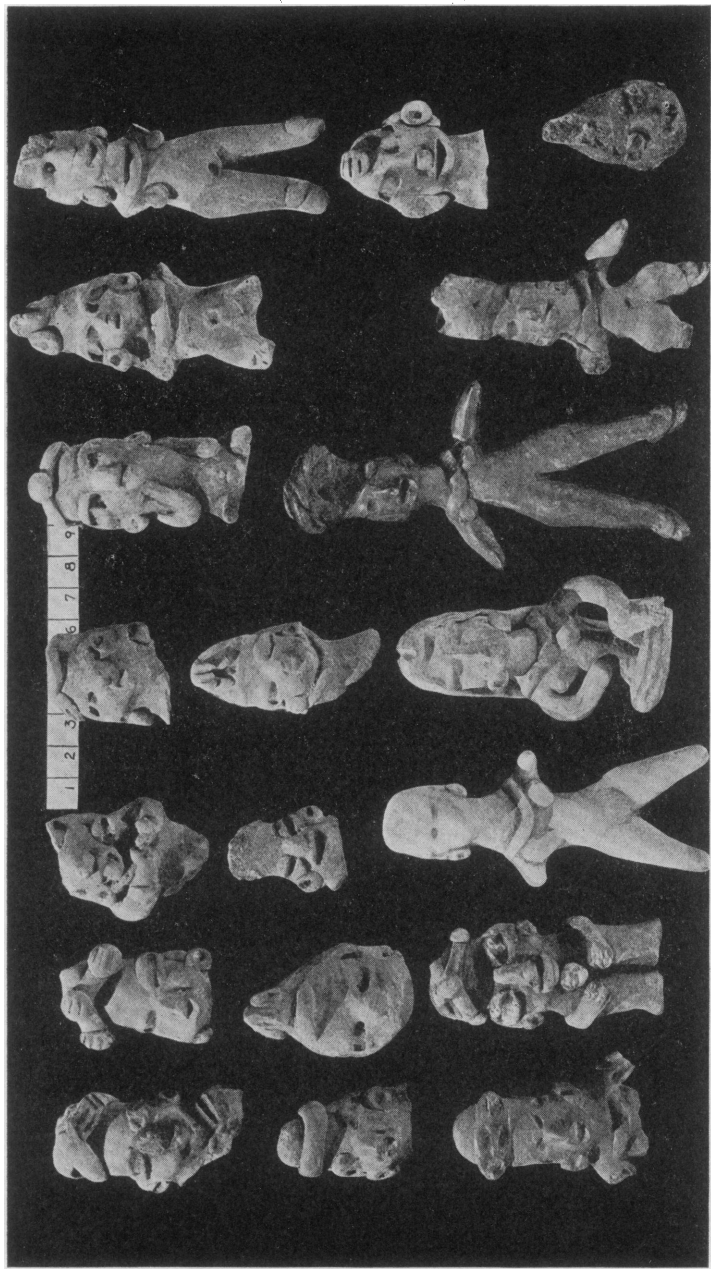
A class of decorative pottery that is distinctive for the Late Period is Late red-on-yellow. It differs from the red-on-yellow of the Middle Period by being composed of a coarsely kneaded well-fired base clay which is formed into deep bowls with the bottom element expanded into the bowl proper and the wall reduced to a thickened rim (cf. Fig. a-q and Pl. VIII, Fig. c). Some vessels receive a hollow tripod support; the slip of yellow-brown clay is applied always to the interior and often to the exterior of the bowl; and the decoration in red paint falls usually on the interior. Generally the painted bands are outlined by incision, but the paint seems to have been applied so thinly that it runs over the lines of limitation (cf. Figs. a, b, d, e, g). Crude patterns are sometimes incised into the painted zones (cf. a-e), but occasionally the paint is used without outline by incision (cf. Fig. j). Polished red (cf. Pl. VIII, Figs. e, g, h, k) is allied to red-on-yellow by having a similar base clay, but the red paint here is used more as a secondary slip than an element to form design. Another natural development out of late red-on-yellow is the polychrome style, wherein the design carried out by red paint on yellow slip is defined by white paint. In this case, the red paint is applied more thickly and does not run (cf. Fig. h, k). Occurring rarely is a red-on-white style (cf. Fig. i and l and Pl. VIII h) that differs from the Early and Middle Period forms, not only in shape and design, but also in composition, for the slip is harder and better burnished. Fig. m is a bowl reminiscent of Middle and Early Period cajetes (cf. Pl. III, Fig. z and Pl. I, Fig. n), but it is covered with a Late brown slip. A comparison of Pls. VIII and IX with the Boas Album shows in the latter a far great number of decorated sherds than are presented in these two plates. The reason may well be that the Boas collection was made from the surface and the more striking pieces therefore collected, or else it represented specimens from an eroded deposit subsequent to those penetrated by our cuts. Readily observable are the profound changes between the Middle and Early Periods (Pls. I-VI) and the Late Period (Pls. VII-IX). Although it is quite possible for a people to change its ceramic abruptly, the conservatism shown in the earlier wares suggests that here we have a strong influence from a completely distinct ceramic family. Late wares related to these are found at Ticoman, El Arbolillo, Ixtapoyan near Chalco, at Cuicuilco, at the Cerro de la Estrella, and at the Puebla site of San Cristobal, Santa Maria Zacatepec, and San José Sicaltepec.

- a. Section, red-on-yellow bowl, incised, Trench D, Cut III, 1/2, 30.0-7494 (1)
- b. Section, red-on-yellow bowl, incised, Trench D, Cut I, 1/2, 30.0-7492 (66)
- c. Section, red-on-yellow bowl, incised, Trench D, Cut, I, 1/3, 30.0-7492 (65)
- d. Section, red-on-yellow bowl, incised, Trench D, Cut I, 1/2, 30.0-7492 (67)
- e. Section, red-on-yellow bowl, incised, Trench D, Cut I, 1/2, 30.0-7492 (6)
- f. Section, red-on-yellow bowl, incised, Trench D, Cut I, 1/2, 30.0-7492 (11)
- g. Section, red-on-yellow bowl, incised, Trench D, Cut I, 1/2, 30.0-7492 (13)
- h. Section, polychrome bowl, tripod support, Trench D, Cut I, 1/2, 30.0-7492 (61)
- i. Fragment of olla, late red-on-white, Trench D, Cut I, 1/2, 30.0-7492 (8)
- j. Section, red-on-yellow bowl, Trench D, Cut I, 1/2, 30.0-7492 (9)
- k. Section, polychrome bowl, Trench C, West Extension, 1/2, 30.0-7504
- l. Fragment, late red-on-white bowl, Trench D, Cut I, 1/2, 30.0-7492 (69)
- m. Section, late brown bowl, reinforced rim, Trench D, Cut I, 1/2, 30.0-7492 (12)



PAINTED WARE, LATE PERIOD





FIGURINES TYPE CI

## FIGURINES

### PLATE X

#### FIGURINES TYPE Ci

Type C is the most common figurine type found in the Valley of Mexico and is diagnostic of the Early Period at Zacatenco. For greater ease in description the figurines have been subdivided into eight groups numbered from i to viii, based on variations in the presentation of features and in the composition of the clay. Type Ci is the most common of the C groups in the Early Period at Zacatenco. It is characterized by a relatively small trunk, usually erect posture, heads which are prognathic and relatively large in proportion to the body. The features, eyes, nose, and mouth are indicated by fillets of clay, the mouth is developed to the exclusion of the chin. The prognathic chinlessness is the definitive trait. Headdress and ornament are realistically depicted by fillets of clay. The figures were made of a reddish clay and red paint was applied to the face and hands after firing, indicating perhaps skin color, while black paint (cf. top row No. 7) was used as body adornment. Type Ci is commonly found in the Azcapotzalco gravels, and is widely distributed throughout the Valley. It does not occur for chronological reasons at Copilco or Cuicuilco, nor does it appear in the Morelos collections of Bishop Plancarte.

##### *Top Row (seven specimens)*

1. Head, Trench D, Cut IX, Early Period (30.0-6939)
2. Head, Trench D, Cut IX, Early Period (30.0-6940)
3. Head and body, Trench D, Cut VII, Early Period (30.0-6869)
4. Head, Trench A, Lower, Early Period (30.0-7288)
5. Seated figure, painted in red and black, Trench D, Cut IX, Early Period, (30.0-6941)
6. Erect figure wearing bird headdress, Trench D, Cut VII, Early Period (30.0-6870)
7. Erect figure, Trench D, Cut VII, Early Period (30.0-6872)

##### *Middle Row (four specimens)*

1. Head, Trench D, Cut VIII, Early Period (30.0-6904)
2. Head, Trench D, Cut VII, Early Period (30-6871)
3. Head, San José Siclattepec, Puebla (30.0-6481)
4. Head, Trench D, Cut IX, Early Period (30.0-6942)

##### *Bottom Row (eight specimens)*

1. Head, Risco, Federal District (30.0-7355)
2. Erect figure, degenerate type, San Juanico (30.0-6654)
3. Figure, waterworn, Azcapotzalco gravels (30.0-718)
4. Figure, seated, Tetelpan (30.0-6466)
5. Figure, erect, Coatepec (30.0-6580b)
6. Figure, erect, Coatepec (30.0-6580a)
7. (Upper) head, Trench E, South, Early Period (30.0-7018)
8. (Lower) head, Trench A, West, from Early Period deposit (30.0-7247)

## PLATE XI

### FIGURINES TYPE Ci

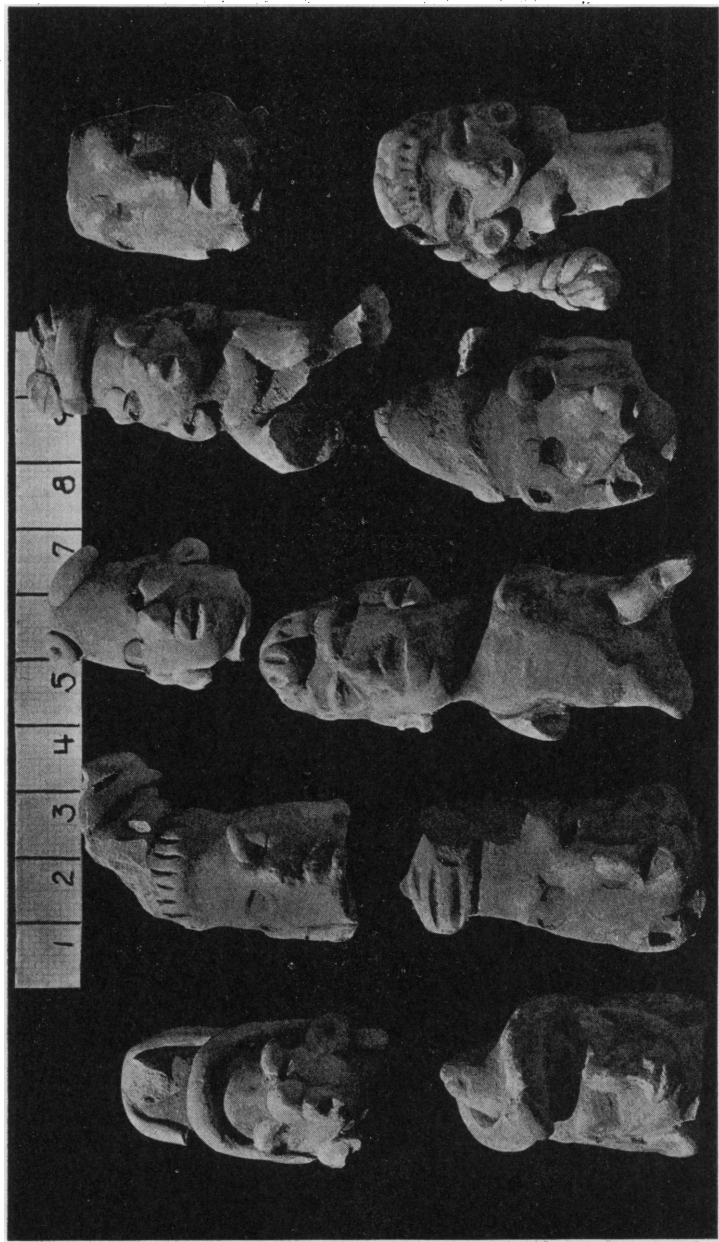
These specimens are shown natural size the better to present details of construction. Bottom row No. 2 suggests in facial proportions Type Civ, Pl. XIV, but its paste and size make it probably of the Ci group. Note the elaborate headdress in top row No. 1. It is possible to see the traits of prognathism and chinlessness clearly.

#### *Top Row (five specimens)*

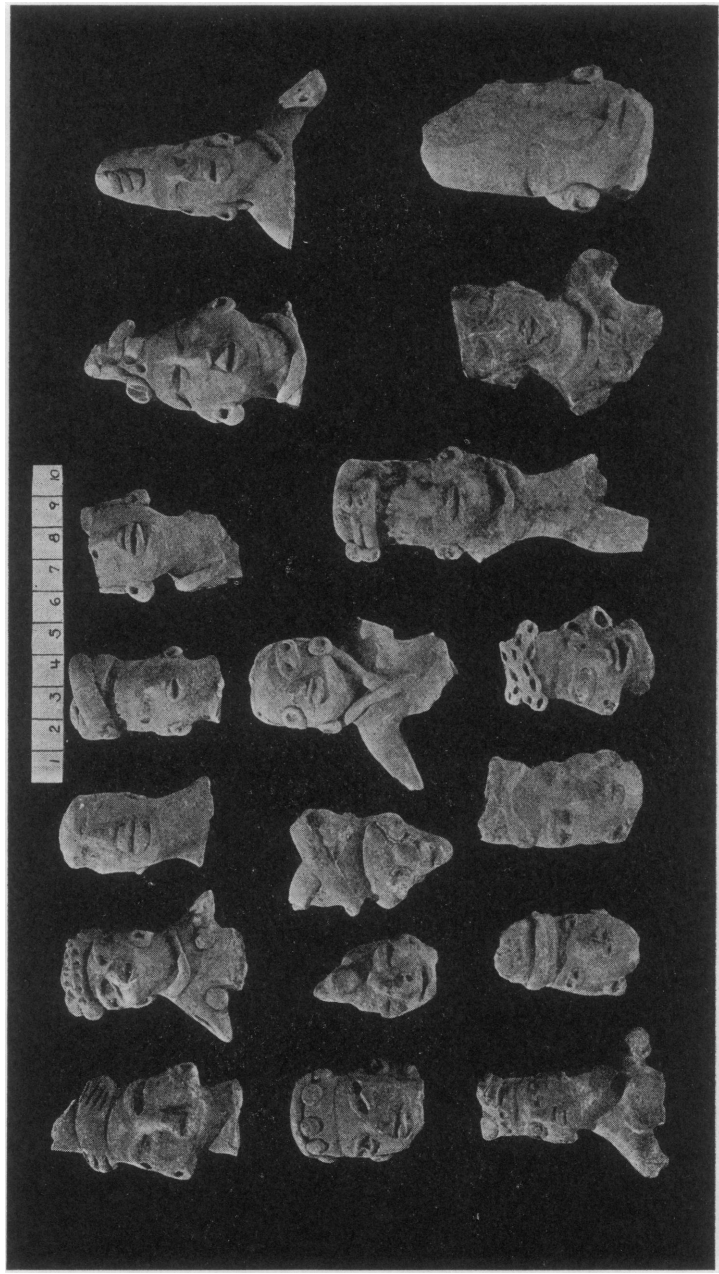
1. Head with elaborate turban, Trench D, Cut IX, Early Period (30.0-6943)
2. Head with turban, Trench D, Cut X, Early Period (30.0-6985)
3. Head, Trench D, Cut IX, Early Period (30.0-6944)
4. Figure, seated, Trench D, Cut IX, Early Period (30.0-6945)
5. Head, Trench A, Lower, Early Period deposit (30.0-7289)

#### *Bottom Row (five specimens)*

1. Head, Trench D, Cut IX, Early Period (30.0-6946)
2. Head, cf. Type Civ, Pl. XIV, Trench D, Cut IX, Early Period (30.0-6947)
3. Complete figure, torso unusual, Trench D, Cut VIII, Early Period (30.0-6906)
4. Head, Trench D, Cut IX, Early Period (30.0-6948)
5. Head with lock of hair, Trench D, Cut VIII, Early Period (30.0-6905)



FIGURINES TYPE C1



FIGURINES Type Chi

## PLATE XII

### FIGURINES TYPE CII

Type Cii exhibits a greater refinement of feature than Ci. The planes of the face through the reduction of the fillets forming the features, increase to a more nearly natural size. By decreasing the size of the mouth fillet, the contours of the chin are modeled naturalistically. Ci and Cii are not distinct chronologically, but Cii includes the better executed specimens of Type C, cf. top row 5-7. Nos. 2 and 3 of the middle row are atypical specimens, but are not sufficiently numerous nor striking to be formed into a special group. Cii is less numerous at Zacatenco than Ci, but in the Valley its distribution is equally wide.

#### *Top Row (seven specimens)*

1. Head, painted black and red after firing, Trench D, Cut VIII, Early Period (30.0-6907)
2. Head, painted, Trench D, Cut IX, Early Period (30.0-6949)
3. Head, crude, Trench D, Cut X, Early Period (30.0-6986)
4. Head, from crevice in rock of Early Period deposit, Trench E, Cut IV (30.0-7086)
5. Head, well modeled, Trench D, Cut VII, Early Period (30.0-6873)
6. Head, note excellent modeling, painted, Trench D, Cut IX, Early Period (30.0-6950)
7. Head, Trench D, Cut IX, Early Period (30.0-6951)

#### *Middle Row (four specimens)*

1. Head, Contreras (30.0-6043)
2. Head, Valley of Mexico (?), Metropolitan Museum Collection (30.0-5048)
3. Head, atypical, Trench E, South, late Early Period (30.0-7019)
4. Head and torso, Trench D, Cut VIII, Early Period (30.0-6908)

#### *Bottom Row (seven specimens)*

1. Head and bust, San Juanico (30.0-6655c)
2. Head, Papalotla (30.0-6615)
3. Head, Coatepec (30.0-6581)
4. Head, Trench D, Cut VIII, Early Period (30.0-6909)
5. Head, cf. Plate XV, transition between B and C, late Early Period deposit, Trench E, Cut V (30.0-7107)
6. Head and bust, San Juanico (30.0-6655b)
7. Head and bust, San Juanico (30.0-6655a)

## PLATE XIII

### FIGURINES TYPE CIII

Whereas Types Ci and Cii are distinguished from each other for convenience in presentation and in description, Ciii shows more positive diagnostic traits. The face is heavy in contour and oblong in outline in contrast to the oval prognathic shape of the preceding group, and the headdress is equally coarse and simple. The style is best seen in its type forms at the east of the Valley in the Tlapacoya and Coatepec collections. Top row Nos. 4 and 5, middle row Nos. 4-6, bottom row Nos. 3-5, form the basis of the classification. The rattle from Tlapacoya, middle row No. 4, is a rare presentation of this type, and No. 1 of the same row is atypical.

#### *Top Row (five specimens)*

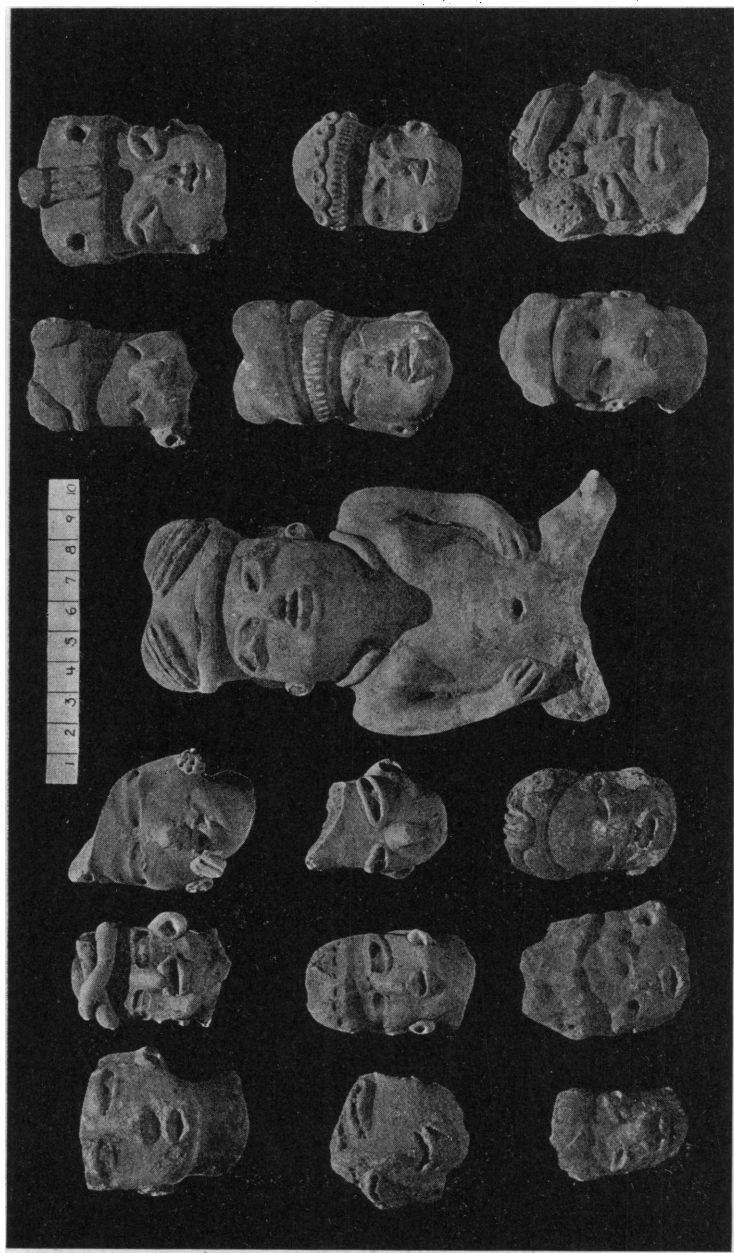
1. Head, Trench D, Cut IX, Early Period (30.0-6952)
2. Head, Trench E, Cut V, on rock in Early Period deposit (30.0-7108)
3. Head, hand to mouth, note eyebrow treatment, Trench D, Cut IX, Early Period (30.0-6953)
4. Head, Tetelpan (30.0-6469)
5. Head, Contreras (30.0-6391)

#### *Middle Row (six specimens)*

1. Head, atypical, Trench A Upper, Middle Period débris (30.0-7268)
2. Head, Trench B, Early Period (30.0-7003)
3. Head, better classified with Cii, Trench D, Cut VIII, Early Period (30.0-6911)
4. Rattle, human effigy, Tlapacoya (30.0-6639)
5. Head, Tlapacoya (30.0-6638a)
6. Head, Trench D, Cut IX, Early Period (30.0-6954)

#### *Bottom Row (five specimens)*

1. Head, Tetelpan (30.0-6689)
2. Head, Coatepec (30.0-6583)
3. Head, Tlapacoya (30.0-6638b)
4. Head, painted after firing, Trench D, Cut VIII, Early Period (30.0-6910)
5. Head, crude, heavy, Trench B, Early Period (30.0-6999)



FIGURINES TYPE CHI





FIGURINES TYPE CIV

## PLATE XIV

### FIGURINES TYPE CIV

Type Civ is virtually absent from Zacatenco. The single specimen from there, middle row No. 6, was included because of its heavy reddish clay, and its not being classifiable under group Ci, Cii, or Ciii. The diagnostic traits comprise a flat, thin head, conical in outline, features in relatively low relief, the chin indicated by a fillet applied and smoothed and a headdress presented in frankly two dimensions. The group is represented strongly from Tlapacoya and Coatepec. Several specimens occur in the Dorenberg Collection, now in this Museum, which is largely composed of archæological material from the State of Puebla, rarely specified as to exact provenience. A few examples are to be found in photographs of the collection which Bishop Plancarte made in the State of Morelos.

#### *Top Row (six specimens)*

1. Head, Dorenberg Collection (30-10329)
2. Head, Dorenberg Collection (30-10329)
3. Head, Dorenberg Collection (30-10329)
4. Head, Coatepec (30.0-6585a)
5. Head, Tlapacoya (30.0-6640b)
6. Head, Tlapacoya (30.0-6640a)

#### *Middle Row (six specimens)*

1. Head, Dorenberg Collection (30-10329)
2. Head, Coatepec (30.0-6585e)
3. Head, Coatepec (30.0-6585d)
4. Head, Coatepec (30.0-6585c)
5. Head, Coatepec (30.0-6585b)
6. Head, atypical perhaps of groups Ci-iii, Trench E, Cut VI, Early Period deposit (30.0-7122)

#### *Bottom Row (seven specimens)*

1. Head, Dorenberg Collection (30-10329)
2. Head, Dorenberg Collection (30-10329)
3. Head, Coatepec (30.0-6585i)
4. Head, Coatepec (30.0-6585h)
5. Head, Coatepec (30.0-6585g)
6. Head, Coatepec (30.0-6585f)
7. Head, Valley of Mexico, locality unspecified (30.0-7531)

## PLATE XV

### TRANSITIONS BETWEEN FIGURINES TYPES B AND C, TYPE Cv

The first four specimens of the top row and the first three of the second illustrate the group that is transitional between the C types of the Early Period (cf. Pls. X-XIII) and the B types of the Middle (cf. Pls. XXII-XXIII). This type suggests Type C in the proportion of head to body, prognathism, chinlessness, and the depiction of the turban. Type B traits comprise the flatness of the head and body, the height of the forehead, and the indication of the eye by two broad shallow gouges and the lightness in color of the clay.

The remainder of the specimens illustrate group Cv, which is not represented at Zacatenco. The heads are relatively large; the face plump and rounded. The nose, which closely follows the convexity of the face which is completed usually with the chin undeveloped, gives the countenance a sheep-like appearance. This type occurs under the lava at Copilco, at San Juanico, Azcapotzalco, Tetelpan, Contreras, Ticoman. Although rare in the east of the Valley, it seems fairly common in collections from the State of Morelos.

#### *Top Row (six specimens)*

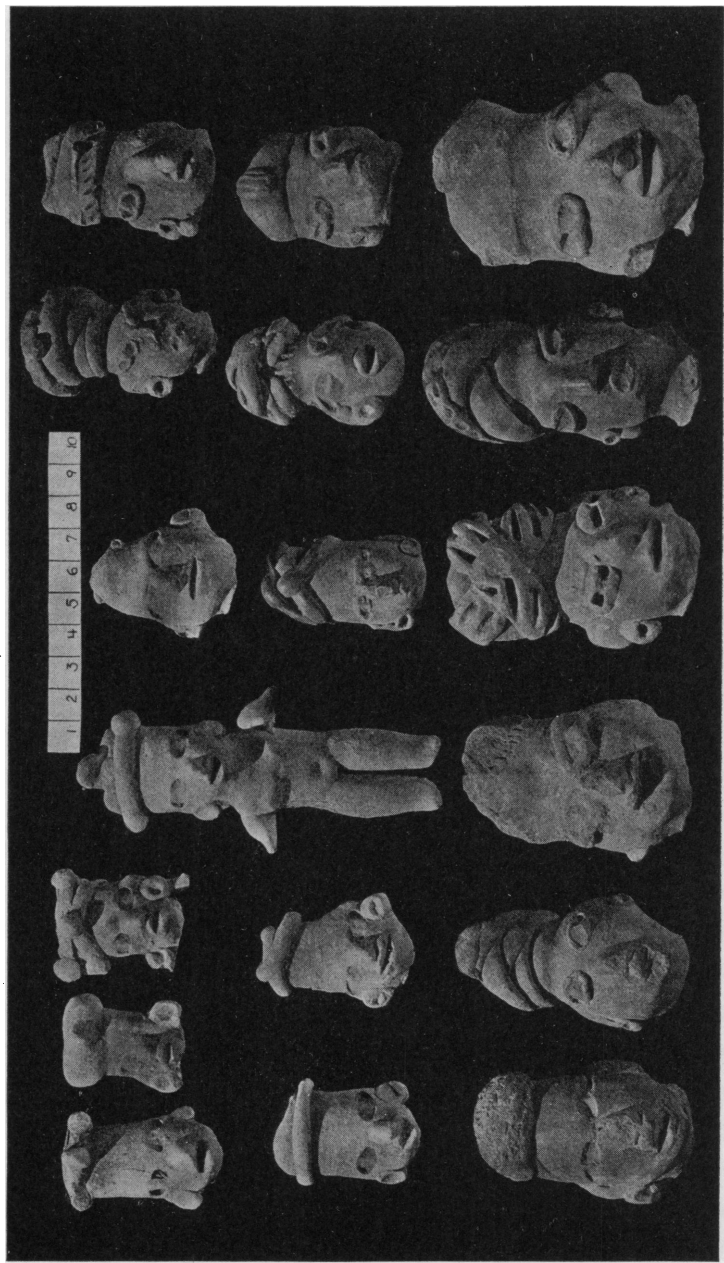
1. Head, B-C transitional, Trench B, late Early Period deposit (30.0-6998)
2. Head, B-C transitional, Tetelpan (30.0-6692)
3. Head, B-C transitional, Trench A, early Middle Period deposit (30.0-7269)
4. Head, probably Type Cii, Trench D, Cut IX, Early Period (30.0-6955)
5. Head, Type Cv, Contreras (30.0-6396)
6. Head, Type Cv, Ticoman (30.0-6663)

#### *Middle Row (six specimens)*

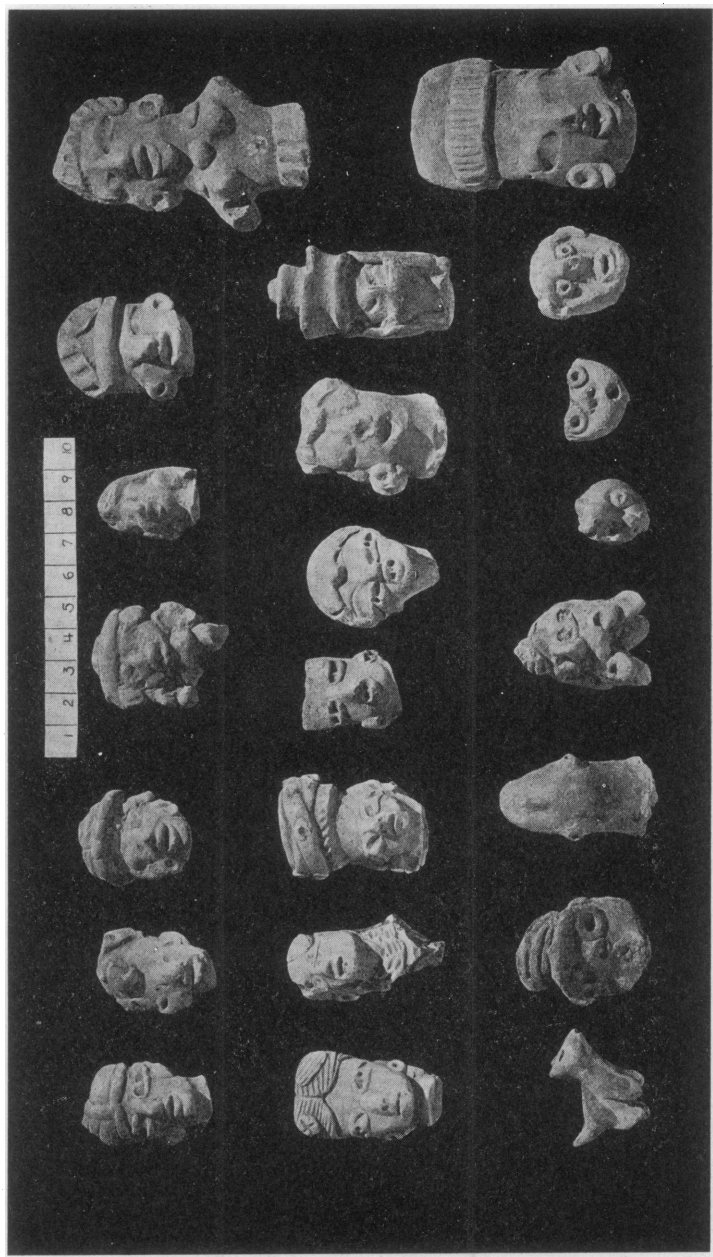
1. Head, B-C transitional, Trench E South, late Early Period deposit (30.0-7020)
2. Head, B-C transitional, Trench D, Cut VI, early Middle Period (30.0-6859)
3. Figure B-C transitional, San Juanico (30.0-6657)
4. Head, Type Cv, Azcapotzalco (30.0-1715)
5. Head, Type Cv, San Juanico (30.0-6484)
6. Head, Type Cv, Contreras (30.0-6402)

#### *Bottom Row (six specimens)*

1. Head, Type Cv, Tetelpan (30.0-6691)
2. Head, Type Cv, San Juanico (30.0-6484)
5. Head, Type Cv, San Juanico (30.0-6484)
4. Head, Type Cv, San Juanico (30.0-6656a)
5. Head, Type Cv, San Juanico (30.0-6656b)
6. Head, Type Cv, Contreras (30.0-6397)



TRANSITIONS BETWEEN FIGURINES TYPES B AND C, FIGURINE TYPE Cy



FIGURINE TYPES CVI AND CVII, MISCELLANEOUS

## PLATE XVI

### FIGURINES TYPES CVI AND CVII, MISCELLANEOUS

The purpose of this classification is as much to suggest new types as to synthesize the old. For this reason we have formed three temporary groups, Cvi-viii, of which vi and vii appear on this, Pl. XVI, and Cviii on Pl. XVII.

Type Cvi, shown on the top row of this Plate, is a variation of the C class, undefined as to chronological type, but in that it occurs at San Juanico and not at Zacatenco it may be late development of Types Ci-iii. The presence, usually, of a polished slip also suggests this assumption. The proportions of the face are naturalistic and there is a tendency to work the fillets into the base clay of the face. Type Cvii, shown on the middle row Nos. 1-6, might be classed with Cii (cf. Pl. XII). The employment at Tetelpan of a characteristic white clay together with the general difference in appearance from Cii, causes us tentatively to make a separate group of these specimens. Cvi is known at Ticoman, San Juanico, and Coatepec; Cvii occurs at Tetelpan, Coatepec, and as nearly as we may judge from photographs in the Bishop Plancarte collection from Morelos. It might also connect with Vera Cruz (cf. Pls. XXXIII-XXXIV). Middle row No. 7 is a C group specimen from the Azcapotzalco gravels that defies further categorization. Bottom row No. 8 is atypical, but might be a Civ variant (cf. Pl. XIV).

Bottom row Nos. 1-4 comprise eccentric forms from the Early Period: A puppy painted in black, a monkey made of the same clay as the ring on Pl. XLI, a serpent, and a miniature effigy jar with human face are shown successively. Nos. 5-7 are eccentric heads probably of the Late Period, for No. 6 comes from such deposits at Zacatenco.

#### *Top Row (seven specimens)*

1. Head, Cvi, shiny slip, San Juanico (30.0-6484)
2. Head, Cvi, unslipped, Ticoman (30.0-6675)
3. Head, Cvi, shiny slip, Coatepec (30.0-6599a)
4. Head and body, Cvi, shiny slip, Coatepec (30.0-6599b)
5. Head, Cvi, shiny slip, Coatepec (30.0-6599c)
6. Head, Cvi, shiny slip, Coatepec (30.0-6599d)
7. Head and torso, Cvi, shiny slip, Coatepec (30.0-6599e)

#### *Middle Row (seven specimens)*

1. Head, Cvii, white clay, traces of red paint, Tetelpan (30.0-6700b)
2. Head, Cvii, white clay, Tetelpan (30.0-6469)
3. Head, Cvii, white clay, Tetelpan (30.0-6700a)
4. Head, Cvii, perhaps Ci, Metropolitan Museum Collection (30.0-5151)
5. Head, Cvii, white clay, Dorenberg Collection, possibly Puebla (30-10329)
6. Head, shiny slip, containing elements of Cvi and Cvii, Coatepec (30.0-6600a)
7. Head, atypical C, waterworn, Azcapotzalco (30.0-4799)

#### *Bottom Row (eight specimens)*

1. Puppy, painted in black after firing, Trench D, Cut IX, Early Period (30.0-6961)
2. Monkey, brown clay, hand on head, Trench D, Cut IX, Early Period (30.0-6958)
3. Serpent head, note nose, Trench D, Cut IX, Early Period (30.0-6959)
4. Miniature pot with filleted human features, Trench D, Cut IX, Early Period (30.0-6957)
5. Head, circular eyes, purchased at Zacatenco (30.0-7343)
6. Head, circular eyes, open mouth, Trench D, Cut I, Late Period (30.0-6748)
7. Head, circular eyes, cf. No. 6, Coatepec (30.0-6601)
8. Head, red paint, atypical, perhaps Civ, Coatepec (30.0-6600b)

## PLATE XVII

### FIGURINES TYPES J, K, AND CVIII

Type J, top row, is presumably late in date. The body is crude and flat, the legs heavy. Its characteristic feature lies in the modeling of the nose directly from the clay constituting the head element and the small fillets used for the eyes. One specimen, top row No. 5, came from Zacatenco, waterworn and near the surface, being thereby rendered indefinite as to period. This presumably late style is known at Ticoman and Coatepec some heads perhaps thus classifiable come from Azcapotzalco. Top row No. 1 seems to be transitional between J and Hiv; top row Nos. 2, 6-8, also show resemblances to specimens from western Mexico, Pl. XXXII, top row Nos. 5-7, middle row Nos. 2-5, bottom row Nos. 1-7, and as they have no exact provenience, may even come from there. Top row, Figs. 8 and 4 suggested the possibility that 6-8 are Valley types.

Type Cviii is included on this Plate, middle row, because the exigencies of presentation forbid its being put on the other C group Plates. The modeling of the head and the presentation of the features recall Type C, but the shiny slip, the depiction of eyes by means of incision, suggest a type widespread and common on the Vera Cruz lowlands (cf. Pl. XXXIV). On the other hand, a similar specimen is supposed to have come from beneath the lava at Copilco; another example is in the Peabody Museum of Harvard University from Azcapotzalco (C-9530); and similar types are contained in the Plancarte collection, having Tenango, District of Jonacatepec, Morelos, as their provenience. Cviii may be Middle or Late Period.

Type K, on the bottom row, is characterized by a round face, simple headdress with details shown by incision, a mouth made by two gouges, and the eye depicted by two broad gouges on a heavy fillet. It is best described as having a frog-like appearance. It is especially common in the State of Morelos. Some specimens which are much waterworn as if from the gravels, come from Azcapotzalco, another, unworn, from San Bartolo Naucalpan, and rare examples occur at Cuicuilco. One doubtful specimen is in our collection from Coatepec, Bottom Row No. 1. From the look of the scanty material, Type K may have, like Type D, Pls. XVIII-XX, a varied development over considerable time and space.

#### *Top Row (nine specimens)*

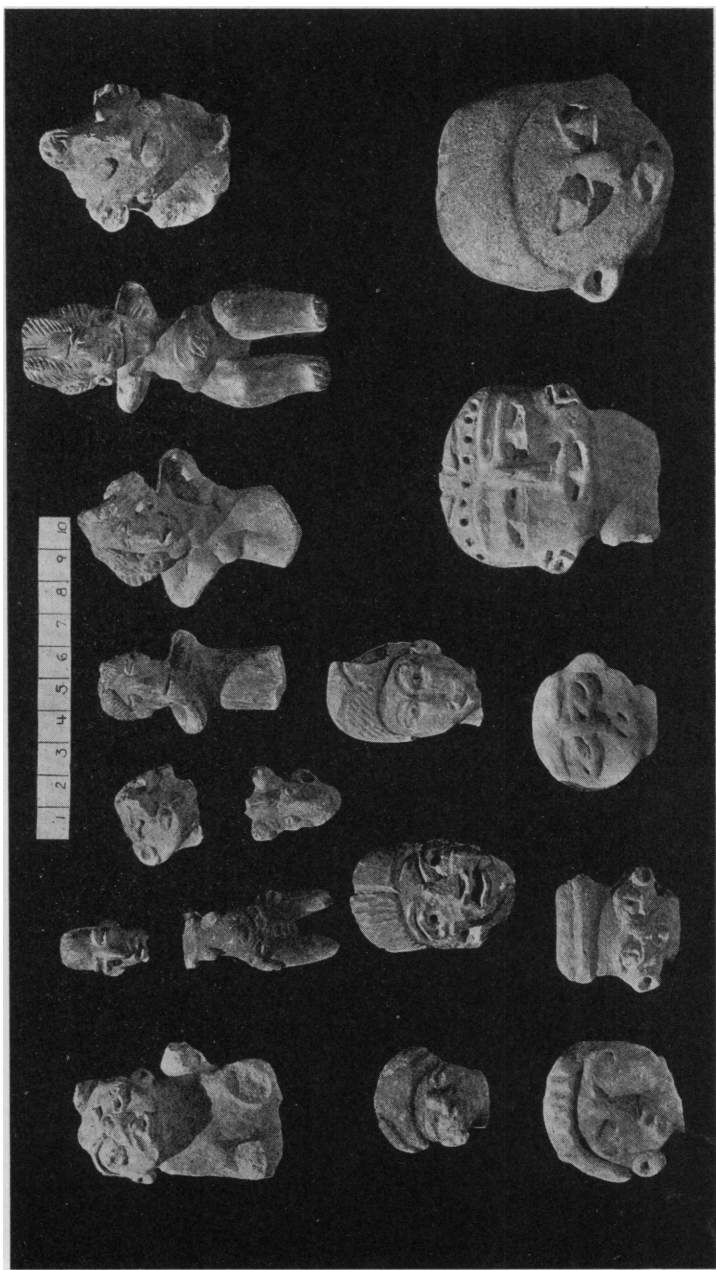
1. Head and torso seated, perhaps Hiv or transitional from Hiv to J (cf. Pl. XXX), Coatepec (30.0-6595a)
2. (Upper) head, Type J, Metropolitan Museum Collection, perhaps from western Mexico, cf. Pl. XXXIII (30.0-5244)
3. (Lower) torso, Type J (?), Metropolitan Museum Collection, cf. Pl. XXXIII (30.0-5477)
4. (Upper) head, Type J, Coatepec (30.0-6595b)
5. (Lower) head, Type J, Zacatenco, Trench C, North Extension Upper, probably Late Period (30.0-7154)
6. Head and torso, Type J, Dorenberg Collection, possibly Puebla or western Mexico (30-10329)
7. Head and torso, Type J, Dorenberg Collection, possibly Puebla or western Mexico (30-10329)
8. Complete figure, Type J, Valley of Mexico (30.0-7532)
9. Head and bust, Type J, red slip, Ticoman (30.0-6674)

#### *Second Row (three specimens)*

1. Head, perhaps Type Cviii, Tetelpan (30.0-6701)
2. Head, shiny slip, Type Cviii, Tetelpan (30.0-6699a)
3. Head, shiny slip, Type Cviii, Tetelpan (30.0-6699b)

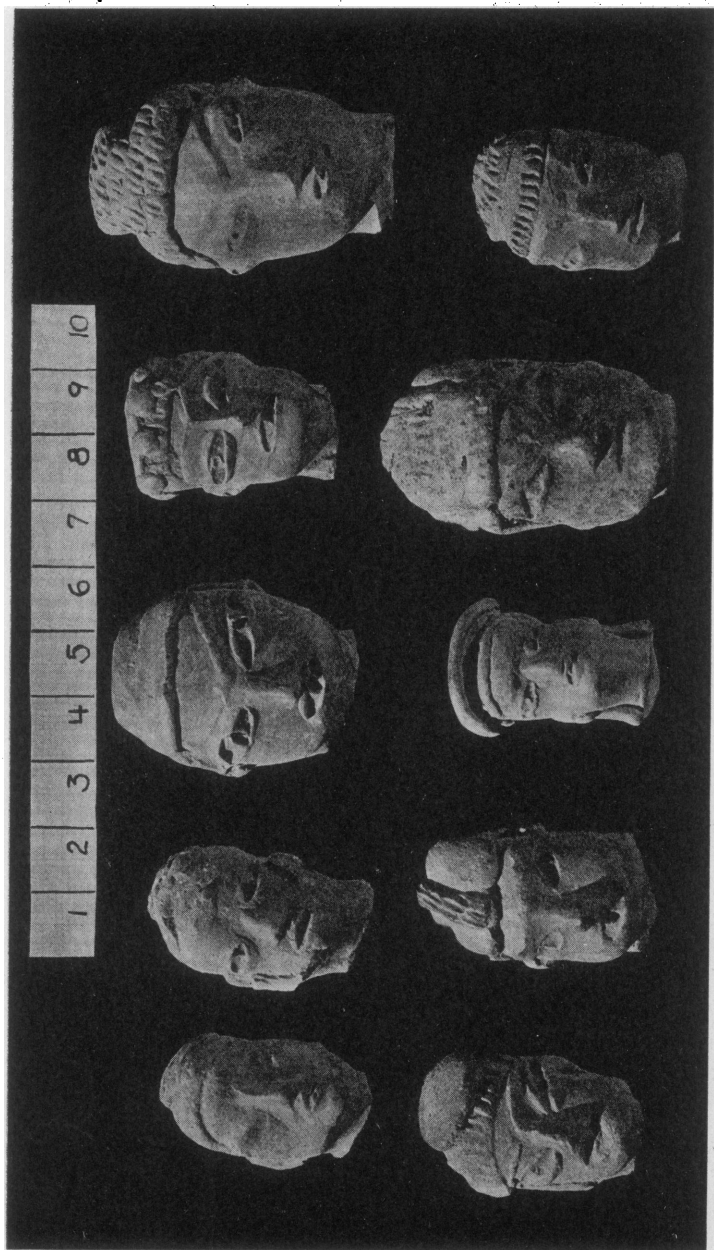
#### *Third Row (five specimens)*

1. Head, doubtful Type K, Coatepec (30.0-6596)
2. Head, Type K, Dorenberg Collection, perhaps Puebla (30-10329)
3. Head, Type K, Azcapotzalco (30.0-1701)
4. Head, Type K, Azcapotzalco (30.0-1714)
5. Head, Type K, Azcapotzalco (30.0-1694)



FIGURINE TYPES J, K, AND Cviii





FIGURINES TYPE DI

## PLATE XVIII

### FIGURINES TYPE DI

Type D of all the figurine types of the Early Cultures most closely approaches our own aesthetic ideals. Technically however it is a logical accompaniment to the C groups and its chronological position in the Early Period is not extraordinary. Type D falls into two groups which are regionally and perhaps chronologically significant, Di and Dii, the latter not being found in the Zacatenco Early Period and reaching its fullest development in the Texcoco region and the State of Morelos. The distinctive features of Type Di are a body shown always erect and modeled in the Type C manner, but with more grace. The heads are small and in direct natural proportion to the body. The features are naturalistic and the filleting technique is refined to a point where it is no longer distinctive as in its clumsy use in Type C. Attention is especially given by gouging and by perforation to present the eye and its pupil realistically and to show the mouth and teeth. Di is widely distributed, occurring in the gravels at Azcapotzalco, the Azcapotzalco region in general, Tetelpan, Papalotla, Coatepec, Tepetlaostoc, Ticoman, Cuernavaca, and the State of Morelos in general.

#### *Top Row (five specimens)*

1. Head, Trench D, back dirt (30.0-6725)
2. Head, Trench E South, late Early Period deposit (30.0-7017)
3. Head, Trench C, North Extension lower, late Early Period deposit (30.0-7188)
4. Head, Trench A, back dirt (30.0-7276)
5. Head, shown as frontispiece, Trench D, Cut IX, Early Period (30.0-6956)

#### *Bottom Row (five specimens)*

1. Head, Tepetlaostoc (30.0-6629b)
2. Head, Tepetlaostoc (30.0-6629a)
3. Head, Azcapotzalco (30.0-1710)
4. Head, Azcapotzalco gravels (30.0-6470)
5. Head, Trench D, Cut I, washed into Late Period deposit (30.0-6726)

## PLATE XIX

### FIGURINES TYPES DI AND DII

The refinement in technique of Di renders it possible for the sculptor to show a great deal of individuality. It is not possible therefore to predicate exactly the line of demarcation between Di and Dii. However, the specimens shown in middle row Nos. 4-6, may be considered as transitional between the Di figurines shown on Pl. XVIII and on this Plate, and the Dii heads shown on Pl. XX and the bottom row of this Plate, Nos. 4-6. A specimen from Tetelpan, of the "transitional" Di-Dii group is shown on Pl. XXXVII, top row No. 9. As is obvious, the best developmental series from Di to Dii is contained in the Coatepec specimens. Bottom row, Nos. 1-3 are related to Type D, but are not characteristic examples.

#### *Top Row (seven specimens)*

1. Head, Di, Cuernavaca, Morelos (30.0-1847)
2. Head, Di, Coatepec (30.0-6588a)
3. Head, Di, transitional to C group, Trench D, Cut I, washed into Late Period deposit (30.0-6727)
4. Head, Di, Coatepec (30.0-6588b)
5. Head, Di, Coatepec (30.0-6588c)
6. Head, Di, purchased at Zacatenco (30.0-7332)
7. Head, Di, Trench D, Cut VII, Early Period (30.0-6874)

#### *Middle Row (seven specimens)*

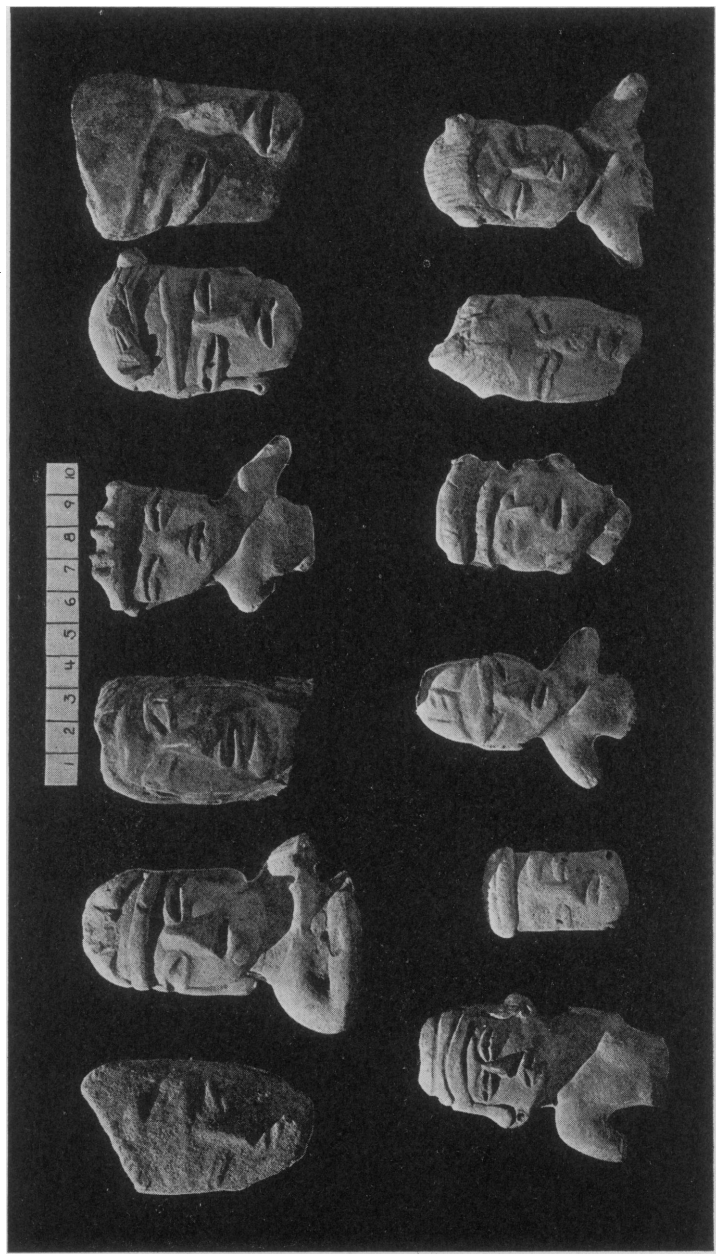
1. Torso, probably Di, Trench C, North Extension Upper, in Early Period deposit (30.0-7146)
2. Torso, probably Di, purchased at Zacatenco (30.0-7331)
3. Head, Di, Tetelpan (30.0-6693)
4. Head, transitional Di-Dii, cf. Pl. XXXVII, Top Row No. 9, Coatepec (30.0-6588f)
5. Head, transitional Di-Dii, Coatepec (30.0-6588e)
6. Head, Di, cf. top row No. 7, Coatepec (30.0-6588d)
7. Complete figure, Di, much waterworn, Dorenberg Collection (30-10325)

#### *Bottom Row (six specimens)*

1. Head and bust, atypical D, Ticoman (30.0-6664b)
2. Head and bust, atypical D, Ticoman (30.0-6664a)
3. Head, transitional Di-Dii, Coatepec (30.0-6588j)
4. Head, Dii, Coatepec (30.0-6588i)
5. Head, Dii, Coatepec (30.0-6588h)
6. Head, transitional Di-Dii, Coatepec (30.0-6588g)



FIGURINES TYPES DI AND DII



FIGURINES TYPE DII

## PLATE XX

### FIGURINES TYPE DII

Type Dii is characterized by a presentation of the features slightly coarser and more formalized than that of Type Di. The body is apt to be cruder, flatter and squarer than its predecessors. Especially definitive is the attenuation of the fillets composing the eyes and eyebrows. A variant of this type is hollow and covered with a shiny slip; some of these specimens reach considerable size (cf. top row No. 6 and Pl. XXXIII, bottom row Nos. 1 and 2, top row No. 4). Another example manufactured thus is in the Peabody Museum of Harvard University (catalogue number c-9518) and comes from San Luis Naucalpan near Los Remedios. The type is well developed in sites in the State of Morelos, and examples occur from the Azcapotzalco region, Tetelpan, and Coatepec. One piece comes from Tepeaca, Puebla, and others are in the Dorenberg Collection made presumably in the State of Puebla.

*Top Row (six specimens)*

1. Head, Cuernavaca, Morelos (30.0-1854)
2. Head and bust, Dorenberg Collection (30-10329)
3. Head, shiny slip, Dorenberg Collection (30-10329)
4. Head and bust purchased at Zacatenco (30.0-7333)
5. Head, Trench D, Cut I, Late Period (30.0-6728)
6. Head, shiny brown slip, painted with red band before firing, hollow, purchased at Zacatenco (30.0-7334)

*Bottom Row (six specimens)*

1. Head and bust, Dorenberg Collection (30-10329)
2. Head, waterworn, Azcapotzalco (30.0-1700)
3. Head and torso, Dorenberg Collection (30-10329)
4. Head, Coatepec (30.0-6590b)
5. Head, Coatepec cf. Type Cvi, Pl. XVI (30.0-6590a)
6. Head, Metropolitan Museum Collection unspecified locality, presumably Valley of Mexico (30.0-6425)

## PLATE XXI

### FIGURINES TYPE A

Type A figurines are definitive of the Middle Period at Zacatenco. They occur under the lava at Copilco, on the surface at Tetelpan, in the deep adobe pits at San Juanico, and at San Miguel Amantla. They are known also from Contreras, Ticoman, and El Arbolillo, and the Azcapotzalco region. One example, Pl. XXXIII, comes from Cempoala, Vera Cruz. Their occurrence is rare outside of the Valley, in its eastern half, or in the Azcapotzalco gravel. Its definitive features are squat bodies in a seated posture, usually stubby limbs, a broad round face with nose and mouth fillets sunk into a central groove. The eye is made usually by two ploughs with a central perforation. The headdress is simple and heavy. The specimens are generally unslipped and of porous clay. Slipped examples occasionally appear, however, and some show evidences of having been painted. Other examples are to be found on Pl. XXX.

#### *Top Row (nine specimens)*

1. Head, Trench A Upper, Middle Period (30.0-7273)
2. Head and torso, headdress broken, Trench C, West Extension, Middle Period (30.0-7219)
3. Head, note development of eyebrows, Trench A, West Extension, Middle Period (30.0-7245)
4. Head, note vestiges of white paint in eye sockets, Trench C, North Extension Upper, Middle Period (30.0-7141)
5. Head, with noseplug or labret, Trench C, North Extension, Middle Period (30.0-7142)
6. Head much waterworn, Trench D, Cut I, probably washed from Middle Period deposit (30.0-6717)
7. Head, battered, Trench C, North Extension Upper, Middle Period (30.0-7143)
8. Head and torso, like No. 2 body must have been made in two sections, Trench F, Middle Period (30.0-7306)
9. Head waterworn, Trench D, Cut I, probably washed from Middle Period deposit (30.0-6716)

#### *Second Row (seven specimens)*

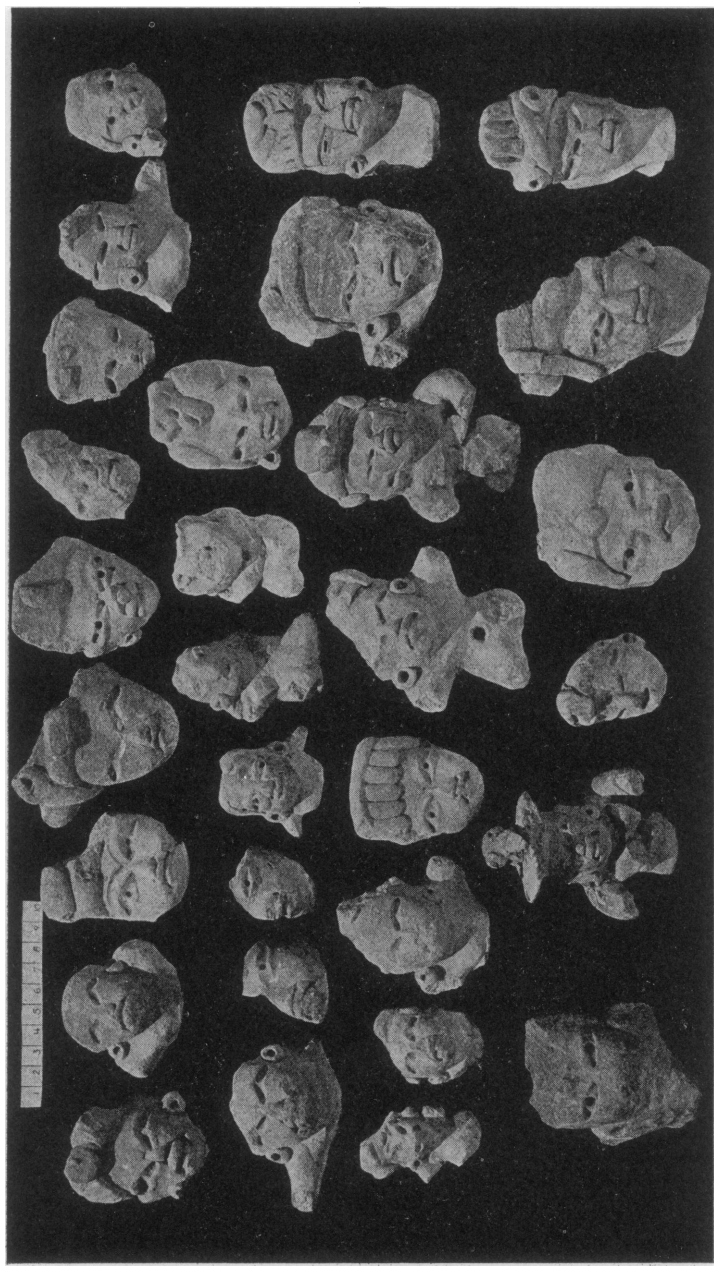
1. Head and torso, cf. Top Row No. 2 and No. 8, Trench D, Cut III, probably washed from Middle Period deposit (30.0-6808)
2. Head, battered, Trench E, Cut IV, Middle Period (30.0-7078)
3. Fragment of head, Trench C, North Extension Upper, Middle Period (30.0-7155)
4. Head and torso, Tetelpan (30.0-6686b)
5. Seated figure, Coatepec, atypical (note nose) (30.0-6614a)
6. Seated figure, polished brown slip atypical, Trench E, Cut IV, Middle Period (30.0-7079)
7. Head, San Juanico (30.0-6652a)

#### *Third Row (eight specimens)*

1. Head and torso, very small, cf. Second Row Nos. 5 and 6, Coatepec (30.0-6614b)
2. Head and bust, Tetelpan (30.0-6686a)
3. Head and bust, Ticoman (30.0-6684)
4. Head, note eye treatment, Contreras (30.0-6386)
5. Head and body, note posture and hollowed stomach, Contreras (30.0-6409)
6. Head and torso, note double elements forming trunk, San Miguel Amantla (30.0-4784)
7. Head, San Juanico (30.0-6652b)
8. Head and bust, San Juanico (30.0-6652c)

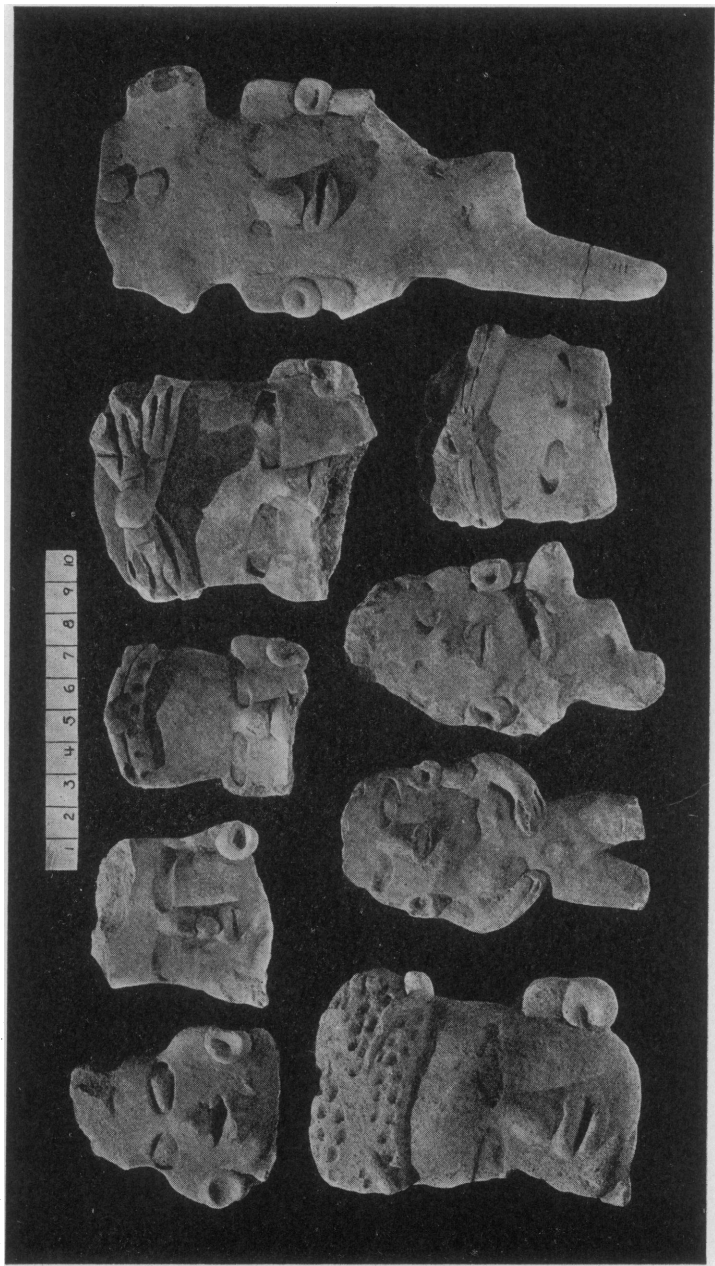
#### *Bottom Row (six specimens)*

1. Head and bust, polished black slip, Trench D, Cut III, Middle Period (30.0-7067)
2. Head and body, note headdress and fillets at breast, indicating probable presence of child, Tetelpan (30.0-6469)
3. Head, atypical but allied to Type A, Cholula (30.0-1662)
4. Head, with labret, Contreras (30.0-6385)
5. Head and bust, San Juanico (30.0-6652e)
6. Head and bust, San Juanico (30.0-6652d)



FIGURINES TYPE A





FIGURINES TYPE B, LARGE

## PLATE XXII

### FIGURINES TYPE B, LARGE

Type B is almost universally associated with Type A as a Middle Period diagnostic and its distribution is consequently almost the same. In contrast to the coarse porous brown ware of Type A this clay is finely kneaded and gray. These figurines are flat and shallow with features and body contours in very low relief. There is no slip. Top row No. 4 is decorated with a broad band of red across the forehead and eyes, applied after firing. The figurines shown in this photograph are grouped for convenience in description. Smaller examples showing better relationships with Type C and F are presented on Pls. XXIII and XV. Types of bodies are illustrated on Pl. XXIV.

#### *Top Row (five specimens)*

1. Head, Trench C, North Extension Upper, Middle Period (30.0-7144)
2. Head, Trench E, Cut VI, Middle Period (30.0-7123)
3. Head, Trench F, Middle Period (30.0-7304)
4. Head, with paint on forehead, Trench E, Cut IV, Middle Period (30.0-7080)
5. Erect figure, Trench A Lower, Middle Period (30.0-7290)

#### *Bottom Row (four specimens)*

1. Head, Tetelpan (30.0-6687a)
2. Head and torso, note as in top row No. 5 disproportion of head to body, Tetelpan (30.0-6687b)
3. Head and torso, cf. No. 2, Trench D, Cut I, from Middle Period deposit (30.0-6719)
4. Top of head, Trench E, Cut V, Middle Period (30.0-7105)

## PLATE XXIII

### FIGURINES TYPE B, SMALL

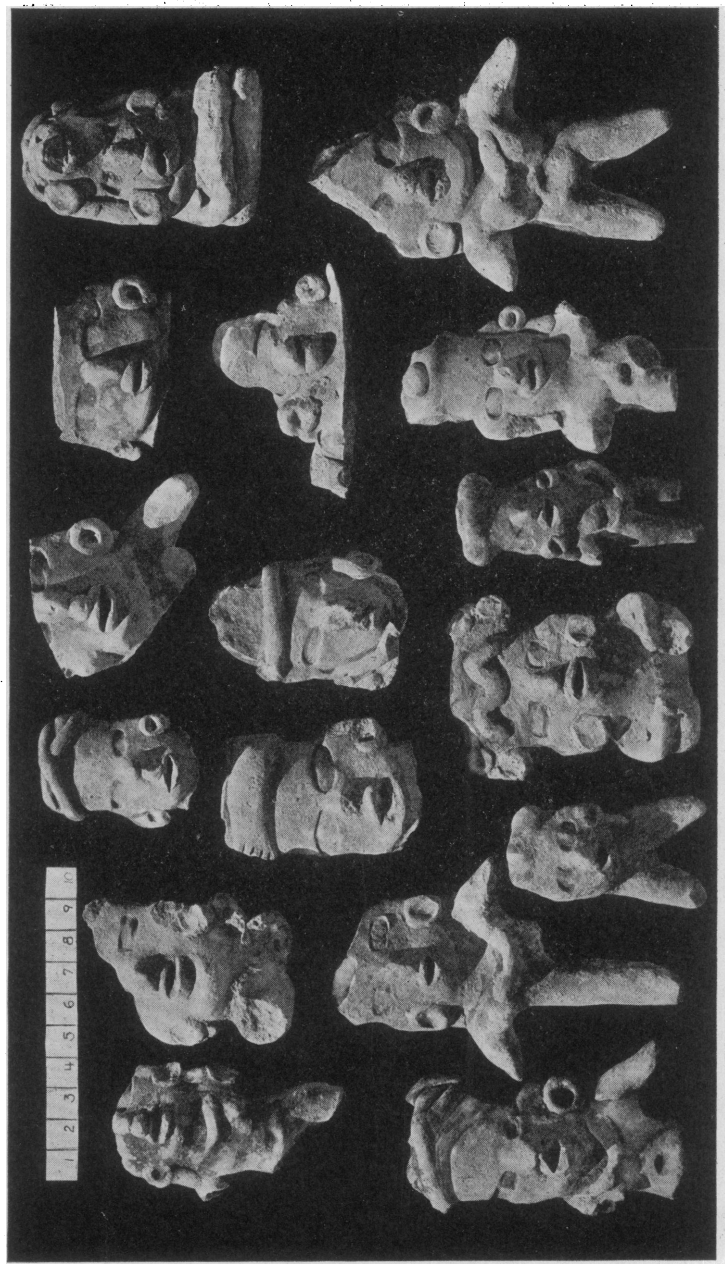
Smaller examples of Type B are less standardized than the larger specimens. The posture is varied; cf. the seated figures top row Nos. 2 and 9 and bottom row, No. 4, with the erect specimens top row No. 1 and bottom row Nos. 2 and 5-7. The torso receives some modeling, but there is a gross disproportion between the size of the head and body. These smaller examples are vastly more numerous than the larger and represent perhaps the archetype. Relationship with Type C may be seen by comparing bottom row No. 1 and top row No. 3 with Pl. XV top row Nos. 1-4 and middle row Nos. 1-2, transitional types, whose connection with C may be further traced on Pls. X-XV. Top row No. 9 wears a human headdress done in the Type F style (cf. Pl. XXV). The profound difference in plastic concept between the associated types A and B may be seen in comparing this Plate with Pl. XXI.

#### *Top Row (nine specimens)*

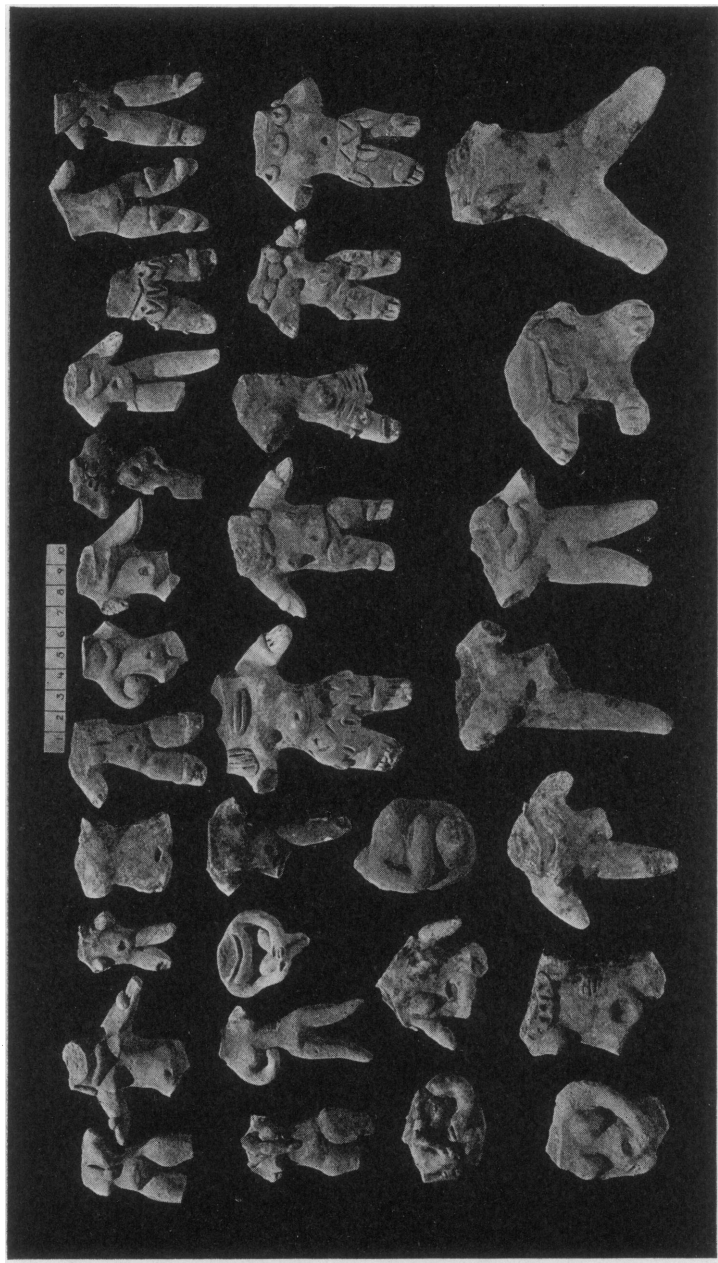
1. Head and torso, Trench E, Cut V, Middle Period (30.0-7106)
2. Head and torso, seated, Trench D, Cut VII, Middle Period deposit which tilts into a cut mainly containing Early Period debris (30.0-6868)
3. (Upper) head which shows B-C transition elements, San Juanico (30.0-6484)
4. (Lower) head, San Juanico (30.0-6653b)
5. (Upper) head and bust, Trench E, Cut V, Middle Period (30.0-7111)
6. (Lower) head, Tetelpan (30.0-6688b)
7. (Upper) head, Trench E South, Middle Period (30.0-7016)
8. (Lower) head and shoulders, Trench D, Cut V, Middle Period (30.0-6845)
9. Seated figure with Type F headdress, Trench C, North Extension Upper, Middle Period (30.0-7145)

#### *Bottom Row (seven specimens)*

1. Head and torso, showing transitional elements, from under lava, Copilco (30.0-6466)
2. Erect figure, San Juanico (30.0-6653c)
3. Figure without torso, San Juanico (30.0-6653a)
4. Seated figure found on surface, Zacatenco (30.0-7330)
5. Small erect figure, Tetelpan (30.0-6688a)
6. Head and torso, from Middle Period deposit in Trench D, Cut I (30.0-6721)
7. Erect figure, Trench D, Cut VI, Middle Period (30.0-6858)



FIGURINES TYPE B, SMALL



BODIES TYPES C AND B

## PLATE XXIV

### BODIES TYPES C AND B

The Type C bodies are not divisible into so many categories as the heads. On the top rows are presented a number of specimens representing females, in the main. Second Row Nos. 5-9 are a special type found only in the east of the Valley at Papalotla, Tlapacoya, and Coatepec and are perhaps to be associated with the Civ (Pl. XIV) or the Cvi (Pl. XVI) heads. The pregnancy and the development of skirts, make them noteworthy. In the Zacatenco collection only the skirted figures, top row No. 10 and Pl. XXXVII top row No. 2, show any such development, most of the bodies being nude. Ornaments like bracelets, anklets, and necklaces are usually shown.

The third and bottom rows show the crude modeling of the torso that characterizes Type B. Third Row No. 1 depicts a woman with her child and on bottom row No. 6, the child must have been broken off. Third row No. 3 is hollow and may belong to the Type A style.

#### *Top Row (twelve specimens)*

1. Torso, Type C, Trench D, Cut IX, Early Period (30.0-6968)
2. Torso, Type C, Trench D, Cut VIII, Early Period (30.0-6924)
3. Torso, Type C, Trench D, Cut VIII, Early Period (30.0-6925)
4. Torso, brown slip with red paint applied before firing, Type C variant, Trench E, Cut IV, Middle Period deposit (30.0-7082)

#### *Middle Period deposit (30.0-7082)*

5. Torso, Type C, Trench D, Cut VIII, Early Period (30.0-6921)
6. Torso, Type C, Trench B, Early Period (30.0-7002)
7. Torso, Type C, Trench D, Cut VIII, Early Period (30.0-6920)
8. Torso, holding animal or child, Type C, Coatepec (30.0-6603c)
9. Torso, Type C, Trench D, Cut VIII, Early Period (30.0-6922)
10. Torso with skirt, Type C, Trench E, Cut IV, Early Period form in Middle deposit (30.0-7081)
11. Torso, Type C, Trench D, Cut IX, Early Period (30.0-6969)
12. Torso, Type C, Trench D, Cut VIII, Early Period (30.0-6965)

#### *Second Row (nine specimens)*

1. Torso with hair braids, Type C, Trench D, Cut VIII, Early Period (30.0-6926)
2. Torso, Type E, Trench D, Cut II, Late Period (30.0-6790)
3. Seated figure, C or B atypical, Trench E, Cut V, Middle Period (30.0-7114)
4. Torso, transition Type B-C, Trench E, Cut V, Early Period form in Middle Deposit (30.0-7112)
5. Pregnant body, shiny gray, Type C variant, Papalotla (30.0-6626)
6. Body, Type C variant, Coatepec (30.0-6603b)
7. Pregnant body, Type C variant, Coatepec (30.0-6603a)
8. Pregnant body, Type C variant, Tlapacoya (30.0-6646a)
9. Body, note dress on Nos. 5-9, Tlapacoya (30.0-6646b)

#### *Third Row (three specimens)*

1. Torso, mother and child, Type B, purchased at Zacatenco (30.0-7360)
2. Torso, Type B, Trench C, West Extension, Middle Period (30.0-7217)
3. Hollow torso kneeling, atypical, possibly A, Trench C, West Extension, Middle Period (30.0-7215)

#### *Bottom Row (seven specimens)*

1. Pregnant torso, Type B, Trench C, West Extension, Middle Period (30.0-7216)
2. Torso, Type B, Trench E, Cut V, Middle Period (30.0-7113)
3. Body, Type B, Trench D, Cut I, Middle Period form in Late deposit (30.0-6750)
4. Body, Type B, Trench E, Cut IV, Middle Period (30.0-7401)
5. Body, Type B, Trench A, West Extension, Middle Period (30.0-7253)
6. Body, originally holding child, atypical, perhaps B or C, Tlapacoya (30.0-6647)
7. Body, atypical Type C, Trench D, Cut IX, Early Period (30.0-6970)

## PLATE XXV

### FIGURINES TYPE F

Type F in its developed form is, together with Types A and B, one of the three distinctive types of the Middle Period. It seems to have its origin in the Early Period, for top row Nos. 1, 2, and 4 certainly look like prototypes for the remainder of the specimens. Indeed Types B and F both have their origin in Type C. The body, in general, may be said to follow the Type C plastic tradition, but the head is almost inhuman, so crudely portrayed are the features. The nose and mouth fillets occupy a large space on the highly convex and prognathic face, while the brow recedes. The posture is erect or seated, but in the seated specimens the torso is not made; cf. top row Nos. 5 and 6 and the rattle, bottom row No. 4. A headdress of Type F, adorning a Type B figure, is shown on Pl. XXIII top row No. 9. This type is common at San Juanico, and the Azcapotzalco gravels, but is absent at Copilco under the lava. It is also known at Tetelpan, Tlapacoya, Ticoman, and Coatepec.

#### *Top Row (nine specimens)*

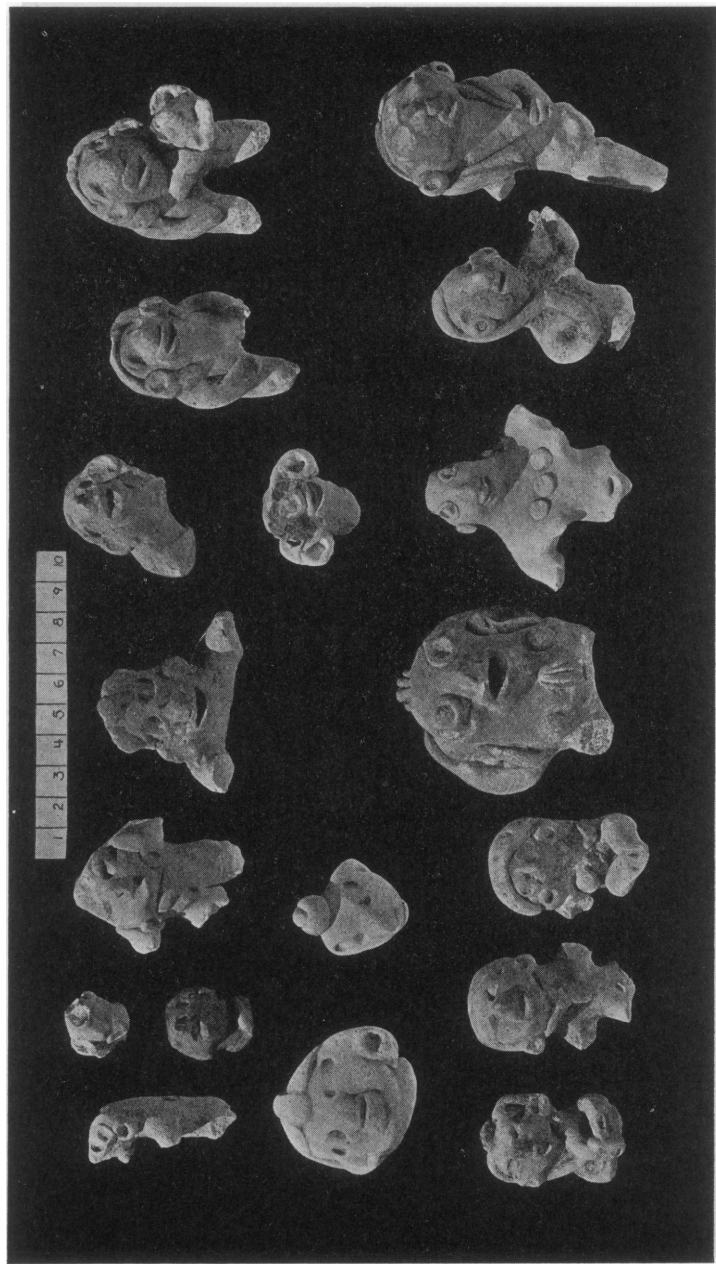
1. Small figure, F prototype, Trench B, Early Period (30.0-7000)
2. (Upper) Small head, F, prototype, Trench D, Cut VIII, Early Period (30.0-6912)
3. (Lower) Small head, F, prototype, Coatepec (30.0-6587b)
4. Head and torso, transitional between C and F, Trench B, Early Period (30.0-7004)
5. Seated figure, note absence of torso, Trench A, West Extension, on bottom, Middle Period (30.0-7248)
6. (Upper) Seated figure, cf. No. 5, Trench E, Cut V, Middle Period (30.0-7109)
7. (Lower) Head, Trench C, West Extension on bottom, Middle Period (30.0-7213)
8. Erect figure, head of Trench E, near bottom, Middle Period (30.0-7044)
9. Mother and child, Trench C, North Extension Lower, Middle Period (30.0-7189)

#### *Middle Row (two specimens)*

1. Head, Azcapotzalco gravels (30.0-1695)
2. Head, Azcapotzalco gravels (30.0-1699)

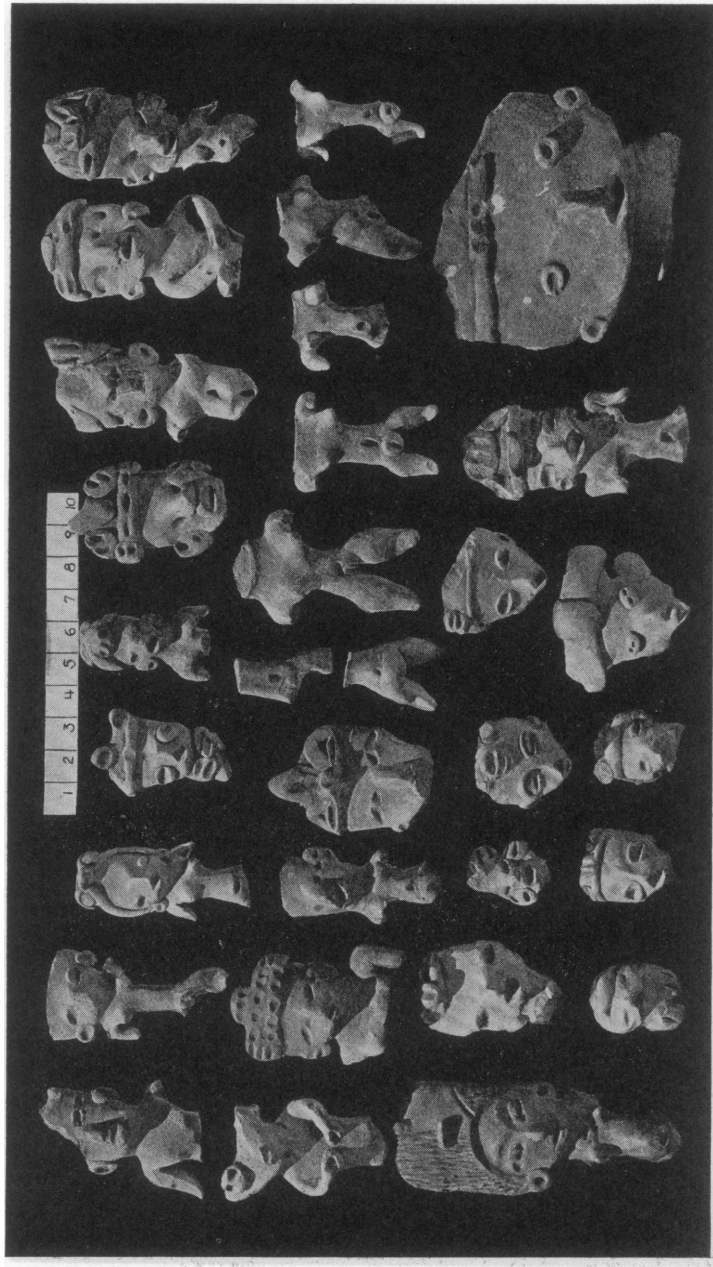
#### *Bottom Row (seven specimens)*

1. Head and bust, transitional between C and F, Coatepec (30.0-6587a)
2. Head and torso, Tlapacoya (30.0-7361b)
3. Seated figure, Tlapacoya (30.0-7361a)
4. Rattle, in human effigy but bearing F traits, San Juanico (30.0-6659)
5. Head and torso, atypical purchased at Zacatenco (30.0-6499)
6. Figure bearing pot on her left shoulder, San Juanico (30.0-6658)
7. Erect figure, San Juanico (30.0-4797)



FIGURINES TYPE F





FIGURINES TYPE E

## PLATE XXVI

### FIGURINES TYPE E

Type E is the characteristic Late Period figurine form at Zacatenco. Its roots might be considered to lie in the B and C plastic tradition. These figurines are made of an unslipped clay, brown but occasionally burning red, which shows the fine grain of careful kneading. The size is small and both seated and erect postures are presented. Body and head are both diagnostic. The body is small, straight waisted, flat, and thin, with little attention paid to body contour. The sex of the specimens, virtually entirely female, is carefully indicated by filleting and incising. The head is flat in back and the face is pinched forward into an almost bird-like prognathism. The eye incised by two strokes is more common than the filleted type, but both obtain. The ornate headdress is presented by filleting and incision, a sort of trefoil being the most common form (cf. top row, Nos. 4, 6, 7, 9; middle row No. 4). The distribution covers Ticoman, El Arbolillo, Azcapotzalco, Tetelpan, Papalotla, and Coatepec. Selser, in his *Gesammelte Abhandlungen*, vol. V, *Die Teotihuacan Kultur des Hochlandes von Mexiko*, Pl. 22, figures a number of these specimens from Jalapazco, Puebla. Bottom row No. 9 is an atypical head which has counterparts from Cuicuilco, the pyramid under the lava. Other specimens are shown on Pl. XXXVII.

#### *Top Row (nine specimens)*

1. Head and bust, Trench C, North Extension Upper, Late Period (30.0-7147)
2. Complete figure, Trench D, Cut II, Late Period (30.0-6785)
3. Head and body, Trench D, Cut III, Late Period (30.0-6809)
4. Complete figure, Trench D, Cut I, Late Period (30.0-6729)
5. Head and bust, Trench C, West Extension, Late Period (30.0-7211)
6. Head with trefoil headdress, Trench D, Cut III, Late Period (30.0-6807)
7. Head and body, Trench D, Cut I, Late Period (30.0-6730)
8. Seated figure, Trench C, West Extension, Late Period (30.0-7210)
9. Erect figure, reddish clay, Trench C, North Extension Upper, Late Period (30.0-7148)

#### *Middle Row (eleven specimens)*

1. Head and torso, atypical, Papalotla (30.0-6625)
2. Head and bust, Trench F, Late Period (30.0-7303)
3. Head and torso, Trench C, North Extension (30.0-7149)
4. Head, Trench D, Cut I, Late Period (30.0-6731)
5. (Upper) Tiny torso, Trench C, West Extension, Late Period (30.0-7212)
6. (Lower) Tiny torso, Trench F, Late Period (30.0-7302)
7. Body, Trench D, Cut II, Late Period (30.0-6786)
8. Body, Trench D, Cut I, Late Period (30.0-6732)
9. Body, Trench D, Cut III, Late Period (30.0-6810)
10. Body, Trench D, Cut III, Late Period (30.0-6811)
11. Body, Trench D, Cut I, Late Period (30.0-6733)

#### *Bottom Row (eleven specimens)*

1. Head and pregnant torso, Metropolitan Museum Collection, probably Valley of Mexico (30.0-5430)
2. (Upper) Head and bust, Coatepec (30.0-6591a)
3. (Lower) Distorted figure, Coatepec (30.0-6591b)
4. (Upper) Head, Ticoman (30.0-6665c)
5. (Lower) Head, Ticoman (30.0-6665d)
6. (Upper) Head, perhaps transitional to Type G, Ticoman (30.0-6665a)
7. (Lower) Head, Ticoman (30.0-6665b)
8. (Upper) Head, perhaps transitional to Type G, Tlapacoya (30.0-6641)
9. (Lower) Head, atypical, but like some Cuicuilco types, Ticoman (30.0-6501)
10. Head and body, Tetelpan (30.0-6695)
11. Large head, atypical, Trench D, Cut I, Late Period (30.0-6734)

## PLATE XXVII

### FIGURINES TYPE G

Type G is not so common as Type E at Zacatenco and, while two examples occur in the lower cuts of Late Period deposits at Zacatenco, the majority of specimens occur in the latter part of the Late Period. It probably was originally made later than Type E but the two styles overlap. The figures are shown both erect and seated and are made of finely granulated brown clay which is often slipped, in the case of erect figures, and frequently polished. Seated figures possess a flat square body to which long fillets of clay are applied for legs and arms. The heads are narrow and pinched into bird rather than a human face, cf. top row Nos. 7-9, middle row Nos. 1-3 and 9-11. Erect figures are characterized by a short body with swollen thighs and stubby arms. The flat-backed, pointed-faced heads receive the most rudimentary delineation of features by incision; cf. top row Nos. 1-6, middle row Nos. 4-8. These erect figures seem to merge into the H type of figurine, cf. Pls. XXVIII-XXIX. A slipped variant found at Tetelpan seems to comprise the transitional steps between Type E and Type G, cf. bottom row Nos. 2-3. The distribution of Type G is very wide, extending to Ticoman where it is most common, the Azcapotzalco region, Tetelpan, the pyramid of Cuicuilco, Tepetlaostoc, Papalotla, Coatepec, and Tlapacoya. One seated specimen comes from the pyramid site of San Cristobal, Puebla, cf. middle row No. 2.

#### *Top Row (nine specimens)*

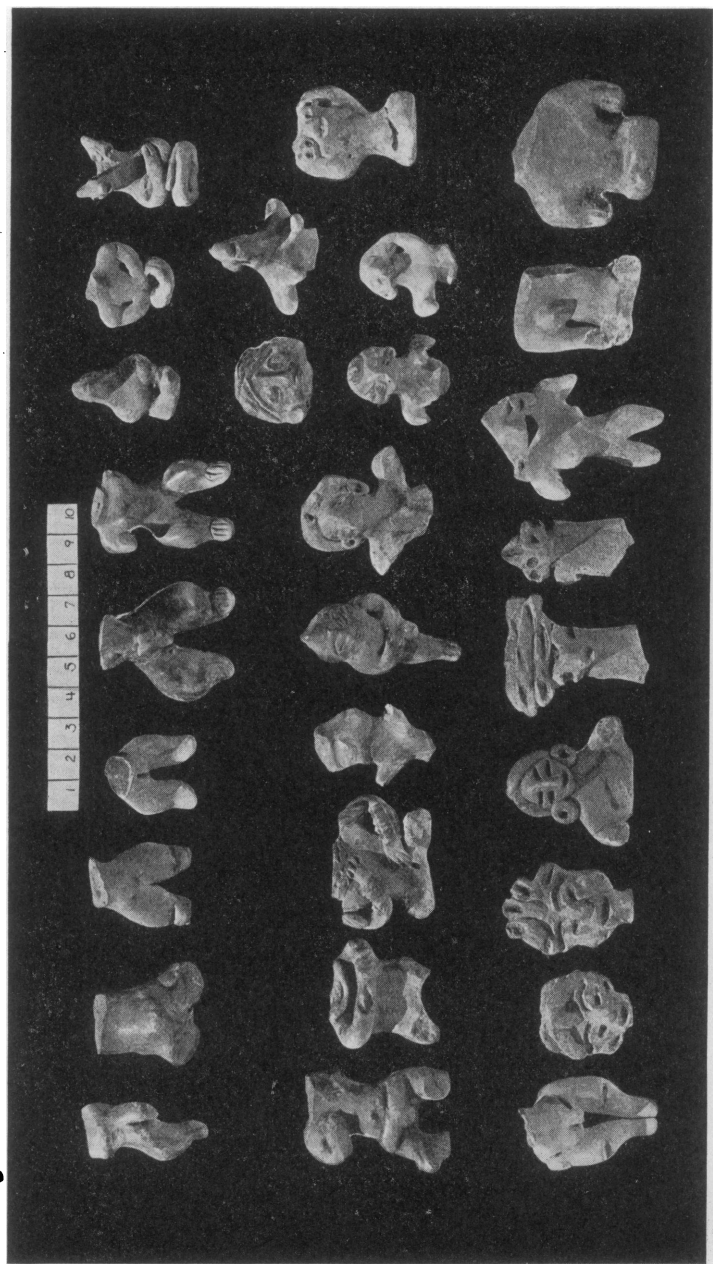
1. Torso, erect, slipped, purchased at Zacatenco (30.0-7337)
2. Pregnant torso, slipped, Trench F, Late Period (30.0-7305)
3. Legs, unslipped, purchased at Zacatenco (30.0-7335)
4. Legs, slipped, Trench D, Cut I, Late Period (30.0-6740)
5. Legs and torso, slipped, Trench D, Cut I, Late Period (30.0-6741)
6. Legs and torso, slipped, Trench D, Cut I, Late Period (30.0-6742)
7. Seated bird-head figure, unslipped, purchased at Zacatenco (30.0-7338)
8. Seated torso, unslipped, purchased at Zacatenco (30.0-7336)
9. Two-head seated figure, Trench C, West Extension (30.0-7209)

#### *Middle Row (eleven specimens)*

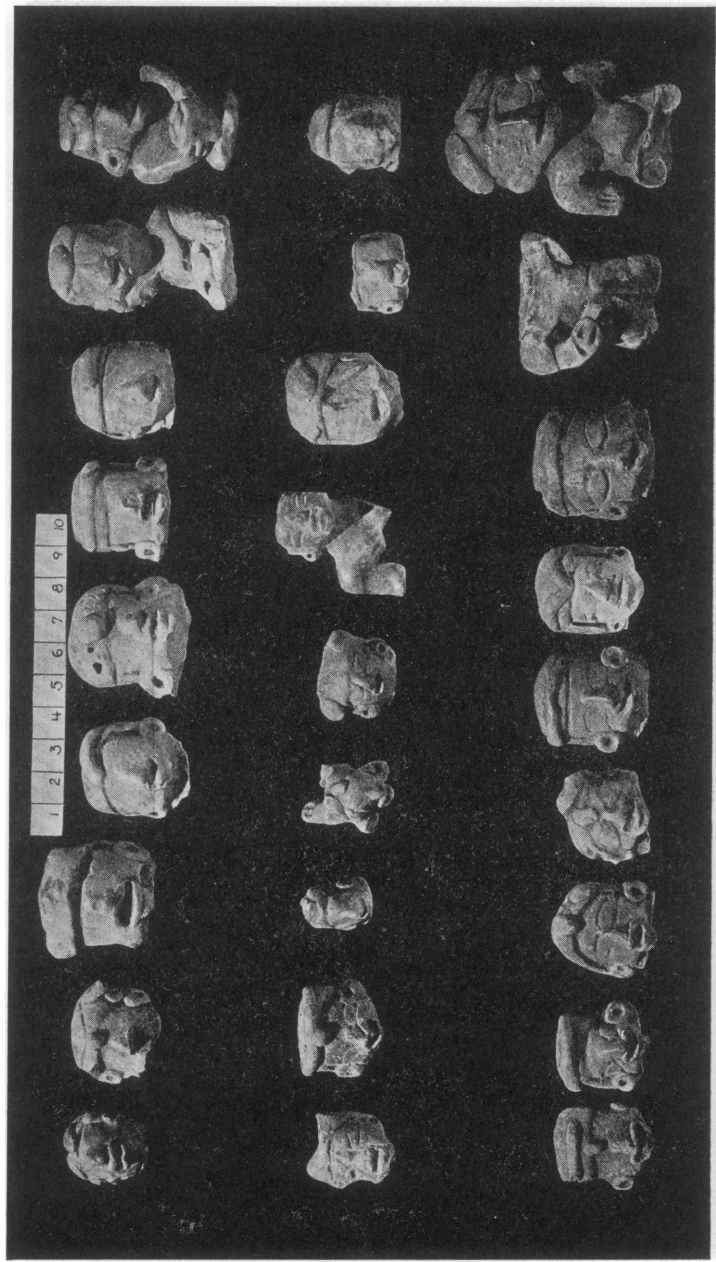
1. Erect figure, Metropolitan Museum Collection, probably Valley of Mexico (30.0-5430)
2. Seated figure, unslipped, San Cristobal, Puebla (30.0-6707)
3. Seated figure, unslipped, note ornaments, Azcapotzalco (30.0-4800)
4. Head and bust, slipped, Coatepec (30.0-6592)
5. Erect figure, slipped, Azcapotzalco (30.0-6343)
6. Head and bust, slipped, Metropolitan Museum Collection (30.0-5464)
7. (Upper) Head, slipped, Ticoman (30.0-6666b)
8. (Lower) Head and bust, slipped, Ticoman (30.0-6500)
9. (Upper) "Bird" head and bust, unslipped, Ticoman (30.0-6666a)
10. (Lower) "Bird" head and bust, unslipped, Tepetlaostoc (30.0-6630)
11. Seated figure, unslipped, Azcapotzalco (30.0-6337)

#### *Bottom Row (nine specimens)*

1. Legs of seated figure, Tlapacoya (30.0-6642)
2. Head, slipped, transitional between Types E and G, Tetelpan (30.0-6696a)
3. Head, slipped, transitional between Types E and G, Tetelpan (30.0-6696b)
4. Head, "bird" variant, Dorenberg Collection, probably Puebla region (30-10329)
5. Head and torso, "bird" variant, Azcapotzalco (30.0-6345)
6. Head and torso, "bird" variant, Azcapotzalco (30.0-6346)
7. Complete figure, "bird" variant, slipped, Azcapotzalco (30.0-4801)
8. Seated figure, slipped, head doubtless like middle row Nos. 4-8, Ticoman (30.0-6666c)
9. Seated figure, slipped, head probably like middle row Nos. 4-8, Metropolitan Museum Collection (30.0-5440)



FIGURINES TYPE G



FIGURINES TYPES HI AND HII

## PLATE XXVIII

### FIGURINES TYPES HI AND HII

Types Hi and Hii were not found in the Museum's excavations at Zacatenco, but two specimens were purchased from children who had picked them up on the surface. The roots of the type lie in the figurines with shiny slips of the G groups. The figures are made of a finely kneaded brown clay and brought to a high polish after slipping. Some specimens (cf. bottom row No. 6) are painted before firing. The body is thin and square. Arms are stubby or else filleted, as are the legs, according to the erect or seated position of the specimen. The nose and mouth are shown by fillets applied before slipping. The distinction between Hi and Hii is based on the absence of the eye in Hi and the presence of two incised arcs for its delineation in Hii; but Hi and Hii may be considered as a unit type. Hiii, a variant of larger size Hiii, carries the transition into the unslipped and filleted group Hiv (cf. Pl. XXIX). Hi and Hii are most common at Ticoman, but the collections made at Tetelpan, the Azcapotzalco region, Tepetlaostoc and Contreras contain examples. The Metropolitan Museum Collection yields many specimens of these groups but without record of their provenience, although presumably from the Valley of Mexico. Bodies probably attributable to this type exist in the collections from Cuicuilco, but they might also be classed with Hiii.

#### *Top Row (nine specimens)*

1. Head, Type Hi, Metropolitan Museum Collection (30.0-5203)
2. Head, Type Hi, Metropolitan Museum Collection (30.0-5056)
3. Head, Type Hi, Metropolitan Museum Collection (30.0-5291)
4. Head, Type Hi, Ticoman (30.0-6668d)
5. Head, Type Hi, Ticoman (30.0-6668c)
6. Head, Type Hi, Ticoman (30.0-6668b)
7. Head, Type Hi, Ticoman (30.0-6668a)
8. Seated figure, Type Hi, Azcapotzalco (30.0-4804)
9. Seated figure with basket of food, Type Hi, Azcapotzalco (30.0-6336)

#### *Middle Row (nine specimens)*

1. Head, Type Hii, Ticoman (30.0-6670e)
2. Head, Type Hii, traces of red paint on headdress (30.0-6670d)
3. Head, Type Hii, Ticoman (30.0-6670c)
4. Figure, Type Hii, prone, Contreras (30.0-6408)
5. Head, Type Hii, traces of red paint on headdress (30.0-6670b)
6. Head and bust, Type Hii, Ticoman (30.0-6670a)
7. Head, Type Hii, Tepetlaostoc (30.0-6631)
8. Head, Type Hii, purchased at Zacatenco (30.0-7340)
9. Head, Type Hi, purchased at Zacatenco (30.0-7339)

#### *Bottom Row (nine specimens)*

1. Head, Type Hi, Metropolitan Museum Collection (30.0-5311)
2. Head, Type Hii, Metropolitan Museum Collection (30.0-5247)
3. Head, Type Hii, Metropolitan Museum Collection (30.0-5270)
4. Head, Type Hii, Metropolitan Museum Collection (30.0-5357)
5. Head, Type Hii, Tetelpan (30.0-6697)
6. Head, Type Hii, face painted white and headdress red, Ticoman (30.0-6670g)
7. Head, Type Hii, Ticoman (30.0-6670f)
8. Torso, Type Hii, (?), seated figure, Metropolitan Museum Collection (30.0-5457)
9. Head and body, Type Hii, seated, Metropolitan Museum Collection (30.0-5446)

## PLATE XXIX

### FIGURINES TYPES HIV AND HIII

Type Hiii, which is illustrated on the bottom row of this Plate, develops obviously from the groups of smaller polished figurines, Hi and Hii. At the same time the gross use of filleted features gives a logical introduction to the unslipped group Hiv which is shown on the upper two rows. Hiii occurs at Ticoman, the Azcapotzalco region, and Tetelpan, but is rare to the east, occurring only at Coatepec. It is fairly common at Cuicuilco. Hiii, however, is not present at Zacatenco.

Type Hiv connects with Hiii by virtue of the top row Nos. 6 and 8 and middle row No. 6. It is generally unslipped and figures are presented both erect and seated. The diagnostic features are an extreme use of filleting, for by this method are shown not only eyes, eyebrows, nose, and mouth, but also the hair and the headdress surmounting it (cf. top row Nos. 7-9 and middle row Nos. 4-7). A simpler form which may be a prototype or possible mere sculptural ineptness comes late at Zacatenco, cf. the first figure of the top and middle rows. No fully developed examples occur here, but the type is common at Ticoman and Cuicuilco. Its distribution further extends to San Juan del Rio, Queretaro, the Azcapotzalco region, Tetelpan, Coatepec, Contreras, as well as Cuernavaca and occasionally other sites in Morelos. Like the other H groups (Pl. XXVIII) it seems to be the diagnostic style for an era subsequent to the Late Period at Zacatenco.

#### *Top Row (nine specimens)*

1. Degenerate type of Hiv, Trench A, Upper, Late Period (30.0-7272)
2. (Upper) Head, Type Hiv, Metropolitan Museum Collection, presumably Valley of Mexico (30.0-5293)
3. (Lower) Head, Type Hiv, Ticoman (30.0-6672e)
4. Head, Type Hiv, Coatepec (30.0-6593)
5. Head, Type Hiv, Metropolitan Museum Collection (30.0-5288)
6. Head, Type Hiv, shows connection with Hiii, Metropolitan Museum Collection (30.0-5227)
7. Head, Type Hiv, Contreras (30.0-6392)
8. Head, Type Hiv, Metropolitan Museum Collection (30.0-5338)
9. Large head and torso, Type Hiv, Ticoman (30.0-6672a)

#### *Middle Row (seven specimens)*

1. Figure, degenerate form perhaps prototype of Hiv (cf. Top Row No. 1), Trench C, North Extension Upper, Late Period (30.0-7151)
2. Head degenerate Hiv (cf. No. 1), Ticoman (30.0-6672f)
3. Head, Type Hiv, Ticoman (30.0-6672d)
4. Head, Type Hiv, Ticoman (30.0-6672c)
5. Head, Type Hiv, Cuernavaca, Morelos (30.0-1851)
6. Head, Type Hiv, Metropolitan Museum Collection (30.0-5306)
7. Head, Type Hiv, Ticoman (30.0-6672b)

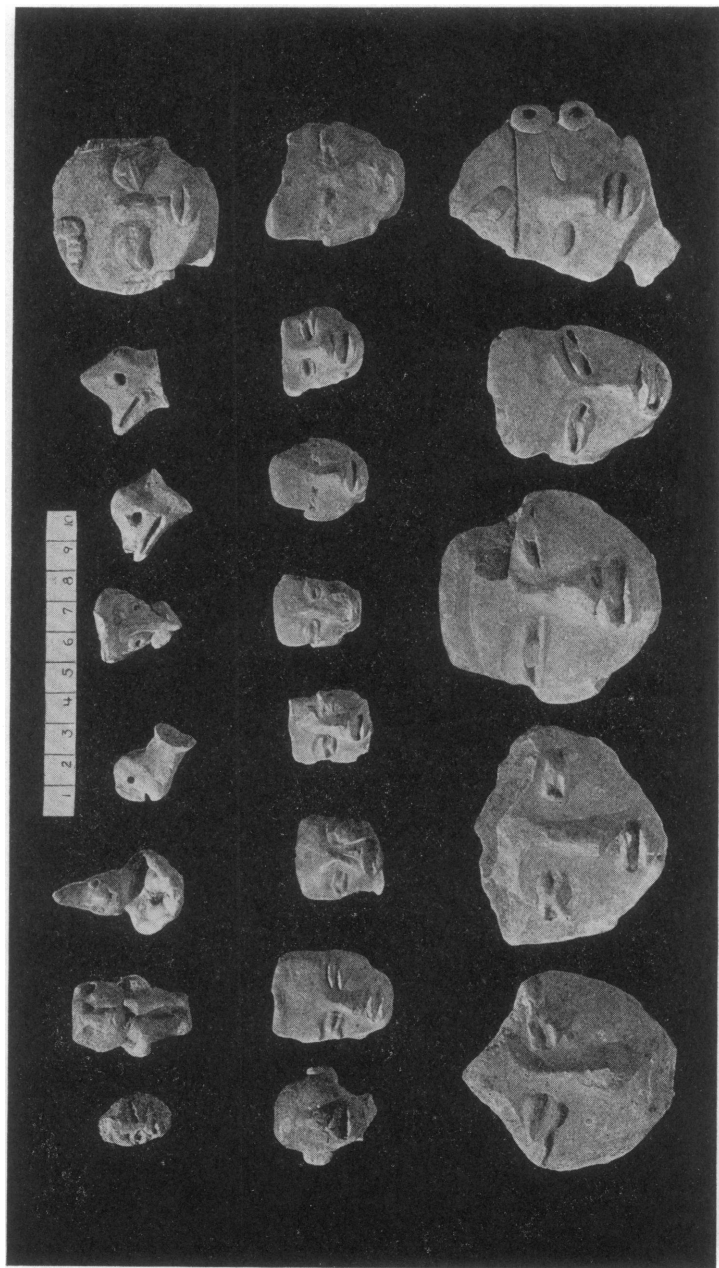
#### *Bottom Row (five specimens)*

1. Head, Type Hiii, transitional to Hii, slipped and polished, Azcapotzalco (30.0-6340)
2. Head, Type Hiii, transitional to Hi, slipped and polished, Metropolitan Museum Collection (30.0-5730)
3. Head, Type Hiii, slipped and polished, Tetelpan (30.0-6698)
4. Head, Type Hiii, slipped and polished, Ticoman (30.0-6673b)
5. Head, Type Hiii, slipped and polished, Ticoman (30.0-6673a)



FIGURINES TYPES Hiv AND Hiii





TYPE I, MISCELLANEOUS SMALL FIGURES

## PLATE XXX

### FIGURINES, TYPE I, MISCELLANEOUS SMALL FIGURES

Type I, shown in the two lower rows, is a very homogeneous class for the Late Period. It is found in the Late Period at Zacatenco (cf. middle row Nos. 6 and 7). It is characterized by a head, flat in back, and by a polished slip which recalls Types Hi-iii (cf. bottom row No. 5 and Pls. XXVIII-XXIX). Features are shown by filleting before the polishing process and thereby, technically, and to some degree, morphologically, connect with Type Cvi (cf. Pl. XVI). The larger specimens, bottom row Nos. 1-4, tie in with the tentative Type L (cf. top row No. 8 and Pl. XXXI). The type is widely distributed, its northern extension being Tula, Hidalgo, and it also occurs at Ticoman, Azcapotzalco, which produced a wry-necked form (cf. Peabody Museum of Harvard University C-9482, C-9481), Tetelpan, Coatepec, Tlapacoya, and Contreras.

The remainder of the specimens, top row Nos. 1-7 include two diminutive Type A figurines (cf. Pl. XXI), a seated figure from San Juanico that resembles Pl. XVI, bottom row No. 5, and animal and bird heads, the two birds, Nos. 6-7, resembling the head of the bird whistle shown on Pl. XXXVIII, top row No. 4. The inclusion of these objects has no chronological significance, convenience being the only desideratum.

#### *Top Row (eight specimens)*

1. Tiny head, Type A, Trench C, North Extension Upper, Middle Period (30.0-7152)
2. Seated figure, Type A, Tetelpan (30.0-6702)
3. Seated grotesque, monkey (?), San Juanico (30.0-7359)
4. Head of turtle, Trench D, Cut I, Late Period (30.0-6749)
5. Rodent with paws to muzzle, polished brown clay, Ticoman (30.0-6677)
6. Bird head, probably from whistle (cf. Pl. XXXVIII, top row No. 4), Trench E, Cut III, Middle Period (30.0-7066)
7. Bird head (cf. No. 6), Trench E, Cut I, Middle Period (30.0-7045)
8. Head, shiny slip, Type L, purchased at Zacatenco (30.0-7341)

#### *Middle Row (eight specimens)*

1. Head, Type I variant, Ticoman (30.0-6676a)
2. Head, Type I, Coatepec (30.0-6602c)
3. Head, Type I, Coatepec (30.0-6602b)
4. Head, Type I, Ticoman (30.0-6676b)
5. Head, Type I, Tlapacoya (30.0-6643a)
6. Head, Type I, Trench A Upper, Late Period (30.0-7275)
7. Head, Type I, Trench A, Upper, Late Period (30.0-7274)
8. Head, Type I, Coatepec (30.0-6602a)

#### *Bottom Row (five specimens)*

1. Head, Type I (cf. Type L, Pl. XXXI), Tlapacoya (30.0-6643b)
2. Head, Type I (cf. No. 1), Coatepec (30.0-6602d)
3. Head, Type I, Contreras (30.0-6393)
4. Head, Type I, Ticoman (30.0-6676c)
5. Head, Type Hiii (cf. Pl. XXIX), Azcapotzalco (30.0-4798)

## PLATE XXXI

### FIGURINES TYPE L AND MISCELLANY

The top row of Pl. XXXI presents a group of figurines, rare at Zacatenco, but seeming to have the common qualities of a coarse brown clay, slipped and polished, relatively large size and a crude presentation of features by means of fillets. The nose element is large and applied before slipping; the eye and mouth fillets seem to have been added after filleting. Middle row Nos. 1 and 6 might be included in Type L. Middle row Nos. 3 and 4 come respectively from the Middle and Early Periods of Zacatenco. They may be prototypes of L or merely variants of the styles in vogue during those eras. Middle row No. 2 and bottom row Nos. 4 and 5 might be classified temporarily with Type L or perhaps they are variants of Dii (cf. Plates XX and XXXIII).

Middle row No. 5 is the lower jaw of a large hollow figure and comes from a Middle Period deposit at Zacatenco. Bottom row No. 1 came from a Late Period deposit and is so far unique. The slip is a brilliantly polished black and details like hands and a necklace were added in red paint after firing. Bottom row Nos. 2 and 3 seem to fit with the L type better than any other, for this class is more a catch-all for unclassifiable specimens than a definite plastic style. Connections with Type L perhaps exist in Type Hiii (cf. Pl. XXIX) or Type I (cf. Pl. XXX). The type is apparently late and the distribution extends to Azcapotzalco, Ticoman, Cuicuilco, and Coatepec. The grouping must be considered as tentative and temporary.

#### *Top Row (six specimens)*

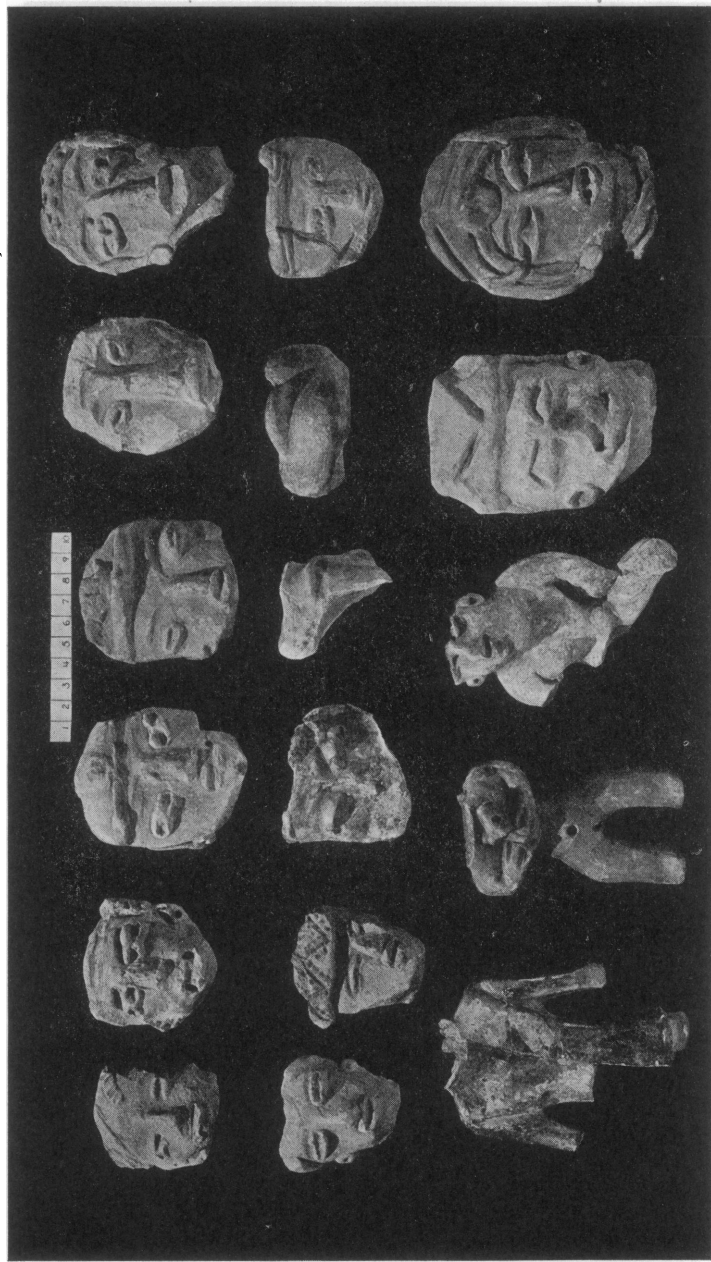
1. Head, Type L, Coatepec (30.0-6597a)
2. Head, Type L, Trench A, West Extension, toward bottom of Late Period deposit (30.0-7244)
3. Head, Type L (cf. Type Hiii, Pl. XXIX), Coatepec (30.0-6597b)
4. Head, Type L, Dorenberg Collection, probably Puebla (30-10329)
5. Head, Type L, Coatepec (30.0-6597c)
6. Head, crude, Type L, purchased at Zacatenco (30.0-7342)

#### *Middle Row (six specimens)*

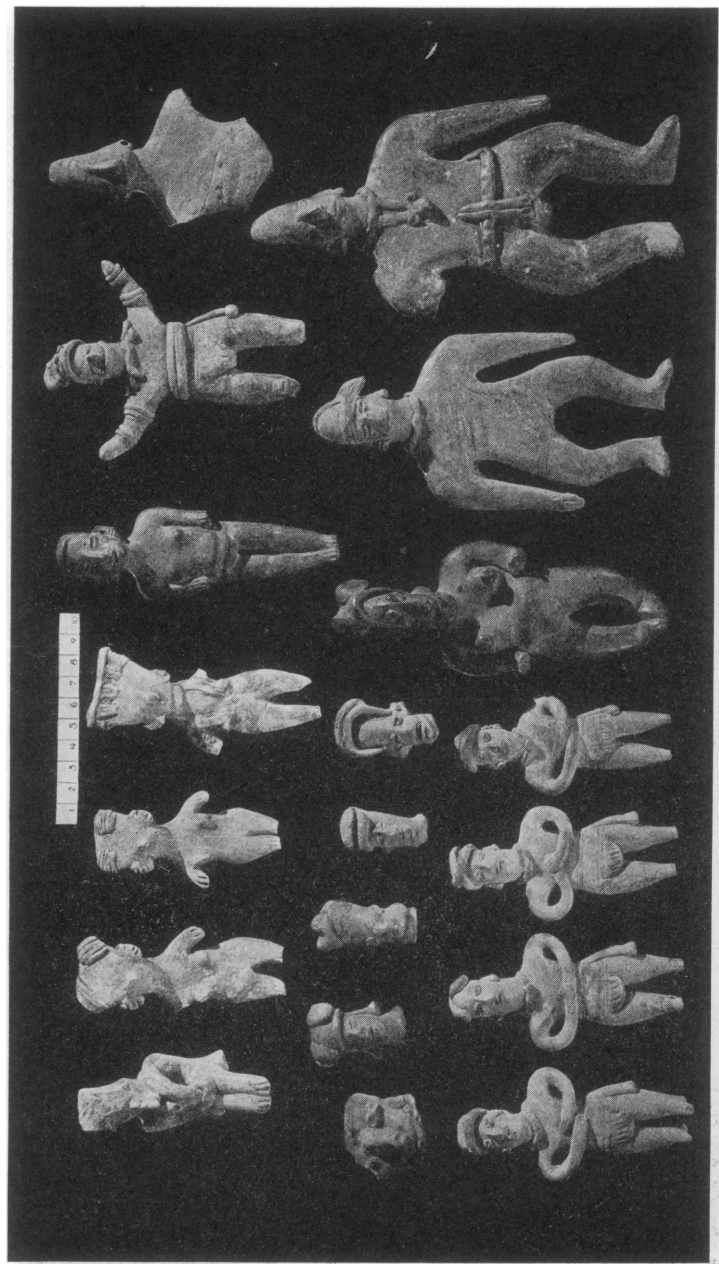
1. Head, probably Type L, Coatepec (30.0-6597e)
2. Head, atypical, Tetelpan (30.0-7358)
3. Head, atypical, perhaps prototype of L, Trench E, Cut IV, Middle Period (30.0-7085)
4. Head, atypical (cf. No. 3) perhaps prototype of L or C variant, Trench D, Cut VIII, Early Period (30.0-7138)
5. Jaw, of large hollow head, atypical, Trench E, Cut IV, Middle Period (30.0-7084)
6. Head, Type L, Coatepec (30.0-6597d)

#### *Bottom Row (five specimens)*

1. Torso, atypical polished black slip, details in red paint after firing, Trench C, North Extension Upper, Late Period (30.0-7150)
2. Body, atypical, possibly Type L, woman holding dog, Metropolitan Museum Collection (30.0-5429)
3. Seated figure, atypical, possibly L, Dorenberg Collection (30-10329)
4. Head, atypical, variant of Dii or L, Azcapotzalco (30.0-6350)
5. Head, atypical, variant of Dii or L, Dorenberg Collection (30-10305)



FIGURINES TYPE L AND MISCELLANY



FIGURINES, WESTERN MEXICO

## PLATE XXXII

### FIGURINES, WESTERN MEXICO

Attention is frequently called to the resemblances between figurines from the early cultures and those from the western part of Mexico. There is no question that very similar techniques are employed, but morphological identities do not seem to exist, beyond the somewhat vague resemblance between Type J shown on Pl. XVII, top row No. 2 and Nos. 6-8, and top row Nos. 5-7, middle row Nos. 2-5, and bottom row Nos. 1-7. At the same time it is perfectly possible to subdivide specimens shown on this Plate into four divisions. The first comprises the figurines from Rancho Trajetezio, Tepic, top row Nos. 1-4. These are made of very soft white clay and are pinched out of a flat ribbon of clay. Middle row Nos. 1-5 come from Tuxpan, Jalisco. The heads, while not definitely assignable to any of the categories of the Valley, reflect some of the elements of the Type C plastic (Pls. X-XVII), and with them might be included top row No. 5 and bottom row No. 5, but the bodies of these seem too sophisticated to be chronologically equatable with the C group of the early cultures. Bottom row Nos. 1-4 and top row No. 6 come from Zapotlan, Jalisco, and Colima respectively. While the heads recall vaguely C group plastic, the bodies are depicted in a manner quite different. There is again nothing to indicate precisely chronological position. Top row No. 7 and bottom row Nos. 6 and 7 were found near Colima. The heads are a long way from the C tradition and the bodies show the conventionalization of extreme sophistication. In short, all these specimens from western Mexico bear no data as to period, on morphological grounds they do not resemble closely the types presented as obtaining in the Valley of Mexico, and technologically they fall into none of the groups created specifically for Type C. The question seems to be open whether these specimens represent an ethnic continuity with the early cultures of the Valley or merely follow the same general technique of manufacture.

#### *Top Row (seven specimens)*

1. Seated figure, white clay, Rancho Trajetezio, Tepic (30-1714)
2. Erect figure, white clay, Rancho Trajetezio, Tepic (30-1717)
3. Erect figure, white clay, Rancho Trajetezio, Tepic (30-1716)
4. Erect figure, white clay, Rancho Trajetezio, Tepic (30-1715)
5. Erect figure, brown clay, Zapotiltic, Jalisco (30-2132)
6. Erect figure, cf. bottom row Nos. 1-4, Colima, Colima (30-8095)
7. Head and torso, cf. bottom row Nos. 6-7, Colima, Colima (30-4964)

#### *Middle Row (five specimens)*

1. Head, crude, almost Cl, Tuxpan, Jalisco (30-9475)
2. Head, Tuxpan, Jalisco (30-2311)
3. Head, cf. Civ, Tuxpan, Jalisco (30-9455)
4. Head, Tuxpan, Jalisco (30-9423)
5. Head, Tuxpan, Jalisco (30-3643)

#### *Bottom Row (seven specimens)*

1. Complete figure, cf. top row No. 6, Zapotlan, Jalisco (30.0-1843)
2. Complete figure, Zapotlan, Jalisco (30.0-1844)
3. Complete figure, Zapotlan, Jalisco (30.0-1846)
4. Complete figure, Zapotlan, Jalisco (30.0-1845)
5. Complete figure, cf. Type J, Pl. XVII, Tala, Jalisco (30-5824)
6. Figure, cf. top row No. 7, Colima, Colima (30-8093)
7. Figure, cf. No. 6, Colima, Colima (30-4946)

## PLATE XXXIII

### FIGURINES, VERA CRUZ AND MEXICO IN GENERAL

Some idea of the range of types which are not made in moulds and are found in the Republic of Mexico may be gained from Pl. XXXIII. Top row Nos. 1 and 2 are made of a coarse-grained reddish clay and are painted mainly in red after firing. They come from the Rancho Zapote in Jalisco and carry on some of the Type E traditions (cf. Pl. XXVI). The complexity of the hand-modeled figurines in the Valley shows that one's typology should be designed rather to reflect time and tribe than the absolute conditions of technology. The moment a number of figurines are recognizable as a group, they should not lose their identity by being submerged in a larger group. No. 3 comes from Cempoala, Vera Cruz, and is the one Type A specimen from the east coast in the Museum collections (cf. Pl. XXI). No. 4 from Tepeaca, Puebla, seems to fall into class Dii (cf. Pl. XX). Bottom row Nos. 1 and 2 are hollow figurines from the Dorenberg Collection which is composed presumably of specimens from the State of Puebla. They are doubtless variants also of Type Dii (cf. Pl. XX).

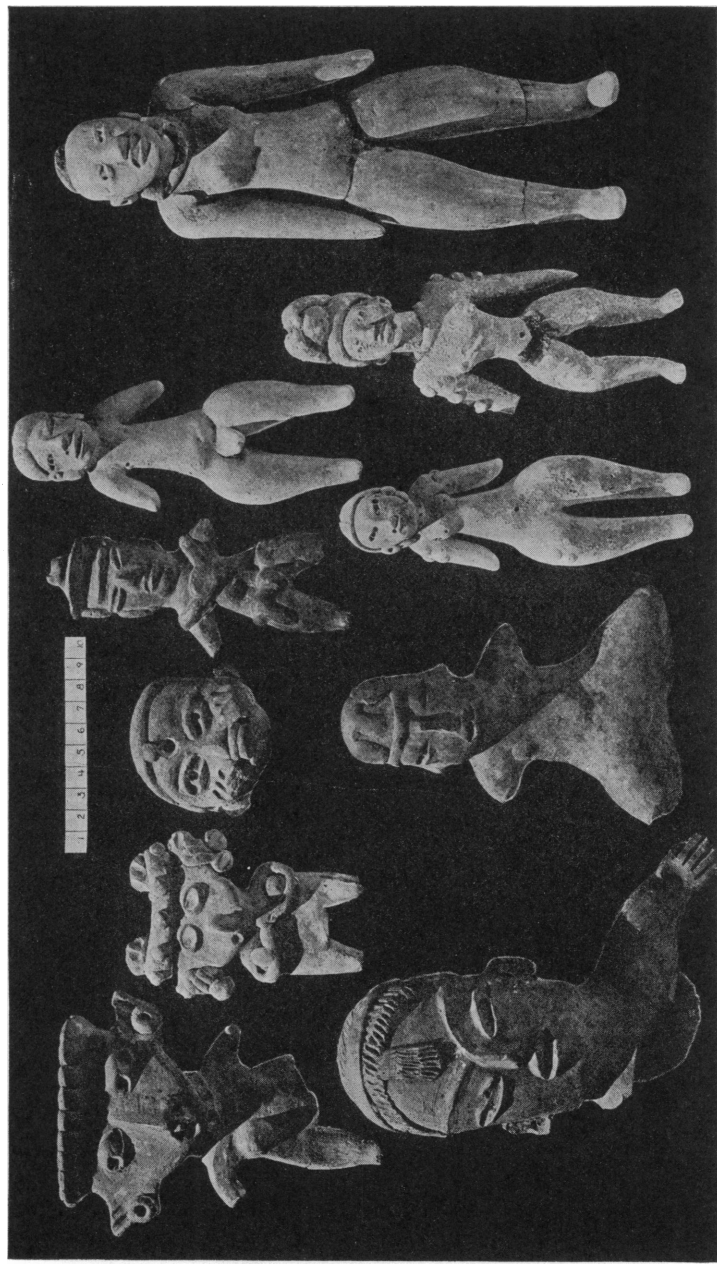
Top row No. 5 and bottom row Nos. 3-5 come from the Panuco region of northeastern Vera Cruz. This type is virtually unknown in the Valley, but heads with the same general presentation of features are relatively common all along the east coast with small local variations (cf. Pl. XXXIV and Strebel, *Alt Mexiko*, vol. II, Pl. XI 34, 41; Pl. XX 39, 59, 62; Pl. XXI 14, 15; Pl. XXXII 12; vol. I, Pl. IV 1; and *Festschrift Eduard Seler, Alterthümer der Kanton Tuxtla im Staate Vera Cruz*, pp. 543-547, Pl. X 18). It is obvious that these Panuco styles represent types distinctly foreign to the Valley, whatever be their time period.

#### *Top Row (five specimens)*

1. Figure, red clay, Rancho Zapote, Jalisco (30-2252)
2. Figure, red clay, Rancho Zapote, Jalisco (30-2254)
3. Head, Type A, Cempoala, Vera Cruz (30-7219)
4. Figure, Type Dii, Tepeaca, Puebla (30-7052)
5. Complete figure, Topila, Panuco Valley, northern Vera Cruz, loan No. 131

#### *Bottom Row (five specimens)*

1. Head, large and hollow, Type Dii, Dorenberg Collection, probably from Puebla (30-10323)
2. Figure, hollow, Type Dii variant, Dorenberg Collection, probably from Puebla (30-12066)
3. Complete figure, Panuco, northern Vera Cruz (Loan No. 674)
4. Complete figure, Panuco, northern Vera Cruz (Loan No. 677)
5. Large figure, polished tan color, northern Vera Cruz (Loan No. 678)



FIGURINES, VERA CRUZ AND MEXICO IN GENERAL





FIGURINES, THE RIO PANUCO

## PLATE XXXIV

### FIGURINES, THE RIO PANUCO

On Pls. XXXIII and XXXIV are shown specimens from the collection made by John M. Muir on the Rio Panuco, in northern Vera Cruz. They are made of a white, chalky, well-kneaded clay. The application of fillets of clay is the common method for depicting features, but the applied elements are smoothed down into the base clay. The details are brought out by fine perforations in contrast to the gouges more common on the Highland of Mexico. The body and legs are made in separate elements, while the arms, according as they are shown extended or close to the body, are made by affixing separate parts in the former case and by pasting on fillets in the latter.

In technique of manufacture the Panuco type is similar to the figurines of the early cultures of the Valley. But the resemblance is, after all, technical rather than ethnic. On the basis of the classification composed by Mr. Hay and the writer these figures fall into a distinct class characterized by clay, presentation of features, and the details of delineation.

#### *Top Row (seven specimens)*

1. Head and bust, El Tigre, south of Topila (Loan No. 416)
2. Head and bust, Herradura Mound, Km 43, Tampico-Panuco R.R. (Loan No. 328)
3. Head, El Prisco, Panuco, Vera Cruz (Loan No. 721)
4. Head, Cerro La Puerta, Topila (Loan No. 493)
5. Head and bust, Topila (Loan No. 411)
6. Head and bust, Topila (Loan No. 37)
7. Figure, Panuco region (Loan No. 630)

#### *Middle Row (six specimens)*

1. Head and torso, Topila (Loan No. 14)
2. Figure, Las Matillas (Loan No. 92)
3. Figure, Panuco region (Loan No. 629)
4. Complete figure, monkey, Las Matillas (Loan No. 93)
5. Complete figure, El Prisco, Panuco, Vera Cruz (Loan No. 720)
6. Complete figure, Herradura Mound, Km 43, Tampico-Panuco R.R. (Loan No. 322)

#### *Bottom Row (six specimens)*

1. Head and torso, Topila (Loan No. 36)
2. Head, Herradura Mound, Km 43, Tampico-Panuco R.R. (Loan No. 195)
3. Head, Panuco region (30.0-6292)
4. Head, Panuco region (30.0-6295)
5. Head, Herradura Mound, Km 43, Tampico-Panuco R.R. (Loan No. 196)
6. Head, Panuco region (30.0-6287)

## PLATE XXXV

### FIGURINE TYPES FROM GUATEMALA

The figurine types shown on this Plate illustrate even further the diversity in typology that characterizes hand-modeled figurines from Middle America. The figurines shown on the top row Nos. 1-5, although bearing the common technological trait of showing the features by filleting, are very distinct from any of the types presented in these pages. This type is slipped in shiny white over a coarse porous ground clay. Its most common provenience is in the neighborhood of Guatemala City. No. 6 is a hand-modeled figurine reproducing a very sophisticated sculptural type, of later date.

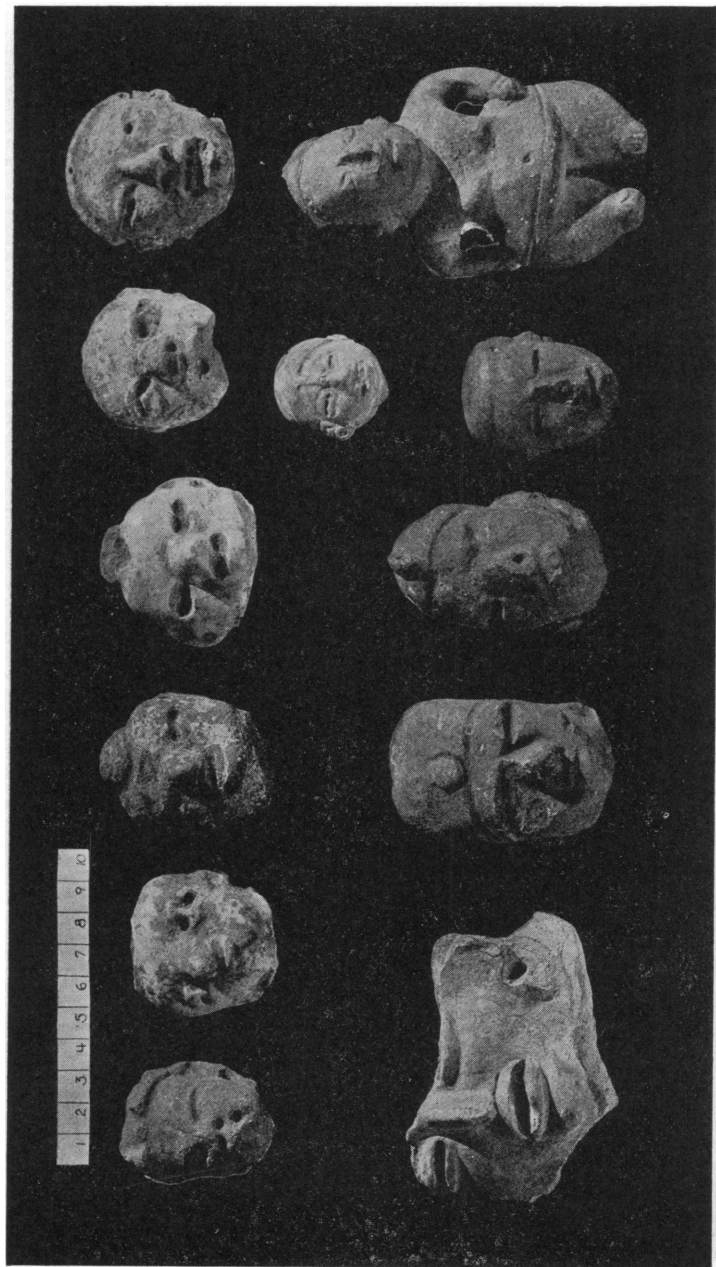
The large figure on the bottom row No. 1 suggests Type B large (cf. Pl. XXII), but the resemblance goes no farther, as the head was an ornament on a pottery vessel. Figures Nos. 2, 3, and 5 represent a style different from the top row, and in the order Nos. 3, 2, and 5 seem to represent successive steps away from the top row group. The little head No. 4 comes from the Republic of Honduras and reminds one very strongly of Type Di (cf. Pls. XVIII and XIX). Bottom row No. 6 recalls the technologically transitional steps between the hand-modeled plastic of Salvador and the Maya type heads (cf. Pl. XXXVI). The modeling of the body is relatively undeveloped.

#### *Top Row (six specimens)*

1. Head, crude type, Guatemala (M677-27)
2. Head, crude type, Guatemala (M677-27)
3. Head, crude type, Guatemala (M677-27)
4. Head, crude type, Guatemala (M677-27)
5. Head, crude type, Finca Pompeya, Guatemala (30-5568)
6. Head, a sophisticated type, Sacabaja, Guatemala (30-9735)

#### *Bottom Row (six specimens)*

1. Head from pottery vessel, Pansamala, Guatemala (30-3104)
2. Head, technically between bottom row No. 3, and No. 5 (M677-27)
3. Head, technically antecedent to No. 2 (M677-27)
4. (Upper) Head (cf. Type Di, cf. Pl. XVIII and XIX), Republic of Honduras (30.0-4788)
5. (Lower) Head, technically subsequent to No. 2 (M677-27)
6. Figure, technically proto-Maya, Zacapa, Guatemala (30-3092)



FIGURINE TYPES FROM GUATEMALA



FIGURINES, SALVADOR

## PLATE XXXVI

### FIGURINES, SALVADOR

Figurines have been found under conditions of antiquity in Salvador.<sup>1</sup> The specimens shown on this, Pl. XXXVI, are part of a purchased collection that was made near the capital of the Republic. We have here, as in western Mexico, a group of material that is technically similar, but morphologically very different from the Valley of Mexico. All these specimens are of uncertain type, but top row Nos. 2-5, middle row Nos. 1-4, bottom row, Nos. 4-5 seem to represent the least sophisticated specimens. Yet, in proportions and aspect, these figurines especially top row, No. 5, middle row, No. 4, bottom row, Nos. 4-5, are nearer Type A (cf. Pl. XXI) of the Valley types than any other style. There is the same tendency to fatten the cheeks and sink the mouth. The styles of Type A and these Salvador specimens are unlike enough, however, to render such similarity of no ethnic significance.

Bottom row Nos. 1-3 comprise very sophisticated hand-modeled specimens that doubtless are not allied to the former lot and are perhaps later. Top row Nos. 1 and 6-7 represent technical transitions from the cruder modeled styles; cf. top row Nos. 2-5 and the sophisticated forms in the Maya manner which were made in moulds. Without a secure stratigraphical basis, one cannot predicate either a greater or a less antiquity for these specimens shown here. A hand-modeled figurine and one mould-made could be contemporaneous and yet look very much separated by time, were one to judge technologically.

#### *Top Row (seven specimens)*

1. Head, technical transition to Maya. This, like all the other specimens, comes from near El Salvador (30.0-4160)

2. Head, crude plastic (30.0-4104)

3. Head and torso, crude plastic (30.0-4085)

4. Head, crude plastic (30.0-3841)

5. Head, crude plastic, cf. Pl. XXXIII, top row No. 3 (30.0-3870)

6. Head, technical transition to Maya style (30.0-3891)

7. Head, technical transition to Maya style (30.0-3884)

#### *Middle Row (four specimens)*

1. Head, perhaps technical transition to Maya style (30.0-2543)

2. Head, crude type, perhaps technical transition to bottom row Nos. 1-3 (30.0-2462)

3. Head, crude type (30.0-2476)

4. Figure, crude type (30.0-2418)

#### *Bottom Row (five specimens)*

1. Head, hand-modeled, sophisticated type (30.0-3845)

2. Head, hand-modeled, sophisticated type (30.0-3867)

3. Head, hand-modeled, sophisticated type (30.0-4146)

4. Figure, crude type, flat thin body (30.0-4130)

5. Figure, crude type, flat thin body (30.0-4129)

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<sup>1</sup>Lothrop, 1927.

# ORNAMENT AND MISCELLANEOUS

## PLATE XXXVII

### FIGURINE BODIES AND DISCS

Pl. XXXVII comprises a number of objects made of pottery in the main, which would be included with difficulty in any of our preceding categories. Top row No. 1 seems to represent a baby, and No. 2 is the tightly fitting skirt of a C group specimen in all probability. Nos. 3, 4, and 6 are probably Type E torsos, but No. 5 on the other hand is more likely C. No. 7 is probably from the Late group, as is No. 8. The latter is probably associable with a Dii head, since a number of similar complete specimens exist in the Plancarte collection. No. 9 is a Di variant without development of the torso. No. 10 is a white-slipped frog effigy from the side of a pot.

Nos. 1 and 2 of the middle row are stone beads from Coatepec. No equivalent material was recovered from the Zacatenco excavations. Nos. 3-9 are pottery discs, probably labrets, of which only two (cf. Pl. XLI, bottom row No. 3) were found in the Late Period at Zacatenco. The distribution which covers Ticoman, Cuicuilco, and Coatepec, as well as the Pueblo sites of San Cristobal and San José Sicaltepec, indicates a chronological position perhaps subsequent to the Late Period at Zacatenco. No. 10 is a perforated disc, perhaps a spindle whorl.

The bottom row comprises objects difficult to classify. No. 1 is the right half of a female figurine body, slipped in polished brown, that is unique at Zacatenco. No. 2 is a shell (*orthalicus zebra*) from the west coast of Mexico. No. 3 (cf. Nos. 8 and 9 and top row No. 7) is perhaps of the G group. Nos. 4-5 are Early Period, Type C specimens. No. 6 represents a dog broken from the figure holding it. No. 7 is probably the head of a puppy. No. 10 doubtless represents the legs and torso of an L group specimen.

#### Top Row (ten specimens)

1. Figurine, "baby," painted red after firing, Trench B, Early Period (30.0-7001)
2. Skirt, from C group figure, Trench D, Cut VIII, Early Period (30.0-6966)
3. Pregnant body, Type E, Trench D, Cut I, Late Period (30.0-6751)
4. (Upper) Tiny torso, probably Type E, Trench C, North Extension Upper, Late Period (30.0-7159)
5. (Lower) Torso C, Coatepec (30.0-6606)
6. Torso, Type E or G, Tlapacoya (30.0-6648)
7. Body, Type E or G, Trench D, Cut I, Late Period (30.0-6752)
8. Body, probably Type Di, Trench D, Cut III, Late Period (30.0-6812)
9. Head and body, Type Di, Tetelpan (30.0-7357)
10. Frog, from bowl, white slip, purchased at Zacatenco (30.0-7345)

#### Middle Row (ten specimens)

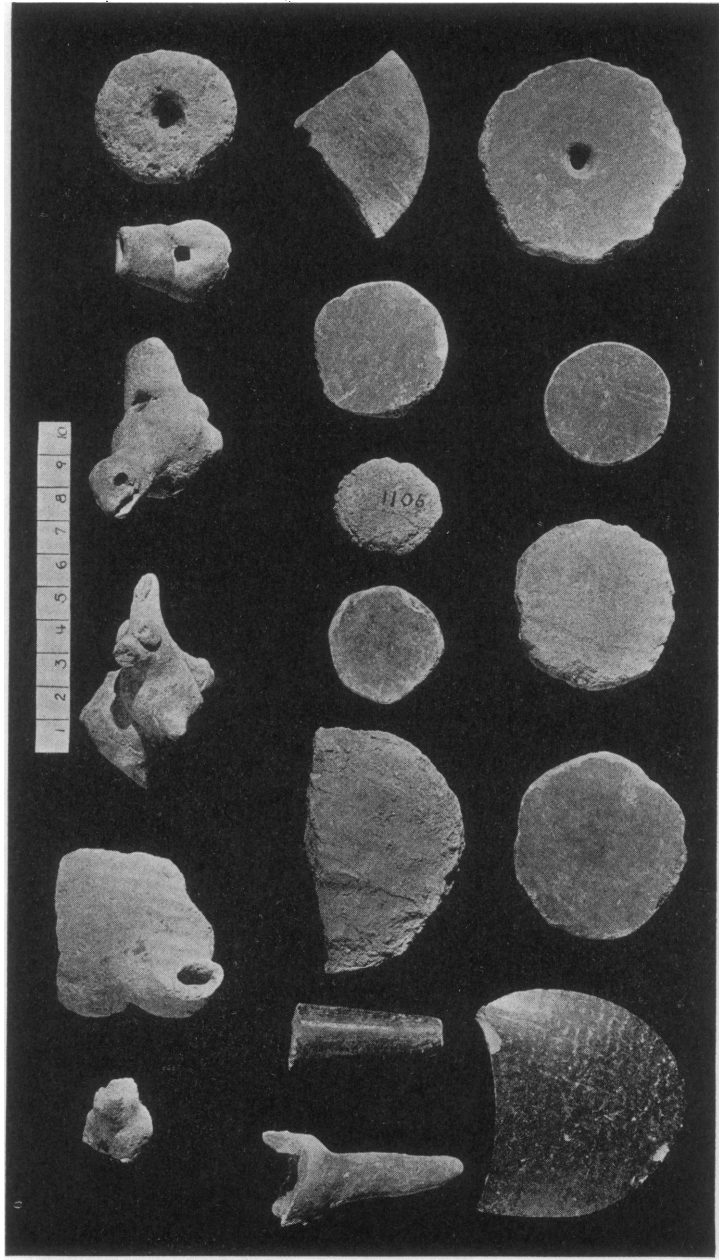
1. Bead, stone, Coatepec (30.0-6609)
2. Bead, pottery, Coatepec (30.0-6610)
3. Incised disc, labret, Ticoman (30.0-6680)
4. Disc, labret, San José Sicaltepec, Puebla (30.0-6711)
5. Disc, labret, San Cristobal, Puebla (30.0-6708a)
6. Disc, labret, San Cristobal, Puebla (30.0-6708b)
7. Disc, labret, Coatepec (30.0-6607c)
8. Disc, labret, Coatepec (30.0-6607b)
9. Disc, labret, Coatepec (30.0-6607a)
10. Disc, perforated, spindle whorl or labret, Coatepec (30.0-6608)

#### Bottom Row (ten specimens)

1. Torso, flat figurine, polished brown slip, Trench C, West Extension, Late Period (30.0-7214)
2. Shell, *orthalicus zebra*, Trench F, Middle Period (30.0-7418)
3. Seated figure (cf. No. 8 and 9 and Top Row No. 7), a late type probably, purchased at Zacatenco (30.0-7344)
4. Torso, Type C, atypical, Trench D, Cut IX, Early Period (30.0-6967)
5. Torso, Type C, note excellence of modeling, Trench A Lower, Early Period (30.0-7291)
6. (Upper) Dog, broken from figurine of indefinite type, Ticoman (30.0-6679)
7. (Lower) Head of dog, Trench D, Cut I, Late Period (30.0-6753)
8. (Upper) Seated torso (cf. Nos. 3 and 9), Metropolitan Museum Collection (30.0-5444)
9. (Lower) Seated torso (cf. No. 8), indefinite type, probably late, Ticoman (30.0-6678)
10. Torso, brown slip, probably Type L, Ticoman (30.0-6500)







## PLATE XXXVIII

### WHISTLES AND DISCS

The two commonest uses for baked clay, after pots and figurines, were to manufacture whistles, and to make discs and spindle whorls from sherds. These objects are found throughout the entire occupation of Zacatenco. Top row No. 1 is similar to the whistle with suspension ring shown on Pl. XL. The spindle whorl shown as No. 6 of the top row is made of volcanic tufa. Middle row No. 1 is apparently the handle of a pottery rattle. No. 2 is a pipestem that may possibly be of Aztec date. Bottom row No. 1 is unique and foreign to the region. It is slipped orange in the inside and tortoise shell without, and appears to be made of a central Vera Cruz or Puebla clay. The unperforated discs were used presumably for gambling and only one is slipped on both sides. Middle row No. 3 is a fragment, made especially for its purpose and not re-worked.

#### *Top Row (six specimens)*

1. Fragment of whistle, brown unslipped pottery, Trench D, Cut V, Middle Period (30.0-6849)
2. Fragment of whistle (pot perhaps), Trench E, Cut IV, Middle Period (30.0-7094)
3. Bird ornament from whistle, reddish-brown clay, Trench B, back dirt, Middle Period (30.0-7009)
4. Whistle, bird effigy, brown unslipped pottery, Trench C, West Extension, probably Middle Period (30.0-7242)

5. Whistle, unslipped brown clay, Trench D, Cut I, Late Period (30.0-6762)

6. Spindle whorl, loose volcanic tufa, Trench D, Cut IX, Early Period (30.0-6982)

#### *Middle Row (seven specimens)*

1. Rattle handle (?), unslipped whitish clay, Trench D, Cut I, Late (?) Period (30.0-6763)
2. Pipestem, slipped black ware, Trench D, Cut I, Late (perhaps Aztec) Period (30.0-6764)
3. Disc, pot cover or gambling counter, Trench D, Cut VII, Early Period (30.0-6888)
4. Disc, worked potsherd, slipped in both sides, Trench D South, Middle Period, (30.0-7027)
5. Disc, worked potsherd, slip chipped off, Trench D, Cut X, Early Period (30.0-6992)
6. Disc, worked potsherd, slipped on both sides, purchased at Zacatenco (30.0-7329)
7. Fragment of spindle whorl, worked and perforated potsherd, Trench D, Cut IV, Middle Period (30.0-6840)

#### *Bottom Row (five specimens)*

1. Worked sherd, orange inner, tortoise-shell outer slip, trade piece, Trench D, Cut V, Middle Period (30.0-6851)
2. Disc, worked sherd, Trench D, Cut IV, Middle Period (30.0-6841)
3. Disc, worked sherd, one side unslipped, Trench A, West Extension, Middle Period (30.0-7259)
4. Disc, worked sherd, bay ware, Trench C, North Extension Upper, Middle Period (30.0-7163)
5. Spindle whorl, worked and perforated potsherd, Trench D, Cut VII, Early Period (30.0-6887)

## PLATE XXXIX

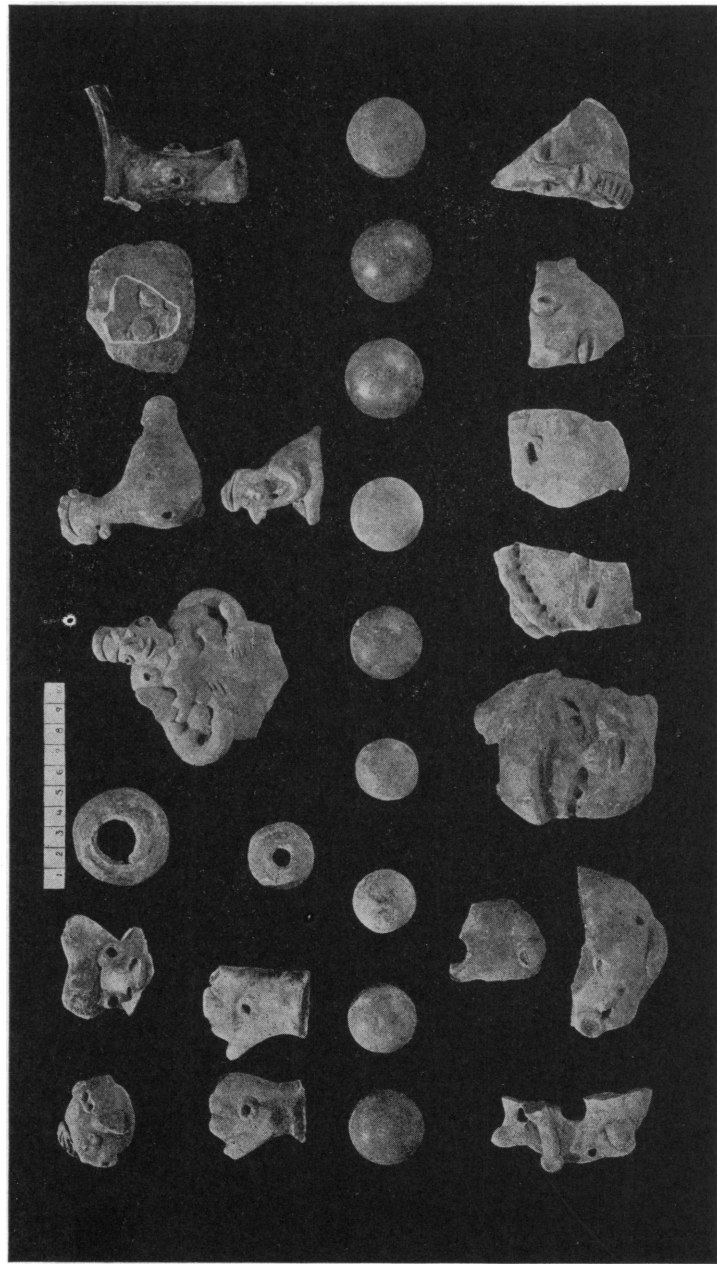
### POTTERY MISCELLANY, BALLS, WHISTLES, ETC.

Minor objects of pottery are shown on this Plate, illustrative of the several uses to which baked clay was put. Top row Nos. 2-4 are probably heads for whistles as is perhaps the hollow head No. 1. These are fairly characteristic of the Middle Period and are, in their flatness, a different type from those shown on Pls. XXX and XXXVIII. Nos. 5-6 are miniature pots, either playthings or containers for pigment. No. 7 was a double-headed figure and is attributable probably to the C or possibly the J group of figures. Nos. 8 and 9 are complete whistles of a type not encountered at Zacatenco. Nos. 10 and 11 are animal heads which were attached to pottery vessels.

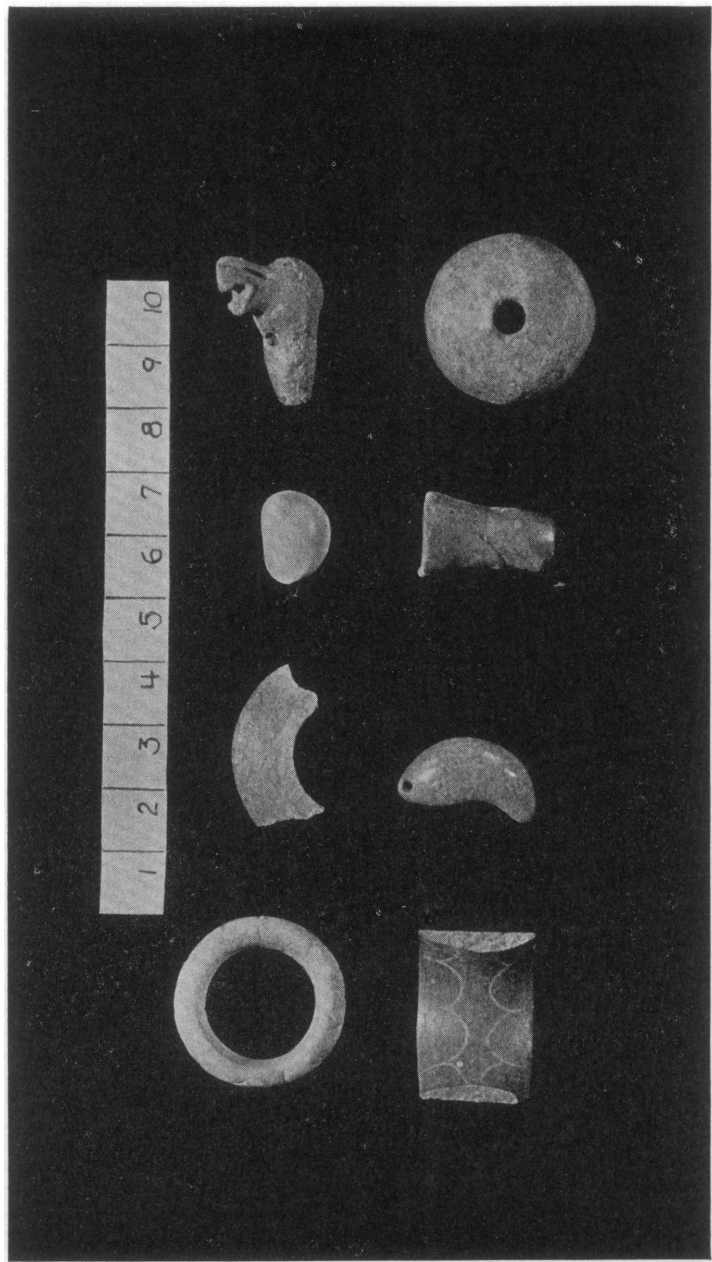
The middle row comprises pottery balls which, in the Late Period, are frequently slipped in polished red or brown. In the Middle Period stone balls are more common, but pottery balls nonetheless exist which are often slipped but generally unpolished. In the Early Period, however, pottery balls often are not even fired. The use of these objects is problematical, but perhaps they were for games or possibly missiles, since in the Middle Period we find them also made of stone.

The first three objects in the bottom row from their shape and the position of their perforations may have been used as gorgets. Nos. 4 and 5 are hollow heads, possibly parts of complete figures, perhaps ornaments for pots or whistles. Nos. 6-8 are of problematical purpose. The features are presented on the convex side of a disc, and were painted in black and red after firing. Perhaps these specimens are pot covers.

- Top Row (eleven specimens)*
1. (Upper) Head, hollow, atypical, Trench D, Cut IV, Late Period (30.0-6837)
  2. (Lower) Bird head, from whistle (?), Trench E, Cut VI, Middle Period (30.0-7124)
  3. (Upper) Bird head, owl (?), from whistle (?), Trench E, Cut IV, Middle Period (30.0-7083)
  4. (Lower) Bird head from whistle (?), Trench E, Cut V, Middle Period (30.0-7110)
  5. (Upper) Miniature pot, Trench E, Cut VI, Middle Period (30.0-7131)
  6. (Lower) Miniature pot, Trench D, Cut VI, Middle Period (30.0-6865)
  7. Two-headed figure, red clay, C group, Tlapacoya (30.0-6645)
  8. (Upper) Whistle in bird form, pottery, Tlapacoya (30.0-6644)
  9. (Lower) Whistle, in monkey form, pottery, San Juanico (30.0-6660)
  10. Animal head attached to pot, Trench C, North Extension Upper, Middle Period (30.0-7153)
  11. Animal head, attached to pot, polished black slip, Trench E, Cut II, Middle Period (30.0-7057)
- Middle Row (nine specimens)*
1. Ball, pottery, polished brown slip, Trench C, North Extension Upper, Middle Period (30.0-7165)
  2. Ball, pottery, polished brown slip, Trench D, Cut I, Late Period (30.0-6759)
  3. Ball, pottery, red slip, Trench D, Cut IV, Middle Period (30.0-6839)
  4. Ball, pottery, brown slip, Trench C, West Extension, Late Period (30.0-7227)
  5. Ball, pottery, slipped in brown and polished, Trench A, West Extension, Middle Period (30.0-7260)
  6. Ball, pottery, dun slip, Trench D, Cut III, Late Period (30.0-6817)
  7. Ball, pottery, slipped in brown and polished, Trench C, North Extension Lower, Late or Middle Period (30.0-7195)
  8. Ball, pottery, polished red slip, Trench D, Cut I, Late Period (30.0-6760)
  9. Ball, pottery, polished red slip, Trench D, Cut I, Late Period (30.0-7228)
- Bottom Row (eight specimens)*
1. Fragment of pottery gorget, Trench A Upper, Middle Period (30.0-7282)
  2. (Upper) Fragment of gorget, Trench E, Cut IV, Middle Period (30.0-7097)
  3. (Lower) Fragment of gorget, Trench C, North Extension Upper, Middle Period (30.0-7164)
  4. Hollow head, polished brown ware, from pot?, Tetelpan (30.0-6703)
  5. Fragment of hollow head, whitish clay, Trench E South, Middle Period (30.0-7409)
  6. Fragment of pot cover (?), Trench D, Cut VIII, Early Period (30.0-6913)
  7. Fragment of pot cover (?), Trench D, Cut VIII, Early Period (30.0-6914)
  8. Fragment of pot cover (?), painted after firing, Trench D, Cut IX, Early Period (30.0-6960)



POTTERY MISCELLANY, BALLS, WHISTLES, ETC.



ARTICLES OF ADORNMENT, MAINLY MIDDLE PERIOD

## PLATE XL

### ARTICLES OF ADORNMENT, MAINLY MIDDLE PERIOD

Ornaments recovered at Zacatenco were made from pottery, stone, and shell. The finer examples are shown on this Plate, but see also Pls. XXXVII, XXXIX, XLI. There were very much fewer articles of adornment found than the consistent decoration of the figurines would indicate. Interesting are the jade specimens, top row No. 2 and bottom row No. 2, which must have been traded from outside the Valley.

#### *Top Row*

1. Finger ring, stalactite, Trench E, Cut VI, Middle Period deposits (30.0-7128)
2. Fragment of jade earring (cf. bottom row No. 2, XLV, bottom row Nos. 4, 5), Trench D, Cut III, Late Period (30.0-6821)
3. Shell, probably *Neritina Picta*, Trench E, Cut VI, Middle or late Early Period (30.0-7133)
4. Whistle, pottery, with broken suspension ring, Trench E, Cut V, Middle Period (30.0-7118)

#### *Bottom Row*

1. Fragment of circular earplug, incised black ware; note decoration on inner surface, outer is undecorated, Trench C, North Extension, bottom layer, Middle Period (30.0-7365)
2. Pendant jade, "jaguar tooth," undoubtedly like top row No. 2, a trade object, Trench E, Cut III, Middle Period (30.0-7076)
3. Hollow earplug, porous black ware, Trench E, Cut V, Middle Period (30.0-7132)
4. Hollow hemisphere, light brown pottery, perforated for suspension, probably ornament, Trench C, West Extension, Late Period (30.0-7241)

## PLATE XLI

### MINOR OBJECTS, MAINLY FOR ADORNMENT

The objects shown on this Plate are non-utilitarian and are, for the most part, ornaments. Top row Nos. 1-2, might have been lucky stones for use in a medicine pouch as amulets; Nos. 3-4 are earplugs; No. 5 is a miniature mano and No. 6, a pestle perhaps. No. 7 is a pendant. Bottom row No. 1 is a bead and No. 2 a pot polisher or perhaps an amulet. No. 3 is a pottery labret, one of two found at the site. Labrets seem more characteristic of later periods in other places (cf. Pl. XXXVII). No. 4 is a ring of pottery and No. 5 a soapstone bead. The poverty of ornament is extreme, as this Plate and Pl. XL attest.

#### *Top Row (seven specimens)*

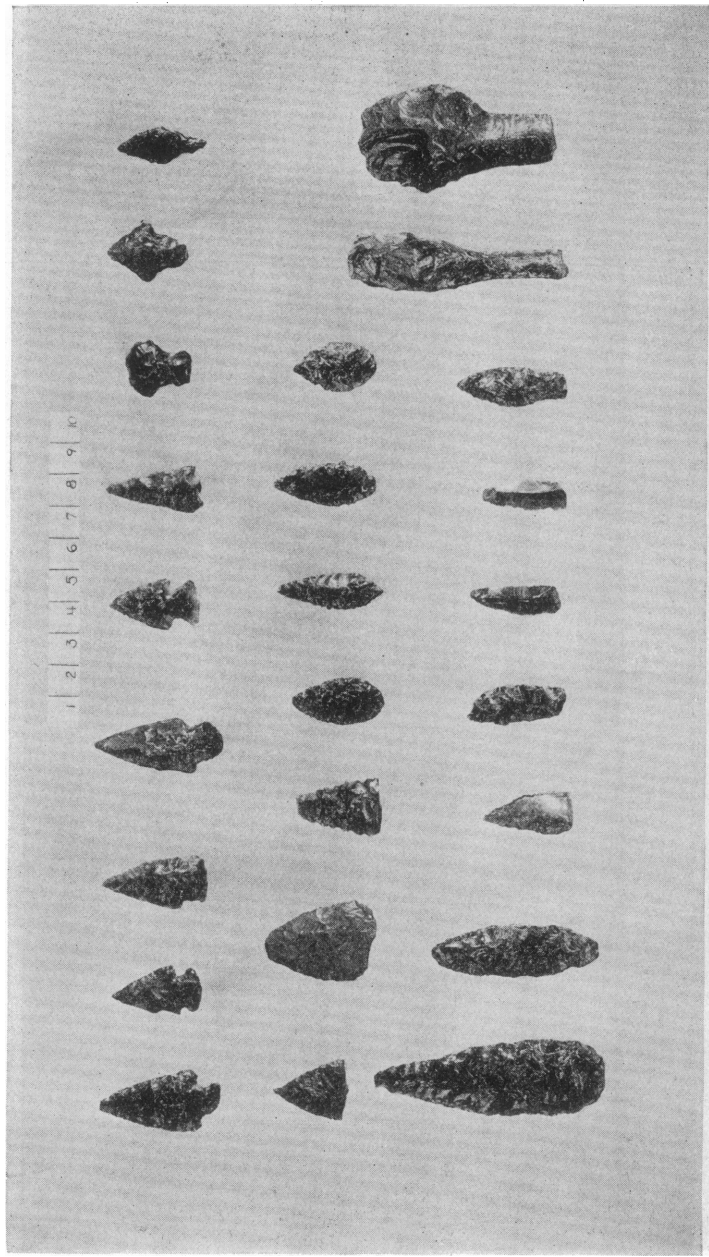
1. Amulet, semi-opal, Trench D, Cut VIII, Early Period (30.0-6938)
2. Amulet, quartz, Trench A Lower, Middle Period (30.0-7299)
3. Earplug, black pottery, Trench E, Cut VI, Middle Period (30.0-7130)
4. Earplug, gray-black pottery, Trench E, Cut VI, Middle Period (30.0-7129)
5. Miniature mano, unbaked clay, Trench D, Cut IX, Early Period (30.0-6980)
6. Miniature pestle, unbaked clay, Trench D, Cut VIII, Early Period (30.0-6931)
7. Fragment of pendant, quartz, purchased at Zacatenco (30.0-7323)

#### *Bottom Row (five specimens)*

1. Bead, stalactite, Trench B, Early Period (30.0-7010)
2. Object, limestone, pot polisher or amulet, Trench C, North Extension Lower, Middle Period (30.0-7196)
3. Labret, pottery, disc-shaped, Trench D, Cut I, Late Period (30.0-6765)
4. Ring, porous brown pottery, with perforated fillets attached, Trench D, Cut VII, Early Period (30.0-6892)
5. Bead or pendant, soapstone, Trench F, back dirt (30.0-7318)







ARROWHEADS AND OTHER POINTED INSTRUMENTS OF CHIPPED OBSIDIAN

## STONE

### PLATE XLII

#### ARROWHEADS AND OTHER POINTED INSTRUMENTS OF CHIPPED OBSIDIAN

The small projectile points of chipped obsidian occur in all periods at Zacatenco. There seems to be a steady growth in mastery of technique from the Early to the Late Period (cf. top row, Nos. 1-6 with middle row, Nos. 1-7). The tools are made probably from cores too small to flake off blades. Broken implements were retouched and used as scrapers (cf. top row No. 7, bottom row Nos. 8 and 9). The larger specimens, (bottom row Nos. 1, 2), are doubtless lance heads and Nos. 8 and 9 are drills of which the points have been broken and the hafts re-used.

##### *Top Row (nine specimens)*

1. Arrowhead with stem, Trench D, Cut I, Late Period (30.0-6769)
2. Arrowhead with stem, Trench D, Cut III, Late Period (30.0-6822)
3. Arrowhead with stem, Trench E, Cut II, probably late Middle Period (30.0-7065)
4. Arrowhead with stem, Trench D, Cut II, Late Period (30.0-6791)
5. Arrowhead with stem, Trench A Upper; Late Period (30.0-7286)
6. Arrowhead with stem broken, Trench F, Late Period (30.0-7312)
7. Arrowhead with tang, re-worked as scraper, purchased at Zacatenco (30.0-7326)
8. Arrowhead with tang, Trench F, Middle Period (30.0-7315)
9. Arrowhead with tang, Trench D, Cut I, Late (?) Period (30.0-6768)

##### *Middle Row (seven specimens)*

1. Point of tool, Trench D, Cut VII, Early Period (30.0-6898)
2. Point of tool, purchased at Zacatenco (30.0-7327)
3. Point of arrowhead, Trench E, Cut I, late Middle Period (30.0-7051)
4. Arrowhead, leaf-shaped, Trench E, Cut V, Middle Period (30.0-7120)
5. Arrow without tang, Trench D, Cut I, Late (?) Period (30.0-6770)
6. Arrowhead, leaf-shaped, Trench F, Middle Period (30.0-7316)
7. Arrowhead, leaf-shaped, Trench D, Cut X, Early Period (30.0-7993)

##### *Bottom Row (nine specimens)*

1. Lance head, Trench D, Cut VII, Early Period (30.0-6895)
2. Lance head, Trench F, Middle or Late Period (30.0-7313)
3. Arrowhead, crude, Trench F, Middle Period (30.0-7314)
4. Arrowhead, crude, without stem, probably Trench F, Middle Period (30.0-7180)
5. Arrowhead, crude, flaked, Trench C, North Extension Upper, Middle Period, perhaps late Early (30.0-7179)
6. Arrowhead, crude, flaked and then retouched, Trench D, Cut VIII (30.0-6932)
7. Arrowhead with tang, Trench F, back dirt, probably Late Period (30.0-7317)
8. Drill, after point was broken handle was retouched as scraper, Trench E, Cut IV, Middle Period (30.0-7102)
9. Drill, point broken, possibly re-used, Trench D, Cut II (30.0-6792)

## PLATE XLIII

### BLADES OF OBSIDIAN

There is no appreciable difference in style between the obsidian blades of the Early Period and those of the Late. Yet there is to be observed a coarser quality to the earlier specimens. The technique is undoubtedly flaking off from a central core the blades which subsequently receive little further treatment. Their use must have been for whatever purpose required a fine cutting edge, like shaving, sacrificial letting of blood, and the like. Specimens Nos. 2 and 6 of the top row are very thin and sharp, and the curved point suggests use as a scalpel.

#### *Top Row (thirteen specimens)*

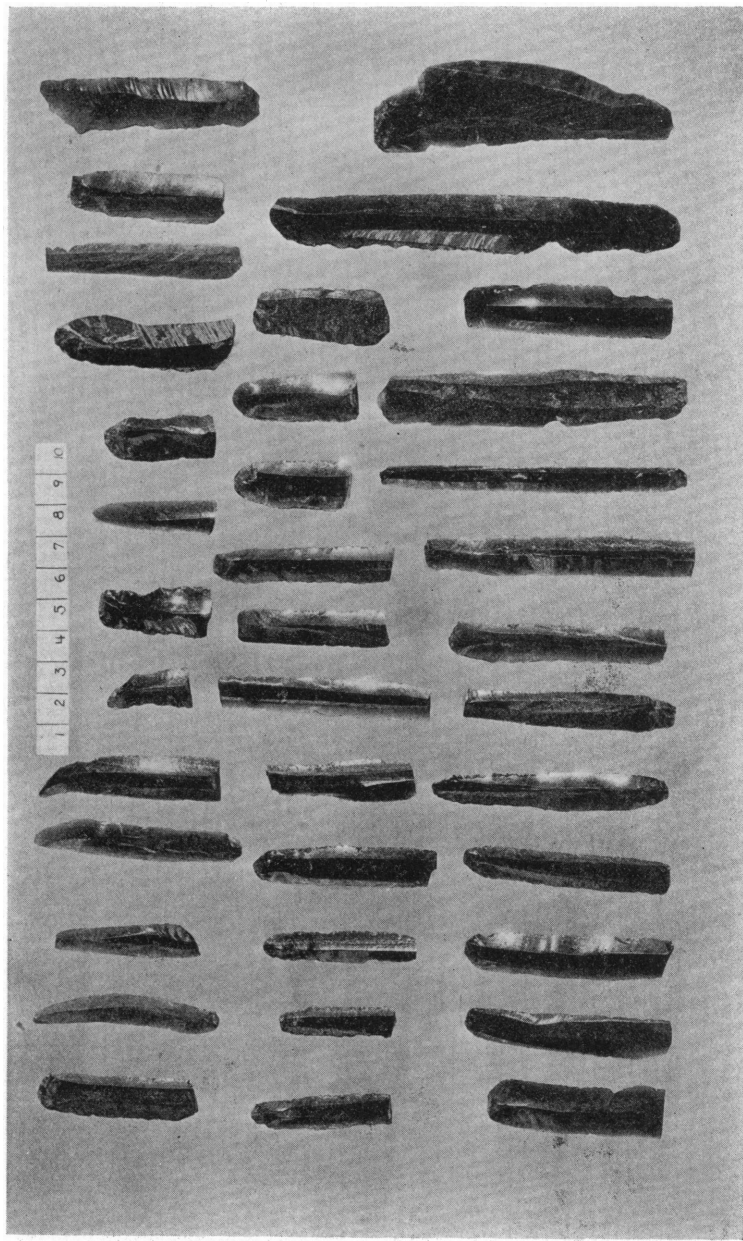
1. Blade, Trench C, North Extension Upper, Middle Period (30.0-7178)
2. Scalpel, Trench C, West Extension, Late Period (30.0-7237)
3. Thin blade or scalpel, Trench D, Cut V, Middle Period (30.0-6852)
4. Scalpel, Trench C, North Extension Upper, Middle Period (30.0-7169)
- 5-6. Scalpels, Trench D, Cut II, Late Period (30.0-7698, 6797)
- 7-8. Tips of thin blades, Trench D, Cut III, Late Period (30.0-6825, 6826)
9. End of blade, Trench C, North Extension Upper, Middle Period (30.0-7170)
10. End of blade, Trench E, Cut I, Middle Period (30.0-7054)
11. Shank of blade, Trench D, Cut I, Late Period (30.0-6775)
12. Shank of blade, Trench D, Cut VII, Early Period (30.0-6899)
13. Shank of blade, Trench E, South, Middle Period (30.0-7043)

#### *Middle Row (eleven specimens)*

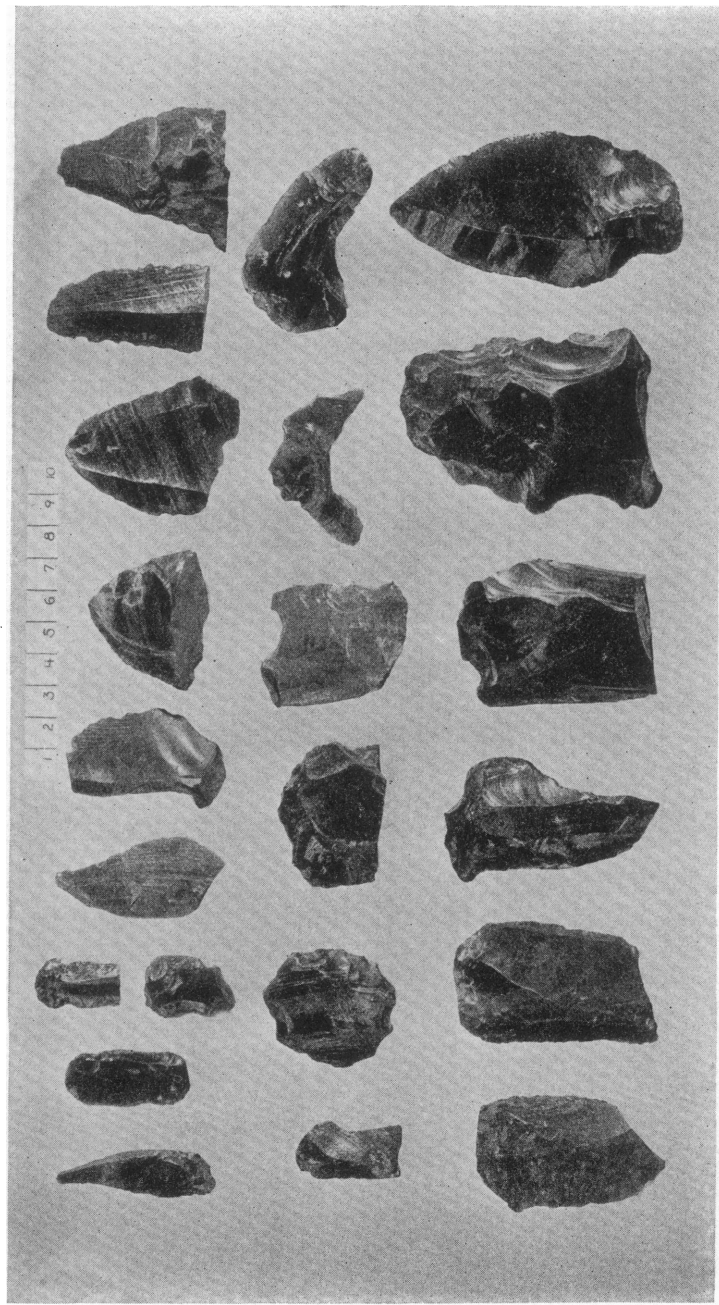
1. Blade, Trench C, North Extension Lower, Middle Period (30.0-7184)
2. Blade, Trench C, North Extension Upper, Middle Period (30.0-7182)
3. Blade, Trench A Upper, Middle Period (30.0-7285)
4. Blade, Trench E, Cut IV, Middle Period (30.0-7101)
5. Blade, Trench A, back dirt (30.0-7296)
6. Blade, Trench D, Cut VII, Early Period (30.0-6896)
7. Blade, Trench F, Middle Period (30.0-7310)
8. Blade, Trench C, North Extension Upper (30.0-7171)
9. Blade, Trench D, Cut VII (30.0-6897)
10. Blade, Trench C, West Extension, Late Period (30.0-7238a)
11. Blade, Trench D, Cut I, Late Period (30.0-6776)

#### *Bottom Row (thirteen specimens)*

1. Blade, Trench E, Cut III, Middle Period (30.0-7073)
2. Blade, Trench E, Cut I, Middle Period (30.0-7053)
3. Blade, Trench D, Cut I, Late Period (30.0-6777)
4. Blade, Trench E, Cut III, Middle Period (30.0-7075)
5. Blade, Trench C, West Extension, Late Period (30.0-7236)
6. Blade, Trench E, Cut VI, Middle Period (30.0-7135)
7. Blade, Trench F, Middle Period (30.0-7311)
8. Blade, Trench C, North Extension, in lap of skeleton No. 17 (30.0-7172)
9. Blade, Trench D, Cut II, Late Period (30.0-6796)
10. Blade, Trench D, Cut IX, Early Period (30.0-6974)
11. Blade, Trench B, Early Period (30.0-7011)
12. Blade, Trench D, Cut III, Late Period (30.0-6827)
13. Wide blade, Trench E, Cut VI, Middle Period (30.0-7134)



BLADES OF OBSIDIAN



SCRAPERS AND KNIVES OF OBSIDIAN

## PLATE XLIV

### SCRAPERS AND KNIVES OF OBSIDIAN

Obsidian, besides being made into projectile points and into narrow blades, served also for the manufacture of scrapers of the "snub-nosed" type and also for broad-bladed points, best describable as knives. It will be seen that most of these specimens come from Middle and Late Period deposits. The technique of manufacture is rough, but the obsidian is in itself so sharp that it can be rendered serviceable without elaborate treatment.

#### *Top Row (ten specimens)*

1. Knife, Trench E, Cut IV, Middle Period (30.0-7104)
2. Scraper, oval, Trench D, Cut II, Late Period (30.0-6793)
3. (Upper) Scraper made perhaps from stem of arrowhead or drill, purchased at Zacatenco (30.0-7325)
4. (Lower) Scraper, small, snub-nosed type, Trench D, Cut III, Late Period (30.0-6823)
5. Knife point, Trench E, Cut IV, Middle Period (30.0-7103)
6. Cutting edge, Trench D, Cut II, Late Period (30.0-6795)
7. Point of knife, Trench E, South, Middle Period (30.0-7036)
8. Point of knife, simpler than No. 6, Trench E, South, Middle Period (30.0-7034)
9. Knife with curved blade, Trench E, Cut III, Middle Period (30.0-7072)
10. Knife, Trench A, Lower, Middle Period (30.0-7295)

#### *Middle Row (six specimens)*

1. Small scraper, Trench D, Cut I, Late Period (30.0-6773)
2. Circular scraper, Trench D, Cut III, Late Period (30.0-6824)
3. Tip of large "snub-nosed" scraper, Trench E, Cut I, late Middle Period (30.0-7052)
4. Knife blade, Trench C, North Extension Upper, Middle Period (30.0-7183)
5. "Spoke-shave" or perhaps knife blade, Trench E South, Middle Period (30.0-7035)
6. "Spoke-shave" or perhaps knife blade, Trench D, Cut I, Late Period, possibly washed from Middle Period deposit (30.0-6774)

#### *Bottom Row (six specimens)*

1. Scraper, "snub-nosed," Trench C, West Extension, Late Period (30.0-7240)
2. Scraper, "snub-nosed," Trench E, Cut I, late Middle Period (30.0-7055)
3. Scraper, "snub-nosed," Trench D, Cut II, Late Period (30.0-6794)
4. Scraper "snub-nosed," Trench C, West Extension, Late or late Middle Period (30.0-7239)
5. Large knife, Trench A Upper, Middle Period (30.0-7284)
6. Large knife, purchased at Zacatenco (30.0-7324)

## PLATE XLV

### KNIVES, POINTS AND BALLS, AND MISCELLANEOUS TOOLS OF VARIOUS STONES

The Middle Period ushered in the use of many other stones to be used in the manufacture of tools. The rise in inventiveness in working obsidian is paralleled by the sling stones, arrowpoints, and the like, which are figured on this Plate. It will be noticed that the more finely finished specimens in limestone and pumice are less characteristic of the Late than of the Middle Period, and that the Early Period yields few specimens. Doctor H. P. Whitlock of the Department of Mineralogy in this Museum graciously identified the stone employed in these implements and those shown in the Plates immediately preceding.

#### *Top Row (thirteen specimens)*

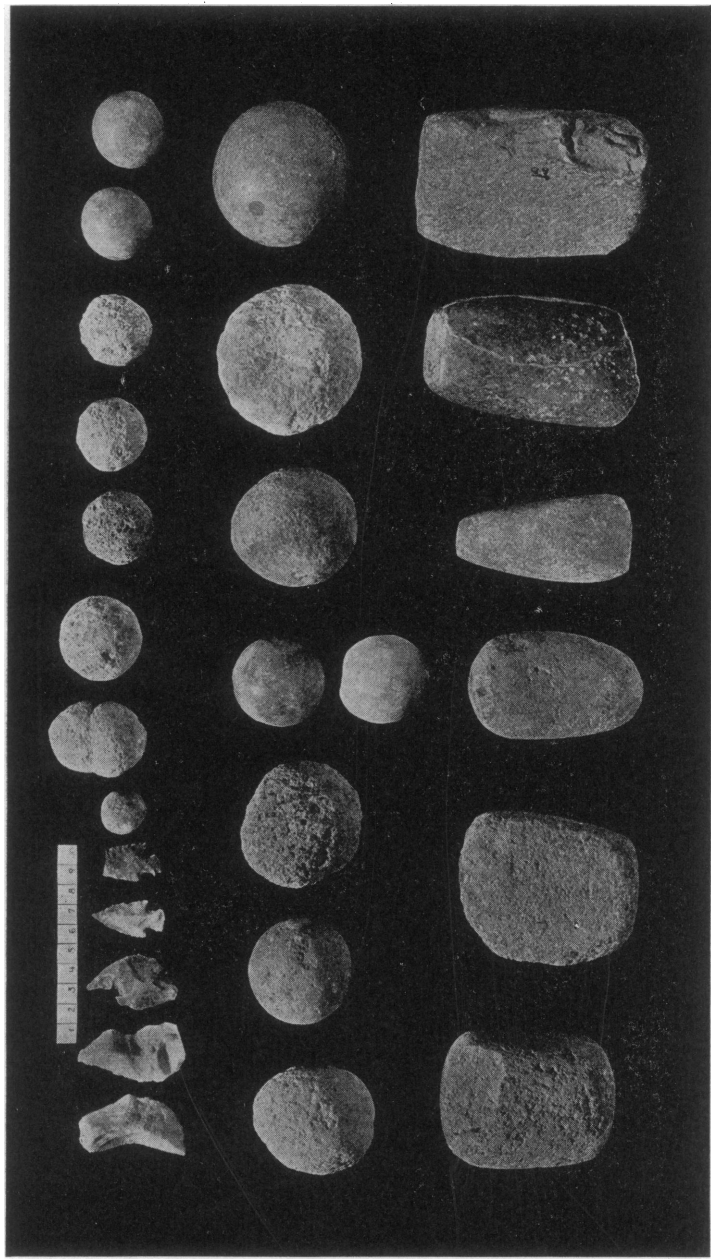
1. Knife, quartzite, Trench E, Cut IV, Middle Period (30.0-7098)
2. Knife, quartz, Trench D, Cut VII, late Early Period (30.0-6894)
3. Knife, flint, Trench C, North Extension Upper, Middle Period (30.0-7181)
4. Arrowhead with stem, quartz, Trench D, Cut I, Late Period (30.0-6771)
5. Arrowhead with stem, jasper, Trench D, Cut I, Late Period (30.0-6772)
6. Small ball, worked pebble, limestone, Trench E, South, Middle Period (30.0-7029)
7. "Plummet," band cut around middle, porous trachyte, Trench E South, Middle Period (30.0-7093)
8. Ball, "sling-stone," pumice, Trench A, West Extension, Middle Period (30.0-7261)
9. Ball, "sling-stone," porphyritic trachyte, Trench E South, Middle Period (30.0-7028)
10. Ball, "sling stone," pumice, Trench E, Cut V, Middle Period (30.0-7119)
11. Ball, "sling stone," pumice, Trench E South, Middle Period (30.0-7037)
12. Ball, "sling stone," limestone, Trench C, North Extension Upper, Middle Period (30.0-7176)
13. Ball, "sling stone," limestone, Trench C, North Extension Upper, Middle Period (30.0-7177)

#### *Middle Row (eight specimens)*

1. Ball, "sling stone," porous trachyte, Trench D, Cut IX, Early Period (30.0-6981)
2. Ball, "sling stone," basalt, Trench C, West Extension, Late Period (30.0-7232)
3. Ball, "sling stone," pumice, Trench D, Cut I, Late Period (30.0-6780)
4. (Upper) Ball, "sling stone," limestone, Trench C, West Extension, Late Period (30.0-7368)
5. (Lower) Ball, "sling stone," limestone, Trench E, Cut I, late Middle Period (30.0-7050)
6. Ball, "sling stone," porphyry, Trench C, North Extension Upper, Middle Period (30.0-7174)
7. Ball, "sling stone," trachyte, Trench C, North Extension Upper, Middle Period (30.0-7175)
8. Ball, "sling stone," limestone, Trench C, North Extension Upper, Middle Period (30.0-7173)

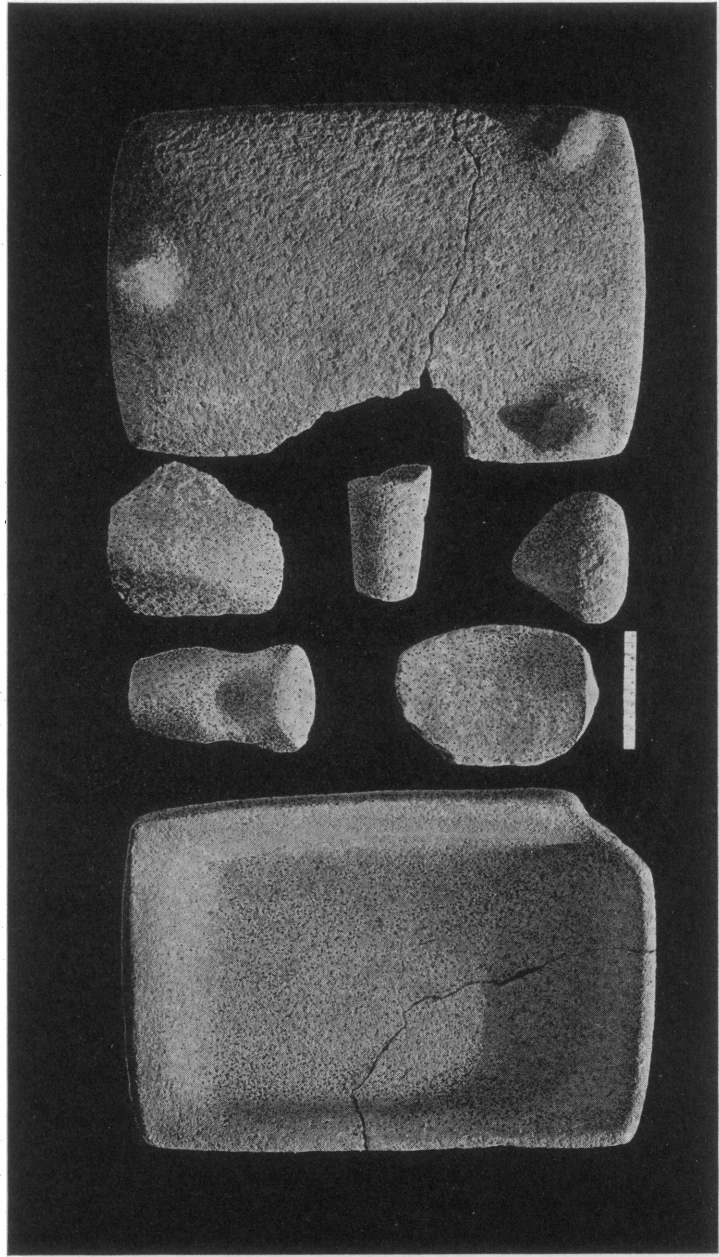
#### *Bottom Row (six specimens)*

1. Grinder, lava, Trench D, Cut VIII, Early Period (30.0-6933)
2. Grinder, lava, Trench D, Cut I, Late Period (30.0-6783)
3. Grinder, diabase, Trench D, Cut VIII, Early Period (30.0-7389)
4. Celt, jade, Trench D, Cut VI, Middle Period (30.0-6866)
5. Celt, possibly jade or serpentine, Trench D, Cut I, Late Period (30.0-6782)
6. Grinder, triangular cross-section, diabase, Trench D, Cut I, Late Period (30.0-6781)



KNIVES, POINTS AND BALLS, AND MISCELLANEOUS TOOLS OF VARIOUS STONES





METATES

## PLATE XLVI

### METATES

The metates, manos, and grinding stones do not show any very visible change from one period to another. The Early Period deposits do not yield nearly so many fragments as the Middle or the Late Period débris, but this may not be significant in the development of material culture, for the Early Period strata showed more evidence of discarded rubbish than of occupation. The support of metates is tripod, generally teat but occasionally as in No. 3 an extension of the corner.

1. Metate, lava, showing grinding surface, Trench C, North Extension Lower, Middle Period (30.0-7422)
2. (Upper Middle) Large pestle, four grooves on sides, lava, Trench E, Cut IV, Middle Period (30.0-7424)
3. (Upper middle) Foot of metate, lava, Trench D, Cut II, Late Period (30.0-6803)
4. (Lower middle) Miniature metate or mortar, lava, Trench B, Early Period (30.0-7423)
5. (Lower middle) Top of pestle, cylindrical, lava, Trench D, Cut II, Late Period (30.0-6804)
6. (Bottom middle) Conical grinding stone, lava, Trench C, North Extension Upper, Middle Period (30.0-7425)
7. Metate, bottom, lava, Trench C, North Extension Upper, Middle Period (30.0-7421)

## PLATE XLVII

### MANOS

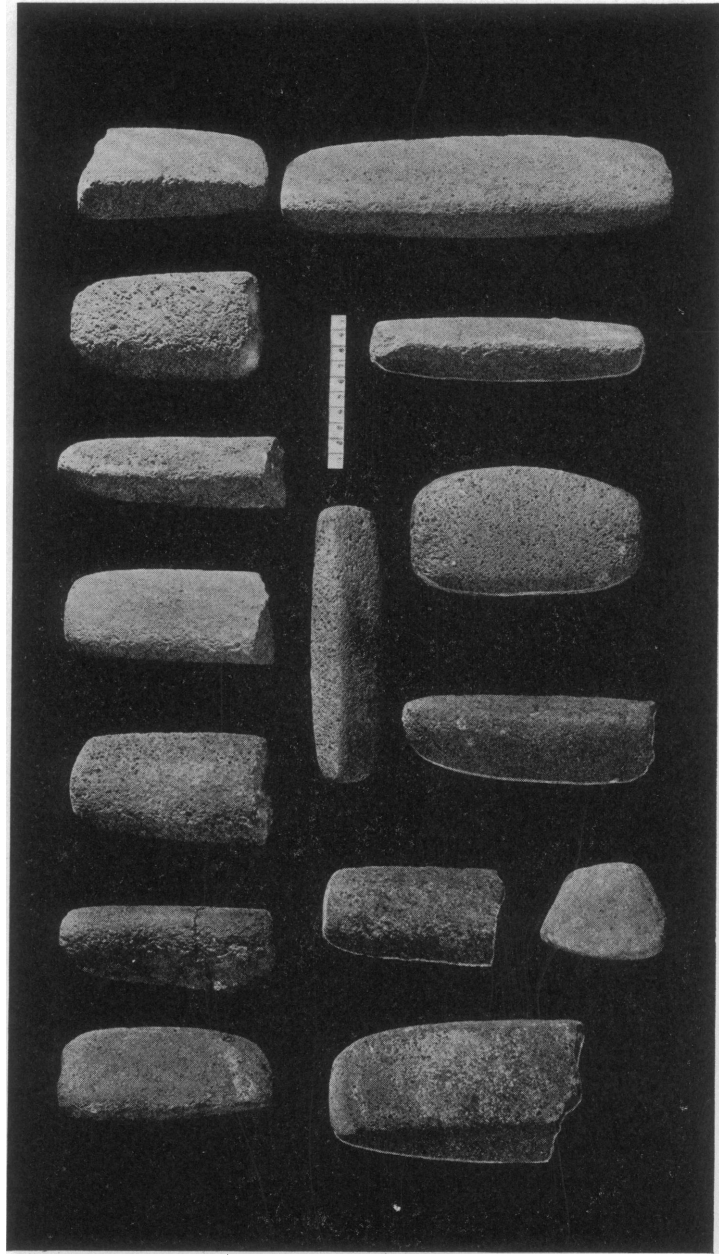
Manos or grinding stones are not especially susceptible to change or to ethnic variation. Size and the details of variation in form arise from individual taste and need. The general shape, in cross-section, is a triangle with long sides and short base, with the former being the chief grinding surface. More fragments were recovered from the Late and Middle Periods, as there is a closer proximity to established dwelling zones.

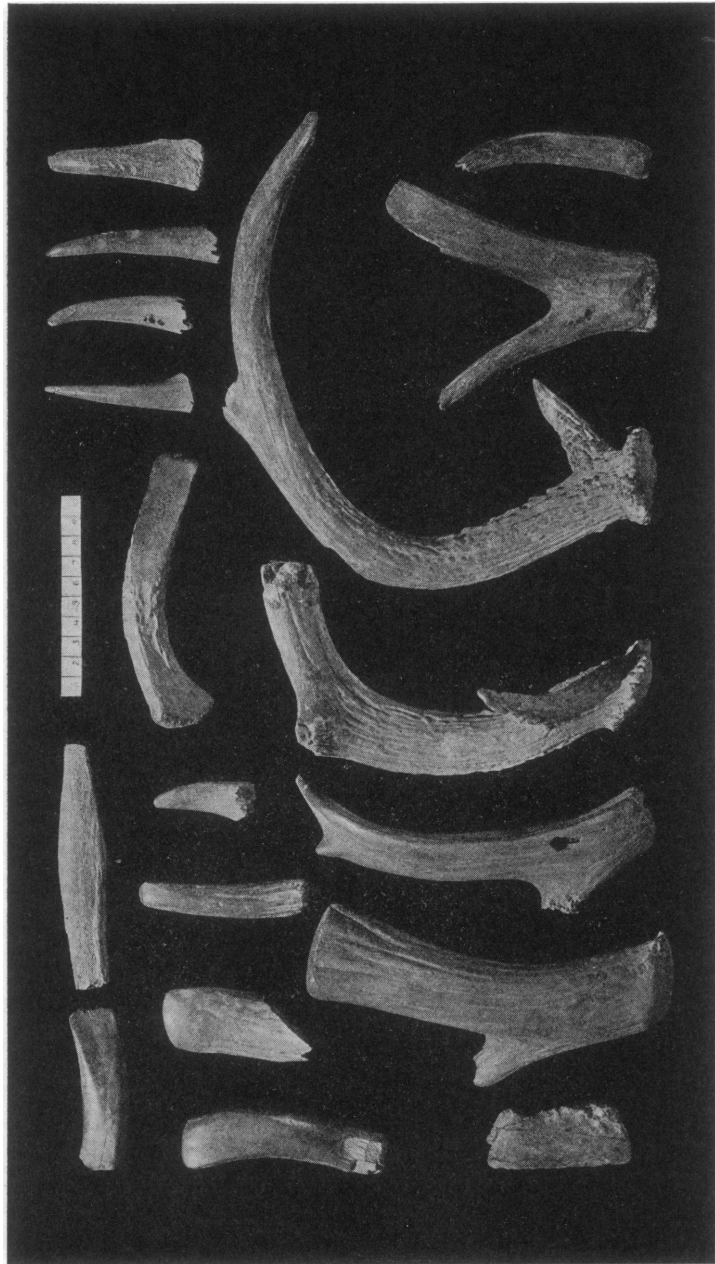
#### *Top Row (seven specimens)*

1. Re-shaped mano, lava, Trench E South, Middle Period (30.0-7427)
2. Complete mano, lava, Trench D, Cut I, Late Period (30.0-7432)
3. Broken mano, lava, Trench B, Early Period (30.0-7436)
4. Broken mano, lava, Trench E, Cut IV, Middle Period (30.0-7435)
5. Broken mano, lava, Trench C, West Extension, Late Period (30.0-7441)
6. Broken mano, lava, Trench D, Cut I, Late Period (30.0-7431)
7. Broken mano, lava, Trench D, Cut I, Late Period (30.0-7433)

#### *Bottom Row (eight specimens)*

1. Broken mano, lava, Trench C, North Extension Upper, Middle Period (30.0-7438)
2. (Upper) Broken mano, lava, Trench E, Cut IV, Middle Period (30.0-7429)
3. (Lower) Rubbing stone or pounder, diabase, Trench B, Early Period (30.0-7426)
4. (Upper) Complete mano, lava, Trench C, North Extension Upper, Middle Period (30.0-7440)
5. (Lower) Broken mano, lava, Trench C, North Extension Upper, Middle Period (30.0-7439)
6. (Lower) Pestle or mano, complete, lava, Trench E, Cut VI, early Middle Period (30.0-7430)
7. Mano, complete, lava, Trench D, Cut I, Late Period (30.0-7434)
8. Mano, complete, lava, Trench E, Cut III, Middle Period (30.0-7428)





HORN TOOLS

## HORN AND BONE

### PLATE XLVIII

#### HORN TOOLS

With a very few exceptions horn and antler tools are not found until the Middle Period. The dampness of the Early Period rubbish beds may have militated against the preservation of osseous remains, for the burials found in these deposits were in a shockingly bad condition. Again the absence of dwellings may have caused this lack as was perhaps the case with the manos and metates, for the larger household implements when broken would be thrown away very near the houses. The antlers were utilized in three ways: the entire antler, the stem proper, worked into the desired shape, and the prongs, used per se, for varied purposes. Presumably the chisel forms were for graining hides or flaking obsidian, the pointed tools for picks or awls, and bottom row No. 2 was a pestle.

##### *Top Row (eleven specimens)*

1. (Upper) Tool, antler, grainer, Trench A, West Extension, Middle Period (30.0-7265)
2. (Lower) Tool, antler, grainer, partly fossilized, Trench F, Middle Period (30.0-7322)
3. (Lower) Tool, antler, grainer, Trench E, Cut II, Middle Period (30.0-7064)
4. (Upper) Tool, antler, flaker, Trench C, East Extension, Late Period (30.0-7370)
5. (Lower) Tool, antler, flaker, Trench F, Middle Period (30.0-7321)
6. (Lower) Tool, antler prong, awl, Trench A, back dirt (30.0-7375)
7. Tool, antler, grainer, Trench C, North Extension Upper, Middle Period (30.0-7186)
8. Tool, antler prong, awl, Trench C, West Extension, Late Period (30.0-7374)
9. Tool, antler prong, awl, Trench D, Cut I, Late Period (30.0-6766)
10. Tool, antler prong, awl, Trench C, East Extension, Late Period (30.0-7373)
11. Tool, antler prong, awl, Trench C, North Extension Lower, Middle Period (30.0-7200)

##### *Bottom Row (seven specimens)*

1. Tool, antler, grainer, Trench E South, Middle Period (30.0-7410)
2. Pestle, antler, Trench C, North Extension Upper, Middle Period (30.0-8187)
3. Tool, antler, pick, Trench A, West Extension, Middle Period (30.0-7264)
4. Tool, antler, pick, Trench D, Cut III, Late Period (30.0-6829)
5. Tool, antler, pick, Trench D, Cut III, Late Period (30.0-6830)
6. Tool, antler, pick or pot hook, Trench D, Cut III, Late Period (30.0-6831)
7. Tool, antler prong, awl, Trench D, Cut VIII, Early Period (30.0-7390)

## PLATE XLIX

### BONE TOOLS

Bone tools have their shapes determined largely by their function, so that variation in fashion indicative of time is not likely to exist. The bones most commonly used are deer radii. The tools serve as bodkins, awls and spatulæ. Bottom row Nos. 5, 6, and 8 may have been for removing corn kernels from their cobs. No. 9 was perhaps of use in modeling figurines. For the reasons mentioned before, most of these specimens come from the Middle Period.

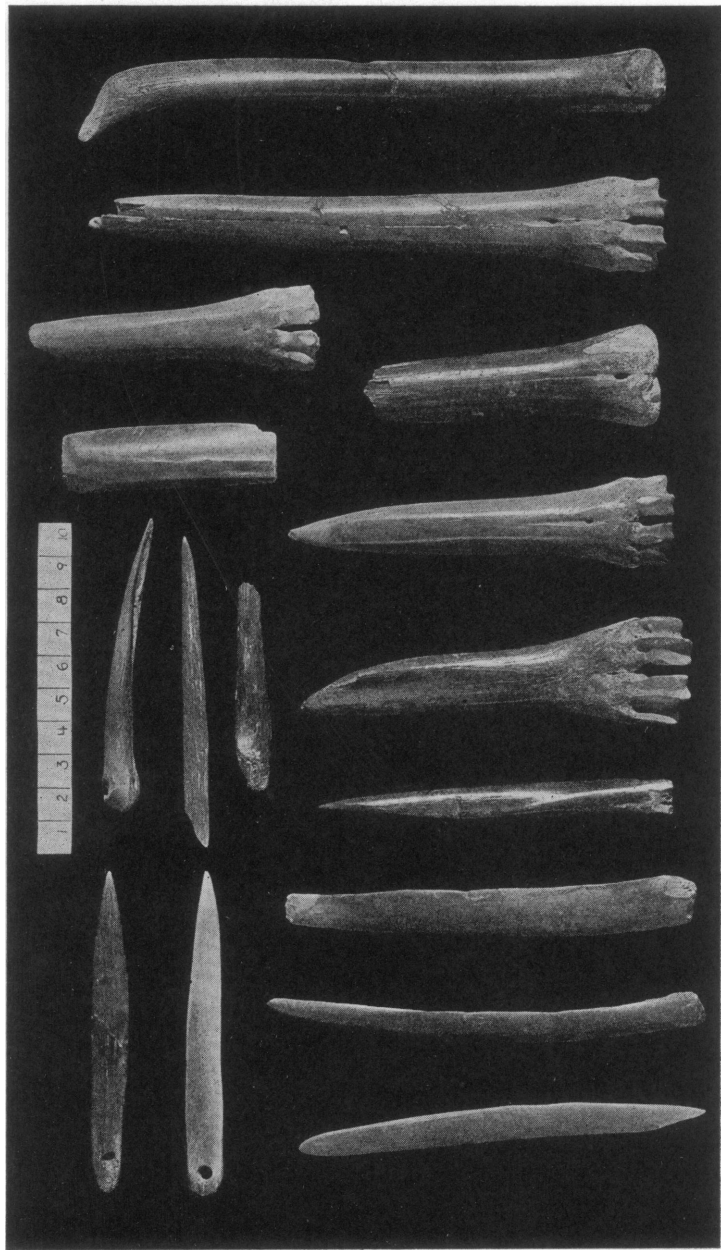
#### *Top Row (seven specimens)*

1. (Upper) Bodkin, bone, Trench A, West Extension, Middle Period (30.0-7267)
2. (Lower) Bodkin, bone, Trench E, Cut I, Middle Period (30.0-7049)
3. (Upper) Awl, bone, Trench C, West Extension, Late Period (30.0-7371)
4. (Middle) Awl, bone, Trench D, Cut III, Late Period (30.0-7832)
5. (Lower) Butt of awl, bone, Trench D, Cut VII, Early Period (30.0-6893)
6. Oblong tool, bone, problematical purpose, Trench E, Cut I, Middle Period (30.0-7048)
7. Tool, bone, perhaps to remove corn kernels, Trench C, West Extension, Late Period (30.0-

7372)

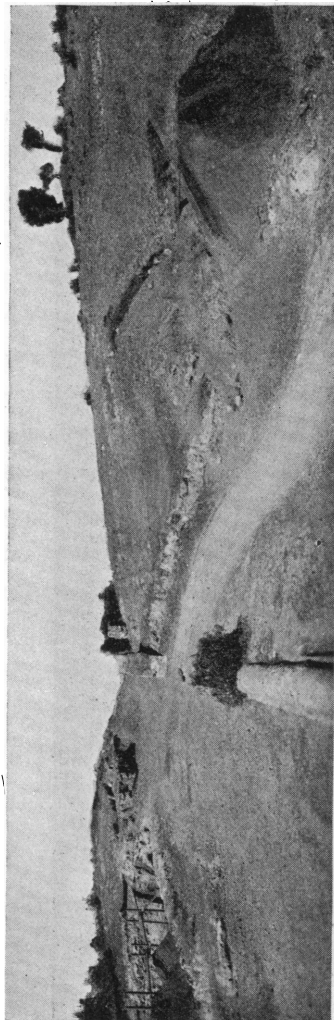
#### *Bottom Row (nine specimens)*

1. Spatula or awl, bone, Trench E, Cut III, Middle Period (30.0-7071)
  2. Awl, bone, Trench C, North Extension Lower, Middle Period (30.0-7199)
  3. Spatula, bone, Trench D, Cut III, Late Period (30.0-6833)
  4. Awl, heavy patina, bone, Trench F, Middle Period (30.0-7319)
  5. Tool, bone, perhaps to remove corn kernels, Trench A, West Extension Middle Period (30.0-
- 7266)
6. Tool, bone, like No. 5, Trench C, North Extension Upper, Middle Period (30.0-7185)
  7. Butt of tool, bone, like Nos. 5 and 6, Trench F, Middle Period (30.0-7320)
  8. Tool, bone, like Nos. 5-7, Trench D, Cut II, Late Period (30.0-6805)
  9. Tool, bone, spatula perhaps for sculpture of figurines, Trench A Lower, Middle Period (30.0-
- 7294)

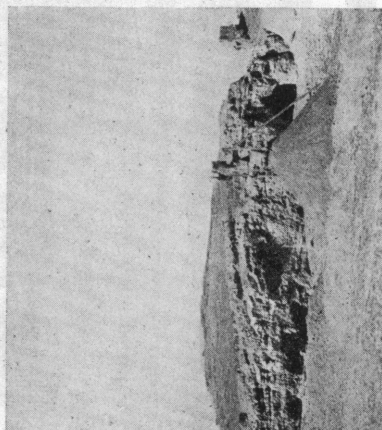


BONE TOOLS

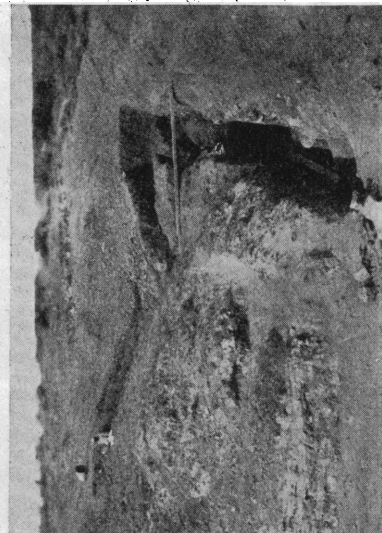




1



2



3

TRENCH SYSTEMS A-C, B-D

## ARCHITECTURE AND EXCAVATIONS

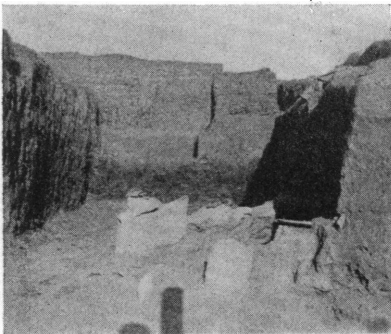
### PLATE L

#### TRENCH SYSTEMS, A-C, B-D

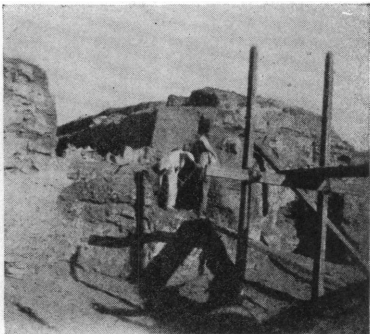
1. Panorama of excavations, January 10, 1929, looking west and north. At reader's left Trench B-D system; at his right Trench A, Trench A, West Extension, Trench C, East and West Extensions. Trenches E and C, North Extension, were dug later and passed the length of the slope from the road to the magueys in the upper right hand corner, meeting the head of Trench C at approximately right angles.
2. B-D system, looking west, December 12, 1929.
3. A-C system. A runs north and C west, looking north, January 3, 1929.

PLATE LI  
TRENCH SYSTEMS, B-D

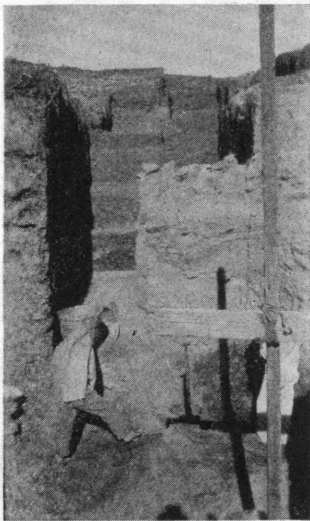
1. Trench D, Cut III, looking west, January 22, 1929; in north foreground revetments of slabs of stone.
2. Trench D, looking northwest, January 23, 1929, opening Cut IV.
3. Trench D, looking west, January 29, 1929, opening Cut VI, note revetments of Cut III on column of earth in middle distance.
4. Trench D, looking north, February 8, 1929, opening Cut IX. Trench B in foreground. The two surfaces are those of Cuts VII and VIII. In the upper right hand corner one may make out Trench E.



1



2

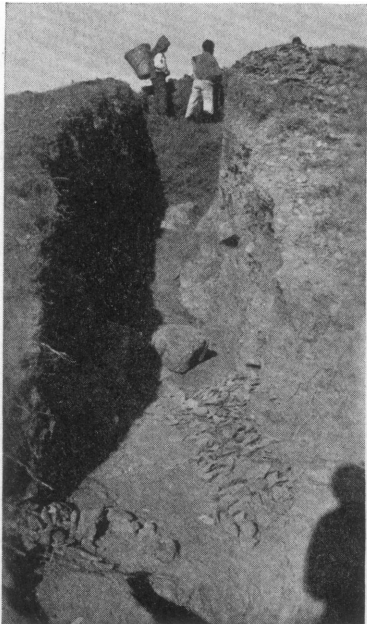


3

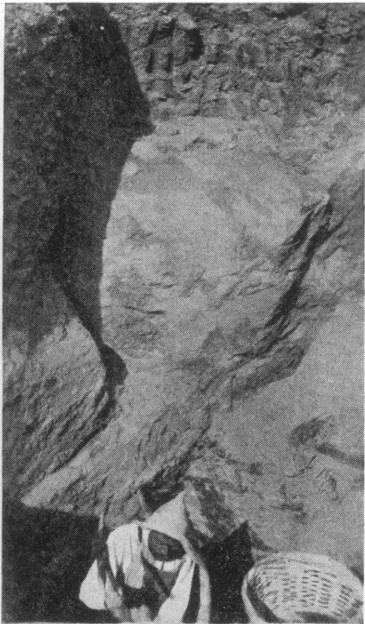


4

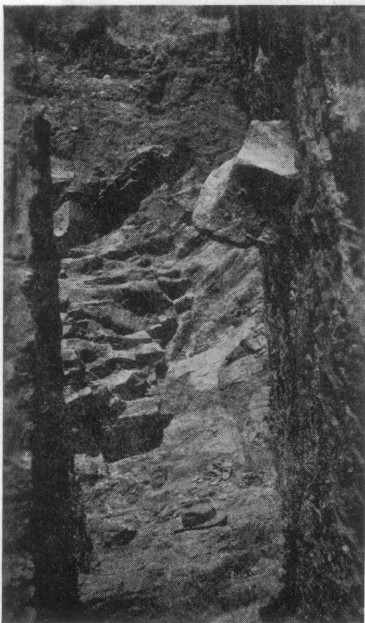
TRENCH SYSTEMS, B-D



1



2



3



4

TRENCH SYSTEMS, A, E, C, North Extension

## PLATE LII

### TRENCH SYSTEMS, A, E, C, North Extension

1. Trench C, West Extension, looking west, January 9, 1929. At lower right hand corner head of Trench A, West Extension.
2. Trench A, West Extension, looking northeast, January 3, 1929, near head of Trench A; note cliff with overlying débris.
3. Trench E, Cut IV, head of trench, looking north, February 9, 1929; note cliff with the adobe faced débris above it. Projecting stone on east wall is part of the revetment, uncovered by Cut II.
4. Trench C, North Extension, looking north, February 14, 1929, in west foreground low revetments of small stones and floor of C, North Extension lower (cf. Pl. LIII, Fig. 1); middle distance adobe face and low walls (cf. Pl. LIII, Fig. 2); background slab structures (cf. Pl. LIV, Fig. 1). Just south of workman other slab structures (cf. Pl. LIV, Fig. 2).

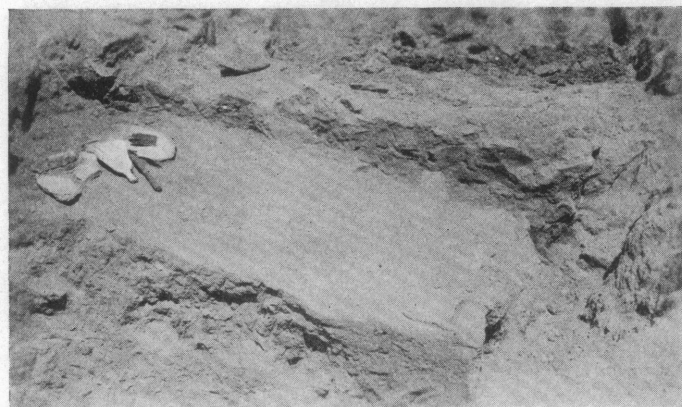
PLATE LIII

TRENCH C, NORTH EXTENSION

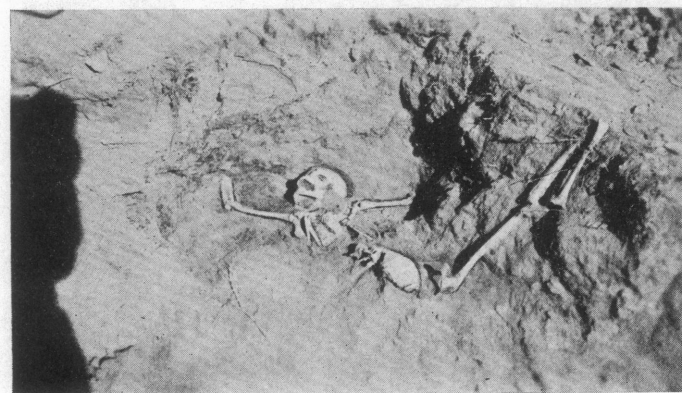
1. Looking west, January 25, 1929, low stone revetments, running north and south along main axis of trench, near its mouth, Skeleton No. 11 was found under the northern corner of this wall.
2. Looking northwest, January 30, 1929, adobe floor with stone wall behind, at south of trench.
3. Looking east, February 22, 1929. Skeleton 17, at north end of trench. Cf. Map I, No. 12.



1



2



3

TRENCH C, NORTH EXTENSION

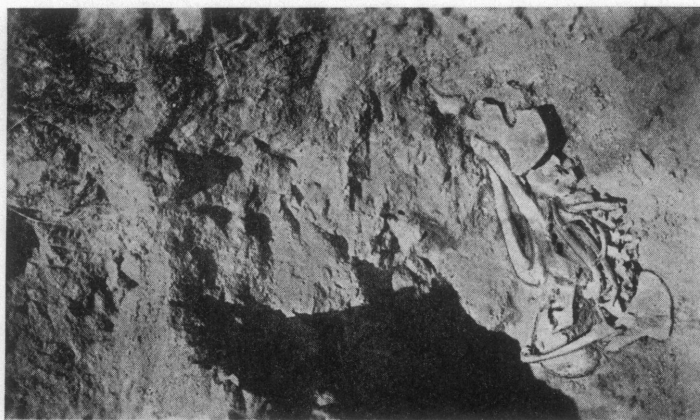




1



2



3

TRENCH C, NORTH EXTENSION

PLATE LIV  
TRENCH C, NORTH EXTENSION

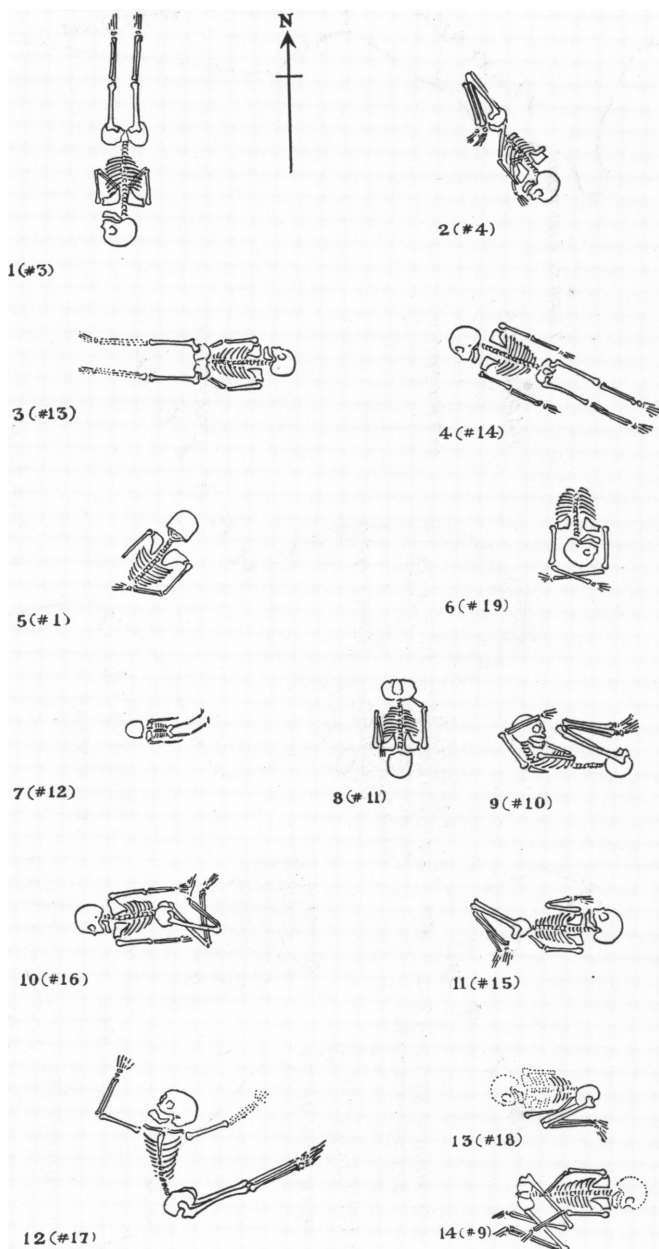
1. Looking north, February 5, 1929. Southern slab structure and cist below it.
2. Looking north February 20, 1929. Northern slab structure and beyond it structure like buttress.
3. Looking north, January 25, 1929. Skeleton No. 10.

## BURIALS

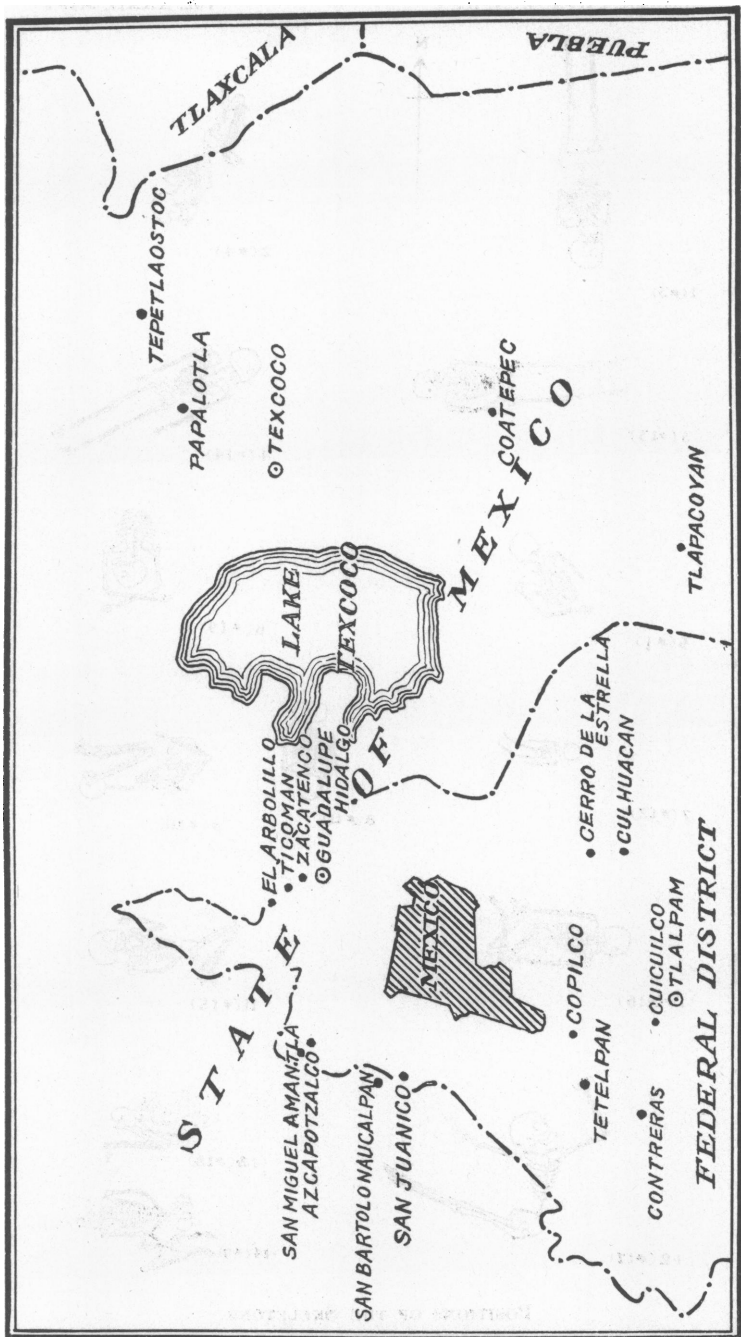
### MAP I

The schematic drawings in Map 1 illustrate the positions of the dead interred at Zacatenco. Figs. 1-4 are of the Early Period, 5-13 of the Middle Period, and 14 of the Late Period. Five additional burials, Skeleton Nos. 2, 5-8 were too disturbed to observe the position. Anthropometric data will be contained in a later paper. There was no formal preparation of the grave, like lining it with stones. Where the ground was soft and relatively free from stones, the extended position was found, but in the stony upper slopes of the hill, we encountered more commonly a tightly flexed position. The ineffectiveness of a digging stick for making excavations would control the size of a grave, for where the ground was soft, it would be possible to make a larger hole than in places where the soil was packed hard and stones were plentiful. From the cramped position of the limbs, in many examples, it would appear that the body was crammed into a hole of the smallest possible size. The east-west position of most of the burials is best explained by their occurrence at points where the hill rose steeply to the north, and the sinking of a grave shaft with its long axis north and south would be consequently impractical. Funeral furniture was absent with the exception of an obsidian blade near skeleton No. 17 (Fig. 12), an association which may have been accidental. The fragment of cloth found with skeleton No. 14, (Fig. 4), and the fibrous matter around skeletons Nos. 3 and 14, (Figs. 1 and 4), indicate that the bodies were clothed or wrapped in matting of some kind.

1. Skeleton No. 3, adolescent, sex indeterminate: very badly rotted condition, prone, unflexed, head south. Whitish fiber lines grave. Trench D, Cut VIII, Early Period.
2. Skeleton No. 4, adult male, middle age: prone, partially flexed, head southeast, very badly rotted condition. Trench D, Cut VIII, Early Period.
3. Skeleton No. 13, adult female, middle age: prone, unflexed, head east, badly rotted condition, tibia missing. Trench D, Cut VII, Early Period.
4. Skeleton No. 14, child, six to seven years: prone, unflexed, head northwest, very badly rotted condition. Bit of textile in skull, fibrous lining to grave. Trench D, Cut IX, Early Period.
5. Skeleton No. 1, adult, sex indeterminate: prone, head northeast, rotted and legs and lower torso washed out by arroyo. Trench A Upper, Middle Period.
6. Skeleton No. 19, elderly adult, sex indeterminate: prone, head south, rotted condition, legs and lower body missing. Trench E, Cut III, Middle Period.
7. Skeleton No. 12, baby at birth, sex indeterminate: prone, unflexed, head west, rotted condition. Trench E, Cut III, Middle Period.
8. Skeleton No. 11, adult male, middle age: prone, head south; good condition, legs missing. Under walls at south of Trench C, North Extension Upper, Middle Period.
9. Skeleton No. 10, adult male, middle age, flexed, on left side, head west; good condition. (Cf. Pl. LIV, Fig. 3). Trench C, North Extension Upper, Middle Period.
10. Skeleton No. 16, elderly male: prone, flexed, head west, rotted condition. Trench C, North Extension Lower, Middle Period.
11. Skeleton No. 15, child, sex indeterminate, flexed on right side, head east, bad condition, buried disturbing a wall. Trench C, North Extension Upper, Middle or perhaps Late Period.
12. Skeleton No. 17, young adult female: supine, unflexed, head north; good condition, left lower arm missing. Obsidian blade perhaps in lap (cf. Pl. LIV, Fig. 3). Trench C, North Extension Upper, probably Middle Period.
13. Skeleton No. 18, adult male, flexed on right side, head west; rotted condition and upper body passed under wall. Trench C, North Extension Lower. Middle Period.
14. Skeleton No. 9, adult male; flexed, prone, head east; fair condition, head missing. Trench D, Cut II, Late Period.



POSITIONS OF THE SKELETONS



FEDERAL DISTRICT OF MEXICO, SHOWING RELATIVE POSITION OF ARCHAEOLOGICAL SITES

## MAPS

### MAP II

Federal District of Mexico, showing relative position of sites mentioned in the text, as yielding material from the early cultures.

MAP III  
PLAN OF THE ARCHAEOLOGICAL SITE OF ZACATENCO

Scale 1:1600

V—Modern houses  
X—Fragments of floors of Aztec date  
W—Cisterns for storing water brought by the aqueduct  
Y—Mounds of detritus from Aztec and Colonial salt works  
Z—Ventilators for aqueduct when it passes underground  
P—Marker erected by the Topographical Survey of the Mexican Government, taken as 60 meters in the determination of levels. Contour lines indicate approximately 2 meters difference in level.

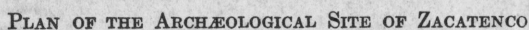
The site was divided up by means of stakes into twenty meter squares, and the height of each stake was computed from an arbitrary 60 meter height for the concrete survey marker. This work, including the drawing of the original plan, was most accurately carried out by the engineer Mariano Tirado Osorio of Mexico City.

The extent of the débris mound is shown by the borders of the staked area, except to the east just north of the aqueduct where a zone of re-deposited débris fans out for about a hundred meters along the road to Guadalupe.

The roads are shown in dotted lines. The old road from Guadalupe to Ticoman makes a cut through the center of the mound on a level with the top of the aqueduct, but when relatively level ground is reached east and west of the accumulation, the aqueduct is elevated. The zone from which earth was excavated for the causeway at the south was taken from the square formed by stakes 33, 35, 37, and 39. To the north and west, banks were therefore exposed.

The stippled zones marked X are the eastern and northern limits of an Aztec building which extended roughly to stakes 27 and 29 at the south and to 29 and 22 to the west. All the ground from the floors to the road and the western edge of the mound was extensively disturbed by the Aztec in grading and by treasure hunters looking for gold under the floors. Refuse heaps left by the salt workers are marked by the letter Y.

The trenches on the north side of the road were opened in the following order: A, C East Extension, C West Extension, A West Extension (which removed the lower strata from C East and West Extensions), E South, E, F, C North Extension Upper, and C North Extension Lower. South of the road Trench B was dug at the foot of the bank and then followed the ten cuts of Trench D, Cuts VII–X of which linked the two trenches.







## MAP IV

### SECTIONS OF EXCAVATIONS

Scale 1-200

- I.—Section south-north through Trench Systems B-D and E South—E-C North Extension. Looking west.
- II. Section east-west through Trench D. Looking south.
- III. Section west-east through Trench C, West and East Extensions, and Trench A, West Extension. Looking north.
- IV. Section south-north through Trench A. Looking west.

These sections are designed to show the stratigraphy of the figurine types as found. The specimen numbers, owing to space, are not shown, but from the legends to the photographic plates, rough identifications of the provenience of specific figurines can be made. The boundary lines between period deposits are indicated somewhat more sharply than the ground conditions warranted, for the erosion and wash would blur lines of demarcation already made vague through the gradual metamorphosis of styles.

#### Section I

Section I shows the ten test cuts in Trench D. Revetments are shown by the stippled boulders. The relative rarity in Cuts IV-VI of figurines is borne out by the probability of wash from the E trenches. The unexcavated area is occupied by the road between Ticoman and Guadalupe Hidalgo and the aqueduct. The head of Trench E South is seen with its figurine types indicating a transition from the Early into the Middle Period. Trench E, dug in six cuts, ends in a rocky ledge, surmounted by a smoothed rubbish bank, shown in cross-hatch. Early figurine types along the floor of the trench give evidence of a light Early occupation. Trench E was not connected with the termination of Trench C West Extension and the beginning of Trench C North Extension for fear of creating a watercourse that would result in an erosion damaging to the hill so that only the revetments shown in the section were uncovered. Trench C, North Extension, was dug in two sections, Upper and Lower. The walls of small stones under which skeleton No. 11 was buried are not clearly related to the adobe buttress (shown in cross-hatch) backed by a stone wall. There seem to have been extensive reconstructions between this zone and the slab structures. Pockets of Late material surviving the heavy erosion of the Late living surface, are found in earth which is barren of sherds and composed largely of washed adobe. The problematical slab structures are indicated, and beneath skeleton No. 15 is to be seen the loose piled stone buttress. The trench terminates in barren soil that is much ploughed over.

## Section II

Section II presents the western extension of Trench D. The top cut contains several washed zones which are the beds of shallow arroyos filled up by material washed from the Middle Period deposits. At the head of the trench we began to turn up Middle Period sherds. A long trench dug by treasure hunters made further excavation unprofitable and the Aztec floor rested on a débris bed largely Middle Period in content.

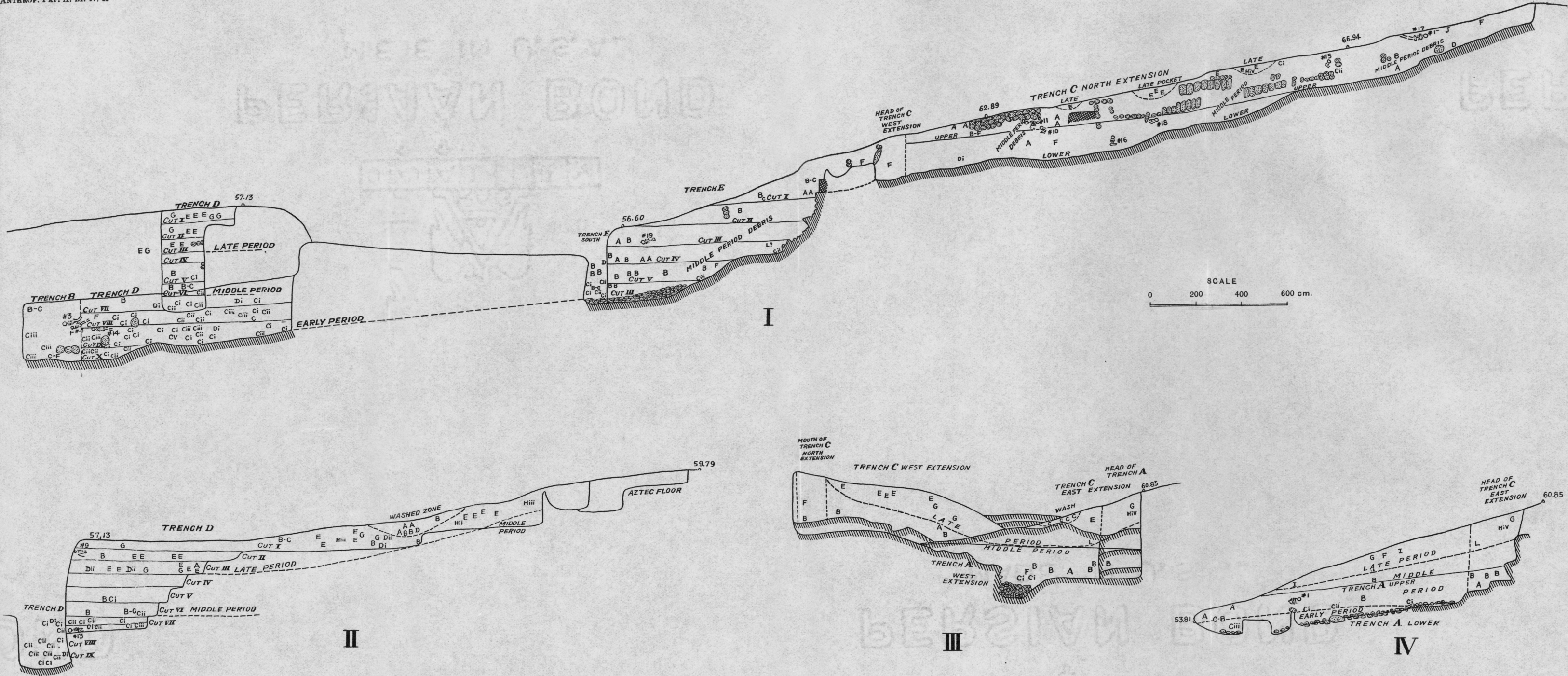
## Section III

Section III shows the trench operations along the face of the rocky ledge that terminates Trenches E and A. The digging was begun into the east bank of an arroyo, the ledges bared by which, are to be seen in the middle of the section. Trench C, East Extension, was carried through Late débris until a junction was effected with Trench A. Then the direction was reversed and Trench C, West Extension, drifted into the west bank of the arroyo, on the same level, until the uncovering of the ledge gave an absolute bottom to the trench. At the same time, Middle Period material appeared in increasing depth until the Late Period finally disappeared. This section illustrates very neatly the profound erosive influences affecting the depositions. The discovery of revetments, to be seen in Section I, made further excavation seem unwise.

When Trench A was completed there existed a residue below Trench C, East Extension, which was removed in a series of test cuts called Trench A, West Extension. At the top of the shaly fill in the floor of the trench, there seems to have existed an Early Period pocket, to judge from the figurines found in it. A short section of this trench at the beginning lay in a Late Period rubbish bed, to complete a stratigraphical analysis, of Trenches A, C East Extension, and A West Extension.

## Section IV

Trench A was dug in two main sections, Upper and Lower, with minor test cuts. The ground was much disturbed by wash. The floor of the trench was covered like Trench E with a shale-like coating of broken stone. A film of Early Period detritus covered this, but the bulk of the material yielded by the trench was Middle and Late Period. The material was strongly affected by erosive factors.



SECTIONS OF EXCAVATIONS



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